SOCIO-CULTURAL CONTEXT AND UTILISATION OF TRADITIONAL BONE SETTING AMONG THE NUPE OF KWARA STATE, NIGERIA

by

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ABSTRACT

Traditional Bone Setting (TBS) is the most commonly utilised healthcare for Bone, Joint and Muscle Conditions (BJMCs) in developing countries, accounting for over 70% of BJMCs treatment in Nigeria. Studies have focused mainly on the adverse treatment outcomes and attendant consequences of TBS, with little attention devoted to its socio-cultural peculiarities and utilisation in Nigeria. Therefore, this study examined the utilisation of TBS, nature and structure, interface with modern healthcare and strategies for the development of TBS among the Nupe of Kwara State, Nigeria.

Parsons' Theory of the Social System was adopted as the framework, while exploratory and cross-sectional research designs were adopted. Edu and Patigi Local Government Areas of Kwara State, mainly of indigenous Nupe, were purposively selected due to the widespread practice of TBS. Godden's sample formula was used to proportionately select and administer a questionnaire to 660 respondents in Tsaragi (67), Saba-Gina (42), Patidzuru (67), Kpankorogi (42), Kocitako (47), Bacita (62), Sokingi (42), Patiko (42), Pututa (44), Lema (62), Ndako-Yissa (42), Dada (42), Fey (24) and Ndanaku (35). The questionnaire focused on utilisation and social organisation of TBS, and its interface with modern healthcare. Thirty-three in-depth interviews were conducted with practitioners and patients, while 15 key informant interviews were conducted with traditional chiefs and Primary Health Care (PHC) providers. Quantitative data were analysed using descriptive statistics and multiple linear regression at $p \leq 0.05$. Qualitative data were content-analysed.

Respondents' age was 40.5±8.1 years, males were 69.6% while majority (74.4%) were rural dwellers and belonged to informal occupational groups (77.2%). Majority (93.6%) of the respondents had utilised TBS as a source of care for BJMCs due to its perceived advantages, including easy access and perceived efficacy. There was no significant joint influence of socio-demographic characteristics and TBS utilisation among the Nupe of Kwara State.The practice of TBS was guided by socio-cultural mythologies which prohibited the economic exploitation of patients. Practitioners, mostly without western education, combined socio-cultural and spiritual resources with bio-medical approaches in TBS practice. Patients' wards comprised rooms that were freely released for use by community members, but mostly in poor conditions. The practice of TBS was inherited within families and practitioners were not organised into associations. The TBS was devoid of state regulation, while leadership and influence on decisions were primarily determined by age and years of experience. There were no official referrals between TBS and modern healthcare. However, practitioners employed modern healthcare methods and materials in treating patients using some modern PHC resources. Community mobilisation, basic biomedical training and establishment of referral channels, and state regulations were strategies identified for the development of TBS.

Despite strong belief and positive attitude toward traditional bone setting among the Nupe, social factors such as poor infrastructure and low level of education affect treatment outcomes. There is the need to develop infrastructure, while providing basic healthcare education and training to practitioners for consolidating the existing capacity of traditional bone setting.

Keywords: Nupe traditional bone setting practice, traditional medicine, Sociology of healthcare

Word count: 479

CERTIFICATION

I certify that this study was carried out by **Kolo,** VictorIbrahim in the Department of Sociology, Faculty of the Social sciences, University of Ibadan, under my supervision.

Supervisor
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DEDICATION

This research is dedicated to:

the glory of **God, the Father Almighty,** who knows each research finding, even prior to the statement of the problem. He provided all the grace requisite for the completion of this study;

my grandfather and *Etsuyankpa*(Village Head of) *Patidzuru*, ***Baba*** **Paul Ndabinni Jiya *(Baba'Tsuyankpa),***whose value for *kipekpe* (knowledge) and *ka'atun* (Education), in spite of socio-cultural impediments in Nupe land, is unparalleled. *Baba* believed in and encouraged me to pursue knowledge to the highest possible pedestal, no matter the cost;

the evergreen memory of my beloved brother, **Marvelous Yebo-Soko Kolo,**and dearest friend, **Samuel Oluwaseun Olonade,** both whose stay on earth was very brief, but with indelible impacts on my life;

and

the remembrance of my foremost, kind-hearted and highly cerebral *Ndagi* (paternal uncle) – **Dr Ndaman Halleed** (until his death, Director of Veterinary Services, Kwara state), who much anticipated the completion of this program, but died just about one month to my final defence.

Eternal rest grant unto them, O Lord, and let perpetual light shine upon them. Amen.

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BJM	Bone, joint and Muscle Conditions
CHEW	Community Health Extension Workers

HND	Higher National Diploma
IDI	In-depth Interview
KII	Key informant Interview
LGA	Local Government Area
NCE	National Certificate in Education
OND	Ordinary National Diploma
OTCs	Over the Counter Drugs
PHC	Primary Healthcare
PMS	Patent Medicine Sellers
POP	Plaster of Paris
SPSS	Statistical packages for the Social Sciences
TBS	Traditional bone Setting
TM	Traditional Medicine
WHO	World Health Organisation

CHAPTER ONE

GENERAL INTRODUCTION

1.0 Background to the study

The history and incidence of humanity's health problems date back to time immemorial. This was prior to the advent of modern science which culminated in the emergence of western medicine. Traditional medicine was the only available therapeutic source that provided healthcare in ancient times, and this varied from one place to another. Traditional medicine culturally emerged in response to the health problems that threatened man's existence. Traditional medicine is folk or local medicine which, according to WHO, consists of

> the sum total of all knowledge and practices whether explicable or not, used in diagnosis, prevention and elimination of physical, mental or social imbalance, relying extensively on experience and observation handed down from generation to generation, whether verbally or in writing (2013: 16).

Like their western counterpart, practitioners of traditional medicine can be categorised into various groups, depending on the type of practice or expertise. These include: traditional bone setters, diviners, traditional birth attendants, herbalists, traditional medical ingredient sellers, traditional psychiatrists and faith/religious healers which constitute the major categories of practitioners (Owumi, 1996; Erinosho, 1998). They provide different types of healthcare services to the people whose cultural belief about health and illness aligns more with traditional medicine than western medicine. Despite advances in biomedical science and technology, these practitioners still play important roles in healthcare delivery especially in developing countries where western medicine has become the officially recognised system of healthcare (Adesina, 2011). Although traditional medical therapy relies on natural and spiritual resources which may not be amenable to scientific explanation, the system competes favourably with its western counterpart, even in the face of modernisation (Adefolaju, 2011; Ojua, Bisong and Ishor, 2013).

Traditional Bone Setting (TBS) is an aspect of traditional medicine that focuses on the treatment of Bone, Joint and Muscle (BJM) related problems. These include fracture, dislocation, wear, stress, and strain of bodily tissues (muscle, tendon, ligamentand cartilage), and pathological conditions (such as arthritis, osteoporosis) that affect the Musculo-skeletal system of the human body. According to Singh, Singh and Bindra (2013), Traditional Bone Setters (TBS) are practitioners of bone and joint manipulation, who acquired their prowess through inheritance, tutelage from tradition and take up the practice of healing without having had any formal training in accepted medical procedures. Although they treat different categories of cases, such practitioners are generally called bone setters because fracture (breakage/crack of the bone) is the commonest among the cases that they treat (Aderibigbe, Agaja and Bamidele, 2013; Owumi, Taiwo and Olorunnisola, 2013).

Bone fracture, joint dislocation and other conditions that TBS treat, have causes that date to time immemorial and are embedded in the everyday socio-economic activities that man engages in (Kingston, 2013; Singh, Singh and Bindra, 2013).The rising incidence of BJM conditions is largely due to road traffic crashes (RTCs) which constitute leading causal factor. Scholars (Chalya, Ngayomela, Mabula, Mbelenge, Dass, Chandika, Gilyoma, Kapesa, and Ngallaba, 2014) have identified motorcycles, particularly those used for commercial purposes as a major threat to public health in this regard. The progressive incidence of BJM conditions due to other factors such as violence, sporting activities, qualifies it as the epidemic of the modern age (Nwachukwu, Okwesili, Harris and Katz, 2011; Owumi Taiwo and Olorunisola, 2013). As noted by Oke (1984), culture itself is an adaptive tool by which man negotiates the challenges of his everyday life. Hence, man culturally developed the art of TBS as a therapeutic source in response to these problems (Nwachukwu *et al*, 2011; Owumi *et al*, 2013).

The form and content of TBS vary across socio-cultural contexts. Based on indigenous knowledge and techniques, TBS has been transmitted from one generation to another, over time (Edusei, Owusu-Ansah, Dogbe and Sarpong, 2015). The practice involves the use of physical as well as supernatural resources and methods in providing therapeutic services to patients (Owumi *et al*, 2013). Entry and recruitment of practitioners is either by birth or through apprenticeship (Agarwal and Agarwal, 2012).

Diagnostic methods employed by practitioners include physical observation, hand tracing and divination, while therapeutic materials derive from the physical and social environment as well as the spiritual resources of the host culture (Onyemaechi *et al*, 2014). Thus, practitioners employ the use of water (cold or hot), bamboo splint, herbal ointment, powdery and liquid concoctions, plant and animal part, mineral substances and pieces of clothes used as bandage (Panda and Rout, 2011; Kuubiere, Abass and Mustapha, 2013). Practitioners also employ spiritual methods such as incantations, offering of sacrifice and doing atonement on behalf of patients whose conditions are believed to have spiritual influences that could impede healing (Sharma and Singh, 2011; Owumi, Kolo and Taiwo, 2016).

Bonesetters are not only capable of setting broken bone; they also are capable of arresting the deterioration of gangrenous limbs that the orthopaedic doctors could not treat (Ojua, *et al*., 2013). Beyond being a therapeutic source, TBS is also a socio-economic activity which serves as a means of livelihood for practitioners.Although practitioners often combine TBS with other activities like farming, fishing or trading, bone setting remains a major part of their socio-economic life, in which they develop an occupation, and which occupies a major proportion of their time, and constitutes a major part of their everyday life **(**Chris and Kwaja, 2011;Owoseni, Oluwadare, and Ibikunle, 2014).Traditional bone setting has evolved over time, and must have adapted to emergent challenges due to modernisation, which partly accounts for its continued relevance, even in the face of 21st century advances in orthopaedic science and technology (Sharma and Singh, 2011).

The social organisation of TBS as a healthcare system is informal; since it is an indigenous practice that operates based on the culture of the people, and therefore varies across societies (Agarwal and Agarwal, 2012). Traditional bone setting is community-based and there are no standard rules, ethics or bureaucratic procedures governing the recruitment of practitioners, their training, or contract with patients. Like most indigenous practices, the norms and procedures of operation in TBS are devoid of legal-rational principles such as characterise modern forms organisations (Owumi *et al*., 2013). Due to the flexible structure of the practice, distance between practitioner and patient is minimal, as practitioners employ altruistic principles in dealing with patients.

Practitioners sometimes provide home service to patients depending on the severity of their condition (Onyemaechi *et al*., 2014). Hence, interaction among actors in the TBS system is flexible, and determined by what is handed down from one generation to the other, usually revolving around families (Singh, Singh and Bindra, 2013).

Although there have been massive advances in orthopaedic science and technology, developing countries, where 80% of global burden orthopaedic problems are located, only have access to 20% of global orthopaedic personnel/workforce, in spite of the fragile healthcare systems that characterise such climes (Martinez-Diaz and Coughlin, 2007). In Nigeria, traditional bone setting is the major source of orthopaedic care, even in urban areas where there is relative access to modern care (Aderibigbe *et al*., 2013; Onyemaechi, Onwuasoigwe, Nwankwo, Schuh and Popoola, 2014). About 70% of musculo-skeletal conditions are treated by traditional bonesetters who also serve as last resort where other forms of treatment fail (Onuminya, 2006). Similarly, Dukiya and Egwim (2015) in their study reported that 30% of patients left the hospital for traditional orthopaedic treatment after bodily healing, while only 2% left the bone setting centre for the hospital. Bone setters are found in almost all communities in Nigeria, especially rural areas which constitute about 70% of developing countries (Owoseni, Oluwadare and Ibikunle, 2014). Hence, there is preponderance of traditional bone setting as a therapeutic source for BJM conditions which indicates high utilisation across diverse peoples and cultures.

Scholars (for example, Panda and Rout, 2011; Sharma and Singh, 2011; Kingston, 2013; Adamtey, Oduro, and Ocloo, 2014; Debbarma, Deb, Deb and Datta, 2016) have described the practice, operation and dynamics of TBS within socio-cultural contexts in other countries. Most Nigerian studies on TBS (Solagberu, 2005; Dada, Yinusa and Giwa, 2011; Ekere and Echem, 2012; Eze, 2012; Onyemaechi *et al.*, 2014; Nwachukwu *et al.*, 2014; Edusei *et al*., 2015) were conducted by scholars from modern biomedical science background, who focused on outcomes (disability, morbidity and mortality) resulting from practitioners' intervention. Not only did these studies neglect the peculiar socio-cultural contexts in which TBS takes place, they were also conducted without recourse to social science theories and methods within which purview TBS is located. Given the important place which bone setting occupies in the delivery of orthopaedic

healthcare, and due to the fact that TBS itself is a cultural phenomenon, it is pertinent to understand the nature and structure of TBS as a healthcare system, as well as its utilisation, using holistic sociological approaches. These form the thrust of this research.

1.2 Statement of the problem

Only 20% of orthopaedic surgeons in the world live and practice in developing countries where more than 80% of the global burden of orthopaedic conditions are located (Martinez-Diaz and Coughlin, 2007; Ekere, 2011; WHO 2016; Kiadaliri, Woolf and Englund, 2017). The Nigerian situation is further compounded by enormous decay in primary healthcare which is the pivot of health policy and healthcare delivery (Jegede, 2002; Scott-Emuakpo, 2010). There is generally low access to modern orthopaedic services, especially by rural dwellers who constitute the bulk of population in the country, and are more vulnerable to Bone, Joint and Muscle (BJM) conditions as a result of their socio-economic activities and widespread use of motorcycles- the leading cause of health conditions requiring orthopaedic care (Chalya, Mabula, Dass and Ngallaba, 2014).

Patients generally utilise TBS which serves as the major source of orthopaedic care (Ekere, 2011; Onyemaechi *et al.*, 2014). The TBS treatment is not only accessible, but strongly aligns with the prevailing cultural beliefs on health and illness, due to its high reliance on physical as well as spiritual resources. Onuminya (2006) noted that many patients who had been attended to in the hospital still resort to TBS for various reasons ranging from proximity, delay in hospital procedures, fear of casting and amputation, unavailability of hospital bed space, cultural belief and high treatment costs. The practice remains a major source of orthopaedic care, particularly in developing countries where there is reliance on TBS utilisation due to its perceived advantages over modern orthopaedic care.

Most studies on TBS (Oyebola, 1980; Solagberu, 2005; Nwachukwu *et al.,* 2011; Ekere and Echem, 2012; Aderibigbe *et al.,* 2013; Onymaechi *et al.,* 2014, 2015) were conducted by scholars from modern bio-medical science background, majority of whom focused on the treatment outcomes of TBS. Such studies had also treated TBS and modern orthopaedic system as mutually exclusive opposites with little or no synergy.

Relevant as the studies may be in assessing the impact of practitioners' intervention, they do not provide holistic explanations on the role of socio-cultural context in the utilisation of TBS as a therapeutic source and a socio-cultural practice. Adequate explanations have not been provided for the flux of relationships and other processes that are initiated due to the operation of TBS within social ecologies. Furthermore, the nature of TBS as a healthcare system, its content, details and characteristics of everyday operation; socio-cultural peculiarities relevant to the understanding of TBS as a therapeutic source, socio-structural issues and their implications for utilisation, as well the interface with the formal healthcare system have all been neglected by previous research. This study fills the gap by holistically examining the role of socio-cultural context in the utilisation of traditional bone setting among the Nupe of Kwara state, Nigeria.

1.3 Research questions

1. What is the social organisation of bone setting among the Nupe of Kwara state?
2. Which factors influence the utilisation of traditional bone setting as a therapeutic source among the Nupe of Kwara state?
3. What are the constraints in the operation of traditional bone setting, and in what ways can they be improved?

1.4 Research objectives

This research has general and specific objectives which it sought to achieve, using the methodology that was adopted in the course of the study.

1.4.1 General objective

The general objective of this study is to examine the socio-cultural context of traditional bone setting utilisation among the Nupe of Kwara state, Nigeria.

1.4.2 Specific objectives

The study's specific objectives are to:

1. explore the nature of TBS among the Nupe of Kwara State;
2. investigate the structure of TBS among the Nupe of Kwara, State Nigeria;
3. examine the utilisation of TBS among the Nupe of Kwara State, Nigeria;

4. document the interface between traditional bone setting and modern healthcare; and
5. identify strategies for the development of traditional bone setting.

1.5 Significance of the study

A study of this nature is of high significance, given its role in projecting the contextual reality of TBS practice and utilisation among the *Nupe* of Nigeria.Though TBS practice and utilisation has persisted among the study population despite modernization of healthcare, there is dearth of scholarly work on the subject. This study is based on holistic sociological perspectives with which it approaches the object of investigation, transcending the bio-medical and clinical approaches that were adopted by previous studies. Whereas previous studies focused only on TBS practitioners and patients, this study further incorporates perspectives from community leaders, Primary Health Care (PHC) providers and community members all of whom constituted the major stakeholders in TBS practice. Thus, the study provides basis for the conduct of further research around TBS, while lending credence to socio-cultural context and projecting the perspectives of TBS practitioners which had not been given scholarly attention.

The study also possesses incredible policy relevance. Findings based on this study provides insight and basis for policy intervention as well as model for the development of an alternative orthopaedic care in a resource-constrained clime. Similarly, need areas are identified as well as opportunities for possible intervention towards positing TBS as an effective orthopaedic therapy in a resource-constrained clime. Ultimately, the study further contributed to the proper understanding of TBS operation as it existed within the contextual reality of the *Nupe* culture. It included the micro details of everyday TBS practice; and the therapeutic relationships that were enacted among TBS practitioners, patients, modern healthcare and significant others, using the lens of systems thinking. Strategic areas were identified for improvement in TBS practice, while specific policy opportunities were developed. These will ultimately facilitate a repositioning of TBS as an indigenous source of primary orthopaedic care, especially in rural areas of developing countries.

Theoretically, the study contributes to the existing body of literature on indigenous healthcare, health policy, its delivery and utilisation. It also advances the existing body of knowledge in the health social sciences by providing insights on the content, processes, relationship fluxes and social organisation of TBS. As a result, strategies were generated for policy and research interests as well as direction were stimulated for the future. Furthermore, the study expanded the frontiers of sociological contributions to the existing body of traditional medicine and indigenous knowledge generally, based on ethnographic evidence appropriated in this study.

Methodologically, the study incorporated a wider range of subjects, including community leaders and modern primary healthcare providers. Beyond patients and practitioners who had been the dual focus of previous studies, these wider range of subjects provided richer information towards realising the objectives of the study. Specifics emanating from the study provide strategies for integrating TBS with modern orthopaedic care, as long envisioned by WHO. This will serve as a prelude to combining hitherto divergent modern and traditional medical systems.

1.6 Scope and limitation

The study explored and described TBS, its nature, structure, utilisation and dynamics of use, as well as strategies for improvement within the socio-cultural contexts of theNupe of Kwara State, Nigeria. Study participants transcended practitioners and patients, to include community leaders, primary healthcare providers and members of the study area. Focus was on socio-cultural, historical, evolutionary, organisational and operational aspects of TBS practice, using a systems theory perspective of Sociology. These included interactional and relational processes between actors within the TBS system, community perception and social organisation of TBS practice. Focus was further directed at the utilisation of TBS, including issues of access, practice extensiveness, scale and scope of practice. Also examined were the processes and procedures in the utilisation of TBS services, referral practices, specific healing techniques and detail of therapeutic regimen adopted by practitioners. The study further examined the interface between TBS and the formal healthcare system within and without the community.

Thus, the study was restricted within the purview of Talcott Parsons theory of the social system and research where the researcher had capacity. Consequently, the study did not employ biomedical or clinical approaches in its investigation.

1.7 Operational definition of concepts

The following concepts are operationalised for use within the context of this work:

Nature of traditional bone setting (TBS): This refers to the content of TBS and the peculiar characteristics or attributes that are associated with the practice, including the micro-details of everyday TBS operation, as well as the practitioners' social and demographic characteristics.

Structure of TBS: This includes the concept of traditional bone setting as a cultural form, its social organisation, existing patterns of operation, nexus of relationships and their constituting elements, as well as outlets of operation, and how all these have evolved over time.

Utilisation of TBS: This refers to the adoption and use of TBS for Bone, Joint and Muscle conditions and related health problems.

Bone, Joint and Muscle (BJM) conditions: These refer to various forms of ill-health conditions that adversely affect the human Musculo-skeletal system, particularly bone tissues, tendons, ligament and cartilage. Common examples of BJM conditions are bone fracture, joint dislocation, stress or strain of the muscle and related pathological conditions.

TBS system: This comprises various human and non-human components that support TBS as a therapeutic source and socio-economic activity as it operates within the physical and social environment of the study area.

Clinic: This refers to the home of the bone setter or any other neutral location, outside of the practitioner's home, which serves as outlet where therapeutic services are provided to patients of BJM conditions.

Social organisation: This refers to the informal pattern or structure of social relationships among actors that characterise the operation of TBS both as a therapeutic source and a socio-economic activity. It also includes the nexus of social relationships that are developed due to the operation of traditional bone setting and its utilisation.

CHAPTER TWO

REVIEW OF RELEVANT LITERATURE AND THEORETICAL FRAMEWORK

This chapter focuses on the examination of existing studies on the nature of TBS. The themes on which literature was reviewed derived from the objectives of the research. Themes constituting the review of literature include: Bone, Joint and Muscle (BJM) conditions based on which TBS evolved as a therapeutic response; cultural evolution of TBS, social organisation of TBS, dynamics of TBS utilisation, therapeutic processes in the practice of TBS, the role of TBS in the management of BJM conditions. The chapter also presents the theoretical anchor based on which the study was conducted.

2.1 Overview of bone, joint and muscle conditions

The human body comprises different systems and subsystems of which materials and substances integrate to account for, and make up the 'complex whole'. They include the digestive, circulatory, respiratory, reproductive, excretory and the skeletal or Musculo-skeletal systems. These systems work interrelatedly and interdependently to achieve homeostasis or equilibrium, what can also be described as a healthy state of the body. The body also comprises delicate organs (heart, brain, lungs, kidney and liver), and fluid such as blood and other liquid chemicals (Alkinany, 2016). Diverse as they are, these parts are organised into the casing of, and coordinated by the muskulo-skeletal system. There are bones, numbering 206 in the body of a human adult, joined together by tissues such as muscle, tendon, cartilage and ligament all of which comprise the Musculo-skeletal system. The Musculo-skeletal system provides shape, frame and support for the body; coordinates the mobility of its parts and enhances protection of internal organs (such as brain, heart, lungs, kidney) and delicate tissues in the body (Ramalingam, Pereyra& Pereira, 2003). The system also serves as 'factory' for the production of minerals needed for the normal functioning of the body, as well as warehouse where they are stored.

As the most exposed part of the body, the bodily frame which houses Bones, Joints and Muscles (BJM) is highly susceptible to infirmities emanating from both

internal (biological infection) as well as external factors. External causes of BJM conditions may include road traffic accident or other forms of violence from the physical environment. Both the internal and external factors interrupt the normal working of the system, thus creating some problems in the body's musculo-Skeletal system (Olaitan, 2001). Such problems are called BJM conditions, Musculo-Skeletal Conditions (MSCs) or Orthopaedic Conditions (OCs). BJM conditions basically refer to bodily states that are contrary to the normal working of one or more parts of the Musculo-skeletal system and that adversely affect its functions in one way or the other. These include injury to the vertebrae, joint, bone, ligament, cartilage and muscle (Alkinany, 2016).

The commonest types of orthopaedic injuries are fractures, sprains, tears and stress of the tissue (muscle, tendon, cartilage or ligament), herniated discs, degenerative disc disease/degenerative arthritis of cervical, thoracic, or lumbar discs; cervicalgia (pain in the neck) occipital headaches or occipital neuralgia, chronic pain disorders, whiplash and rotator cuff injuries (Olaitan, 2001). Studies (Dada *et al*., 2011; Aderibigbe *et al*, 2013; Onyemaechi, Onwuasoigwe, Nwankwo, Schuh and Popoola 2014) have shown that fractures (crack or breakage of bone) are the most common form of OCs, followed by joint dislocation. This may be due to the fact that the bone, being the hardest component of the body and the last point of eventual reception of any force impact against the system, is not flexible or absorbent to violence like other elements of the system (Ekere, 2011).

Whereas the external factors in the causation of OCs seemingly account for higher prevalence of cases, particularly those resulting from violence, biological discontinuities such as pathological factors on the inside of the human body also contribute enormously to the aetiology of orthopaedic conditions. External factors including those induced by societal forces may, however, constitute precipitants to such biological discontinuities (Martinez-Diaz and Coughlin, 2007). Such pathological conditions include Muscular dystrophy, Myasthenia gravis, Paget disease, Ewing sarcoma, arthritis, and osteoporosis. Despite their devastating effect on the body system, some of the conditions tend to be chronic and, yet defy western medicine cure, though they may be effectively managed (Nwachulwu *et al.*, 2014).

Orthopaedic conditions have a history that is as old as man himself. Historically, inherited deformity, fall from trees and injuries due to violence and/or inter-tribal wars constituted the major causes of injury in pre-industrial times. However, technological advancement and improvement in science and technology have had tremendous impacts on the social organisation of life, expanded the scope and increased the rate of socio-economic activities that men engage in. Consequently, this has increased the range of causal factors and further introduced multiple dimensions to orthopaedic conditions in terms of their causes as well as nature, typology, complexity, and treatment requirement.

Studies (Olaitan, 2001; Owumi, Taiwo and Olorunsola, 2013; Onyemaechi *et al*., 2014) have identified road traffic crashes (RTCs) as the commonest causes of OC and associated deaths. Dukiya and Egwim (2015) report that OCs have more prevalence in urban areas than rural areas, largely due to higher rate of socio-economic activities (which have resulted in higher mobility/transhumance) and sporting activities, increased crime rates and violence as well as fall due to slippery floor tiles in modern houses, all of which make residents more exposed to injury. This is because such socio-economic activities require higher mobility (pedestrian or vehicular) which predisposes people to the leading causes of orthopaedic conditions such as RTAs (Owumi, Kolo and Taiwo, 2016). Similar principle applies to sporting activities which, as noted by Olaitan (2001), is also a major factor in the incidence of orthopaedic conditions.

It is generally agreed among scholars that orthopaedic conditions are a major cause of morbidity, disability as well as mortality (Martinez-Diaz and Coughlin, 2007; Chalya, Ngayomela, Mabula, Mbelenge, Dass, Chandika, Gilyoma, Kapesa, and Ngallaba, 2014; Dukiya and Egwim, 2015). According to Owumi *et al*. (2013), these conditions result in temporary loss of function for patients and sometimes, loss of work time for caregivers of patients, since patients are incapacitated in most cases, leading to total dependence on significant others. Orthopaedic injuries can often have long-lasting results including degenerative bone conditions and permanent disability. The high prevalence and manifold socio-economic burden qualifies it as an ‘epidemic of the 21st century’ in Nigeria (Solagberu, 2005).

This situation cuts across most developing countries where bad road, poor vehicle maintenance and road-use culture, which account for leading causes of injury such as

RTAs, are preponderant (Ekere, 2011; 2012). The situation is compounded by gross inadequacy of coping resources, including facilities, personnel and support infrastructure required for the management of OC. According to Nantulya *et al* (2002), 32% of the world's vehicles are found in developing countries, and they account for 85% of deaths. Approximately, 12 million deaths and about 50% disability occur yearly (higher toll being found among the productive age group 15-44 years), with an estimated cost ranging between 1-2% of the GDP, which in most cases exceeds the yearly developmental aid that developing counties receive (Martinez-Diaz and Coughlin, 2007). As noted by Asogwa (1978) OCs are endemic diseases with epidemic dimensions. The epidemic and endemic character of the orthopaedic condition, in the face of relatively low access to western care and support creates a major gap which only the profession of bone setting has been able to fill as a therapeutic source in developing countries.

2.2 Cultural evolution of traditional bone setting

Man is a cultural being who is able to adapt to his environment by means of culture which, though created by man, also influences man's life in manifold ways. Culture defines a peoples' worldview and influences the methods that they adopt in negotiating challenges that arise in the course of their everyday life. It comprises material as well as non-material aspects, derived from the physical and social environment and provides resources by which man adapts to his environment (Oke, 1984). As defined by Taylor (1871), culture is "that complex whole which includes knowledge, belief, art, morals, law, custom, and other capabilities and habits acquired by man as a member of society. Culture is the total way of life which defines, influences and determines every aspect of a people's life, including marriage, family, socialisation, production, belief system, occupation, dressing and healthcare and its methods of provision. All these evolved and continue to evolve within culture.

In the view of Owumi (1996), the perception, conception and management of ill-health is culture-bound, though the significance that ill-health holds for the population remains the same among all groups of people. This means that the culturally constructed meaning that a people attach to a given health problem will determine how they will appropriate resources to addressing it. In Africa, health problems are usually viewed from either or a combination of natural, mystical, supernatural and preternatural etiologies.

This cultural perception influences the methods adopted in addressing the problem (Erinoho, 1998; Jegede, 2002). Culture is, therefore, an adaptive mechanism which provides prisms through which man sees, interprets and addresses situations that confront him, leaning on resources available in his physical and social environment.

Traditional medicine is the aspect of man's life that emerged from and evolved alongside respective cultures in the bid to address health problems that confront man in his society. As the name implies, traditional medicine is the indigenous or customary ways by which a people deal with health problems, using methods defined and sanctioned by their culture. According to Amzat and Razum (2014), every ethno-religious group develops peculiar medical practices and beliefs based on historical and cultural development. Hence, traditional medicine did not emerge in a vacuum, but evolved in and along the historical and cultural contexts of the society of its practice. Such contexts are also subject to the physical environment in which the people live (Oke, 1984), which, for instance, provides the various resources that serve as regimen for healthcare. This explains why there are as many forms of traditional medicine as there are societies, since different societies have different environment, cultures and peoples, and different traditional medicines. The variations in traditional medicine, however, transcend societal divisions: Chinese medicine, Indian Ayurveda, Arabic unani medicine, African medicine, as there could be slight variations even within the same society. This explains why lack of standardisation remains a major shortcoming of traditional medicine in most countries of the world (Egharevba, Ibrahim, Kassam and Kunle, 2015).

Like its western counterpart, different branches or areas of specialisations culturally evolved with traditional medicine to meet the care need for the myriad of problems that affect the various parts of the body: birth attendants, traditional psychiatrists, traditional barbers, diviners, faith healers, herbalists, traditional surgeons and the bone setters (Owumi, 1996; Erinosho, 1998; Ekong, 2006). However, bone setting is a leading specialty of traditional medicine that has not only thrived in the face of modernisation and western care, but has also competed favourably with the latter, despite advances in biomedical science and technology (Adefolaju, 2010). Like traditional medicine, traditional bone setting is also indigenous to any society in which it evolved and is being practised. Due to the universalistic nature of OC, bone setting exists

in every known human society in one form or the other (Agarwal and Agarwal, 2010; Dada *et al*., 2011; Owumi *et al*., 2013). Again, since it is part of society's culture, the type of therapeutic materials and approaches used also vary, partly due to available resources in the environment it is located. This may explain why, for instance, some practitioners, based on their world view as determined by cultural influences, would use wooden splints for fracture immobilisation; others would use only tattered clothes for the same purpose; some use cold water while others would use hot water; some apply force in setting mal-union joints while others would mildly massage so as not to cause pain on the patient (Solagberu, 2005; Dada *et al*., 2011; Aderibigbe *et al*., 2013; Onyemaechi, 2014). All of these are based on culturally developed knowledge and view about man's body and how it should be handled in relation to OCs.

As revealed by studies (Olaitan, 2001; Aderibigbe, 2013; Owumi *et al*., 2013; Owumi *et al*., 2016), social and demographic factors such as age, occupation, gender, place of residence and their socio-economic activities which are also determined by the prevailing culture influence people's susceptibility and exposure to BJM conditions. This can, however, vary over time and across space, since the range and type of socio-economic activities also vary significantly. Hence, the factors responsible for the occurrence of BJM conditions in human societies or in an historical epoch of socio-economic development vary significantly. As society evolves from primitive hunting and gathering stages towards increasing industrialisation, so does the aetiology as well as nature of injury advance towards increasing complexity (Ekere, 2011; Owumi *et al*., 2013). In primitive societies where man's life and array of socio-economic activities were relatively simple, devoid of complex socio-economic activities compared to what obtains in modern times, what have become the leading causes of OCs today were either minimal or non-existent. Road traffic accidents, sporting activities, crimes/violence, industrial accidents and so forth did not account for the incidence of OCs as they do today. Hence, the nature of injury and complexity were simple, mostly involving fracture and dislocation emanating from fall from tree and inter-tribal war (Hoff, 1997).

As an adaptive tool, bone setting was developed as part of the culture to address the problem, whenever health was interrupted by OCs.In terms of sophistication, the practice was commensurate with the character of orthopaedic conditions in those early

times. Change in the myriad of causes as well as nature of injuries towards increased complexity, due to a shift in the range of man's socio-economic activities has consequently required that the practitioner improves in his mastery of the 'science and art' of bone setting, if he must continue to be relevant in the modern era, where OCs now require specialised radiological and surgical services to manage. Although the bone setter has not attained the feat of western orthopaedic service, the cultural boundary of his practice has become more relaxed as culture continues to unfold in evolutionary dimensions, howbeit slow, gradually such that the bone setter now sees reasons to adopt elements of western orthopaedics, in a bid to adapt his practice to the modernization trend, while also making attempts to make up for his deficiencies. According to Ekere (2011), bone setters now follow-up their patients with serial X-Ray in order to monitor bone healing**,** which is an indication of readiness to embrace western innovation to improve their practice.

2.3 Social organisation of traditional bone setting

The practice of bone setting is as old as the incidence of orthopaedic conditions. Due to prolonged practice and attendant expertise appropriated over time, bone setting has evolved into the status of a profession which provides therapeutic services for patients of OCs. Like most indigenous professions such as hunting, cloth weaving, drumming, masonry and farming, bone setting is passed from one generation to another by heredity as well as apprenticeship (Ekere, 2011, 2012; Owumi *et al*., 2013). Unlike these other professions, bone setting is more carefully structured and largely domiciled in specific families who have developed it as both an art and science of expertise. For such families, it is a gift from God, for the purpose of restoring the human body to normalcy, with the use of natural procedures, methods and materials whenever the body is interrupted by OCs (Aderibigbe *et al*., 2013).

According to Kingston (2013), bone setter families are divinely chosen for the sole purpose of bringing succor to mankind, and so the practice is not only regarded to be humanitarian but also sacred. As custodians of divine healing gift, practitioner-families enjoy high recognition and respect among the people, as they are believed to possess the legitimate healing authority as far as orthopaedic conditions are concerned. The healing authority in bone setting which is domiciled in practitioner-families is believed to be

supernatural in nature and an exclusive reserve of the family where its deployment is determined (Ejima, 2014). The practitioner-family, therefore, forms the basic organisational unit and structure of traditional bone setting, while coordinating care provision as well as regeneration of the practice through the preservation and advancement of knowledge and tradition, as well as training of future practitioners. Generally, future practitioners are recruited from among male heirs of bone-setter families, which account for why the practice is male-dominated (Olori, 2009). However, practitioners hold divergent views about how bone setting knowledge and ability is transmitted (Hoff, 1997; Kingston, 2013; Owumi *et al*., 2016). Whereas some bonesetters believe that the ability to treat BJM problems can only be inherited by people in the bloodline of practising families, others believe that bone setting can also be learned by people outside practitioner-families through apprenticeship. Practitioner-families believe that the knowledge utilised in bone setting is acquired through divine inspiration. Where the art is learned through apprenticeship, it is also believed that what is being transmitted was divinely handed to ancestors of the tutor-family and has been passed down through the ages (Olori, 2009).

According to Elujoba (2005), traditional bone setting is both a socio-economic and cultural heritage which, in addition to bringing succor to mankind, serves as a profession that provides a means of livelihood for practitioners. Unlike the formal concept of 'professions' which involves a 'formal organisational form, central regulatory body to ensure standard of performance of members, code of conduct, careful management of knowledge and practice and control of numbers, selection and training of new entrants' (Alubo, 1995; Scott and Marshall, 2005), 'profession' in this sense is devoid of the legal-rational features that characterise a formal-bureaucratic organisation. Relationship between practitioners and clients is defined not by rational or formalistic criteria, but by the prevailing culture of the land. Hence, there is no universal standard of procedure or operation in bone setting.

The practice of bone setting is community-based and practitioners are easily accessible to the people, since it is usually located within a walking distance from patients' home (Gyoh, 2010; Kingston, 2013). Unlike the modern hospital- a totalistic institution or 'strange' environment where patients are alienated from the care of their

own body and treated as passive objects of healthcare, traditional bone setting operates in a home-like domestic environment where patients and practitioners actively interact in the provision of care. There are no formal codes governing conduct or behaviour; rather, culture dictates the norm (Ejima, 2014).Under special arrangements, bone setters also provide home-service to patients in the comfort of their home (Nwachukwu *et al*., 2011), a factor which allows highly severe cases to be treated with minimum discomfort to patients. This fluidity in the structuring and operation also characterises practitioner-patient relationship in bone setting; and it is a major feature of its social organisation since bone setting is embedded in the prevailing culture, as a cultural product. These factors contribute to the high belief in, and therefore, preference for the practice (Aderibigbe *et al*., 2013; Onyemaechi *et al*., 2014).

2.4 Utilisation of traditional bone setting as a care source for BJM conditions

There are two major sources of healthcare in Nigeria and most developing countries: modern and traditional medicine (Erinosho, 1998; Amzat and Razum, 2014). These represent the two major sources of care for BJM conditions: modern orthopaedic service and traditional bone setting, so that patients have to choose between the two systems or devise ways of combining both. According to Abodunrin, Bamidele, Olugbenga-Bello and Parakoyi (2010), the choice of facilities for healthcare by an individual is largely determined by his/her taste, satisfaction with service and the perceived quality of care provided. Compared to modern orthopaedic service, bone setting is more available, accessible and affordable, while conforming to the beliefs of the people. These naturally make orthopaedic patients to opt for bone setters' treatment. However, 'choice' is limited by factors such as availability, accessibility, affordability of services of the health facilities, cultural beliefs, urgency of care needed and whether the kinds of services provided meet the needs of the user (Sajid, 2007). People's choice of, and decision to utilise bone setting is, therefore, mediated by these factors which they consider in a rational process, weighing cost over benefit.

In developing countries, modern orthopaedic personnel are grossly inadequate to meet the care needs of BJM conditions which are both endemic and epidemic. About 80% of global orthopaedic burden abound in developing countries, whereas only 20% of

global orthopaedic surgeons work in those countries (Martinez-Diaz and Coughlin, 2007). This, therefore, creates a major deficit in orthopaedic care infrastructure. Conversely, traditional bone setting is characterised by ready availability, accessibility and affordability while aligning with the cultural beliefs of the people (Solagberu, 2005; Nwachukwu *et al*., 2011), factors which equip the practice to fill-in the gap thereby contributing to the widespread utilisation of TBS.

A study by Udosien, Otei and Onuba (2006) reveals that majority of bone-related injuries are treated by traditional bone setters, including those involving elites who often doubt the efficacy of orthodox medicine. Onuminya (2006) estimates that about 70% of patients with BJM conditions in rural Africa are treated by bone setters. This may not be unconnected with Owumi's (2013) observation that the high level of TBS patronage is motivated by the widespread belief that health problems have deeper spiritual implications which can only be understood and addressed by traditional medical practitioners.. Since the bone setter employs both physical and spiritual methods and materials, it is believed that he is in the best position to address the spiritual component of BJM conditions, while treating the physical problem.

Studies (Martinez-Diaz and Coughlin, 2007; Dada *et al*., 2010; Nwachukwu *et al*., 2011; Ekere, and Echem, 2012; Onyemaechi *et al*., 2014) have revealed that, in spite of advances in medical science and its allied radiological and surgical support, TBS enjoys high acceptance among people in most societies, since the practice is indigenous to each host culture. This has led to high level of patronage and persistent utilisation of TBS services by orthopaedic patients. Dada *et al.* (2011) observe that the situation is the same even in urban areas where modern orthopaedic services are relatively accessible. Following a study conducted in a Nigerian city, Aderibigbe *et al*. (2013) assert that there is a generally high level of TBS utilisation by orthopaedic patients. In the report of Dada *et al.*(2011), 85% of patients with fractures present first to TBS.

Socio-economic factors such as education, occupation, income, patient's place of residence as well as the availability and geographical distribution of health facilities generally exert enormous influence on the choice and utilisation of health services. However, studies have revealed that these same factors, which also affect people's exposure to orthopaedic conditions, do not influence the utilisation of bone setting

(Omololu, Ogunlade, and Alonge, 2002; Olaolorun *et al*., 2001; Nwachuckwu *et al*., 2011; Onyemaechi *et al*., 2015, Dukiya and Egwim, 2015). This implies that socio-economic and demographic factors have very little or no influence on patients' choice and utilisation of bone setting as treatment for BJM conditions.

Although health facilities and personnel are grossly inadequate in developing countries, location of health services has been a major problem of health care delivery in Nigeria where most modern hospitals are sited biasedly against the rural areas where more than 70% of the population abound (Chris and Kwaja, 2011; Jegede, 2002). This way, hospital-based facilities are not within the reach of the majority populace; and even where there are, affordability is another main barrier to their utilisation. As noted by Erinosho (1998), economic factors play crucial roles in the utilisation of health services, so that inability to afford the service means denial of care. In contemporary times, the levels of infrastructure and quality of service in public hospitals have deteriorated below imagination. Often enough, the operation of modern hospitals are interrupted by industrial action of health workers who, due to strike, leave the hospital deserted while patients are left to any eventual fate, including death. These issues and states of affairs do not only account for the continued relevance of traditional bone setting as both a socio-economic activity and therapeutic source, but also explain the widespread of its utilisation.

There are only three national orthopaedic hospitals in Nigeria (located in Lagos, Kano and Enugu States), a handful number of university teaching hospitals and other private hospitals (Onyemaechi *et al*., 2014) that have capacity to provide orthopaedic care for Nigeria's over 2 million population. Due to the high cost of modern orthopaedic service, majority of the population who are poor and geographically distant from the urban areas where most of these facilities are located are further disadvantaged in accessing the services. Furthermore, cultural belief about aetiology of BJM conditions and the role of spiritual factors in healing favours the utilisation of bone setters over the modern hospital (Solagberu, 2005; Aderibigbe *et al.*, 2013). Thus, traditional bone setting is not only available and accessible to the people, it is also culturally accepted and preferred among the people (Chowdhury, Khandker, Ahsan, and Mosta, 2011; Dukiya

and Egwim, 2015). This explains the continued relevance of traditional bone setting and its persistent utilisation for the treatment of BJM conditions.

2.5 Therapeutic processes in the practice of TBS

Therapeutic processes refer to the myriad of actions, methods or processes that are adopted, in order to restore health to the sick through treatment. According to Amzat and Razum (2014), the end-in-view for the utilisation of a therapeutic regimen is to achieve recovery in the case of ill-health, and to avert occurrences of ill-health. This implies that therapeutic processes also have preventive dimensions, which include action or efforts by the individual for averting the incidence of OCs. This could include the consumption of "bullet-resistant" substances to avert the penetration of the body by bullet. The first factor in the diagnosis of orthopaedic and other ill-health conditions is to identify aetiological underpinning, which is shrouded in physical (natural and empirically verifiable) as well as spiritual (spiritual and non-verifiable) roots. In developing countries where traditional bone setting is the dominant source of orthopaedic care, Omonzejele (2008) observes that the belief in supernatural causes of illness is still highly prevalent and central in the explanation of illness. Like bone setting itself, the belief about spiritual aetiology is also 'traditional' to the people, especially in the case of BJM conditions, of which severity is associated with multiplier consequences including chronic incapacitation, temporary or permanent disability, and even death.

In line with his belief about aetiology, the bone setter begins therapeutic activity with diagnosis, a process in which he seeks to ascertain what is wrong and whether or not spiritual factors are involved in a given case; and if they are, identifies and addresses them as part of the therapy (Owumi *et al.*, 2013). Based on this, Amzat and Razum (2014) noted that diagnoses are carried out using spiritual means, especially in consultation with religious clerics or traditional healers such as diviners who are believed to possess spiritual power to detect and prescribe a course of action in the treatment of illness. Such therapeutic procedures are not amenable to science or are simply beyond

empirical comprehension and explanations; hence, they constitute a major advantage to traditional medicine, which is also taken into account in patients' choice of the care.

This is in consonance Fabrega's (1973) who opines that the social definition of illness forms the basis of decision about medical treatment. In his bid to provide efficacious therapy for his patient, the bone setter sometimes serves as a mediator between the patient and the supernatural world such as witches, wizards, gods of the land or enemies who are presumably responsible for patients' ill-health conditions. He also offers sacrifices or atonements to the gods in cases where the patient's condition is believed to be due to violation of certain taboo (Owumi *et al.*, 2016).

The therapeutic process of traditional bone setting is summarised by Nwachukwu *et al*. (2011:24) as involving

> …reduction and embalming, (after which) the affected limb is splinted to prevent limb movement. For lower extremity fractures, weight bearing on the affected limb is prohibited. Splinting materials include cloths, hard cardboard and plywood. Once the limb is splinted, the patient is begun on a standard care pathway, which involves 51 days of complete limb immobilisation followed by a 51-day period of rehabilitation and return to function. During the immobilisation period, the splinting materials are changed every four days, at which point the traditional bonesetter reapplies the herbal cream and massages the limb. For patients with lower extremity fractures, during the immobilisation period, the patient is given a personal mat on which they can be carried around by family members or support staff. During the second 51 days, patients are gradually mobilised and the bonesetter continues to massage and embalm the limb weekly while also counseling the individual on gait training. The care process in the final 51 days is directed at the discretion of the bonesetter based on the signs and symptoms of the patient.

Although bone setters do not possess or use technological methods such as radiology or modern surgical equipment in carrying out diagnosis or therapeutic activity, they rely heavily on the use of their visual observation and manual techniques with which they ascertain the nature and extent of patients' condition (Owoseni, Oluwadare, and Ibikunle, 2014). Bone setters use their sense organs, especially the eyes to observe changes (colour, texture, straightness, paleness etc.) in the affected part, while the hand is used to trace the site of injury (Agarwal and Agarwal, 2012). Their heavy reliance on

natural and spiritual resources which, according to Omonzejele (2008), possess 'active therapeutic principles, occult supernatural forces and power to manipulate the supernatural for desired results' form part of the therapeutic processes. Practitioners rely on natural resources such as vegetables, mineral substances, shrubs, animal parts and ointments from their environment (Chris and Kwaja, 2011) which they process into medicine (herbs, ointments, powders and concoctions); and bamboo sticks which they use as splints for immobilisation to enhance speedy healing of fractured bones, dislocated joints and other inflamed or degenerated parts of the musculo-skeletal system. They also deploy spiritual sources such as rituals, sacrifices and incantations on affected body parts as a way of invoking the spirit of the ancestors for divine intervention and healing.

2.6 The role of traditional bone setting in the management of bone, joint and muscle conditions

Given the endemic and highly prevalent nature of OCs (Martinez-Diaz and Coughlin, 2007; Ekere and Echem, 2012; Chalya *et al.*, 2014), there is need for a commensurately strong base of orthopaedic infrastructure to curb the menace and its burden for human society which dates to time immemorial. The burden of orthopaedic conditions transcend the physiological problem it inflicts on patients; it includes multiplier consequences such as incapacitation of patients, their dependence on significant others, and loss of patients' productivity all of which have adverse impacts not only on the community but on the society at large (Onyemaechi *et al*., 2014).

The enormous adverse effects of OCs necessitate the need for efficient and effective systems of orthopaedic care particularly in developing countries like Nigeria where most of the global burden is most located. In spite of this need, there is acute dearth of modern healthcare facilities which has left a country like Nigeria with weak healthcare system, disenabling it from taking care of the people (Jegede, 2002; Scott-Emuakpo, 2010). The situation is even worse in the case of BJM conditions which require specialised services and experts, hi-tech biomedical equipment and of course, high cost of treatment. Views from existing studies affirm that bone setting is part and parcel of culture in most human societies. Like other specialties of traditional medicine, it is indigenous, which account for the high acceptance it enjoys, regardless of how positively or negatively it contributes to the management of BJM problems.

Despite the huge gap that traditional bone setting fills in orthopaedic care deficit, literature is divided over the role of bonesetters in the management of BJM conditions. Some scholars are of the view that practitioners contribute immensely to orthopaedic; and that they are capable of arresting the deterioration of gangrenous and limbs that could have led to amputation in modern hospitals, which is a common practice in orthopaedic hospitals across the globe (Adesina *et al*., 2011; Kingston, 2013; Ojua *et al*., 2013). Thus, bone setters are a very important part of orthopaedic care, particularly in developing countries where there is both acute shortage of orthopaedic manpower and low access to modern services.

However, other scholars (Olaolorun, Oladiran and Adediran, 2001; Udosien *et al.*, 2006; Eze, 2012) hold different view about bone setters. They maintain that bone setting results in high level of complications, morbidity, disability and death. For this group, gangrene of affected limb, non-union or mal-union of fractured bone, contractures, osteomyelitis, limb shortening and various other complications and infections which eventually result in limb amputation or death of patients are due to bone setters' intervention. In this vein, Oginni (1992) estimates a failure rate of 66.7% as resulting from his observation of patients who voluntarily opted out of TBS treatment after prolonged but unfruitful stay. According to these scholars, orthopaedic surgeons in developing countries spend most of their time correcting the harm that was being done to patients in the course of receiving treatment from traditional bone setters.

While bone setting may have adverse treatment outcomes as alleged, it will be impossible to remove or terminate its practice as a profession or socio-economic activity that provides therapeutic care for BJM conditions, particularly in developing countries where there is little or no alternative. However, improving the practice and consolidating on the capacity of traditional bone setting through proper policies that are enforceable by law would not only reduce weaknesses associated with bonesetters' intervention; it will also further enhance practitioners' effective management of BJM conditions. This way, traditional bone setters could use their comparative advantage over their modern counterparts, to impact the delivery of orthopaedic care in Nigeria and elsewhere.

2.7 Interface between traditional bone setting and modern orthopaedic care

Traditional bone setting is only one of the twin components that make up orthopaedic healthcare delivery system in most countries of the world, modern/western orthopaedic care being the other. Healthcare delivery is supposed to be systemic, that is operated based on cooperative interdependence between the different parts that make up the complex whole (Scott-Emuakpo, 2010). This is even the case since the concept of primary health care which is Nigeria's health policy has advocated the inclusion of traditional medicine into the overall health care systems and healthcare delivery (WHO, 1978; 2002). Although traditional medicine generally and bone setting in particular pre-date their western counterpart (the former laying foundations for the latter's emergence and development), western medicine has become the official and formally recognised system of healthcare in most countries of the world. Nigeria is not exempted from this state of affairs, as western medicine forms the core of her healthcare policy and healthcare delivery, to the negligence of traditional medicine (Erinosho, 1998; Adefolaju, 2010). This may not be unconnected with the rapid advancements and progress that the western medicine has made within its comparatively short period of existence, as opposed to traditional medicine that is still struggling to make itself amenable to modern science- the pivot around which global development rotates, while serving as criterion as to what is acceptable and what is not.

Rather than being cooperatively interdependent, traditional bone setting and modern orthopaedic care share a mutually exclusive relationship ridden with animosity and rivalry between practitioners on both sides of the divide. Practitioners in each of the systems believe that their respective practice is superior to the other, using expertise, efficacy and treatment outcomes as benchmark. Literature emanating from modern biomedical scholars is replete with negative reports about the incompetence of traditional bone setters and consequently undesirable outcomes (Olaolorun *et al*., 2001; Solagberu, 2005; Gyoh, 2010; Onyemaechi *et al*., 2014). As a result of this, modern practitioners are disinterested in cooperative relationship with bone setters. The position of a modern orthopaedic practitioner-scholar aptly alludes to this

> …many of my colleagues believe that the TBS are no use as exemplified by Prof. Jaja's valedictory Lecture to the National Postgraduate Medical college in 1991; "TBS is a practice stagnated in the dark ages about a millennium from

> the 20th century...they know no anatomy, no physiology, no pathology. We have nothing in common and no government should encourage their practice
> (Ekere, 2011:37).

Such disposition is further strengthened by the fact that the healthcare policy in Nigeria and many developing countries do not accord traditional medical practice like bone setting the required policy support that will earn it requisite cooperation. Incidentally, traditional bone setters who are mostly uneducated (Ejima, 2014); they neither possess the requisite skill nor have the required resources to advance the cause of their practice. They are also unable to participate in the clinical discourse on TBS, since they have no access to the means of generating and disseminating information, which are controlled by scholars inclined to modern medicine. TBS practitioners therefore cannot react to allegations of unfavourable outcomes attributed to their case intervention. This is, however, not the case in some developed countries, particularly in most Asian countries including China, South Korea and Japan where, through mutual understanding, traditional and western healthcare have been developed into pluralistic medical systems (Subedi, 1992).

However, Olori (2009) notes that modern orthopaedic practitioners also realise the therapeutic efficacy of TBS treatment especially in cases that defy western remedy, but it is against their professional ethics or even the principle of modern science to acknowledge such, since the practice is not amenable to scientific analysis. This is similar to the reports by other scholars (Onyemaechi *et al*., 2014; Dukiya and Egwim, 2015; Owumi *et al*., 2016) who report that the modern hospital through social networking often provide informal platforms by and through which contact between patients and bone setters is facilitated. Such relationship, however, does not exist within the official context and formal structure of modern practice due to ethical reasons. A Similar scenario was reported by Nwachukwu *et al*. (2011) and Ekere (2011) who observed that bone setters usually engage the services of patent medical vendors and auxiliary nurses who assist them in administering analgesic, carrying out surgical suturing, blood transfusion and other western procedures when there is perceived need for such services. Although these may be unhygienic and devoid of best practices, it is a pointer to bone setters' readiness to have some aspects of western care introduced into their practice; hence, the need to

make efforts at addressing the strained relationship between traditional bone setters and western medical practitioners.

2.8 Summary of findings in the literature

Although TBS is generally recognised as a socio-cultural therapy with socio-economic dimensions, literature findings reveal that studies on TBS were mostly carried out by scholars in the clinical and biomedical disciplines. Few studies abound on TBS from the purview of humanities and social science disciplines. Majority of the studies were also carried out in urban areas, due to the urban-bias nature that characterises the siting of tertiary health facilities where these studies were mostly carried out. Contexts of the rural environment and socio-cultural setting where most of TBS practices take place vis-à-vis health systems dynamics were not addressed in the literature. TBS was studied as an independent entity that does not interact with other aspects of the society, the formal orthopaedic sub-sector and the wider health sector within which it operates, thereby resulting in the neglect of the pluralistic character of health systems in a developing country like Nigeria. Furthermore, these studies were largely carried out using quantitative methods like experimentation and the use of medical records, with a view to clinically evaluating the outcomes of TBS intervention in BJM cases. There was a general consensus in the literature that TBS treatment outcomes were adverse in nature. Bio-medical arguments were advanced for the adverse treatment outcomes.

2.9 Gaps in knowledge

Based on literature findings, certain lacunae inhibit the holistic understanding of TBS, which needed to be identified and filled through a study of this nature. There was the need for extra-clinical knowledge of the practice, such as transcends the prism of bio-medical scholarship, taking cognizance of the health systems implication of TBS. As a socio-cultural practice that has persisted through the ages, TBS needed to be understood holistically within the peculiarity of its environment and circumstances of operation, all of which were not adequately accounted for. These included socio-cultural beliefs about TBS evolution, essentials of practice and associated mythologies as well as the perspectives of practitioners; dynamics of utilisation and collaboration between TBS

practitioners and PHC providers in the communities all of which were under-represented in the literature. Furthermore, the literature was devoid of practitioners' recruitment, training, succession, therapeutic and technological base as well as the role of other traditional medical practitioners in TBS.

There was also dearth of information regarding the systems analysis of TBS practice as well as the social organisation of its internal and external actors, stakeholders and their roles. Similarly, there were limited information on the interface between TBS and the formal healthcare system, particularly primary healthcare which was the most accessible in the area. As an ethno-community-based practice that TBS is, traditional authority/institutions, the state, primary healthcare providers and the community are likely to play critical roles in the practice which were not documented in the literature. Beyond the clinically-informed, there was also the need to understand and document patients' experience and treatment outcome as well as community perception about TBS.

2.10 Theoretical framework

2.10.1 Talcott Parsons' theory of the social system

Talcott Parsons (1902-1979) propounded the theory of the social system which has become one of the most ambitious attempts by classical Sociologists towards the holistic understanding of the society. The theory is contained in his seminal work *the social system,* published in 1951. Through *the social system*, Parsons has been most generally recognised for the elaboration of systems theory. Parsons defined the social system as consisting in

> a plurality of individual actors interacting with each other in a situation which has at least a physical or environmental aspect, actors who are motivated in terms of a tendency to the "optimisation of gratification" and whose relation to their situations, including each other, is defined and mediated in terms of a system of culturally structured and shared symbols (1951:3).

In Parsons' view, social systems could range from two actors to entire societies or systems of societies (Scott and Marshall, 2005). This idea, as well as his interest in personality, actor, interaction, motivation, gratification, perception, value-orientation and other subjective dimensions to the cybernetics that he conceived of as social system,

informed the ‘confusion’ as to where to situate Talcott Parsons as a theorists or his works in the analysis of sociological theory. Thus, he could be viewed both as a macro theorist and as a micro theorist whose theory of the social system simultaneously accounted for the structure and its processes within the framework of systems thinking. Parsons’ conception of the social system begins at the micro level – the individual, with the interaction between ego and alter ego. This is the most elementary system or *partial system* which he identified within the social system (Ritzer, 2008).

Based on his conviction that actions are precursory to understanding social structures, functions and processes, Talcott Parsons analysed the social system based on the pattern of social action which occurs at different levels. Consequently, he classified the action system within a framework of four (4) carefully delineated subsystems or levels of analysis: behavioural system, personality system, cultural system and social system. These systems, Parsons argued, fulfil the functional prerequisites of adaptation, goal attainment, integration and latency (AGIL), respectively. Each of the systems, according to him, is a web of activities through which the functional imperatives of the system (AGIL) are provided. He divided the system into two broad categories of lower-level and higher level social systems.

Fig. 1: Parsons' framework of the action system

L (Higher level systems) I

Cultural system	Social system

Behavioural system	Personality system

A (Lower level systems) G

Lower level social systems according to Parsons comprise *behavioural system* and *personality system*, while the higher level system is made up of *cultural system* and *social system* Each of the subsystems in the lower-level produces conditions requisite for higher levels of cultural and social systems, while the higher levels serve as control over the lower levels (Ritzer, 2008). However, it is in the higher level systems that is consisted the universal tendency for societies to address the uncertainties, concerns and tragedies of human existence. In spite of this, Parsons still viewed each of the action systems in one respect a critical social system in itself (Ritzer, 2008).

2.10.1.1 Cultural systems and/at the higher level of the action system

The higher level of the action system, according to Parsons, comprises the cultural system and the social system. A cultural system can be described as the interaction between the different elements of culture within a social boundary. These elements

include both material and non-material aspects of a people's way of life (Oke, 1984), like – herbs, indigenous technology, crafts, cultural tools, as well as belief systems, values, myths and traditions. By *social system*, Talcott Parsons implied various forms of social collectivities, but especially society itself. A society refers to a group of people interacting within a specific territory, guided by their culture (Macionis, 2000). It is "a relatively self-sufficient collectivity, members of which are able to satisfy all their individual and collective needs and to live entirely within its framework" (Rocher, 1975:60).

Based on his structural-functionalist orientation, Parsons identified four key structures that perform the requisite functions (AGIL) for the survival of society – *economy, polity, fiduciary and societal community.* The *economy* performs the adaptive function by which society adapts to the realities of its environment. *Work* is used to harness labour, production and resources in appropriating goods and services for meeting man's needs. The *political system* (polity) is concerned with goal attainment, by mobilizsng resources to pursue societal objectives. *Fiduciary* transmit norms and values to actors who internalise them through the latency function performed by societal agents of socialisation such as family and the school. The *society and community* structure perform the function of integration by coordinating the different parts of society as a single system, not independent but interdependent with other systems. Parsons noted that while these higher level systems are produced by lower-level systems (described below), the latter are controlled by the former, which reinforces *determinism* as a tenet of the structural functionalist tradition.

2.10.1.2 Cultural systems and/at the lower level of the action system

The behavioural system and the personality system, according to Parsons, are the two systems within the lower level category of the action system. The *behavioural system* consists of the biological individual who becomes an actor in the system and carries out actions in the form of human behaviour. He is culturally orientated and motivated to certain pattern of behaviour under given situations. The *personality system,* as defined byParsons, isthe organised system of *orientation* and *motivation* of action of individual actors and the cultural system that is built into them (Ritzer, 2008). Personality, in the

view of Parsons, is produced by the cultural and social systems through socialisation. Need-dispositions, as basic components of personality, are the most significant units that motivate action. Though Parsons acknowledged the place of actors as important components of the system, he viewed them as passive and largely impelled by need-dispositions, thus down-playing the role of subjective aspects of *personality* or the human individual. His theory of the *social system,* however, emphasised the role of personality and culture in determining the structure and functioning of social systems

Regardless of lower level-higher level classification, Parsons viewed the cultural system as the most important (Ritzer, 2008). He argued that the cultural system is an inherent component of every other subsystem, which also serves as a bind for the various elements of the social world mediating interaction among actors and integrating personality with the social system. According to Parsons (1990), the cultural system is a patterned, ordered system of symbols that are objects of action orientation, internalised aspects of the personality of social actors and institutionalised patterns of the social system. The cultural system is manifested in social stock of knowledge, symbols and ideas which help in fulfilling its function of latency maintenance. The moral standard has a unique social relevance which shapes the perspective of any actor in relation to rights and obligations and of standards governing them in relation to interaction with others as a crucial orientation to given situations. Parsons' theory is, therefore, concerned with personality as well as culture as they impact on the structure and functioning of the social system. According to him, three prominent attributes may be noted of culture:

1. Culture is transmitted (it is a social heritage that is passed from one generation to another)
2. Culture is learned (unlike genetics, culture is acquired through learning processes like socialisation).
3. Culture is shared (it is a product and at the same time a determinant of human interactional systems)

Parsons noted that belief is an important aspect of the social system which must be adequate to the reality outside the particular interaction system. Thus, ego and alter, as a matter of necessity, must share mutual belief about the physical environment to avoid strain in the system (1951:328). Shared belief (empirical or existential) performs

integrative functions in its existentiality. Cultural patterns and other elements of the social system, Parsons argued, share crucially interdependent relationships, culture performing integrative function called pattern consistency (1951:9). Socialisation and internalisation serve as media through which the norms and values of a society become 'embodied' by members of the society. Through these processes, Parsons (1951) argues that cultural practices and behaviour become part of actors' consciences which they transmit to younger generations successively. He noted that "the combination of value orientation patterns which is acquired by the actor during socialisation is a function of role structure and dominant value of the social system (1951:227).

Interestingly, Parsons also implicated the subject of illness, its social construction and the consequently preferred treatment approach in the society of his time. Due to the supernatural interpretation ascribed to illness, he observed that magical treatment "was considered the appropriate method of coping with it" (Parsons 1951: 291). Specifically, Parsons hinted at the inherence of empirical lore in the cultural treatment of bone, joint and muscle problems. In his view, such a potential is "proto-scientific" (291) of what was to later emerge as orthopaedic care. Although he based this analysis on non-literate cultures, Parsons instantly noted that it was not in any way limited to non-literate cultures, which means it is as well applicable even in modern times. This aligns with the reality in modern times that, in spite of the institutionalisation of scientific medicine, perception of health problems and the utilisation of healthcare are not limited to bio-medicine. However, this is not without persistent interest in the maintenance of the status quo which progressive scientific knowledge continues to threaten with empiricism. In Africa today, integration of modern medicine into indigenous medicine has proven difficult.

Parsons classified the object world into three classes: social, physical and cultural (Parsons 1951:4). According to him, *Social* comprises the actor or any other individual actor (alter), the other actor who is taken as point of reference himself (ego), or a collectivity which is treated as a unit for purposes of the analysis of orientation. Empirical entities that do not interact with or respond to the ego but constitute a means and condition of action constitute the *physical;* while the *cultural* include symbolic elements of tradition, ideas or beliefs, expressive symbols or value patterns, so far as they

are not 'internalised' as constitutive elements of his personality. It is the cultural, in Parsons' view, that mediates and regulates communication and other aspects of mutuality of orientation in interactional processes. He emphasised the fundamentality of the relations of the cultural tradition to analysing action phenomena, so that it becomes implausible to analyse the social system without them.

2.10.1.3. 'Action' using the lens of Parsons' theory of the social system

Parsons attributed the ability to understand social structure, function, process or phenomenon in terms of one's ability to making meaning out of the constituting action. According to Parsons (1951:4), "action is a process in the actor-situation system which has motivational significance to the individual actor, or in the case of a collectivity, its component individuals. This, in his view, means that "the orientation of the corresponding action processes has a bearing on the attainment of gratifications or the avoidance of deprivations of the relevant actor, whatever concretely in the light of the relevant personality structures these may be". Thus, Parsons' focus on personality and culture is not an end in itself, but a means to an end, namely to understand "action" through the actors; and their gratification or deprivation for the ultimate functioning of the system. This explains why even his definition of *the social system* emphasises "the individual actors interacting with each other in a situation…." "Actions" in Parsons' terms are not spontaneous responses to situations but reaction towards a given expectation depending on the situation. This, he argued, is usually structured by need-disposition factors as well as probabilities for gratification and deprivation.

Talcott Parsons also developed the concept of *partial social system* to acknowledge the existence of various systems within the society as a larger system. Each social structure or cultural phenomenon within the society is a partial social system. Thus, society is a system that encompasses systems. According to Parsons, "most empirical sociological studies are concerned with partial social systems rather than with societies as wholes" (Parsons 1951:19). Hence, the normative use of society as sociology's subject matter is merely to create a conceptual framework within which partial social systems can be placed, making it unlikely that any aspect of society would be unaccounted for.

In order to understand structures, functions and processes, Parsons insisted on the need to first understand action, processes and their motivation.; then, proceed in succession to “categorization of the structure of systems”, “modes of structural differentiation”, “ranges of variability with reference to each structural category between systems”.It is at this point that the sociologist can “mobilize his dynamic knowledge of motivational processes to maximum effect”, structurally placing whichever phenomenon or process he is studying within the system. It is placing dynamic motivational processes in this context of functional significance for the system that provides basis for the formulation of the concept mechanism - form of the formulation of mechanisms which "account for" the functioning of social systems for the maintenance or breakdown of given structural patterns, for a typical process of transition from one structural pattern to another (1951:22).

For a social system to persist in the long term, it must meet its essential prerequisite from within its own resources, as an independently subsisting system. However, recruitment by biological reproduction and socialisation of oncoming generations are essential aspects of the social system. Through these processes, society is not just able to regenerate its population, but it also builds in them the cultural pattern requisite for negotiating the challenges typical of its environment on long as well as short term bases. According to Parsons, actors have two most elementary components of action: *orientationalaspect* and *gratificational aspect*. The orientational aspect refers to the “how” – “manner in” or “means by” which he relates to the object world and the patterns of organisation of such relationships; while the gratificational aspect is the content of the actor’s exchange with the object world in terms of cost and benefit: “what” he gets” and “what” it costs him in the interface with the object world.

2.10.2 Application of Talcott Parsons’ theory of the social system

The relevance of Talcott Parsons’ theory to this study cannot be overemphasised, given the nature of the phenomenon under investigation and the comprehensive approach with which the theory engages spatial and social contexts. His very conception of society is holistic, accounting for macro as well as micro issues of sociological significance in a system’s milieu. He argued that “completely raw empiricism” is lost, if phenomena are

viewed only as “parts of” or “processes within” entities that are conceived of with the systems perspective. According to Parsons, a system meets its essential functional prerequisites of long-term persistence from within its own resources, which makes it independently subsisting.

This foregrounds the holistic perspective that is employed in the theoretical engagement of the subject under investigation: Nature of TBS among the Nupe of Kwara state. In the AGIL framework, the “setting of bone” or healing of other BJM conditions is a major functional prerequisite, given the strain that such conditions constitute to the fulfilment of social roles. It is for this purpose that TBS evolved as a cultural response to BJM problems. Thus, TBS may be located within the cultural component of Parsons’ schema of the social systems. As he rightly noted, the cultural component abounds in the other systems as a pattern and for the maintenance of latency. In terms of the key structures providing society’s functional prerequisites, TBS can be situated within the *economy,* which, according to Parsons, performs adaptive functions by adapting society to the realities of its environment. Consequently, TBS is a therapeutic source as well as socio-economic activities that help to negotiate the challenge of BJM conditions while serving as a means of livelihood for practitioners. *Societal community* represents the communal character of the social organisation of TBS which is informal, culture-based benevolent in orientation, from patient entry through their exit.

Furthermore, Parsons implicated the environment within which space and actors interact as they evolve their life through biological reproduction and socialisation of members, developing a culture and society commensurate with the peculiarity of the environment. It is within this context and its socio-cultural constitution that various institutions and structures (sub-systems or partial systems, including TBS) emerge for the purpose of contributing to society’s survival by providing some of the functional prerequisites. It is within the contexts of their physical environment and the cultural response towards adaptation that the socio-economic activities of the *Nupe* (farming, fishing, hunting, iron, brass and wood work, pottery, mat and hat weaving, transportation and commerce, TBS and traditional medicine generally) were developed (Nadel, 1973; Sheshi, 2012). The causes of BJM to which TBS emerged as a cultural response are ingrained in these and other socio-economic activities which man engages in, on a daily

basis. These include primitive warfare which in pre-modern times contributed to the incidence of BJM, as well as road traffic accident, occupational injuries and sporting activities which now constitute the leading causes of patients' conditions (Owumi *et al*., 2016; Aderibigbe *et al*., 2013). The environment plays host to the leading causes of BJM the same way the physical environment generates therapeutic resources such as traditional medicine, while also providing complementary sources of care through the primary health facilities including patent medicine sellers and auxiliary nurses in the study area.

2.10.2.1 TBS and Parsons' Conception of the object world and TBS practice

The object world, according to Parsons, is classifiable into three aspects: social, physical and cultural. In their respective order, these correspond to "interacting individuals", "physical space, composition and attribute of the environment"; and the "culture" which mediates mutuality between the other aspects. The interacting individuals in this study are the generality of the *Nupe* in the study area who engage in socio-economic activities (farming, trading, fishing, hunting, traditional healing practice, brass work, warfare, sporting activity and commuting) all of which date to time immemorial. The environment includes the geographical space, terrain and constitution of *Nupe* land where the study population abound. These environmental factors could interact with the "social" in affecting the occurrence and incidence of BJM conditions, while also determining the availability of therapeutic resources employed by TBS practitioners as well as the availability of primary healthcare services which complement TBS.

The "cultural" includes symbolic aspects of the Nupe culture, beliefs about BJM aetiology and the perceived consequences of BJM conditions, if not properly attended as well as the peoples' default preference for TBS by virtue of socialisation and societal acceptance of the practice. This also includes the practice of TBS, its surrounding mythologies, principles of practice and the culture of traditional medicine generally. As argued by Parsons, it is impossible to analyse the social system without adequate recourse to the cultural tradition, which constitutes a bond for the various components of the

system, as well as an adaptive mechanism by which people negotiate and cope with the challenges in their physical and social environment.

Interaction between the "social environment" on the one hand precipitates the incidence of BJM conditions, while at the same time providing therapeutic strategy in the form of TBS. The widespread use of motorcycle and improper road traffic culture amid bad road condition is an example of interaction between the physical and social aspects of the environment. However, the cultural system mediates and reconciles the "conflict" between the two using TBS as therapeutic response to BJM. In spite of value pattern that is culturally oriented towards it, TBS may not function in isolation, given the roles that modern primary healthcare also plays in the area through auxiliary nurses, patent medicine sellers and the formally employed health workers in the primary care facilities (Durowade, Bolarinwa, Fenenga and Akande, 2018).

Using the lens of Parsons, TBS operates as a nexus of social action with motivation significance to the *Nupe*, within an actor-situation milieu. This can be best understood in terms of the classification of the object world with *motivation* and *orientation* playing significant roles in the interface between physical, social and cultural composition of the object world. Here, the attainment of gratification (e.g. healing of BJM condition) and avoidance of deprivation (e.g. amputation that may have taken place in the modern hospital) are major principles guiding the acting individuals, with culture serving as means to an end, namely healing of BJM conditions.

In furtherance to the WHO's three widely accepted dimensions to health: physical, mental and social wellbeing, Bircher (2005) implicates the imperative to also incorporate the "potential" beyond merely viewing health as a "state". "Potentiality" in this light includes the capacity to satisfy life's demands commensurate with age, culture, and personal responsibility. Consequently, TBS is believed to treat BJM conditions in such a way that there would be no room for relapse.

2.10.3 A Parsonian framework on TBS

A holistic investigation of TBS as it is in the context of this study requires that the phenomenon under investigation be viewed with the lens of a "social system". As espoused by Parsons, social systems comprise other systems operating within, of which

aggregation produces the macro social system. It is within this purview that TBS can be situated as a social system, which due to the specialised functions that it performs in terms of healthcare delivery, can be described as a "healthcare system". Beyond structural functionalism, systems theory provides insights necessary to guide investigations into internal issues such as social organisation of TBS, internal dynamics, the role of agency and interface with other systems. This will enable a social organisational approach to TBS vis-à-vis its socio-cultural environment. The systemic view of TBS stems from the fact that it is not a "closed up" end in itself, but an "opened up" means to an end, comprising actions and interactions between different social agents systemically connected to form the TBS system. Like every system, TBS has interface with the environment. The BJM conditions occur in the environment as well as the therapeutic response to it via TBS.

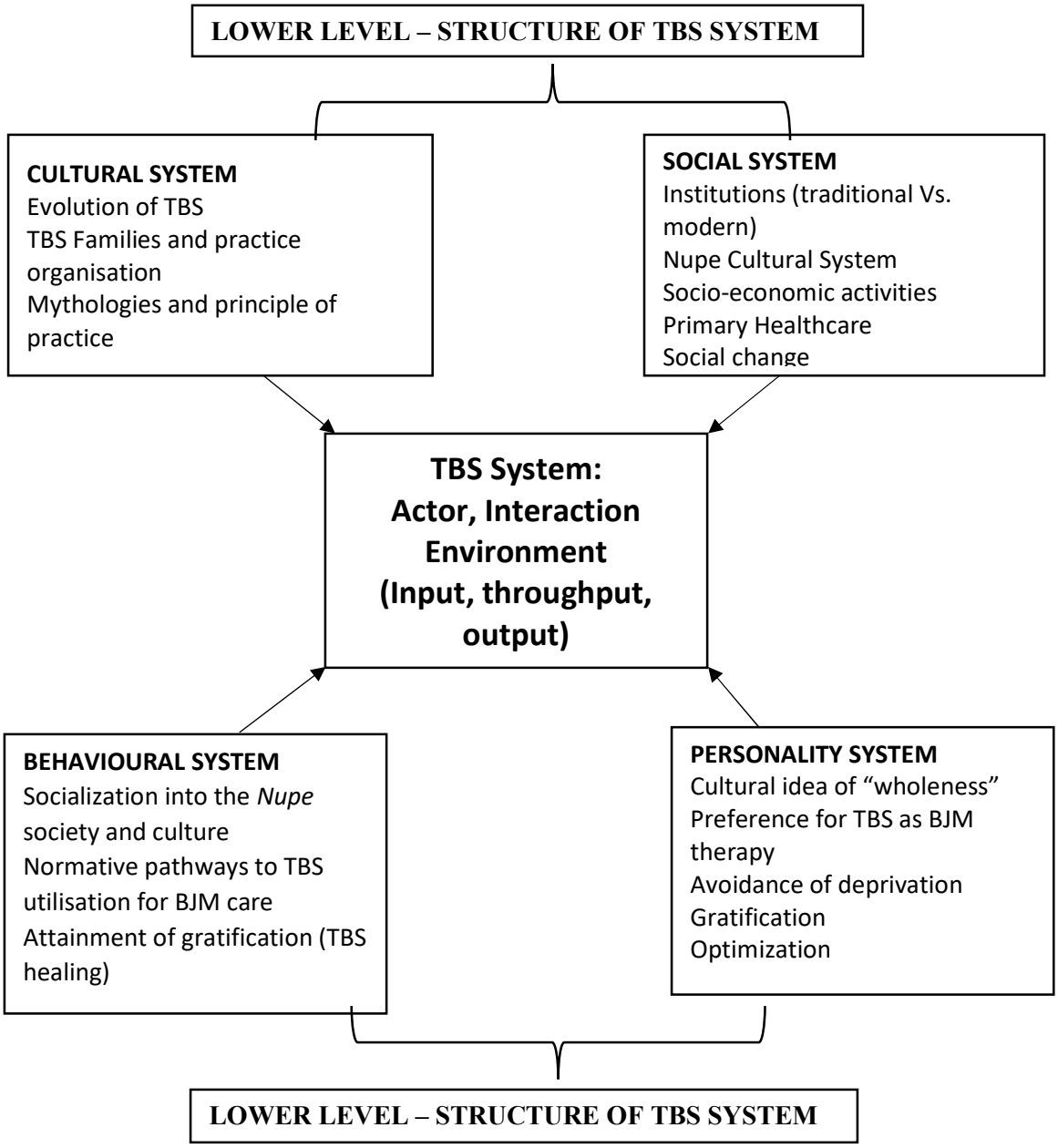
This provides context for its practice, from where inputs are received for processing, towards the production of therapeutic service. Parsons' idea of the *social system,* therefore, presents TBS as a structure, a "whole" that is composed of different parts (human and non-human agents). It receives *input* from the environment, *processes* it through the *throughput* mechanism, towards the production of desired *outcomes* (healing of BJM conditions) for members of the community. For example, patients, practitioners and other agents in the TBS system (modern primary healthcare, therapeutic materials and other traditional medical practitioners) all originate from the environment as *input* for the system. These *inputs* are subsequently processed by the TBS system which serves as *throughput,* while the ultimate *output* is the production of therapy for the BJM condition, while contributing to the survival of social life.

In TBS, there are actors (human and non-human) with assigned or expected roles, which culminate in the functioning of the system. These actors are joined by various relationships and social mechanisms that produce different actions, interactions and variegated sorts of processes resulting in different types of social networks. A health system refers to the totality of required resources, including human, mechanical, therapeutic, and financial; the formal and informal organisation and interactions or conversions of these resources in the provision of direct healthcare services to individuals and populations, to help them maintain good health status or improve their health status

when it is perceived in need, either from disease, physical disability, or trauma (Zakus and Bhattacharyya, 2007; Kapp *et al*., 2016). Health systems are open systems because they are neither self-contained nor uninfluenced by their environment. Rather, health systems interact with their external environment.

As seen in Fig 2, Parsons, beyond the higher level analysis of his theory (cultural and social systems), further explored the micro (subjective) aspects of society in his "lower-level systems" (behavioural and personality systems):beliefs, perception, motivation, action and value orientation. These, according to Parsons, are regulated by culturally structured and shared symbols.

Fig. 2: A framework showing the general action System of the nature of TBS



(Adapted from Parsons' framework)

Similar to the expression of Durkheim (1895), TBS is "a social fact that is external to man (the *Nupe*), yet coercive of man". In consonance with Parsons' argument, the *Nupe* cultural and social systems at the macro/higher levels configure and determine behaviour and personality systems at the micro/lower levels.

The major terms in Parsons' *the social system* include actor, interaction, environment, optimisation, orientation, gratification and culture (Ritzer, 2008). These epitomized in his framework of the action system: cultural system, social system, behavioural system and personality system. The *behavioural* and *personality* systems may have actually produced TBS as a cultural practice of which tradition now constitutes a major source of BJM therapy determining healthcare behaviour among the *Nupe*. In relation to TBS and the community as a social system, the AGIL system is modelled in Fig 2.

As argued by Parsons, a proper understanding of social structure or social system such as TBS requires an understanding of the constituting parts, actors, functions, processes, structural differentiation as well as underlying subjective processes (orientation, motivation, gratification, socialisation) and underlying social action within the wider system of the society. In analysing a health system, Ferlie and Shortlie (2001) identified "the patient", "care team", "the organisation" and "environment" as the four nested levels in which the health system comprises.

Furthermore, WHO (2010) developed the "building blocks of the health system": leadership/governance, finance, medical products, information, health workforce and service delivery as the key "building blocks" or pillars of the health system. Whereas these schemas offer insight into the proximate operational components of a health system, they do not lend adequate credence to the socio-cultural contexts where the system is situated. The very evolution of TBS culturally occurred in the bid to negotiate the challenges of everyday BJM, hence, Parsons' argument that TBS is the pseudo-science of modern orthopaedic care. This justifies the propriety of Parsons' theory given its implication of both macro as well as micro issues in the conceptualisation of the nature of TBS which this study sought to investigate within the contexts of the socio-cultural peculiarity of the *Nupe*.

CHAPTER THREE
METHODOLOGY

3.0 Research design

A phenomenon such as the subject of this research is best suited by exploratory approaches, given the potential nature of its outcome. The study therefore adopted exploratory research design, using ethnographic methods of investigation. However, ethnographic methods were complemented with survey. This aided the appropriation of data on community utilisation of TBS while aggregating information on Nupe society vis-à-vis TBS practice. Thus, qualitative and quantitative methods of sociological inquiry were cross sectionally combined for data collection. This holistic design was necessary due to its capacity to generate rich data, which also helped to overcome the shortcomings of a single method. While the qualitative approach facilitated in-depth investigation of the subject matter of this research from among the selected TBS practitioners, patient, primary healthcare providers and community leaders, the quantitative survey generated data on utilisation of TBS, focusing on community members of the study area.

3.1 Description of study location

The location selected for this study was Kwara State, precisely, *Edu* Local Government Area (LGA) and *Patigi* LGA in the northern part of the state. Kwara State is a north-central Nigerian state created in 1967 with an estimated population of 2,371,089 (2006 population census). Although there were *Nupe* in other states of the federation (especially in Niger state), *Edu* and *Patigi* LGAs were purposively selected because they served as indigenous home for the *Nupe* ethnic group, which has a relatively high presence of traditional medical practitioners, particularly Traditional Bone Setters (TBS) who provide orthopaedic care for people from within the state and beyond (Yahaya, 2003). Despite the age-long existence of Kwara State as one of the first seven to be created in Nigeria, none of the three national orthopaedic hospitals was located in the state. Despite the fact that Ilorin is the state capital, the only tertiary healthcare facility in

Ilorin is the University of Ilorin Teaching Hospital, which is located about 150 kilometers away from the selected LGAs. Apart from the University of Ilorin Teaching Hospital, the nearest major orthopaedic specialist facility is the National orthopaedic hospital in *Igbobi*, Lagos state, also located about 400 kilometers away from the study area. However, sparsely distributed private-owned orthopaedic clinics, which abound mainly in the state capital, contribute to the delivery of orthopaedic services to the people in and around the state.

Edu LGA is as old as Kwara State itself, having been created in 1967 while Patigi was carved out of the old Edu LGA in 1996. Whereas Edu LGA had a population of 201,642, Patigi LGA had a population of 110,852 (Federal government of Nigeria, 2009), making a total of 312,494. Politically, both LGAs belong to the Kwara north senatorial district, an area with the lowest literacy level and socio-economic development in the state. The study area was predominantly rural, with very low presence of social amenities such as good road, portable water, school and electricity and health facilities. Edu LGA had a total of 57 health facilities (including 9 private-owned), 4 of which were secondary health facilities (3 private-owned and 1 government-owned). On the other hand, Patigi LGA had a total of 37 health facilities (including 3 private-owned PHC facilities) and 1 secondary health facility, a general hospital owned by the state government (Federal Ministry of Health, 2011). Most of these facilities were not located in the interior communities which made the area highly characterised by the presence and operation of patent medicine sellers (PMS) who provided the healthcare needs of the people in the remote areas. Some of the PMS were workers in the respective department of Health of their LGA.

The study area generally lacked good road networks, as most existing roads were in disrepair, which made referral difficult especially in emergency and trauma cases, a situation that may have further retarded access to specialised modern care and therefore fostered the preponderance of TBS utilisation. Also, there was shortage of diagnostic/medical services such as radiology, trauma and intensive care services as most providers of such services, just like majority of the abounding orthopaedic hospitals, were private-owned, located in the state capital where they enjoyed the advantage of existing infrastructures and made more profits (Abdulraheem, Olapipo and Amodu, 2011). Due to

poor intra-state transport system, easy access to the state capital and the fair presence of health facilities in the study area is also impeded. Hence, the people utilise healthcare from the various LGA-owned health centres and the few private-owned health centres in the area, the general hospitals and other health facilities in *Share*, headquarters of neighbouring *Ifelodun* LGA. The university teaching hospital in Ilorin (an average distance of 140KM away from the study area) served as the overall referral centre where complex or extremely necessary cases were presented.

Hence, residents were largely at the mercy of the sparsely distributed primary healthcare facilities scattered across the area. Incidentally, these facilities had also deteriorated to a level that they lacked capacity to manage specialised conditions like BJM conditions. It followed that traditional bone setters distributed across the area will be well patronised for BJM care. As reported by Aderibigbe *et al.* (2013), bone setters dominate the orthopaedic healthcare subsector by providing services to majority of the population in Kwara State.

3.2 An ethnography of the *Nupe*

Ethnography is the scientific description of the peoples and cultures of a given socio-cultural group as they exist in their natural environment (Oke, 1984). This section, therefore, focuses majorly on the primary observation as well as interviews conducted during the study, regarding the Nupe of Kwara state vis-à-vis their culture and society. In line with the methodology of the research, observations and interviews constituted the sources of these accounts; while reference is made to secondary literature sources as well as surveys conducted by the researcher, where necessary.

3.2.1 The *Nupe*: origin and geographical location

The *Nupe*refer a people who are geographically located in the central western part of Nigeria, resident in communities in present-day Niger, Kogi and Nassarawa states, as well as Abuja, the federal capital territory (FCT) of Nigeria (Sidi, 2012). In terms of language, the *Nupe* speak *Nupe,* incidentally, the same name by which the socio-cultural group is called. Thus, *Nupe* refers to both the nation and the language spoken by the people. The geographical location largely occupied by the *Nupe* is known as the *Kin-*

Nupe (land of the *Nupe*or *Nupe*land). Greenberg (1963) and Williamson (1987) were in consensus that *Nupe* is one of the languages spoken by many ethnic groups in the Middle Belt of Nigeria. They are dispersedly seen in *Gwagwalada, Zuba, Umaisha, Toto, Shamenge, Kanyehu, Gadabuke, Patigi, Lafiagi, Tsonga and Tsaragi, Bida, Agaie, Lapai, while others are found in Ajaokuta, Shintaku, Kontagora, Kotonkarfe, Abaji, Eggan and Budan,* among others. These communities are variously located in the different states and FCT (earlier mentioned) in present day Nigeria. In his historical account of the *Nupe* titled "Black Byzantium", renowned anthropologist, S.F. Nadel (1942), noted that the *Nupe* have ancient connections with Niger and Kaduna.

Alongside other languages like Igbo, Igala, Idoma, and Edo, *Nupe* is categorised under the *Kwa* sub-group of the Niger-Congo linguistic group (Dzeka and Okla, 2016). Like other tribes in Nigeria, the *Nupe* are known with different names by various socio-cultural groups in the country. For instance, while the *Hausa* refer to them as *Nufawa/Nupawa or Nufe/Nupe* (Singular), they are known to the *Kakanda* as *ANupecwayi*, the *Yoruba* call them *Tapa,* whereas among the *Birnin Gwari* and *Gbagi* of *Paiko* (Niger state, Nigeria), they are referred to as Anufawehi. However, the *Nupe* of Nigeria refer to themselves as *Nupecizhi* (Plural) or *Nupeci* (Singular).

Scholars, particularly in Anthropology, History and Sociology, have held conflicting views on the ancestral origin of the *Nupe*. Some scholars posit that Egypt is the ancestral home of the *Nupe* while many argue that the *Nupe* is traceable to the different places where they are presently located in some parts of Kogi, Niger and Kwara states, as well as Abuja, Nigeria's Capital. However,*Edegi* also known as *Tsoede* is generally regarded as the founder of *Nupe* nation (Abdullahi, Egbokhare and Folajmi, 2017; Yahaya, 2003). Historical accounts by these scholars revealed that *Tsoede* had an *Igala* origin but his mother was from *Nupe* land. According to them, the *Nupe* at some historical epochs also paid allegiance to *Atta* (king) of the Igala. Thus, *Tsoede* is today known as the mythical founder and cultural hero of the *Nupe*.

3.2.2 Political organisation of the Nupe

The Nupe, like most socio-cultural groups in present-day Nigeria, had indigenous ways of social organisation, by which they administered their societies. The political

administration of the Nupe may not have been properly documented, but definitely has evolved over time (Yahaya, 2003). Nadel (1942)noted that the political system in the *Nupe*kingdom dates to the pre-*Tsoede* era. Today, the Nupe operate the emirate, as practised in most of northern Nigeria with great Islamic influence. Extensive as the present *Nupe* land is, the traditional ruler of *Bida*in present-day Niger state is recognised as the overall political head of all the Nupe districts (Sidi, 2012). Hence, he bears the title of, and is addressed, as the *Etsu* Nupe (Nupe king).

Under the Nupe system, there was a traditional ruling council known as the *Emitsu',* which assists the paramount traditional ruler in carrying out political administration of the district. Two major titles were identified for district paramount rulers in the study area. These were *Emir* and *Etsu.* While the "Emir" referred to those whose territories were believed to have been conquered by the 1804 Jihad of Fulani, led by Uthman Dan Fodio, the "Etsu" were believed to be those whose territories were not conquered by the Fulani Jihadist. Consequently, the *Emir* were believed to be descendants of the Fulani, while the *Etsu* were believed to be the indigenous Nupe kings.

The district headquarters where traditional rulers abound in the study area included *Lafiagi, Tsonga, Tsaragi and Patigi,* all of which were less rural in terms of social amenities and socio-economic activities. TBS practice was reported to have existed in these district headquarters but the practice had either gone extinct or practitioners had moved into the city in search of greener pasture. Thus, most of the communities where TBS abound in the areas were rural, except in the case of Bacita, where the two practitioners were not indigenous to the community but had migrated from *Lafiagi*, one of the district headquarters, through their father who came to work in the Sugar company in *Bacita*.

Aside the traditional rulers in the district headquarters, there were also village heads known as *Etsuyankpa* who administered a group of villages and the *Ndazhitsu* who assisted the *Etsuyankpa* in the administration of each village. The *Etsuyankpa* reported to the traditional ruler at the district headquarters, where he also served as member of the traditional ruling council. These village heads had greater proximity with the people, including the TBS practice which, as a cultural form, was an important part of the social system, as implied by Parsons (1951).

A micro level political structure was also observed in the study area, domiciled in a group of extended family with common ancestry. This was called the *Emi* (family compound); it was headed by the *Emitso',* usually the oldest person who administered the affairs of the entire *Emi,* andreported to the village head. The family heads constituted the council of elders who assisted thevillage head in managing the activities in the village. The elders received special titles which reflected the occupation of each family and every family was represented (Abubakar, 1978; Mohammad, 2016). Furthermore, it was noted that age grade assisted the village in directing the concerns of the village.

3.2.3 Socio-economic activities among the *Nupe*of Kwara state, Nigeria

The *Nupe* are essentially an agrarian people. They are also involved in trade and commerce, fishing, blacksmithing, hunting, tailoring, traditional soap making, woodworks and traditional medical practice. The people are also active in crop and livestock farming and their main engagement in these agricultural practices can be explained by the existence of two major rivers, river Niger and river Kaduna, and there numerous subsidiaries across *Nupe* land (Sidi, 2012). Some of the prominent crops cultivated among the *Nupe*include rice, yam, kolanut, millet, maize, melon, oil palm, banana, sugarcane and vegetable. However, the crop to cultivate at a particular place and time depends on the nature of soil, seasonality, expertise and preference of the farmer (Yahaya, 2003). The *Nupe* produced and traded on iron war weapons like local guns, arrow and spears. Similar to the views of Oke (1984), the *Nupe* may have evolved these occupations as part of the socio-cultural response towards adapting to their environment.

In spite of the general advancement in science and technology globally, it was observed that most socio-economic activities among the*Nupe*arestill based on the traditional technology and techniques that had been evolved by their fore fathers, with modifications in some instances. This may be attributed to the generally low level of education, especially in the area of "indigenous science and technology development" in Nigeria. Rurality in Nigeria, such that characterised most of the study area, tended to be associated with inadequate opportunities and resources for the development of indigenous materials and methods (Adodo, 2018). This had implications for the quality as well as quantity of local productivity in a teeming population, especially those bordered around farming where most of the peoples' socio-economic activities revolved.

Thus, the value chain of farm products, for instance, were generally under-developed, resulting in lower incomes. The commonly used processing techniques were the mills and grinding machines (see Fig 12) which served as basic processing systems for farm products such as cassava, rice and melon. As expressed above, the people recognised that lack or inadequacy of modern technology inhibits the optimisation of their maximum potential. A major gender dimension to socio-economic activities was that production, which was believed to involve more strenuous tasks, was mainly carried out by the men, while the women engaged more in processing and commerce-related activities. This division was, however, not strict and there were no taboos around them, as either sex could do whatever task he or she deems needful.

In terms of market, specific *efo dzuko* (market days) were set by the people, and this held on fixed days, changeable only by the Emir. The large markets in the areas were usually located at the emirate headquarters where people brought commodities (farm produce, animals, crafts, and food stuff) from the other villages for socio-economic purposes. People came from different parts of the country to purchase grains and other commodities produced by the *Nupe* in the study area. Thus, the markets provided opportunities for inter-group relations between the *Nupe*andtheir neighbouring *Yoruba,*as well as other peoples and cultures of Nigeria. Additionally, commercial activities also held in the domestic spheres, especially during non-market days. For instance, people came from the east, far north and the south to purchase grains such as groundnut, melon guinea corn as well as processed foods like *Garri* (Cassava flakes).

Similar to the report of Yakubu (2012), commercial motorcycle, popularly called *Okada, kabuor mashin* in the *Nupe* language, were generally observed toconstitute a major socio-economic activity particularly among the youths in the area. It played important roles in transportingpeople and commodities from farm or home to the market and back, particularly in areas that were not motorable. Operators combined commercial motorcycles business with farming and non-formal occupations in the area.

As noted by Owumi et al (2016), the causes of bone, joint and muscle (BJM) conditions are ingrained in the socio-economic activities that people engage in in their everyday life. As can be observed from Table 6, majority (77.2%) of the study population belonged to the informal occupational categories, which may have influenced the

incidence of BJM conditions among them. For instance, Table 10 revealed that more than half (51.2%) of persons who had had BJM conditions before was due to motorcycle accident, an outcome similar to the findings of other studies (Olaitan, 2011; Ekere, 2012 et al, Dukiya and Egwim, 2015; Muazu, 2019). This may be due to the generally bad condition of roads in the study area, most of which were untarred and sandy.

3.2.4 Religion and belief system among the Nupe of Kwara state, Nigeria

Like most peoples and cultures of Africa, the *Nupe* practised traditional religions in the earliest periods of their evolution, prior to contact with Christianity and Islam (Nadel, 1942). The ancient *Nupe* dynasty held a belief in a supreme being (God) who created all things but dwells far in the skies. In order to relate with this Supreme Being, therefore, there was the need for a mediator between God and man, which explains the role of deities such as revered sites or engraved images (Kohnert, 2007). These cultural beliefs of the ancient *Nupe* were embedded in cults 'Chigbe' and ritual activities 'Kutizhi' (Nadel, 1942; Muhammad, 2016).

Kohnert (2007) noted that prior to colonialism, the *Nupe* land was known for its practice of witchcraft and magic. He added further that, just like many cultures in sub-Saharan Africa, witchcraft accusation was also prevalent in the *Nupe* land. Hence, some people belonged to anti-witchcraft cults. Comaroff (1999) indicated that there was a widespread of witchcraft activities at the initial arrival of the colonialist. Witchcraft practices in *Nupe* land historically influenced every aspect of the people's interactions: socio-political, economic and cultural (Kohnert, 2007).

The cults in the traditional belief system of the *Nupe* helped in mediating in issues between the Supreme Being (*Soko*) and humans. Sidi (2012) identified some of the cults that existed in the ancient *Nupe* land as *Gugu*, *Gboya, Kuti Sogba, Gani, Gunnu, Ndakogboya, Kuti Duaga.* Muhammad (2016) further argued that the *Nupe* held strongly the practice of fortune-telling and belief in spiritual power of ancestors. He pointed out that the fortune-tellers claimed to have the knowledge of the invisible, and as well pretended to know all things either through incarnations or their contact with demons/evil spirits.

The most prevalent of the traditional belief system in the old *Nupe* Kingdom was the Gunu - the worship of a guardian spirit (Nadel, 1942). The males offered libation to the deity with the blood of an animal annually. The *Ndakogboya* cult was widespread among several communities in the Old *Nupe* kingdom and also present in some communities in the present-day *Nupe* land Kohnert (2007). *Ndakogboya* cult was known for its magical powers which were deployed to counter or checkmate witchcraft practices. The cult was headed by a priest called *'Majindodo'*. Nadel (1942) noted that the *Gunnu* cult was involved with rituals meant to connect and channel celestial power for specific use such as to enable fertility of the soil, good health, abundant food and rainfall (Sidi. 2012).

Kohnert (2007) submitted that Islam was somewhat known in the *Nupe* kingdom by the late 16th century. He claimed that by that period, the *Nupe* Muslims had accepted the doctrine of Islam either partially or fully. He also noted that by the 17th century, the *Nupe* already had connection with names and activities that are linked to Islamic practices predominant among the Hausas; these include *sadeki* (dowry), *Aduwa* (prayer or supplication), *balayi* or *musibah* (calamity). It was not until 1902, however, that Christianity came into *Nupe* land, after two failed attempts in 1893 and 1903 (Ayandele, 1966). The duo of Christianity and Islam accounted for more than 85% of religious affiliation of the study population while 13.1% of the people were reported to concurrently adhere to different religions (syncretism), based on their belief in the oneness of God (see Table 5). Whereas Christianity and Islam appear to have overwhelmed traditional religion in *Nupe* land, Yahaya (2003) and Kohnert (2007) suggested that many *Nupe* people still practise traditional religion secretly, while professing Christianity or Islam in the open.

Consequently, TBS practitioners as well as patients in the study area comprised both Christians and Muslims. They also employed religious resources in the delivery of healthcare, as both the etiology of BJM conditions, their treatment and healing were believed to have spiritual dimensions. This was a major perceived advantage of TBS and a consideration that contributed to its utilisation. For instance, *Baban* (ability to treat BJM conditions), *Egwa* ("hand") were spiritual components of TBS practice (see table 7), which hinged on religion and belief system. Thus, beyond the political economy of

healthcare resources, belief and religious factors were major factors that accounted for the persistence and continued relevance of TBS in the study area.

3.3 Study population

The population for this study comprised the patients, practitioners, primary health care (PHC) providers and local chiefs/community leaders among the *Nupe* of Kwara State. The *Nupe* of Kwara State are located in *Edu* LGA and *Patigi* LGA in Kwara-north senatorial district. The *Nupe* were purposively selected due to the fact that they were generally renowned for providing BJM healthcare services in the area, which attracted patients from other parts of the State and beyond (Yahaya, 2003; Aderibigbe *et al*., 2013). Specifically, the study focused on *Nupe* TBS, their patients, primary healthcare providers (nurses, auxiliary nurses and patent medicine sellers), community leaders and community members. These groups were selected for study because they constituted major stakeholders whose interaction produced the dynamics of TBS healthcare utilisation in the area. In all, the study involved 15 practitioners, 18 patients, 6 local Chiefs/community leaders and 9 primary healthcare providers, and 660 community members who met the criteria for inclusion for the survey. All these were spread proportionally across the study area.

The practitioners consisted of TBS family members who had taken up the practice as a major occupation. Patients included male and female individuals who utilised TBS either as outpatients or inpatients. Also, the community leaders were the socio-cultural leaders of the communities who constituted important stakeholders as custodians of tradition; they were highly knowledgeable on the therapeutic and socio-economic significance of TBS and the associated processes. Primary healthcare providers who also played major roles in healthcare delivery constituted major key informants in the study, as their occupation posited them for constant interaction with both patients and TBS (Ekere and Echem, 2012; Durowade, Bolarinwa, fenenga and Akande, 2018). Also included under this category were the auxiliary nurses and patent medicine vendors who often participated in the therapeutic processes of TBS especially in the rural areas (Gyoh, 2010). A community survey was deemed necessary with focus on members of the study communities who were considered stakeholders in the utilisation. Community members

actually played significant role in facilitating contact between prospective patients and the bone setters, as well as providing social support for TBS in-patients (Aderibigbe *et al*., 2013; Onyemaechi *et al*., 2014; Owumi, Kolo and Taiwo, 2016).

3.4 Determination of sample size for quantitative data

Godden's (2004) sampling formula for infinite population was used to determine the sample size that was drawn for the community survey in this research. As already noted, the survey comprised community members who were resident in the study area. They constituted respondents from whom quantitative data was collected for the study. The formula is presented thus:

$$SS = \frac{Z^2 \times (P) \times (1-P)}{c^2}$$

Where:

SS = Sample Size

Z = the standard normal deviation for the 95% confidence level (1.96).

P = Percentage picking a choice expressed as a decimal

C = the precision i.e. the level of accuracy desired or sampling error or one half of the width of the confidence interval (usually set at 0.05).

3.5 Inclusion Criteria

- Male or female aged 18 years and above – this is to ensure that respondents were mature and knowledgeable enough on the operation of bone setting in the community, since 18 years is regarded as the age of maturity in Nigeria.
- Must be resident within a household in the community for a minimum of 10 years. This is to ensure that only persons who have thorough knowledge of the research are involved.
- Must be physically fit and healthy enough to respond to the questionnaire

3.6 Sampling procedure for quantitative data

This study adopted multi-stage sampling technique in selecting respondents for community survey. Probability and non-probability methods were employed, using a combination of purposive, cluster, simple random and systematic sampling techniques. The first stage was the purposive selection of Edu and Patigi LGAs where the *Nupe* abound in Kwara State, Nigeria. This was due to the fact that TBS was a common therapeutic practice in Kwara State (Aderibigbe *et al.*, 2013); and more importantly, TBS is a major traditional occupation for which the *Nupe* of present-day Kwara State are renown (Yahaya, 2003; Oleribe and Alasia, 2006; Owumi *et al*., 2016). Like most rural areas of Nigeria, there was inadequate availability of modern specialised healthcare services like orthopaedic facilities in the study area, a factor which may have contributed to the continued relevance of TBS in the area.

The second stage involved clustering of the area into communities based on the availability of TBS practice. Though officially published statistics were not available on the population of the communities, selection of the specific clusters (communities) where survey was conducted within each LGA was determined using Population Proportionate Sampling (PPS) relying on the available locally-projected statistics of the selected LGAs. Edu LGA had a population of 201,642, while Patigi LGA had a population of 110,852 (Federal government of Nigeria, 2009), making a total of 312,494. Therefore, half the number of communities selected for Edu LGA was selected for Patigi LGA. The communities were selected from the list of available communities obtained from the emirate authorities. Consequently, nine (9) communities (Bacita, Saba-Gina, Kpankorogi, Kocitako, Patidzuru, Patiko, Lema, Ndako Yissa and Dada) constituted clusters in Edu LGA, while five (5) communities (Patigi, Sokingi, Pututa, Fey and Ndanaku) constituted selected communities in Patigi LGA.

In the third stage, to select the first household to survey, a community is divided into 4 sectors by creating a sketch of the community using identifiable landmarks (roads, church, mosques, schools and markets) with the help of a native who is familiar with the area. The first sector to commence the survey was selected using table of random

numbers. And from the centre of the sector, a bottle was spun on the ground to determine the direction and the first household to commence the survey. However, in a compound, only one household was selected by numbering all households in the compound and randomly selecting one household with the help of Table of Random Numbers.

At the fourth stage, systematic sampling was used in selecting every third household in each community to ensure spread of sample across the entire community. Selection of further households to be surveyed was to the right of the first selected household, and the same side of the street as the first selected household was maintained all through the survey. However, whenever the researcher arrived at the same household again, the researcher turns left and at the first opportunity turns, right and continued sampling until the whole sectors were exhausted.

Furthermore, when no eligible house head was found in a household, or the household was either locked (there was no answer) or noncompliant, the researcher moved to the next household to the immediate right. The procedure for multi-stage sampling for the community survey is presented in Table 1.

Table 1: Procedure for multi-stage sampling

Stages	**Sampling techniques**
1st	Purposive selection of Edu and Patigi LGAs
2nd	Clustering the area into communities, based on the availability of TBS services
3rd	Random selection of the first household
4th	Systematic selection of every third household in the community

Source: Researcher (2019)

The procedure presented in table 1 is to ensure a systematic and comprehensivecoverage of the study area. Table 2 presents the 14 communities (clusters) where the administration of questionnaires took place across the study area, as well as the respective number of questionnaires that were administered in each of the communities.

Table 2: Proportion of Questionnaire administration by community

Community	Number of respondents
Tsaragi	67
Saba-Gina	42
Patidzuru	67
Kpankorogi	42
Kocitako	47
Bacita	62
Sokingi	42
Patiko	42
Pututa	44
Lema	62
Ndako-Yissa	42
Dada	42
Fey	24
Ndanaku	35
Total	**660**

Source: Researcher (2019)

3.7 Research instruments and procedure of administration

The instruments for this study comprised qualitative and quantitative research tools. The instruments were carefully designed based on their suitability to the objectives of the study. Apart from the questionnaire which was used to elicit quantitative data through the survey method, the study also employed direct observation of TBS clinic procedures and associated processes, In-depth Interview (IDI) with TBS practitioners and their patients, as well as key informant interview (KII) with community leaders and Primary Health Care (PHC) Providers. These constituted the research instruments that were employed in gathering relevant data for this study. The instruments and the procedures of their administration are described below:

3.7.1 Structured questionnaire: Questionnaire was used as the instrument for carrying out community survey. This was adopted to facilitate a better understanding of the *Nupe* society and culture in relation to TBS practice and utilisation. The questionnaire comprised five (5) sections including socio-demographic characteristics, social organisation of TBS, dynamics of TBS utilisation, interface between TBS and modern healthcare and strategies for the development of TBS. These themes were derived from the research objectives while their constituting questions were developed based on the concepts and patterns found in the literature.

The questionnaire was administered to respondents (660) selected from among community members in the study area, using the procedure presented in Table 1. These community members were important, given their place as significant others whose perspectives provided insights on the dynamics of TBS utilisation, as well as strategies for the development of TBS as a community-based therapeutic source especially among a

rural people like the *Nupe*. The questionnaires were interviewer-administered (in the local language, except in situations where respondents could read and write) to persons who met the inclusion criteria.

3.7.2 Unobtrusive observation: Due to barriers including socio-cultural and practice principles which restricted the extent to which the researcher could interfere or participate in the practice and operation of TBS, the study adopted unobtrusive method of observation using a predetermined observation checklist. Observation focused on patient entry and administrative procedures in TBS, clinic session, regimen and therapeutic approaches, how modern healthcare is engaged in TBS, practitioner-patient interaction and the social organisation of TBS. Other issues observed included the social situation of patients' ward, leisure and rest; norms and traditions guiding life in and around TBS outlets, as well as the micro details of everyday life at the TBS clinic. Thus, four (4) TBS practice units were purposively selected for observation in *Lema, Patidzuru, Kpankorogi and Ndako Yissa*. The communities selected were in two categories of large-scale clinics *(Lema and Patidzuru)* andsmall-scale clinics *(Kankorogi* and *Ndako-Yissa)*.

In addition to unobtrusive observation, the researcher also had a direct experience of TBS treatment which he utilised due to a crack in the left arm which was sustained from Road Traffic Accident (RTA) that he was involved in. Thus, the researcher himself became a TBS patient at some point during the study. The choice of TBS for the researcher's BJM condition (crack in the left wrist) afforded him more primary data that helped to consolidate on the initially adopted unobtrusive method of observation. This experience helped to generate unanticipated data which may not have been discovered using any other method.

3.7.3 In-depth interview (IDI)

The IDI was conducted with practitioners as well as patients of TBS who met the inclusion criteria for the study. Thus, two different IDI guides were developed for the study. This method was used to elicit in-depth opinions, perceptions and subjective thoughts and beliefs of practitioners about TBS. Other data goals included TBS origin

and evolution over time, social organisation, practitioner recruitment, patients' entry procedures, issues bordering on regimen, therapeutic approaches and processes, surrounding mythologies and principles of practice as well as interface of TBS with its counterpart modern healthcare. For practitioners, the IDI guide comprised questions and probes that were tailored towards uncovering the aforesaid issues from the micro-subjective perspective of practitioners as they operated within the socio-cultural contexts of the *Nupe.* The IDI also captured practitioners' account of changes that had taken place in the practice of bone setting over time, with a view to identifying opportunities for strategic interventions. Thus, 15 practitioners were purposively selected for IDI across the study area. To be included as participant, a practitioner ought to have provided therapeutic services in the preceding 3 months.

For patients, IDI included both in-patients and out-patients who had completed (and were coming for check-up) and those who were on the verge of completing their treatment under the TBS system in the TBS clinic. This was to enable the researcher to access a rich gamut of information, as exiting patients would have experienced the entire phases of TBS utilisation, including its pathways, dynamics and related processes of social and therapeutic character, the social situation of TBS patients, engagement of modern primary healthcare and the role of community in patients' care. Thus, eighteen (18) patients were purposively selected for IDI, which took into account, the comfort and convenience of TBS patients. With 9 in-patients and 9 out-patients (18 in all), the IDI further investigated patients' considerations for the choice of TBS, pathway to the utilisation of care, perception about the TBS system, procedures for acceptance into the system and therapeutic regimen, as well as issues bordering on constraints in the utilisation of care and how TBS can be improved as an indigenous healthcare system. The IDI with patients appropriated patients' perspectives on TBS.

3.7.4 Key informant interview (KII)

Particular individuals, due to their position in the community, possessed in-depth knowledge of certain phenomenon, and this qualified them as key informants in relation to the given matter. In relation to the subject of this research, these individuals (key informants) included community leaders/ local chiefs who were custodians of tradition,

and modern primary health care (PHC) providers (trained nurses, community health workers, auxiliary nurses as well as patent medicine vendors). Included as key informants in this study were individuals who had operated consistently in the study area for a minimum of the 6 months and have atleast 5years experience as a TBS practitioner. A total of fifteen (15) KIIs were conducted in all. These included six (6) local chiefs and nine (9) modern Primary Healthcare (PHC) providers. Local chiefs were resident in the area and had held office for at least five (5) years, with TBS practice operational within their domain. The PHC providers had also practised for a minimum of two years, either as a LGA employee, a private patent medicine seller or as an auxiliary nurse employed by the TBS. In some cases, members of the TBS family who had training in community health also provided PHC services which they combined with TBS practice. All the PHC providers included in the study contributed to the provision of TBS services.

The KII with local chiefs/community leaders focused on the cultural evolution of TBS, the social position of practitioners and their role in the therapeutic and socio-economic life of the community, the role of traditional authority as well as community support for TBS practice. On the other hand, KII with PHC providers focused on the interface between modern healthcare and TBS practitioners, including areas of collaboration with TBS and specific activities and inputs through which they contributed to TBS operation.

These instruments are presented in Table 3 alongside the objective that was addressed by each of them.

Table 3: Matrix of research objectives and data collection instruments

Objective	Observation	IDI	KII	Questionnaire
One		✓	✓	
Two	✓	✓	✓	
Three		✓	✓	✓
Four	✓	✓	✓	✓
Five	✓	✓		✓

3.8 Validity and reliability of research instrument

The qualitative research instruments, which were originally designed in English language, were translated into Nupe language. A specialist was subsequently enlisted to assist in developing the instruments for face and content validity. The translated instruments were also back-translated into English language to confirm for validity and trustworthiness. Furthermore, Cronbach's Alpha correlation coefficient was used to determine the reliability of the questionnaire. The overall reliability co-efficient for the instrument was 0.893, demonstrating that the questionnaire had high level of internal consistency based on the average inter-item correlation.

3.9 Pre-test

The research instruments were pre-tested among 30 community members in Edu Local Government area. These community members were carefully selected, so that they shared similar characteristics with those of the study population. This formed the verified basis of the instruments' consistency in yielding the same results for reliability purposes.

3.10 Method of data analysis

There was the need to review, sort and label the instruments before data analysis could commence, following the collection of data. Subsequently, the Statistical Package for Social Sciences (SPSS) version 18 was used for the analysis of quantitative data using descriptive statistics and multivariate analysis. Quantitative data were cleaned, coded and entered into the computer platform from where further analyses were carried out.

The descriptive analysis made use of simple tables and percentages, while the multivariate level analysis involved the use of binary logistic regression to determine the effect of respondents' sociodemographic characteristics on TBS utilisation as well as time to presentation for TBS utilisation in the study area at $p<0.05$ level of significance. The equation is shown below:

$$\text{Logit}(Y) = ln\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots \beta_n X_{n.}$$

Where Logit (***Y***) = The log (to base *e*) of the likelihood ratio or odds ratio that the dependent variable Y {TBS Utilisation = Yes (1); No (0), Time to presentation for TBS utilisation = 2 weeks and below (1); Above 2 weeks (0)} is ranged to take any value between '0' and '1' rather than just '0' and '1'.

$\boldsymbol{\pi}$ = The probability of event;

$\boldsymbol{\alpha}$ =The *Y* intercept as a constant of the equation;

$\boldsymbol{\beta}$s =The coefficient(s) of the predictor variable(s);

Xs =Set Predictor variable(s)

Therefore, the logistic regression predicted the logit of *Y* from *Xs.* And this logit also means that the natural logarithm (*ln*) of the odds of *Y*, are the ratios of the probabilities ($\boldsymbol{\pi}$) of *Y* happening (TBS utilisation / 2 weeks and below) to the probabilities ($\mathbf{1 - \pi}$) of *Y* not happening (no TBS utilisation / Above 2 weeks).

On the other hand, qualitative data was transcribed and translated, cleaned and analysed for their content and themes using the predetermined variables. Related and cross-cutting themes were identified and highlighted, based on coding and grouping, and used for qualitative discussions in the study. The summary presented in Table 4 is a matrix describing analyses that were carried out vis-à-vis each research objective.

Table 4: Matrix of Analysis

OBJECTIVE	VARIABLE	INDICATOR	MEASUREMENT
1: To explore the nature of traditional bone setting among the Nupe of Kwara state	**Indigenous technology for TBS healthcare**	• Diagnosis and treatment procedure; Information sourcing; sources of knowledge/training • Equipment used in treatment • Skills, know-how; and medicines – prescriptions	**Qualitative:** content analysis and thematic interpretation of IDI, CS and KII on nature of TBS
	Healthcare Delivery/Services	• Job roles and designations • Quality Assurance of Care • TBS utilisation; role of Patients in treatment; and perception about care • Role of caregivers in treatment; how therapeutic resources are sought	**Qualitative:** content analysis and thematic interpretation of IDI, FGD and CS on nature of TBS
	Treatment cost	• Cost of care and payment regimes • The role of social networks in defraying costs • Credit facilities, and other payment options/plans; instalments	**Qualitative:** content analysis and thematic interpretation of IDI and FGD on nature of TBS
2: To investigate the structure of TBS among the Nupe of Kwara State	**Leadership/authority System**	• Practice decision making; state regulation • Traditional norms ; Succession planning • Association/union	**Qualitative:** content analysis and thematic interpretation of IDI and CS
	Human resources for health	• Socio-demographic characteristics of TBS team; recruitment of practitioners; training; capacity development • Network of TM practitioners • Modern healthcare (PHC)	**Qualitative:** content analysis and thematic interpretation of IDI and CS
	Funding of TBS practice:	• Out of pocket payment • Loan; practitioners' personal Savings; Revenue from practice • Practitioners' cooperative Society - • State funding; family contribution/support	**Qualitative:** content analysis and thematic interpretation of IDI and CS
	Healthcare delivery strategy/Options:	• Place of practice • Care team; specialised services • Outcome of care – successful cases, and cases of referral for orthodox care	**Qualitative:** content analysis and thematic interpretation of IDI and FGD
3: To examine the utilisation of TBS among the Nupe of Kwara state	**Scale and scope of TBS practice**	• Clinic size; widespreadness of TBS practice in the study area • Number of patients (per month) • The decision to utilise TBS, and its the predictors	***The qualitative:** content analysis and thematic interpretation of case studies ***The quantitative** descriptive

		• TBS utilisation	and inferential statistics
4: To examine the interface of TBS with modern healthcare	**Transformations in usage**	• The use of modern healthcare • Treatment contract; • Changing beliefs about TBS practice; stakeholders and their changing roles; and changes in TBS structure	**Qualitative:** content analysis and thematic interpretation of IDI and OB on structure of TBS
5: To identify strategies for the development of TBS	**TBS as an healthcare system**	• Engagement with the state; community linkages • Sourcing regimen from the environment • Cultural ideologies about TBS practice • Regulation of practice • Adoption of modern technology • Support and funding	**The qualitative:** content analysis and thematic interpretation of FGD, IDI, KII and OB on structure of TBS ***The quantitative:** univariate and bi-variate analysis of survey data

3.11 Ethical considerations

The study abided by the principles governing human subject research. Ethical approval was sought from and granted by the UI/Social science research ethical review board (See Appendix 7).

Permission to conduct study: Permission was sought both from the village head of each community and the head of the TBS practice unit before data collection commenced. The researcher identified himself with the University of Ibadan identity card, a letter of introduction from the researcher's department as well as ethical approval from the research ethics review board**.** Permission was also sought from subjects before photographs were taken during observation.

Informed consent form: The researcher and his assistants ensured detailed explanation of the focus, purpose and process of the research. This was done in the local language and within socio-cultural contexts of the study communities for easy comprehension by the respondents. Consent form was completed by each respondent, prior to the administration of the research instrument.

Voluntary participation: The research participants were not coerced or manipulated into participating in the study. Participants or respondents were included based on voluntary participation, and they could withdraw from the study at any time that they deemed fit.

Absence of physical harm: The researcher and his assistants took special cognizance of study participants, especially patients whose condition required complete or partial immobilisation. Only patients who were fit enough were included in the study. Patients were encouraged to be in their most comfortable posture and interviews were conducted at times that were most convenient for the patients and within their immediate environment. The research participants were also allowed period of break, if they felt tired, while effort was made to avoid unnecessary elongation of the interview sessions.

Anonymity and confidentiality: Respondents' privacy and confidentiality were respected, such that no piece of information can be traced to any research subject.

CHAPTER FOUR

DATA PRESENTATION AND DISCUSSION OF FINDINGS

This chapter focuses on the presentation and analysis of the data collected during the fieldwork of this research. The data presented here are from primary sources; that is, they were collected directly by the researcher, first hand, using quantitative and qualitative methods. The study was conducted among the Nupe of Kwara state with a view to understanding the nature of TBS as a therapeutic source and socio-economic activity practised among and within the contexts of the people and their culture. The remainder of this chapter is structured thus: demographic characteristics of respondents (4.1), socio-economic characteristics of respondents (4.2), nature of TBS among the Nupe of Kwara state (4.3), structure of TBS (4.4), a model representing the systemic model of TBS (4.5), Utilisation of TBS (4.6), interface between TBS and modern healthcare (4.7), TBS as a healthcare system (4.8) and strategies for the development of TBS (4.9).

4.0 Demographic characteristics of questionnaire respondents

Demographic attributes of human subjects constitute important factors in the understanding of the social phenomena under investigation. They offered insight into the contextual peculiarities of social phenomena under investigation. Through the lens of respondents' demographic profile, a link can be established between the coordinates of each category of the diverse pool of respondents who constitute the aggregate, and the observable social pattern or findings of a social research. Furthermore, predisposing factors for certain trends, micro details and socio-economic situations can be better understood (Vostrikova, 2014). This accounts for why demographic characteristics constitute an indispensable component of analysis of sociological research.

In this study, survey was conducted on members of the community, who are neither patients nor practitioners of TBS. This was with the goal of eliciting information

on perception about TBS as well as understand its place in the socio-economic life of the community as a social system. Community members as espoused by Parsons' (1951) theory are human agents whose interaction with each other and the environment produce the system from the micro (lower level social system) to the macro (higher level social system). Community constitutes the socio-spatial contexts within which TBS takes place; and therefore, is indispensable in in the analysis of a rural healthcare like TBS. Survey, in this study, could therefore prepare a basis for the sociology of TBS community as well as possible policy imperatives.

Community survey (Table 4) revealed that at least 71.1% of the respondents fell within the socio-economically active ages (18-57). Due to the predominantly rural character and predominantly informal economy of the area, official retirement age may not matter, since people engaged mostly in informal socio-economic activity. However, age may constitute a factor in the incidence and epidemiology of Bone Joint and Muscle (BJM) conditions.

Table 5: Demographic attributes of questionnaire respondents

Attribute	Frequency (Total N = 660)	Percentage
Age Distribution		
18 – 27	109	16.6
28 – 37	120	18.4
38 – 47	127	19.4
48 – 57	110	16.7
58 – 67	92	13.9
68 – 77	67	10.0
Above 77	35	4.9
Sex		
Female	206	30.4
Male	454	69.6
Marital Status		
Married	414	63.3
Single	246	36.7
Religious Affiliation		
Christianity	327	50.1
Islam	243	36.8
Syncretism	90	13.1
Place of Residence		
Rural	480	73.0
Semi-Urban	149	22.3
Urban	31	4.7

Source: Field Survey (2018)

Age influences the extent of people's engagement in socio-economic activities, and also their vulnerability to degenerative conditions such as Arthritis and Osteoporosis, both of which chances increase with age. With 18 as the minimum age for inclusion in this study, respondents were generally informed enough to provide insight on community perception about TBS as well as facilitate understanding on the TBS practice and utilisation. The sex distribution revealed that only 30.4% of respondents were females, a factor which may be attributed to dominance in African societies. In many of the households that were visited during this research, males were "nominated" to respond to the questionnaires. This resonates with the seemingly instrumental gender roles allocated to males in line with the patriarchal nature of the study area.

In terms of marital status, most of the respondents (63.3%) were married while the others submitted that they were single. This may be attributed to the age spread of the sample as well as the widespread practice of early marriage polygyny among the *Nupe.* None of the respondents signified that they were divorced or widowed. This is probably due to the widespread practice of polygyny, *nyinmi go* (wife grabbing) and *Epo la* (levirate marriage) among the people, particularly during farm harvest. With respect to religion, three major groups were identified in the study: Christians (50.1%), Muslims (36.8%) and a third group of syncretic people who combined either Christianity or Islam with *Nupe* traditional religion *(kuti gba)*. None of the respondents professed to the sole practice of *kuti gba*. This may be attributed to the overwhelming influence of the two major religions whose missionary/evangelistic activities have dominated the area and undermined the "legitimacy" of *kuti gba*, to an extent that professing faith in a *kuti* could be viewed as deviance by the "new" *Nupe* society. In his observation (2018), the researcher noted that adherents of *kuti gba* believed that they needed to validate their religious orientation by adopting one of the dominant religions, Christianity and Islam. Thus, the practice of *Kuti gba* among the Nupe is now largely shrouded in secrecy and relegated to the background.

Based on "place of residence", majority of the respondents (73.0%) lived in purely rural and remote areas. These rural areas were also remote and not easily accessible with good roads. Hence, the dominant means of transportation is motorcycle, popularly called *Mashin* or *Kabu* (in the case of commercial motorcycle). Like most rural

areas in Nigeria (Jegede, 2002), access to quality healthcare and other social amenities was either low or non-existent in most communities within the study area. The semi-urban communities within the study area were headquarters of two Local Government Areas (*Lafiagi* and *Patigi)* and two other towns (*Tsonga* and *Bacita*). Tsonga is a fast urbanizing community due to the establishment of a modern/industrial farm settlement by the Kwara State government, leading to the influx of foreigners (mostly Zimbabwean Whites), population growth and (elitist) improvement of social amenities; while *Bacita* housed the Nigerian Sugar Company (which recently underwent privatization) and the Nigerian Yeast and Alcohol Manufacturing Company, both of which have suffered setbacks in recent times. The urban residents among the respondents mainly comprised indigenous persons who worked in the state capital *(Ilorin)* but were based in their native towns or villages. This was common among the civil servants who also engaged in farming and other socio-economic activities in their villages.

4.1 Socio-economic characteristics of questionnaire respondents

Variables within the purview of socio-economic characteristics included educational levels, employment status, occupation and level of income. Like the demographic characteristics, this constituted background information that provided insight into the *Nupe* society vis-à-vis the range of socio-economic activities that the people engaged in.

Table 6: Socio-economic characteristics of questionnaire respondents

Attributes	Frequency (Total N = 660)	Percentage
Highest level of education		
Non-formal	143	21.5
Primary	143	21.5
Secondary	215	32.9
Tertiary	159	24.1
Employment status		
Employed	462	70.9
Not employed	198	29.1
Occupation		
Civil service	151	22.8
Business/Trade	111	16.5
Farming	247	38.2
Artisanship	23	2.5
Monthly Income		
20,000 and below	189	29.0
20001 – 40000	149	22.3
40001 – 60000	128	19.4
60001 – 80000	138	21.0
Above 80000	56	8.2

Source: Field Survey (2018)

Findings revealed that only 24.1% of the respondents had tertiary education, while about 32.9% had only secondary Education. Among those with tertiary education, it was observed that only few had University degree as majority of the people attended the College of Education (Technical) within the study area (Researcher's Observation, 2018). While this suggests limited access to quality primary and secondary education which may have qualified them for University admission, it also points to a longstanding lack of value for western education, a situation that is now being replaced with growing school enrolment among younger generation of the *Nupe*. Low level of education is likely to affect their awareness of modern orthopaedic healthcare services as well as the propensity to utilise same.

Unlike the findings of an urban-based study by Owumi et al. (2016) which revealed low employment rates, about 71% of respondents were employed. Most of the respondents were, however, in the informal sector and mostly self-employment in the financially less-rewarding occupations. These included trading (16.5%), farming (38.2%), artisanship (2.5%). Although agriculture is one sector of the Nigerian society that is resurging with great prospects, the low level of education and unfavourable policy dynamics as well as political marginalisation of the study area among other minority areas of the state(Oyedepo, 2015)have limited the extent to which the people could maximise the opportunities that abound**.** This reflected in respondents'income levels, although the researcher observed that most of the respondents outside formal employment were unable to expressly tell what their incomes were, due to improper record keeping.

From the demographic characteristics of the respondents, it can be inferred that the communities in the study area were generally backward, and by virtue of their social coordinates, in terms of resources and opportunities to lead

4.2 Socio-demographic characteristics of participants in qualitative data collection

This section presents the socio-demographic characteristics of human subjects who provided qualitative data for this study through the Key informant interview and In-depth interview sessions. The section is organised into two, Table 7 and Table 8. Table

7contains information on the two major categories of key informants for the study: local chiefs and primary healthcare providers, while Table 8 presented information on the in-depth interviewees of the study: TBS practitioners and TBS patients.

The local Chiefs who constituted the community leaders and cultural custodians from whom key information was elicited about the nature of TBS and other socio-cultural aspects of the context of TBS practice, were all males aged 50 years and above. This indicated the patriarchal nature of the study area, wherein authority resided in males; and the fact that only well matured persons occupied leadership positions in the *Nupe* culture. Hence, no youths or younger age categories were found occupying leadership positions in the area. Similarly, all the local chiefs interviewed were found to be married, a factor attributed to the social construction of marriage as an indicator of responsibility and status enhancer in most African societies. Being married enhances peoples' status for occupying leadership position.

Table 7: Socio-Demographic Characteristics of Key Informant Interview Participants

Key Informant	Attribute	Frequency
Local chief	**Age**	
	50-59	2
	60-69	2
	70 and above	2
	Sex	
	Male	6
	Marital status	
	Married	6
	Level of Education	
	Bible school	1
	No formal education	2
	Primary school	2
	Quranic education	1
	Religion	
	Christianity	2
	Islam	4
	Occupation	
	Farmer	4
	Tailor	1
	Mechanic	1
Primary Healthcare (PHC) provider	**Age**	
	20-29	1
	30-39	4
	40-49	3
	50-59	1
	Sex	
	Female	3
	Male	6
	Marital status	
	Single	1
	Married	8
	Level of Education	
	Apprenticeship/Auxiliary nurse training	2
	Senior Secondary Education	2
	Ordinary National Diploma	1
	Higher National Diploma	3
	Bachelor's Degree.	1
	Religion	
	Christianity	5
	Islam	4
	Occupation	
	Auxiliary nurse	2
	Community health worker	5
	Patent medicine seller	2

Out of the six (6) local chiefs interviewed, only two (2) did not have any formal education, while the remaining four (4) had various forms of education including bible school which is post-secondary (1), Quaranic education (2) and primary school leaving certificate. In terms of religious affiliation, the local chiefs either identified with Christianity or Islam, and none was atheist or adherent of traditional religion. This shows the impact of Christian and Islamic religions which, aside overwhelming the indigenous belief systems in the area, were also found to be major forces of social control as well as socio-political legitimacy in the area. Occupationally, majority (4) of the local chiefs were farmers while tailoring and motor mechanic work were the occupation of each of the remaining two (2). While this pointed to the agrarian nature of the study area, it also implicated the enterprising nature of the people in pursuing livelihoods by acquiring skills even outside of the natural Agric-based economy.

The primary healthcare (PHC) providers, on the other hand, comprised relatively younger persons mostly under 50 years of age. Due to the predominantly rural nature of the study area, this may be attributed to the relatively low level of education and school enrolment. Thus, people who had western education and auxiliary training in healthcare delivery belonged to relatively younger generations. The PHC providers included people of both sexes (3 females and 6 males), mostly (8 out of 9) married. The PHC providers who served as key informants in this study seemed to possess relatively low capacity to handle more complex conditions such as open injuries which may require specialist intervention. This implicates the need for functional referral systems to mobilise institutionalized resources to supply the PHC needs of TBS practice in the area. Of all nine (9) PHC providers interviewed, only the community health workers (5 out of 9) had some level of formal healthcare training ranging from Ordinary National Diploma (OND) to bachelor's degree. Specialised training can also be introduced for PHC providers to support TBS, while also meeting other PHC needs in the area.

In Table 8, the socio-demographic characteristics of in-depth interview (IDI) participants are presented. These included TBS practitioners and patients. The TBS practitioners interviewed were all married males with majority (12 out of 14) falling under 60 years old. Thus, practitioners who mostly fell within the active labour force were agile enough

to deliver TBS care and also able to recruit and develop workforce from among their children because they were married and had children. Incidentally, Majority (11) of the practitioners did not possess higher educational qualifications and even for those who did, only one was in a health-related discipline (HND in community health).

In terms of religion, practitioners (9) were mostly Muslims, and religion was a major source of spiritual resources that were utilised for the treatment of bone, joint and muscle (BJM) conditions. These included prayers, holy water, sacrifices and so forth. Though practitioners affiliated with Christianity and Islam, they recognised and utilised resources from other indigenous faith systems in the area, including consultation with diviners who often offered directions, particularly in cases that were perceived to have preternatural etiology or influences. In terms of occupation, participants had other occupations which around which they built their livelihood. This included farming (6), motor mechanic (1), trading, (3), Fishing (3) and civil service (1). Given the prohibition of economic exploitation or profiteering in TBS practice, most practitioners retained their original occupations which they combined with TBS practice for adequate livelihood.

Table 8: Socio-Demographic Characteristics of In-depth Interview Participants

In-depth Interviewee	Attribute	Frequency
TBS practitioner	**Age**	
	20-29	3
	30-39	5
	40-49	3
	50-59	1
	60 and above	2
	Sex	
	Female	4
	Male	14
	Marital status	
	Unmarried	2
	Married	12
	Level of Education	
	No formal education	3
	Primary school	5
	Secondary Education	3
	B.Sc./HND	3
	Religious affiliation	
	Christianity	5
	Islam	9
	Occupation	
	Farmer	6
	Mechanic	1
	Trader	3
	Fisherman	3
	Civil service	1
TBS patients	**Age**	
	20-29	7
	30-39	4
	40-49	3
	50-59	4
	Sex	
	Female	6
	Male	12
	Marital status	
	Single	7
	Married	11
	Level of Education	
	No formal education	4
	Quaranic education	2
	Primary school	2
	SSCE	3
	HND	4
	B.Sc.	3
	Religion	
	Christianity	8
	Islam	10
	Occupation	
	Farmer	4
	Artisan	6
	Trader	5
	Civil servant	3

The TBS patients, mostly males (12 of 18) were between ages twenty (20) and thirty-nine (39). This may be attributed to the fact that relatively younger persons were most likely to be socio-economically active and exposed to the causes of BJM conditions such as road traffic accident, sporting activities and occupational hazards. The patients comprised both single (7) and married (11) persons with varying educational levels and religious affiliation. People with tertiary education (7) as well as people employed in white-collar occupations (3) were found among the TBS patients who constituted the in-depth interviewees for this study. Thus, people across socio-demographic categories were found to utilise TBS as source of treatment for their BJM condition in the study area.

4.3 Nature of TBS among the Nupe of Kwara State

The nature of TBS included the intrinsic attributes or essential characteristics of the practice as it operates among the *Nupe*, as well as the transformations that have occurred over time. It included macro-tangible as well as micro elements of TBS. This section accounts for the cultural history, scope of practice and essentials of TBS (diagnosis, treatment, indigenous technology and service delivery) within the contexts of the study subjects, the Nupe of Kwara State, Nigeria. By cultural history, we refer to the cultural account about the emergence and evolution of TBS among the Nupe. The scope of TBS here refers to the practice's sphere of influence, *geographically* and *therapeutically*. The geographical sphere of TBS refers the spatial coverage of the practice (the range of peoples that utilise TBS as a system of BJM care), while the therapeutic coverage refers to the range of BJM conditions that are treated by practitioners.

4.3.1 Mythologies and guiding principles of TBS practice among the Nupe of Kwara state

Mythologies refer to a body of myths regarding a particular religious or cultural tradition. A Myth can be defined as stories, folklores, legends, beliefs or cultural narratives that provide fundamental explanations which guide and direct socio-cultural practices. Myths are usually based on and influenced by the religious and belief systems of a society (Oke, 1984). *Nupe* TBS, like most cultural practices, have peculiar mythologies which performed regulatory functions regarding practitioners' conduct and

patients' behaviour during treatment. The mythologies also assign specific responsibilities to the different actors of the TBS system, attributing sanctions in some cases. They constitute the principles for the ethical practice of TBS, protecting interests of all stakeholders. Although unfounded on scientific principles, these mythologies often align with some principles of conventional orthopaedic practice, towards the delivery of BJM to TBS patients. They have implications for hygiene, treatment compliance, social integration and social control, some of which were in consonance with best practices in modern medicine and its ethics.

The TBS practitioners were believed to be custodians of a divine assignment, which required that they brought succor and healing to people affected by BJM conditions, no matter the cause of their problem – natural or supernatural. They were considered "special" persons and therefore wielded some influence and respect in the community. Consequently, they were expected to be persons of virtue, patience, purity and humility. The TBS vocation forbade that they engaged in filthy acts like adultery, dishonesty and abuse of their office. This was corroborated in the submissions of a practitioner who noted that:

> …anybody that has *Aselibaban* (the tradition of bone setting) is not required to do filthy things, no matter how small. He must not sleep with people's wives, he must not collect money unnecessarily, except it is freely given to him as gift. We are also not expected to lie to patients or refuse to treat them because of their inability to pay. As much as possible, we must work in the overall best interest of the patient and do everything possible for him to get well, even if it means seeking help on his behalf. If anyone does anything contrary to these, such a person stands the risk of losing his vocation… *(IDI/Practitioner/farmer/50 years/primary school/Muslim)*

Thus, TBS in its ideal sense has mythologies that promote benevolence, playing important roles in conserving the practice in its classical sense. Practitioners were, however, aware that materialism and commodification of social life portended grave implications for authentic TBS practice. These, according to them, manifested in the proliferation of quack practitioners, not only of TBS, but of traditional medicine generally. In the submissions of one practitioner,

> …even our world itself has been reduced to money. People now do things ultimately to make money. They don't help others anymore. Whereas it was in order to provide help to people in need that *Allahu* (God) bestowed on us whatever it is that we can do…. People now think only in terms of money and they want the money without doing the work, even when they do it, they don't do it well. It was not like this, walahi… *(IDI/Practitioner/farmer/kpankorogi/56 years/primary school/Muslim)*

Practitioners believed that bone healing involves physical and metaphysical processes. In the words of one practitioner,

> bone grows, a process through which it heals, naturally. The main thing is for it to set fittingly. The only bone that will not grow is that which is dead. Healing takes place gradually. In the case of fracture that is newly *tied* (immobilised), the patient begins to feel pain from after 12 days. The patient feels pepperish sensation as God does the healing. He will also have dreams through which God reveals things to the patient. That is how bone heals, but the healing process is usually painful *(IDI/Practitioner/farmer/Saba-Gina/38 years/primary school/Muslim)*

Aside benevolent posture of *Nupe*TBS, practitioners had other observances that they were required to comply with. First, they were forbidden from eating half banana or sharing a piece of meat with another person. They were also forbidden from breaking corn or cassava into two, as so doing was tantamount to breaking a patient's bone. Practitioners could not adequately account for these taboos, but gave the simple explanation that, such acts had retrogressive effects on therapy. Furthermore, TBS practitioners were forbidden from collecting money or therapeutic materials from religious leaders or clerics who utilised their services. Rather, practitioners were encouraged to solicit blessings and prayers from these "special patients", that their treatments may continue to advance and grow in efficacy. Regardless of the class of patient, practitioners believed that it was more profitable for them to be under-rewarded

by patients, than for them to exploit patients. As much as possible, they were forbidden from neglecting patients for any reason, but especially indigence.

Patients on their part as active participants in the therapeutic process were required to also fulfil certain obligations, without which their treatment, as believed, could be thwarted. First, they were required to be patient and cooperate with and trust the practitioner as the person in whose care God had handed their healing. They were required to obey and cooperate with practitioners to the ultimate end of getting favourable treatment outcomes. It was a taboo for in-patients to have sexual intercourse in the ward, even with their spouse; while out-patients with fracture were not allowed to have sexual intercourse at all. Furthermore, Patients were prohibited from drinking water before treatment, based on the belief that so doing could cause imbalance in the patient's body, especially if it was a fresh case in which the patient was affected by shock. Practitioners could not offer detailed explanations on the implications of this, other than that drinking water prior to treatment could lead to the death of the patient.

Out-patients were also forbidden from keeping any medicine for fracture in a room where people sleep. It was believed that so doing would expose whoever lives in such a room to danger, because, according to them, the medicine does not like to stay without "doing its work". Hence, whoever keeps it in the room was likely to, sooner or later, become a TBS patient, because he may be involved in, say, accident that would warrant that he begins to use the medicine. Consequently, practitioners recommended that the medicine be kept in the bathroom, toilet or kitchen where people do not live in. Although this was not founded on science or verified scientifically, it was reported to be highly held to be true among practitioners and members of the community, hence the adherence to it.

4.3.2 Cultural evolution of TBS among the Nupe

There were diverse versions of the account of the emergence of TBS among the Nupe. Different practitioners gave varying explanations about how the practice came to be. While some practitioners attributed the practice's emergence to some sort of "try and error" which evolved in different stages through their ancestors and transmitted to successive generations, majority believed that the ability to treat BJM was divinely or

supernaturally gifted to their ancestors through some providential encounter. The first category believed BJM damage occurred through fall (from tree, horses), warfare, slipping off surfaces as well as injuries sustained from farming and wood fetching and were followed by a natural instinct to remedy the problem, a situation that resulted in earlier therapeutic attempts which culminated in the "setting" of fractured bone. Consequently, therapy for other BJM conditions gradually evolved based

In line with the aforesaid, a village head explained the historical evolution of TBS thus:

> …our village is very close to the *Eyagi* (Yoruba) and we used to engage in war with them in the olden days. It was our great grandfather that used to provide *tamako* (aid/care) to people who are (sic) injured during war. He was using different materials to effect healing and through that, he was able to identify which one was faster for treating which condition, whether it is *tsukun zun* (bone fracture), *eba ye* (dislocation), or *etin* (wound). People came to know him with the practice and that was how we became famous….*(KII/Village head/Patiduru/78years old/primary School/Christian).*

The second category consisted of three sets of explanation. First was the belief that God created the body with resources from nature, and that once the natural order of bodily health is violated, God also provided a way out for the various ailments that there are, TBS in the case of BJM. This position was corroborated by the view of one village head:

> Unlike the *Yoruba* who attribute any bad thing to evil spirit or enemy attack, our people have less preternatural cultural beliefs about illness, except you have evidence from diviners. We believe that ill-health is natural or God-ordained. That is, either one's lifestyle or normal health problems occurs or God wills that a person should experience a particular illness. That is why we hardly go spiritual about our health problems, except you suspect that somebody is "doing" you. In *kin Nupe* (Nupe land), we believe very much in *kadara* (fate) which controls most forces in the world. Health and illness are both God's work. *(Practitioner/Lema/55years old/primary School/Muslim)*

In addition to the fatalistic explanations to health, this category further made reference to instances in the sacred Scriptures, the Bible and Quran, where people's

health problems were healed by divine intervention. For this group, TBS was a divine remedy for healing BJM and it originated directly from God himself. The second set of explanation was on the theory that practitioners' ancestors were benevolent to certain *"Jenu"* (Jinn) through simple acts of kindness, and that the recipients of the benevolence decided to "gift" them with the ability to treat BJM. The third and most elaborate explanation is popular among the *Lema,* themost prominent *Nupe* TBS community located in Edu Local Government area of Kwara state.

The people of *Lema* traced the emergence of TBS to one of their ancestors, *Ndace Sheman,* a hunter. According to oral history, *Ndace Sheman* had a supernatural encounter with a *gaba* (lion) during one of his hunting expeditions. It was this encounter that produced what is now known as *baban* (bone setting) among theLema. According to the *Daudu* (family head) of *Lema* TBS family,

> The lion was caught in a trap, and usually, when that kind of thing happens, the wounded lion tries to retaliate by attacking whoever comes its way. A wounded lion is an angry lion, we all know. On seeing my grandfather (Ndace Sheman), however, this lion did not attempt to attack him, even as he drew closer to it. My grandfather drew close and noticed that one of the lion's leg had been broken, and unlike the typical hunters, he didn't attempt to kill the lion. Instead, he moved closer and was led to bind the broken leg with sticks and pieces of clothes. *Ndace Sheman* kept coming every day to check the lion and treat it until the lion became very familiar with him as its caregiver.

He continued:

> Ndace Seman and the lion became used to each other to the extent that the lion comes to meet him on the way, even before *Ndace Shema* gets to it. Soon, the lion started coming home with him after it got healed. *Ndace Sheman* still didn't kill the lion. He left it to go on its own. It was coming to visit at about that particular period every year. Long after then, whenever a new born child is named after *Ndace Sheman*, the lion would come to *Lema* to roar. People were seeing it, yet it did not attack them. Even my father saw it. When one of my brothers was born, the lion came and didn't leave until after 9 days, 2 days after the naming ceremony. *(IDI Practitioner/Lema/55years old/primary School/Muslim)*

However, another practitioner noted that TBS practice was not restricted to the *Nupe* alone, but it was a general practice among the respective peoples and cultures of the world. God divinely gifted it to all ethnic groups in the world through the servants of Allahu "who first bequeathed the practice to women, since they are the origin of all mankind". In his account, the TBS practitioner reported that:

> The Prophet Muhammad (S.A.W.) was tested by God on a particular day. He was fetching water by the well alongside some other people. Suddenly the *evo goga* (water drawer) fell into the well. On seeing this, , one of the owner's companions, a male, hit the holy Prophet with a slap on his face - for "throwing their *evo goga* into the well. Immediately, the very hand that slapped the Prophet was uprooted from the body. It took the special grace of God for the hand to be fixed back. Now, those who witnessed that event on that very day acquired the ability to heal similar health problems (BJM) and have bequeathed the ability to successive generations from that day, through birth. So we don't learn TBS, it is not possible. Our fathers inherited it originally from the Prophets of Allahu. *(IDI/ practitioner/farmer/Bacita/43 years/primary school/Muslim)*

However, it was generally believed that only people who had the *gbere* (root) of *Baban (TBS)* in their lineage can effectively heal fracture and related BJM conditions. The *Nupe* believed that people who were outside the *baban* family were excluded from the capacity to deliver BJM healthcare because they did not have *Aseli Baban (the tradition of bone setting).* They believed that people who had *Gbeere Baban* evolve *aseli Baban* which is automatically transferred through the blood line, within their family, from one generation to another. Beyond merely inheriting the tradition of bone setting, practitioners emphasised the need for mentorship from one's early years, so that one can grow into the practice. A practitioner shared his own experience thus:

> I did not have to learn Baban the way people go to learn tailoring or mechanic work. Since I already inherited the *Aseli* (tradition), I simply observed my father treating people right from when I was young; and that is how I became conversant with the practice. *(IDI/ Practitioner/Bricklayer/Saba Gina/41 years/Secondary school/Muslim)*

Consequently, *Baban* is generally believed by the *Nupe as an art that* cannot be learned through apprenticeship. Practitioners argued that the attribution of unfavourable

treatment outcomes to TBS is due to the proliferation of quack practitioners who did not have *Aseli Baban,* yet "treat" bones because they believed that they had learnt the practice through apprenticeship. A particular village head supported this position, arguing that heredity is necessary but insufficient condition for effectively treating BJM. According to him,

> there is a family that also have (sic) the *Aseli* in our community, but whose children did not pay attention to learning from their fathers till they died. They were carried away by *faari* (pride) that the *Aseli* was their own. Today, even people from our own village don't patronise them. We prefer going to the next village whenever we need baban services.
> *(KII/ Village Head/61 years/primary school/Christian)*

This means that it is possible to lose one's hereditary vocation as a bone setter. Whereas inheritance is necessary, it does not guarantee a successful TBS career if it is not backed up by requisite training within the system in which the tradition was inherited. This accounts for why majority of the practitioners encourage their children to observe clinic sessions to afford them necessary experience and skill for future practice. Fig 3 shows a teenager who had been observing his father practice TBS since childhood. Today, he has started treating patients with little or no supervision.

Fig. 3: Teenage TBS practitioner providing treatment to a young patient during clinic session

Such a young practitioner gradually grows up to become an independent practitioner, capable of treating any BJM condition that presents to him. Having undergone the process, himself, he is also able to socialise his own children and those of other family members into the TBS family practice. Thus, the formative stages of a TBS child is important in training and manpower development. Buttressing this, another practitioner noted that:

> It is only a child who is close to the father that can inherit whatever thing that the father has. A child who is not close cannot inherit it. It is the same way that if a child must inherit *aselibaban,* he must first move close to the elders and observe them whenever they are treating patients. Of course, this shouldn't stop them from going to school or learning a trade… *(IDI/ Practitioner/Ndako-yissa/55years old/Secondary school/farmer/Muslim)*

Corroborating this view, another practitioner implicated a child's availability, observation and tutelage during clinic sessions, as important factors, beyond inheritance of the tradition. He submitted:

> …like *karatu nansara* (western education), *baban* training for our children is in stages. A child will first start from the "primary school", that is where he will (sic) tell him "go and make fire…", "put water on fire…" and so on. After that stage, we tell him to cut or arrange *eba* (bamboo splints) which we use in supporting fractured or dislocated limbs. Subsequently, we teach him how to bind body parts using bandage. Then we instruct them to assist in holding limbs of uncooperative patients during treatment. We then begin to show them the different *cigbe* (medicine) that there are and their purposes.

He further continued:

> we also tell them to pound and mix different medicines using grinding stone or mortar and pestle, while we tell them what the medicines are used for and the proportion of usage for different age groups. With this, they will even bring us the relevant medicine during treatment even before we instruct them. From here, we begin to give them cases to manage under supervision, especially on days that they don't go to school. Initially, we give them cases of people within their age range. We begin by giving them minor cases and nearly-healed cases, and not fresh/new cases. I personally monitor, guide and correct them, or they work

with their seniors when I am not around. This way, our children grow into the job…

(IDI/Practitioner/Patiko/40years old/Secondary education/Christian)

This means that the socialisation of a male child in a TBS family further involved tutelage and mentorship in line with the family tradition. This was necessary if the child must eventually function effectively as a TBS practitioner. Hence, beyond merely inheriting the tradition, it was necessary to sharpen practice skills. This resonates with the link that Parsons (1951) created between the behavioural system and the personality system in his AGIL framework. Thus, the lower (micro) level components of the social system (behaviour and personality of a TBS practitioner) were involved in the dynamics and persistence of macro level components (cultural and social system), including the tradition of TBS.

4.3.3 Scope of TBS practice among the Nupe

The study revealed that TBS was both a therapeutic source and a socio-economic activity. Beyond the nomenclatural implication, the scope of TBS practitioners' activities transcends the mere "setting of fractured bone", including the treatment of Musculo-Skeletal diseases and degenerative conditions affecting BJM alike, such as Arthritis, Osteoporosis, hereditary conditions and other deformities and related conditions. Practitioners further submitted that they often corrected complications resulting from treatment failure and malpractices by modern biomedical care and orthopaedic practitioners, as some of the patients voluntarily opted out of the hospital to utilise TBS. This applied mainly to patients who had first sought hospital treatment without desirable result, which led to their resort to TBS. Such patients' initial problem may not necessarily be a BJM condition. A one and half year-old boy whose leg is presented in fig. 4 is one of such cases.

Fig. 4: Ulcerated leg of an 18months-old boy, who presented at the TBS clinic after bone eruption in the leg and 3months hospital treatment

The case presented in Fig 4 is an ulcerated leg of an 18 months old child who simply suffered a pathological condition defined by the parents as "measles". According to the parents:

> We suddenly noticed that our son had measles which made the leg to swell up. So we took him to the hospital, where he was incised and the pores were drained. They then gave him drip and transfused some blood into his body. They discharged us to dress the wound at home. As we were doing this, suddenly the bone in the leg came out (erupted from the flesh covering) and that took us back to the hospital. On getting there, they referred us to the teaching hospital where we spent 8 days. There, they said we would have to go for surgery, since the bone refused to go back "in" after about two months…

They continued:

> …that was how my brother-in-law advised that we come to *Baba* (TBS) here. You know that we patients discuss among ourselves; other patients also advised us about to forget about hospital which even went on strike at that time…. If I will not lie to you, many of the people you see here actually left the hospital for this place… This is our third week of getting here.
> *(IDI/ patient/care-giver/commercial motorcyclist/Bacita/41 years/primary school/Muslim)*

This points to the fact that TBS operation transcends the treatment of bone, fracture and joint dislocation, including pathological conditions like case above. It further aligns with the report of Owumi et al (2016) that the hospital itself constitute an important point in the pathway to the utilisation of TBS, where patients develop network and take major decisions on the voluntary (informal) referral to and utilisation of TBS services. Beyond the findings of Owumi eta al. (2016), this study reveals that interaction between patients is an important source of information towards referral to the TBS. Like other traditional medical practice, TBS also provided an alternative source of care to patients during industrial action by the modern hospital.

Geographically, Nupe TBS' sphere of influence transcends the host Nupe communities to other ethnic groups within the country. In fact, TBS among the Nupe of Kwara state is also patronised by Nupe from other neighbouring Niger state. Although practitioners had sons and daughters who had migrated to various cities where they have

variously carved niches for themselves in the area of BJM care, people from various ethnic groups from Northern, Southern, Eastern and Western parts of the country either came to utilise TBS in Nupe Land or the Nupe practitioners go to treat them. One practitioner aptly captured this in his words:

> Although we are not educated, we have gone to do *Baban* (bone setting) in almost every state of this country. People invite us because they know that our services are not only cheaper, they also heal faster and produce better results than the hospital's.
> *(IDI/ Practitioner/farmer/Kpankorogi/41 years/primary school/Muslim)*

It must be noted that, whereas affordability or lower treatment cost is a major factor for the adoption of TBS (Owumi, Kolo and Taiwo, 2016; Aderibigbe et al, 2013), people of high socio-economic classes also utilise Nupe TBS due to its perceived efficacy and the general belief that the *Nupe* have preternatural competencies (popularly known as *Asiri/Oogun Tapa* among the neighbouring Yoruba) particularly in the area of remedying witchcraft-induced health problems (Nadel, 1942; Gbule & Odili, 2015). Hence, most practitioners agreed that *baban* isGod's own gift to the *Nupe*, a factor that defined its uniqueness such that, as noted by a practitioner,

> *Yiri* (Non-*Nupe*) TBS practitioners come to consult us from outside *Nupe* land, especially in cases that have defied solution. There are times that patients also invite us to the hospital, after they have discussed with their Doctors….
> *(IDI/ Practitioner/Bricklayer/Lema/41 years/primary school/Muslim)*

It was generally believed among the practitioners that, while they are prohibited from combining non-*Nupe* traditional resources in treating their patients, they could provide treatment to any race or ethnic affiliation, which makes their sphere of influence extensive.

4.3.4 Case diagnosis in a *Nupe* TBS milieu

Initial diagnosis and subsequent treatment of health conditions are the major goals of any health system, indigenous or western. Culture impacts health in monumental ways, hence the need for cultural competence – the "ability of providers and organisations to effectively deliver healthcare services that meet the social, cultural, and linguistic needs

of patients" (Betancourt, Green, & Carrillo, 2002), in the pursuit of successful healthcare. The operation of TBS within the socio-cultural contexts of the Nupe provides a frame that defines and directs the practice's principle with necessary cultural contexts. This spans the entire phases of a patient's career from the onset of illness, including patients who originate from other cultures other than *Nupe.* Accurate diagnosis is a major step to successful definition of a case and its treatment. Hence, biomedical science invests enormous resources into developing valid and reliable diagnostic equipment. In the case of BJM conditions, radiological equipment and scanners are key to efficient diagnostic systems (Martinez-Diaz et al, 2007).

All practitioners agreed that the sense organs for sight, touch/feeling, hearing, smell and taste constitute the primary tool for diagnosis in Nupe TBS. They believed that radiology such as X-Ray and ultrasound cannot in any way provide superior results to what they can do with their senses, particularly when they use their hands to touch, feel or trace a diseased body part, having first of all seen it with their eyes. Thus, the physical presence of the patient is central to diagnosis in *Nupe* TBS practice. A practitioner argued that

> The greatest X-ray that can ever be in this our work is the person of the patient himself. He is the one who knows what is wrong with him, where it is and how he feels. We can even say that the *foto* (X-ray film) only indicates areas where the machine suspects the problem…That is why we are better able to diagnose patients who are conscious and can talk for themselves. *(IDI/ Practitioner/Bricklayer/Bacita/41 years/primary school/Muslim)*

This further implicates the subjective dimensions to the concept of illness as espoused by the submissions of Parsons (1975) and Erinosho (1998). The practitioner's submission above emphasises the role of patient's own subjective account in the analysis and treatment of his ill health. The patient understands himself better and is able to articulate such understanding to the practitioner using indigenous concepts, which as participants in the same culture, they both are familiar with. These accounts are in consonance with the health beliefs of the people which accommodate illness episodes that are not amenable to biomedical practice, but largely hold sway among the peoples and cultures of Africa (Amzat and Razum, 2014). In further corroboration, another practitioner reported:

> I have a patient in there who was brought here from a hospital in Osogbo. I didn't know that her son had copies of *foto* (X-Rays) that were taken while they were in the hospital. It was just as I was telling them about the shape of the bone damage that the boy went to bring *foto,* which alluded to my own diagnosis, yet I didn't take any *foto*. They were surprised! You see, when there is problem with the bone or joint, we know easily because it is our work. Our people say that "*Zawangi e de kpankoro tatacin tsunkun dunduko boa"* (a human doesn't have joint along the femur). The femur must be straight and unbendable throughout. It is only the joint that should bend. Once a bony part begins to bend, it means that there is problem. With careful observation, we can also determine the extent of damage.

He continued:

> In the case of a broken bone for instance, we can just lift the other extreme end to check for a hollow. The toe for instance will be lifted to check for fracture in the lap. Also, a fracture is usually characterised by a bump on the surface if it is a fracture. This is visible with the eyes and can be seen upon physical examination. When you feel it, the affected part may also be hot or warm. Even if it is a *tsukun la* (crack in the bone) which is different from *tsukun zun* (fracture), we can still tell, once we observe it. In the case of *tuskun la,* the person will feel pain on one side of the bone – the cracked side, whereas the other side will not pain him. I have been doing this for many years and it is the same training that I have given to my boys. With or without *foto,* I can treat any bone and related condition.
> *(IDI/ Practitioner/Bricklayer/lema/55 years/primary school/Muslim)*

Based on sensory assessment, practitioners also deployed the use of *eye nyangnanin* (insight) while they also received "inspiration" about any given case, which determines subsequent direction of action. At this stage, the practitioner may also decide whether or not a case would require *ebasan* (divination), through inspiration. *Ebasan* further helped to clarify diagnostic ambiguities and provides counsel as to supernatural pathways to healing (sacrifice, atonement or oblation), for cases that *ka'gwa* (had "hand" in them or had supernatural influences). Few of the practitioners, however, dissociated themselves from divination, arguing that their religion (Christianity or Islam) did not accommodate divination or fetishism in anyway. For such practitioners, prayer to God through Jesus Christ (for Christians) or Prayer to Allah (for Muslims) are the ultimate

resort. Many of the practitioners of TBS therefore collaborated with their Pastors or Mallam who may come to pray for the patient or give religious items like scriptural verses or *nuwan aduwa (*prayer water) to be used alongside TBS treatment. The choice of religious support was usually dependent on the patient's own religious affiliation. In fact, the patient was also free to engage the spiritual support of a clergy to facilitate healing. In most cases, however, TBS practitioners resisted the possibility of associating their practice with idolatory. In relation to this, a TBS practitioner insisted that

> Religion is on its own and *Baban* (Nupe TBS) is on its own. Our fathers did not lay the foundation of *Baban* with religious tenets or diabolical principles. Hence, we too do not pour oil on stone or carve wood for worship. All that we do is to mix substances together to make *cigbe* (medicine) and we apply for the good of human beings. When *Baban* started, there were no *adini* (religions), and so when *adini* came it should respect and not disturb *Baban,* since we do not do idolatry practice, but rather heal people which is the goal of religion itself. Therefore, our work is not diabolical…
> *(IDI/ Practitioner/Bricklayer/Lema/41 years/primary school/Muslim)*

This is in line with the Pan African perspective to traditional medicine as espoused by Adodo (2018) who condemned the unnecessary spiritualization and demonization of indigenous practices in Africa, arguing that health problems in Africa must be situated and analysed in their socio-cultural, political and economic contexts, rather than merely explaining them simplistically or derogating them using the approach of western science. Observing this would facilitate the pragmatic realisation of strategic responses, while enhancing solution to interventions and programmes, since the people would be seeing such interventions as indigenous to them, cultural acceptability.

Although not with quantitative precision, *Nupe* TBS were able to define the severity of cases and estimate the duration of time or number of treatment encounters that would be required for healing, depending on factors such as type or location of the condition and the age of patient. For instance, a complex fracture may be so open that broken bone protrudes and readily visible through the torn skin surface. Similar to the report by Hoff (1997) and Owumi et al (2016), less complex fracture did not expose bone

but were visibly characterised by swelling and sometimes colouration of affected body part. At other times, fresh cases were not characterised by any of the signs than the expression of pain during physical examination by practitioner. Practitioners usually located affected sites through *egwa gba* (hand tracing), while they observed facial reactions or expression on the face of the patients which helps them to locate where the pain is. *Egwa* (the hand) in the context of *Nupe* TBS was not defined in terms of the ordinary human hand, but a "diagnosis and Treatment" "tool" which distinguished members of *Baban* family from non-members. Similarly, *Egwa* can also imply preternatural machinations that negatively influences the dynamics of cause, course and outcomes of BJM conditions. These include the powers of witches, wizards, ancestor forces, principalities, jinn and other enemy forces capable of wreaking havoc using supernatural or spiritual media (Abdullahi, 2011; Jegede, 2005; Erinosho, 1997). The generic term for this type of *egwa* was *egwa'zadede zhi* (hand of the wicked people) or egwa bazhiko (hand of darkness) to depict the negativity that is associated with it.

However, most practitioners usually invited PHC workers to participate in the diagnosis of fresh cases as soon as patients presented. This was considered more important in situations where patients were perceived to have had internal injury, open injury, lost blood or were unconscious, which were relatively rarer occurrences compared to simpler cases. However, based on the two cases that were witnessed during the course of this research and narratives given by practitioners, the practice was that PHC personnel tried to stabilise the patient or referred to the nearest health facility if deemed necessary. Once stabilised, patients returned to TBS for the treatment of BJM condition. It is in cases like this that PHC workers were reported to also transfused blood as well as administer drip, if need was perceived while patients received care at the TBS.

4.3.5 BJM treatment in Nupe TBS system

Like traditional medicine practice generally (Ekong, 2006, Adefolaju, 2010; Owumi et al, 2016), TBS practitioners relied on the use of hot water, plant parts, mineral substances, animal parts, prayer, divination, sacrifices, atonement, intercession, religious items, which were based on cultural belief and guided by relevant taboos, mythologies and culturally defined principles guiding TBS among the Nupe. The pathway to treatment

was determined by outcomes from diagnosis and the decisions taken by the practitioner. While the sources listed above constituted the primary sources of therapeutic regimen alongside other traditional medical practitioners, *Nupe* TBS had secondary therapeutic sources in the primary healthcare services that existed within the locality. These included Nurses, community healthcare workers, and patent medicine sellers constituted the major sources of care, who equally played important but varying roles in the treatment of BJM. Most TBS practitioners usually involved PHC providers as therapeutic partners especially when there was an open or internal injury. Thus, the TBS approach to therapy was generally multi-dimensional. According to a primary healthcare provider who consults for a TBS practitioner,

> The *baban* (TBS) men do their work and we do our work. Their work is to treat bone or any other problem affecting joint or muscle. Ours is to clean up wounds and administer analgesic tablets or injections if there is pain. We also give antibiotics to make wounds heal faster; we dress the wounds and give special injections like T.T. (anti-tetanus).*(KII/PHC/Saba Gina/45 years/HND/Muslim)*

This points to the prevalent collaboration and partnership in the area, between TBS and primary healthcare (PHC) providers. This collaboration, however, was devoid of government input, as there was no official position regarding it. Hence, it was based on existing socio-cultural relationships between practitioner and the PHC. The collaboration was, therefore, fluidly structured and devoid of proper regulation, leaving room for possible malpractices that could compromise authentic delivery of healthcare under TBS. This underscores the need for a critical review of TBS-PHC collaboration in the study area vis-à-vis the revamping of primary care system in Nigeria generally.

Like its biomedical counterpart, *Nupe* TBS had particular therapeutic approaches and materials for the different BJM, determined by diagnostic or divination outcomes as the case may be. Generally, practitioners used *cigbe* (medicine) in treating BJM conditions. *Cigbe,* in Nupe TBS referred to both natural and supernatural regimens that were administered on patients. However, most *cigbe* were materialised for patients, so that seeing them in tangible form, treatment was more real to the patients who related easily with therapy since it comprised materials with which they were already familiar.

The commonest *cigbe* that were used by practitioners included *tinwu* (wound killer), *tsukun fin* (bone joiner) which were administered orally as well as externally. Local ointment like *mukote* (shea butter), *maishanu* (animal fat) and *edin* (palm kernel oil) were specifically concocted with various medicinal herbs for the treatment of fracture, wound and stroke. Attesting to the efficacy of TBS treatment, a TBS patient explain her experience with the practice, which according to her, had given her hope after her limb was condemned to amputation at a Nigerian federal orthopaedic hospital. According to her,

> Although I am *Nupe* and I knew about *Baban* (TBS), my husband decided that we seek treatment from the Hospital in Abuja where we live. I was given first aid and initially relieved. We commenced treatment and although the doctors tried their best, there was no significant improvement in my broken leg. After two months, my consent was sought for amputation. I shouted *Awusubinlahi…* (God forbids bad thing!). That was how we left Abuja for this place. Today, I have started walking gradually. The healing was faster than I expected. So, TBS is very good and needs to be promoted. *(IDI/ Patient/civil servant/45 years/University graduate/Muslim)*

Corroborating this, is a Practitioner's narrative on regimen and how effective they are in producing healing if effectively deployed. According to him,

> We (TBS practitioners) combine *fini* (leaves), *gbere* (roots) that we mix with some other *special* things to make *cigbe.* Depending on what we are using them for, they effect healing even faster than the hospital treatment. Patients get well easily when we combine them with the soothing and massaging of their body. *(IDI/ Practitioner/farmer/41 years/primary school/Muslim)*

For cases involving open-complex injury occasioned by torn skin, practitioners recognized the need to first close up the opening using surgical procedures, and allowing it to heal a few days before their own intervention. These were situations where PHC personnel's (nurses, auxiliary nurses, community health workers or patent medicine sellers) intervention was usually sought. To this end, practitioners had arrangement with PHC personnel who were readily available in the communities either as private practitioners or government workers. In *Patidzuru,* a community in Edu Local

Government Area (LGA), below is what used to be the clinic accommodation and patients' ward (now dilapidated) for TBS practice.

Fig. 5: Collapsed TBS clinic accommodation built by the LGA at Patidzuru, Edu LGA of Kwara state

Community health workers and auxiliary nurses were also deployed to provide PHC services for TBS practice, a gap that they filled until the collapse of the clinic accommodation in both communities (*Patidzuru* and *Lema*). It was also reported that the LGA deployed PHC workers to *Patidzuru* community, most of whom were not found at their duty posts during the course of this study. In order to cope, the TBS usually engaged the PHC services of health workers who were either government-employed, private practitioners or medicine vendors. These PHC personnel provide services such as surgical suturing, wound dressing blood transfusion and anesthesia where necessary. Some of the TBS practitioners also provided these PHC services by themselves. Evidence abounds from the remarks of a practitioner:

> There are cases that require stitching of torn flesh, before healing the bone. That is where we do *gigun* (stitching). Although I have employed a *nurse* (auxiliary nurse) here, I don't allow her do the stitching. I do it myself as learnt from my father, but we don't use the type of *thread* that they use in the hospital. I use the same thread that tailors use in sewing clothes, with a brand new needle…

The practitioner stated further:

> Because of the children of nowadays who cannot endure pain no matter how little, we sometimes administer *Zylocain* (Anaesthesia). The *nurse* does that while I do the stitching. Also, unlike the hospital, we don't remove the thread after 7 days, like they do in the hospital. Rather, we consider how well the flesh has healed before we determine when to remove it. Doctors forget that the rate of healing vary across individuals. *(IDI/Practitioner/farmer/Patidzuru/50 years/primary school/Muslim)*

This may be a major contributor to the high rate of complications, limb loss and mortality attributed to TBS practice by the biomedical clinicians (Abia, Okeke & Eyoma, 2017; Odatuwa-Omagbemi, Adiki, Elachi, & Bafor, 2018). Open wounds are a vulnerable inlet for infection which, if not competently managed, could result in serious complications (Onyemaechi, 2014; Ekere, 2012, 2011). However, practitioners argued

that their intervention in BJM does not result in any unfavourable outcome, except in cases where the practitioner is a quack. IDI excerpts from a Village head further supported the position of TBS practitioners. He insisted that little or no complications, limb loss or treatment failure were recorded by TBS whom he argued often corrected problems created by modern orthopaedic care. The village head gave narration:

> Some people's legs were going to be cut in Ibadan until they heard about *Patidzuru* (his community), and that was how they ran down here. As I speak to you, they left here walking with their leg that would have been cut in the hospital. Another person was brought here from Jebba. He had broken pieces of bone in his leg and he had received hospital treatment for some time. The hospital only placed the bone in its place and used bolt and metal to support it Eventually, flesh grew over the metal with the bone sandwiched in-between. Yet the leg didn't heal. (These things I am telling you are real life stories o. I know because *emi baban* (TBS house) is just beside me, and the practitioners feed me with information). This man was just suffering until he met *baban* people here. It was in this village that the legs were opened and the strange elements implanted by the hospital were removed. The man also left here walking with his two legs. That is why I will tell you any time that *Baban* is better than hospital treatment. *(IDI/ Village head/farmer/patidzuru/83 years/bible school/Christian)*

In spite of the reported efficacy of TBS treatment, there may still be the need for specialised input in the management of complex BJM. If basic elements of modern medical procedures were introduced into TBS under best regulations and standards, it would improve the quality of outcomes, open door for better collaboration between the two divides of BJM healthcare (modern orthopaedic and TBS) while advancing the cause of TBS. Furthermore, such an arrangement would also rid the unhygienic clinic environment and the quackery that is being perpetuated by PHC providers during TBS treatment.

Fig. 6: An auxiliary nurse employed by a TBS practitioner for modern medical services

Ultimately, this would have accentuating implications for morbidity, mortality and disability that is attributed to TBS intervention. Fig 6 presents an auxiliary nurse who was employed by a TBS practitioner for First-Aid of fresh patients daily dressing of open wounds and administration of drugs and related services. Auxiliary nurses are not trained to deliver healthcare but simply to assist the nurse in treating patients. However, they have become major actors of PHC delivery, especially in rural areas, given the collapse in healthcare delivery in a country like Nigeria (Jegede, 2002).

Prior to the administration of *cigbe* (medicine), affected body sites were usually *yi* (soothed and massaged) with hot water. This was with a view to relax inflamed tissues, sensitize and relieve the body, while opening and making it more amenable to regimen that were going to be introduced. It is only after this that *cigbe* is administered and immobilisation effected where necessary. Whereas pieces of cloth were used for immobilizing fracture and dislocation with the support of wooden splints of bamboo, *the modern Niupe TBS* has replaced pieces of cloth with crepe bandage, which is now used to bind the splints around the affected area, after the application of *cigbe*. Fig. 7 presents an ongoing clinic session.

Fig. 7: Cross section of patients waiting for their treatment turn during a TBS clinic session

In Fig. 7, immobilisation of fractured legs was done using bamboo splints and crepe bandage. This was after the affected part had been *yi* (soothed and massaged) with water and *tsukun fin* (bone joiner) applied. It was necessary to immobilise the fractured bone so as to avoid mal-union, while enhancing proper union of the disjointedbone. This is similar to the use of Plaster of Paris (POP) in modern orthopaedic practice. However, *Nupe* TBS practitioners were averse to the use of POP on the ground that it breeds *kokota* (lice), which itself was a pest on the already affected body part. Furthermore, practitioners argued that POP contributes to the decay of affected site and shortening of limbs since it would not allow for adequate ventilation. This, as well as the use of *yankpa shi* (surgical implant) into broken bone results in amputation, which TBS vehemently opposed, arguing that it is highly prevalent in modern orthopaedic practice.

4.3.6 Indigenous technology of Nupe TBS

Technology refers to the equipment and the productive technique associated with them, as well as the social relations dictated by the technical organisation of work (Scott and Marshal, 2005). As the name implies, indigenous technology is technology that originates and is engendered from within the physical environment and socio-cultural contexts of the *Nupe.* Consequently, the TBS indigenous technology of the Nupe mostly comprises materials that have evolved over time alongside their culture, in the bid to negotiate the challenges of BJM, right from the earliest times. Like other indigenous practices,TBS drew from resources in the physical environment, socio-spatial setting and spiritual realities of a people (Owumi et al, 2016; Guble & Odili, 2015; Gyoh, 2010). This may have contributed to peculiarities in *Nupe* TBS practice, to such an extent that practitioners generally insisted that Bone setting in Nupe Land is different from what obtains elsewhere.

Like the general state of affairs of indigenous technology in Africa, native technology in *Nupe* TBS practice did not comprise sophisticated equipment. Rather, locally-sourced resources, indigenous to the people and culturally processed constituted the bulk of materials used in the practice. Table 9 presents the major materials used in *Nupe* TBS practice.

Table 9: Materials constituting indigenous technology in *Nupe* TBS practice

Materials/Equipment	Nature/Source	Use/Function
***Baban* (ability to treat BJM conditions)**	Inherited capacity for TBS embodied in the practitioner himself. It also refers to both the practice and the person	He marshals all other resources for the onward production of healthcare for fracture and other BJM conditions.
***Egwa* (hand)**	The practitioner's *hand* which possessed diagnostic potency and therapeutic efficacy which distinguishes it from the regular human hand. *Egwa* in the contexts of TBS is both technological and spiritual.	Serves as the major "equipment" in the practice of TBS in Nupe land
Plant parts	Comprise organic materials sourced from plant: leaves, stem, bark, root, flower and their partially processed products. They are sourced from the farm, bush or forests. Sometimes, they sourced from the market	Constitute part of the major ingredients in the concoction of *cigbe* (Medicine)
Animal parts	Comprise part or whole of domestic or wild animals, usually sourced from hunters or patients themselves	They are used in the production of herbal soup, the offering of sacrifices, appeasing of deities, performance of oblation and other spiritual observances. Animals also constituted part of the treatment "costs" demanded by some practitioners
Ointments	Oily matter sourced from plant or animal. Ointments used in *Nupe* TBS include *edin* (palm kernel oil) and *mukote* (shea butter oil), *Mai-shanu* (fat from cow), *efu* (honey)	Mixed with medicinal liquid or powder for external use on patients
Mortar and pestle	Wooden materials used for domestic purposes, made by craftsmen within the local area	used in pounding/disaggregating plant and animal parts for easy processing into usable regimen
Grinding stone	Hard material sourced from broken rocks, available for sale in the market	Used in grinding solid ingredients, animal and plant parts into fine, powdery medicinal substances
Ena (Fire or heat)	Domestic energy produced by the burning of wood, shrub or charcoal	Used in boiling water, cooking medicinal herbs, herbal soup and food as well as decomposing solid materials like animal and plant parts for onward use production of regimen
Clean water	Sourced from community well, stream or borehole where available	Used for cleaning surface of open injury. Water is also boiled for *ebayi* (massaging) of the diseased site after initial treatment
***Cigbe* (Medicine)**	Include regimen made from a combination of the above medicinal plants, animal parts, minerals, water, ointment, local gin and food. Prayer, incantation and divination also constitute spiritual sources and components that are introduced for enhanced potency in *cigbe.* TBS practitioner may collaborate with other traditional medicine/indigenous knowledge practitioners in the production of *cigbe.*	Administered on patients for specific therapeutic purposes in relation to fracture and other BJM conditions. *Cigbe* may be administered orally or externally as food, ointment, herbal drink
***Dukun cigbe* (medicine pot)**	A clay pot usually purchased from the market or provided by the patient	Used for cooking/boiling medicinal herb or food for the patients.
Wooden splints	Sliced bamboo tree trunks	Used in firmly guarding broken limbs for immobilisation
Pieces of cloth	Sourced by the patient or practitioner from used clothes	For binding wooden splints around fractured bone or site of dislocated joint
Wooden crutches	Made by community carpenter, based on specification by TBS practitioner. Patient may also be allowed to make his/her own	Used to support movement rehabilitation of patients who were recovering from fracture, joint dislocation or degenerative conditions
***Efin* (traditional blade)**	Knife-like wooden instrument that is locally made from the bamboo plant.	*Efin* is used for *surgical* purposes like removing flesh that can no longer be joined to the body.

Source: Field work (2018)

The materials presented in Table 9 mainly constituted the indigenous technology in *Nupe* TBS. However, these indigenous technologies were being complemented by modern materials and equipment in the dispensation of the *modern Nupe* TBS (MNTBS). In fact, *Nupe* TBS has undergone qualitative and quantitative transformations, particularly in the adoption of modern biomedical equipment and materials, which points to the possibility of consolidating the practice's present feat with the advancements in modern medicine, particularly in the area of orthopaedics. The MNTBS now uses the modern crepe bandage (in place of cloths pieces) in binding fracture and dislocation. Similarly, wound treatment and dressing materials such as water disinfectant, iodine, methylated spirit, hydrogen-peroxide, cotton wool, gentile violate,plasteras well as common analgesic and over the counter drugs (OTCs) were also generally used in MNTBS.

In terms of regimen prescription, *Nupe* TBS did not utilise scientific standards in determining the quantity of herbs and other medicines that should be administered to patients. Prescriptions were based on traditional norms and physiological considerations such as age, severity of the conditions and sometimes, body weight or size. The duration over which patients used the medicines was determined by the experience of healing as observed by practitioner and patient himself. The practitioner makes personal observation and receives feedback from patient, which influences the withdrawal, addition or combination of regimen during the treatment course. Whereas lack of standardization constitutes a major criticism against traditional medicine, Adodo (2018) argued that medicinal herbs are made up of food and drinks that are usually consumed by humans, so that the issue on standardization does not even arise in the first place. This may be a major factor underpinning the philosophy and seeming success and therefore persistence of *Nupe* TBS, despite stack violation of scientific standards. This is a further call for a revisit of traditional medicine and indigenous practices generally. The fore bearers who evolved these practices had justifications, which, due to improper documentation in climes like most of Africa, have been lost with the death of those who developed them.

Depending on the size of the TBS practice, each patient and their caregiver(s) had direct access to the most senior practitioner, if they were not satisfied with the quality of treatment that they were receiving. Usually through their caregivers, it was sometimes the

responsibility of patients to source for and provide therapeutic resources that will be used for their treatment. Aside complying with regimen, following treatment principles and observing prescribed abstinence, patients were also at the liberty to invite patent medicine vendors, sometimes with the permission of practitioners, to administer analgesic, blood and related medicines. Thus, patients were active participants and not merely active recipients of treatment under TBS. Patients often made input into their treatment processes, such as situations where they perceived that they needed some more subjection to a particular regimen. The head of a TBS unit also carried out periodic monitoring and constant evaluation of treatment service that was being rendered by his *staff,* usually members of practitioners' family. This way, quality was assured in the delivery of healthcare in the TBS milieu. In defining healing, practitioners and patients considered the extent to which the diseased body part had been restored to normalcy that obtained prior to the onset of BJM.

4.3.7 Economics of BJM and TBS financing in *Nupe* TBS practice

Economics and financing constitute important aspects of healthcare system. They determine the efficiency and effectiveness as well as value and behaviour in the production of health and the delivery of healthcare. Economics is the science and practice of production, distribution and consumption of goods and services, while finance concerns the funding, management, and efficient utilisation of investments, acquiring and leveraging on assets and liabilities. More succinctly, WHO defines health financing as:

> function of a health system concerned with the mobilization, accumulation and allocation of money to cover the health needs of the people, individually and collectively, in the health system… the purpose of health financing is to make funding available, as well as to set the right financial incentives to providers, to ensure that all individuals have access to effective public health and personal health care(2010: 71).

TBS and traditional medicine generally were historically built on humanitarian philosophy of benevolence, since healing as it were, was not historically aimed at generating incomes for the practitioner but fostering the wellness of community members as dictated by cultural and religious ideologies (Adefolaju, 2010). However, societal

change from the industrial revolution and emergence of capitalism warranted money economy and profiteering which undermined the status-quo and gave way to commodification and materialism. (Acemoglu & Robinson, 2013; Macionis, 2010).Climate change, desertification, general deterioration and degradation of the physical environment resulted in scarcity (of therapeutic materials), an economic problem, which took enormous toll on the practice of TBS. Consequently, TBS practice among the *Nupe* transcends the therapeutic into a socio-economic activity. This justifies the aptness of an economic and financial examination of the nature of a healthcare system like TBS.

It was observed from the study, that TBS practice was not capital intensive, as most of the resources required were locally sourced by the practitioner, sometimes in collaboration with the patient. The only expensive facility is accommodation and beddings to serve as shelter for practice and patients' ward. Although practitioners desired to expand their operation, particularly through the provision of ward accommodation for patients, these needs have not been realised in most of the TBS communities. Reason for this was the dearth of economic resources and the consequent inability to afford such facilities. The local government authority earlier donated a building block to support the TBS practice in *Lema* community, a facility now dilapidated after about 30 years of use without maintenance (see fig. 8).

Fig. 8: Dilapidated building for TBS, donated by Edu Local Government Authority

Efforts to get the government renovate the facility failed; yet, the community was disallowed from carrying out any renovation or repair on the building, even prior to this state. It was lack of government intervention in spite of perceived need to house the teeming patients that led the community to apply for a World Bank grant through which a new facility was built with primary healthcare equipment.

Lema was the only community that had this type of clinic and ward accommodation or any other form of intervention from an international organisation. Although Patidzuru community was reported to have received donation of a similar facility from Edu Local Government Authority (in replacement of the dilapidated building in fig. 5), the then Councilor was said to have sited the facility far away from the TBS place and close to his own house. Practitioners generally carried out TBS practice within the confines of their domestic environment, usually the family compound which served as clinic and accommodation for *in-patients.* In situations where practitioners could not house all the *in-patients,* arrangements were made with community members who freely accommodated patients and in some cases also took care of their feeding and contributed to social support.

Community

Submissions of a Village head suggested that TBS practice used to enjoy support from traditional institution, in form of gifts from traditional rulers. According to him,

> The Emir (traditional ruler) used to send mats and food items for patients, in the past. But for about 10 years now, that kind gesture has stopped. Even the local government that used to support us has not done anything in recent times. *(IDI/ Village head/farmer/83 years/bible school graduate/Christian)*

Similarly, another village head identified the role of the community in advancing the cause of TBS through material donation and offering of accommodation to patients and caregivers as and when due. According to him,

> What our people do is to assist patients with accommodation when necessary, especially now that the TBS practitioner's house has collapsed. In cases like this, the host also provides food for the patient, his guest. And when they need water, people also assist them with water if their own relations or family are not around. You know the Nupe are very benevolent... *(IDI/ Village head/farmer/Lema/68 years/Quranic education/Muslim*

It was within this context that patients were accommodated, with community playing important roles. Funding of TBS practice was mainly done by the Practitioners, their family members who constituted personnel and support staff for TBS. This reduced drastically the personnel costs that would have been due to TBS practice. Aside those who employed Auxiliary Nurses, TBS did not have to pay salaries to workers. Funding was done by practitioners' savings, which they did from proceeds of TBS practice (revenue from treatment provided) as well as savings from other occupations that they engaged in. Given the rural nature of the study area, most of the practitioners were involved in agriculture, which included the cultivation of groundnut, melon, cassava, maize, Guinea corn, yam and rice for both consumption and commerce. Practitioners also belonged to different thrift and credit societies from where they got loan facilities for capital.

Fig. 10: Patients' ward in an uncompleted clinic building built with credit facilities secured from a cooperative credit and thrift society

Practitioners' wives who did not participate directly in the treatment of BJM contributed to the practice by providing space for the patients and sometimes by assisting in boiling water and cooking medicinal herbs and soup. They also met the socio-psychological needs of patients by providing food for those who were indigent as well as assisting those whose caregivers were not on ground. This was supported by the views of a patient.

> I am from *Suleja* in faraway Niger state. My wife is not here because of her work. My daughter also had to resume school, and since there's nobody to stay with me here, *Baba's* (bonesetter's) family, especially his wife and children have been very supportive. They give me food, fetch water for me and even help me carry the water to the bathroom. They also go to market for me, whenever there is need. They are good people… *(IDI/ Patient/Retired federal civil servant/Saba Gina/64 years/Muslim)*

Fig. 11: Practitioner's personal living room converted into a ward for patients

Practitioners generally believed that TBSamong the *Nupe* was a calling, unlike the secular work or business where profiteering is the end in view. They expressed the belief that unnecessary mechanisation of the *TBS* practice would attract a fine, namely, loss of treatment efficacy, and eventual loss of vocation (*baban* – ability to heal BJM), if unabated. This affected the amount of profit that practitioners made from TBS. Whereas low treatment charge by TBS practitioners promoted access to and affordability of care, it was a major factor for the lack of decent and hygienic environment that characterised most of the TBS clinics as evident in Fig. 7 and Fig. 8. It was, however, the major reason why TBS treatment cost was far lower than orthopaedic care in the modern hospital. Patients who had been to the hospital prior to presenting at TBS attested to this. According to one,

> I spent over 300,000 naira just within the first 6 weeks of my accident when I was admitted at the General hospital in Minna. When there was no improvement, I requested to be discharged and I was receiving TBS treatment at home. There was little improvement… But I needed a more effective treatment, and that is what brought me here based on information that I got from my daughter who is married to a *Nupe* man. When we got here, we were charged 30,000 naira. Ridiculous, isn't it? I have paid and I promised to do more for the man, once my leg is okay. I already told him I will be bringing him a tractor that will be cultivating his farm for free. *(IDI/ Patient/Yoruba/Retired federal civil servant/Saba Gina/64 years/Muslim)*

Generally, treatment fees were paid by patients themselves, family members or persons from within their social networks. In most cases, social network played important roles in defraying treatment fees, due to the fact that BJM conditions such as fracture and dislocation usually leaves patients incapacitated and dependent on family members and significant others (Owumi et al, 2016). Practitioners' charges were negotiable, flexible and devoid of strict rules so that treatment sometimes commenced prior to final conclusion on charges. There were credit facilities and other payment options/plans such as deferred payment, payment by installment; while treatment was rendered free of charge in some cases. Reason for "free of charge" treatment generally included social relationships, social indebtedness, indigence or inability to pay. Due to the generally high

fatalistic tendencies among the *Nupe,* practitioners believed that God is the ultimate "rewarder" and that reward that they could not get from one case, God would compensate them somewhere else, somehow. Most patients did not pay their fees up front. In most cases, they paid their bill in installments, a situation that may be attributed to the generally low level of income of TBS patients, many of whom were from the study area.

Although practitioners charged moderate fees due to cultural constraints which forbade them from unnecessarily exploiting patients, they usually received cash and other gifts, including prayer and blessing which patients offered them as sign of gratitude for their treatment. This was due to the high premium that patients placed on healing from BJM conditions, which by their very nature, incapacitated them from engaging in productive socio-economic activities that would have earned them income. Sometimes, practitioners also solicited free gifts from well-to-do patients who sometimes supported the practice with cash and material donations. A practitioner testified to the philanthropic act of his patients thus:

> We don't charge them like they do in the hospital, because we ourselves received *gbere baban* (TBS root) freely from Allah who expects us to give it to his *wuzhi* (servants) freely. In fact, exploiting patients will affect the outcome of one's work, so we need to be careful. But because we also need to buy some *niyan'cigbe* (medicinal ingredients) that used to be available for free, but are no longer available to us free of charge… Hence, we collect small money to buy those things, and a token for ourselves. Allah has a way of paying us back on this job… Some of my former patients have bought me *Takhi* (fertiliser) for farming and nangi sallah (ram for Sallah festival), some have supported my building project and some buy clothes and other things for my wife and children, without being forced. Whether they give me or not, I am contented by the fact that I am doing what my *Tsoci* (Lord) sent me to do…and that is my joy. *(IDI/ Practitioner/farmer/Ndako-Yissa/45 years/Muslim)*

Corroborating this, a village head of a bone setting community noted the altruistic character of TBS, emphasising the nearly cost-free nature of the practice, originally. According to him:

> By the *Aseli Nupe,* Baban doesn't really collect money from patients; all they needed to treat a patient was *bishe eba*(a cock)and *bishe yiwo* (a fowl)for a male and a female patient respectively, with kobo guba be derii (two kobo and half a penny).
> *(IDI/ Village head/farmer/ /83 years/bible school graduate/Christian)*

The contentment of *Nupe* TBS practitioners may be attributed to the fact that majority of them had other occupations than TBS practice. This enabled them to meet their basic needs and live relatively comfortable lives, so that they were influential within the community, particularly by virtue of their vocation through which society's functional prerequisite of healthcare was met. They engaged in farming and processing of agricultural products which earned them incomes between the range of 1 Million and 7 Million Naira, annually. Fig. 12 presents a Cassava processing plant owned by a TBS practitioner in Gina, Edu LGA, Kwara state.

Fig. 12: Cassava processing plant owned by a TBS practitioner in Gina

Through proceeds from agriculture and related commercial enterprise, some of the TBS practitioners, like other members of the communities, diversified their income sources into various socio-economic activities, as some of the TBS practitioners explained that they also owned trucks and trailers, aside the private cars that they acquired for personal comfort. Although the generally low level of education among TBS practitioners did not equip them with necessary accounting and management technique to coordinate their activities, they were able to demonstrate vision and ambition, particularly towards advancing their TBS practice.

In Gina community, the TBS practitioner envisioned a formal set-up where he would employ physicians and para-healthcare professionals for the delivery of primary healthcare and provision of ancillary services such as blood bank and mortuary facilities. To this end, he had laid foundation for a large building. He was, however, constrained by funds, leading to the suspension of the project. Furthermore, practitioners had realised the importance of western education, which was not valued in the study area until recently. Consequently, practitioners encourage their children to pursue western education and specifically, health-related courses at the state-owned College of health technology. Fig. 13 presents a TBS family member who manages the World Bank-funded facility for TBS and primary healthcare in *Lema* community.

Fig. 13: Interview session with the Manager of the World bank grant-funded TBS Clinic, Lema (L-R: researcher, clinic manager and research assistant)

The manager in Fig. 13 was nominated by the family to study Community Health Workers (CHEW) course, after which he was appointed by the family and community as head of the TBS facility. TBS who did not have a qualified health para-professional as family member had to engage one from outside, whenever the need arose.

4.4 Structure of TBS among the Nupe of Kwara state

Social life is socially created through the constant interactions that human beings engage in in their everyday life. It is based on this that the social world is viewed as "interpretive nets woven by individuals and groups", hence, the idea of social construction. Sociologists generally believe that society or its constituent entities (institutions, religions, systems, meanings and phenomena) are socially constructed (Macionis, 2000). According to Scott and Marshall (2005:644), "structure or social structure implies any recurring patterns of social behaviour; or more specifically, to the ordered interrelationships between the different elements of a social system or society (pp 644).

Giddens (1984), however, argued that "structure" transcends the limits of "patterning" of social relations or phenomena which constrain the free initiative of constituting subjects, as it is traditionally conceived. According to him, the conceptualisation of structure ought to include underlying codes which allow for the binding of time-space in social systems, including roles, status, processes, procedures, rituals and associated resources which facilitate the persistence of discernable social practices and lending them "systemic" forms. This resonated with Parsons' (1951) theory of the social system which he argued comprises micro elements such as the personality system (feeling – *cathect* and thought - *cognise*) all of which were bound together by latency with other sectors of the system (behavioural cultural, and social).

Thus, structure of TBS included not only the morphologically-akin conception of phenomena, but also to rules, resources and character which afforded for institutional feature, including cultural ideology and orientation. It is within this purview that *Nupe* TBS was situated, having evolved over time in the contexts of socio-cultural resources, as an indigenous health system within which boundary, therapy is provided for BJM conditions. As a cultural response to the health problems of BJM in the reality of human

life, TBS, therefore, was situated within the purview of the *cultural system,* which as part of the AGIL system contributed to the survival of study communities by providing a major functional prerequisite: healthcare for BJM conditions. Consequently, the structure of TBS was observed from different dimensions, including: leadership/authority system, human resources for health, and healthcare delivery strategies. However, beyond the WHO (2010) framework of the health system (service delivery, workforce, information systems, essential medicines, financing and leadership), the socio-cultural environment was a key factor that was incorporated into the structural or systemic analysis of TBS as an indigenous healthcare system. This was due to the indispensability of the socio-cultural dimension in providing contexts as well as determining the quality and quantity of resources for TBS practice.

4.4.1 Leadership/ authority system in *Nupe* TBS practice

Leadership is an important component in the understanding of social organisation, including socio-economic and therapeutic entities like TBS. This may account for why leadership coordinates available resources, exercises authority and takes decisions that affect both short and long term operation of an organisational system. The location of leadership usually in an organisation usually stems from the distribution of status of the available positions relative to each other and the distribution of privileges across positions in the system. However, TBS practice among the *Nupe* of Kwara state was flexible, given the informality that characterised its organisation. Leadership and authority were cultural with democratic elements. Patriarchy was a major cultural dimension to leadership and authority. Although female family members also inherited *baban* which gave them capacity to practice TBS, the practice was dominated by male family members who also constituted the leadership. This varied in number from one practice unit to the other, and may be attributed to patriarchy and gender division of labour which allocates instrumental roles to masculinity and expressive roles to femininity (Yusuff and Ajiboye, 2014). According to one practitioner,

> apart from the fact that *baban* is not fitting for women, because each sex has its own work, I also deliberately do not teach my daughters how to treat patients, because sooner or later they will marry and go away. Once they go, everything that they have becomes their husband's. I cannot afford to relinquish my own *egun* (heritage) just like that. *(IDI/ TBSpractitioner/farmer/41 years/primary school/Muslim)*

Thus, the women manned the domestic dimension of TBS practice, including food preparation for new patients and in some cases, preparation of some regimen including medicinal soup and some ointment.

In *Nupe* TBS, age, which usually determined experience, was considered the major factor in leadership and authority. Consequently, the oldest person in the family who was usually the most experienced person was considered the leader of the TBS unit, a position which was not tenure-based, but life-long. Such a leader was considered as the father-figure and he wielded a lot of influence. Thus, succession was automatically determined by age, other things being equal. However, major decisions (therapeutic and extra-therapeutic) were usually taken in consultation with other members of the family.

In the case of smaller TBS units where practice was confined to the nuclear family, the family head, usually the father made major decisions, usually in consultation with children, especially the older ones. Influence in decision process was determined by aged and experience. In some cases, children who had some western education were considered intelligent and so, their positions on issues were viewed as valuable in decision processes. Practitioners were conscious of the fact that, sooner or later, they would be no more. Thus, involving their children in decision processes was seen as a "schooling" process through which they acquired wisdom through experience, in addition to the *aseli baban* that they inherited through the ancestry. This can be viewed as a *socialisation*or *orientation* process into TBS as a partial system, which resonates with Talcott Parsons' (1951) idea of *latency.* This was corroborated by the submissions of a practitioner:

> Our fathers involved us in decision making, and through that, we acquired many of the wisdom that we use in our work (TBS) today. That is why we too must involve our children who have attained the age of reason, whenever we are taking an important decision, either about the patient or other aspects of the practice. Their participation in decision making is like the practical that students do in school. Even if you inherit *gbere baban* (TBS capacity), wisdom and experience are not hereditary. As we involve them, we are preparing them to take on the practice, even after we have "gone to be with our elders" (died). *(IDI/ TBS practitioner/farmer/Tsaragi/41 years/primary school/Muslim)*

Leadership, authority and decisions were ultimately governed by traditional norms, particularly the benevolence philosophy of *tamako* (help or assistance) which emphasises the altruistic nature of TBS and *Nupe* healing systems generally. Like Nigerian traditional medical practice generally, state regulation was minimal in *Nupe* TBS. There was no major interface between the state and TBS practice. Prior to the conduct of this research, practitioners reported that the local government historically supported TBS with material and PHC personnel in some communities, a situation that is now defunct.

Some of the practitioners reported attempts to coerce them into registering with the state ministry of health, a directive which majority had not complied with. The only practitioner who had complied with the directive, however, viewed registration with government as a form of exploitation, given the financial implications of the process. According to him,

> They only come here to collect my money and they give me some papers. They have never given me any support for the money that they collect from me. They don't train us nor encourage the hospital people (modern healthcare professionals) to work with us. Once they collect their money, until next year before you see them again. *(IDI/ practitioner/farmer & businessman/48 years/SSCE/Muslim)*

This implies that the registration and regulation of TBS in the study communities is uninstitutionalised and devoid of the efficiency and effectiveness that could produce desired results, particularly in rural health systems. Thus, the only difference between the

practitioner who registered with the state ministry of health and those who did not register was the "papers" (certificate and sticker/emblem) that the former was issued, which did not translate to any special advantage, not even in terms of patronage or capacity to deliver care. There is, therefore, the need to, beyond merely collecting "registration fees", institutionalise the registration process with strategies for adding value to TBS in a milieu of collaboration between modern and traditional medicines. Figs 14, 15 and 16 present evidences of TBS registration with the state which was renewed annually.

Fig 14: Traditional healers' and herbalists' evidence of registration with Kwara state Ministry of health

This certificate was hung in the living room of the registered practitioner, who reported noted that he was ahead of every other TBS practitioner in the area, for the simple reason that he is registered with government, regardless of whether there were benefits or not. The plaque in Fig 15 was similarly hung by the same practitioner for all to see in his living room.

Fig. 15: A TBS clinic's evidence of registration with the state Ministry of Health

Although there was an association of traditional healers and herbalists in the study area (registered with the state ministry of health, most TBS practitioners were not subscribed; and there was no association of TBS practitioners. The emblem below (Fig 13) was sourced from a TBS who also practised magic, witchcraft and traditional psychiatry and divination.

Fig. 16: Emblem of the Ministry of Health-approved association of traditional healers and herbalists

The few practitioners who combined TBS with other aspects of the traditional medicine such as divination and herbalism were subscribed to the existing general association. Other practitioners who were not subscribed hinged their arguments on the fact that the *baban* tradition, in its original sense, does not accommodate *enya wo* (fetishism) and *egwa kuyeka* (magic), which they alleged were major features of the existing group. They argued that a TBS practitioner may consult with some of the members, especially the *boci* (diviner) and the herbalist, whenever the need arises in the course of TBS practice. However, TBS practitioners maintained that many of the members of the association engaged in *enya shikan* (filth) such as *ega* (witchcraft) and *cigbe'wo* (money ritual) which were outside the purview of traditional healing, and which could contaminate authentic TBS practice. They argued that members mostly hid under the umbrella of the association to perpetuate their *enya shika* (unwholesome acts), which they (TBS practitioners) were not willing to be a part of. In corroboration, a practitioner submitted that:

> I will rather pray to God than join *ena cigbedzhincizhi* (group of medicine men). The kind of persons that are in that group and the kind of things that they do, I do not like. They are wicked people. I don't mean all of them o, because I work together with one or two of them when I have difficult cases. Some of them are also hunters and they are good. But many of them engage in *enya shika* which is against our work (TBS). If I join them, it may spoil my work, and God forbid…. *(IDI/ Practitioner/farmer/Ndako-Yissa/55 years/primary school/Muslim)*

Consequently, the association did not affect TBS operation, as membership was voluntary. However, TBS practitioners could collaborate with or consult individual members of the group in handling cases with preternatural elements. Generally, a "cold war" was observed among the TBS practitioners themselves, due to the tussle over therapeutic superiority. This made it difficult for them to unionise or form an association of their own, as each practitioner operated on its own in the community.

4.4.2 Human resources for TBS healthcare

Human resources refer to workforce operating within the TBS system, including their knowledge, skill, motivation and organisation, as well as the deployment of personnel for the delivery of care (WHO, 2010) within the TBS clinic as a health system. According to Bloom, Standing and Joshi (2006), health workforce can be defined as "all people engaged in actions whose primary intent is to enhance health". Human resources, therefore, constitute a very key element of the health system. It is important to add that quality and quantity determine the extent to which resources can be mobilised and harnessed from the environment. Human resources constitute the care team in healthcare (Ferlie and Shortlie, 2001).

Demographically speaking, practitioners of *Nupe* TBS cut across different socio-demographic categories. Practitioners were all *Nupe* and males. There was prevalence of polygyny in the area, as both Christian and Muslims commonly had more than one wife. This had human resource implications for TBS. Given their relatively high status, practitioners generally had more than one wife and therefore many children, ranging between 12 and 26 which provided abundant workforce for TBS. As an indigenous practice based on heredity, membership of a TBS family was the major criterion for practice. Age, educational qualification and other socio-economic or political factors did not matter as criteria for TBS practice. According to a community leader,

> what matters most in TBS here in *Nupe* land is that you are born into the family that has the *gbere* (root) of *baban*. Once you meet that criteria, the next thing for you is that you will commit and submit yourself to your elders who will show you things. This second aspect is also important because you will find people who are born into *baban* (TBS) families, yet, they cannot carry out the practice effectively, just for the fact that they did not undergo mentoring when they were young. *(KII/ Community leader/farmer/Saba-Gina/63 years/Muslim)*

Children, particularly sons of TBS family automatically commenced practice, once they are certified "competent" by the lead practitioner, after undergoing tutelage within the family. People outside of the family line were not recruited into the practice under any guise. However, TBS family children of around age twelve (12) were assigned

elementary roles which prepared them for more sophisticated operation in the practice. Male family members were the main practitioners while the females only served as supporting "staff". Most of the TBS practitioners did not have formal education, hence, the practice was generally conservative of its indigenous contents, safe for slight modifications, which varied from one practitioner to another.

Although there were no special workshops, training or capacity development sessions for case management or emerging BJM conditions, particularly those that involved bio-neurological or physiological degeneration, the more serious cases were usually handled by the lead practitioner; while the younger persons would all come to observe the therapeutic process as part of training. As noted by Ekere (2011, 2012), sons of TBS communities who had migrated to practice TBS in the cities were likely to have higher experience in the handling of complex cases whose incidence may be low in their rural community of origin. These sons, as reported, were likely to have contributed to TBS human resources for healthcare within the study communities. This was inferred from the submissions of a TBS practitioner who noted that:

> Although they are our sons and they run to us whenever they encounter major difficulty in treating certain cases, they also have exposure to newer ways of handling some type of cases which they experience and treat more often in their places of practice because more serious BJM cases are found in the cities. Also, they make new friends in the cities who practice other forms of traditional medicine, which our sons also learn, and they teach us every year when they come home for Sallah'ko (Islamic festival of Eid'l Kabir). It is in fact compulsory to come home during the festival, because that is the time we hold our meeting. Except there is something serious, they come home and we learn from each other. *(IDI/ Practitioner/farmer/Lema/63 years/Muslim)*

From the foregoing, it can be deduced that festivals play important roles in the development of TBS human resources in the study area. During festivals, practitioners converge on their communities, share experience, pool resources and chart a course for the advancement of the practice. However, practitioners of one tradition did not collaborate with those of another tradition (Researcher's observation, 2018). This may be attributed to the mutual suspicion and superiority which was a common decimal among

TBS practitioners in the study area. In place of this, practitioners collaborated with or consulted people who could support them spiritually, in addressing cases or aspects of cases that their own TBS capacity would not enable them.

4.4.3 TBS healthcare delivery options/strategy

Service delivery is the process by which the healthcare provider intervenes in patients' care, by providing interventions to address health problems that are presented. As already noted, TBS operates on informal socio-cultural principles, so that bureaucratic bottlenecks are absent. According to Amzat and Razum (2014), red-tapism, standardisation, impersonality power relations, division of labour and specialisation, and associated conflicts as a result of interrelatedness or interdependence of tasks constitute some of the bureaucratic dimensions to understanding the organisation of healthcare and its delivery. These have implications for the health system vis-à-vis the efficient delivery of healthcare as a function of immediate output of the inputs into the health system, such as the health workforce, materials, and financing, which should ordinarily improve service availability, enhanced access and delivery (WHO, 2010, 2018). The characteristics of a good service delivery include: comprehensiveness, accessibility, coverage, quality, person-centeredness, coordination, accountability and efficiency (WHO, 2010). Although practitioners were constrained in their ability to meet the criteria enumerated above, they made efforts to ensure that patients' healthcare needs were delivered to them in the best possible way, within the limits of their affordability.

In terms of comprehensiveness, practitioners provided a range of services towards prevention and curation of BJM conditions as well as the rehabilitation of patients which was required to complete the treatment cycle. Practitioners were also able to deliver healthcare to persons whose BJM conditions were not manifest for physical observation, such as people who incurred internal injuries from accidents like the patient shown in Fig. 17. Aside bone fracture and joint dislocation, practitioners also treated degenerative conditions such as arthritis and osteoporosis as well as neurological conditions like stroke.

Fig. 17. A young TBS practitioner attending to a patient with internal chest injury sustained due to motorcycle accident

As part of comprehensiveness, practitioners also engaged the services of primary healthcare providers whom they sometimes employed for certain aspects of care where they deemed it necessary that such care providers intervened. This shows a further conformity of *Nupe* TBS to the notion of a partial system existing within and contributing to the survival of the wider societal framework as envisioned in Parsons' (1951) theory of the social system. The existence of little or no power distance between patients and practitioners, absence of language barriers and familiarity with the socio-cultural aspects of TBS treatment and regimen also enhanced congeniality between the patient and the healer. Hence, interaction between patient, healer and care givers were cordial and this facilitated the healthcare delivery process. With these rich resources, stage was continuously set for the mutually inclusive therapeutic process between the TBS practitioner and his patient. However, similar congeniality was observed to be extended to patients from other socio-cultural backgrounds, in the spirit of benevolence. The healer knew the patient not just as a "client", but as an individual with dignity, feeling and capacity for rational cognition, who should not be alienated in the treatment of his own body. The immensity of spiritual, physical and socio-cultural resources that accrued to this state of affairs contributed "production" of health as an including physical, mental and social dimensions as envisioned by WHO (1978).

Healthcare delivery took place within natural community environment, in most cases at the family compound or residence of the practitioner. Fig 18 presents an ongoing clinic session in the study area.

Fig. 18: A TBS practitioner in Patidzuru community treating a bone fracture in the patient's ward

The patient in Fig. 18 had to be treated right inside his ward so as to maintain immobilisation of the fracture and avoid unnecessary pain, since the case had not healed to an extent to which the patient would be allowed to start walking with the aid of crutches. On the other hand, the patient in Fig 19 was treated outside the TBS clinic due the fact that the injury was not located in the leg, so she could move while maintaining the immobilisation of her fractured hand. Thus, TBS treatment, including regimen and therapeutic approaches, were customized to conform with the peculiarity of the individual patient.

Fig. 19: An out-patient receiving treatment during a clinic session in Lema community

Patients also had free interaction with one another, their healer, caregivers, significant others and the environment. This was unlike the totalistic environment of the hospital as an institution where people are bureaucratically "processed" stripped of their individuality, necessitating the need for re-integration into the community, after treatment and rehabilitation (Goffman, 1961). One common characteristic of all TBS clinics was the availability of *wuru ta* (shade) where patients could relax during the day. Fig. 20 presents *wuru ta* of Gina community where patients interacted with one another and their immediate environment.

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Community members, the community leader as well as TBS family members also came around to interact with patients at the *wuru ta.* It was also at the *wuru ta* that the patients got to buy some of their everyday material need, including food items and toiletries, as well as meet the "doctor" (patent medicine vendors) who sold drugs to them to complement the regimen of TBS. The *wuru ta* was a significant part of the TBS system, where an important aspect of the patient's healthcare need was met: emotional support. Patients shared experiences and encouraged each other using religious scriptural quotes, telling stories and counseling each other. Unlike the total institution, Adodo (2018) noted that a communitarian outlook such as exhibited by *Nupe* TBS produces relationship nexus that engenders social support, while soothing the soul and body. This ultimately facilitates the attainment of gratification (healing) and avoidance of deprivation as envisioned by Parsons (1951) theory of the social system.

Healthcare delivery in *Nupe* TBS was, however, flexible because of the underpinning philosophy of *tamako* (altruism) which demanded that practitioners go to any possible extent in securing healing for their patients. Thus, practitioners under certain circumstances, delivered care to patients in the patients' home. Although this was not common, it happened in cases where the patient was very elderly or when moving the patient could cause pain or disrupt the desired immobilisation in the case of a fracture. Practitioners further reported that they delivered care to patients in (private) modern hospitals and clinics within and around the communities, based on prior unofficial understanding between the hospital care providers, patients and/or their family members and the TBS practitioners. In such situations, the bone setter is directed to focus strictly on the treatment of the BJM conditions, while the other health problems affecting the patient were left for the hospital to treat. One of the practitioner submitted that:

> The hospital people know that when it comes to treating bone and related problems, we (TBS practitioners) are more competent than them. They also have their own advantage over us o, but certainly not in the area of our own work. They learned their work in school, while we were born with our own. Our own is natural, and it heals faster and better. This is why patients beg their doctors to allow us treat bone related problems for them, especially fracture. We get more cooperation with private hospitals than government-owned,

> because people are afraid of their jobs. But, anywhere they call us, we are ready to provide *tamako*, once we are sure that proper arrangement has been made. *(IDI/ Practitioner/Bricklayer/Patiko/43 years/Muslim)*

In corroboration, a PHC worker further reported that collaboration between TBS and modern healthcare under informal, usually involving the informal sector. According to him,

> Many hospitals around invite the *baban* (TBS) people to treat their patients who have bone problem or similar disease. Even in the general hospital where I work, the bone setter from my village comes to treat patients. But it is not government that invite them o. They come based on arrangement between the patient, hospital staff and the bone setter. If you say they (TBS practitioners) should not come, who will treat them? There is no alternative to them in this local government. We have some doctors, nurses and community health workers, but we don't have experts in orthopaedic. Bone setters are the orthopaedic experts that we have around here, and they are doing very well. Thank God for them. *(IDI/ PHC civil servant/Lema/63 years/Muslim)*

This was supported by the report of a village head who noted that

> These people (TBS practitioners) are a major source of *tamako* (help) in our land. When you look around, the hospitals that government has given us do not have people who can heal bone problems. All that they treat there are diseases. For those of them who are wise, they simply treat the disease, and beg the TBS practitioners to help them with the bone problem…*(IDI/ Village head/Lema/Kpankorogi/66 years/Muslim)*

Aside the perceived socio-cultural advantage of TBS over the modern orthopaedic care (especially in cases involving bone fracture), absence of modern orthopaedic service in the study area was a contributing factor for this. This implicates the need to look inwards and explore the potentials of indigenous resources, consolidating on opportunities for the integration of modern healthcare, especially at the level of primary health, in resource constrained climes like Nigeria.

In consonance with WHO's (2010) idea of a good health service delivery, *Nupe* TBS was also accessible both to the TBS communities and the neighbouring communities

as well as people from distant cultures and societies. Furthermore, it was affordable to persons of diverse socio-cultural and economic categories. The practice also demonstrated capacity for continuity, given the systematic manner in which succession was planned, naturally following chronological age and interest on the part of a TBS heir, to carry on the practice after voluntary "retirement" or demise of a lead TBS practitioner. Although there were no objective bodies to evaluate TBS practice and treatment outcomes, the practice, like other specialties of traditional medicine, was not accountable in many respect, as many aspects of *Nupe* TBS were shrouded in mystery, beyond the glare, even of the patient. For most practitioners, the important thing was that patients got healed. The "how", they believed should not be a concern. Whereas secrecy like this may have spiritual or efficacy implications for therapy, patients also stood the risk of accepting certain things that contravened certain aspects of their values, including religious beliefs.

However, TBS practice was not properly coordinated in the study area. There were no synergies or links among TBS practitioners, due to the perceived differences about family *gbere* (TBS root). Each practitioner and their family or community believed that their tradition is superior to others'. The lack of coordination also manifested in practitioners' inability to unionize as a body of ethno-medical practitioners in the same line of practice, in spite of perceived differences. This made it difficult for practitioners to refer cases to each other, which could have improved the quality of service delivery due to TBS. Furthermore, the absence of a common bloc among practitioners would constitute a challenge to intervention in terms of policy and development, towards the advancement and strengthening of TBS among practitioners in the study area.

In terms of quality of service delivery, practitioners generally reported that their patients got healed, faster and better than those who presented at modern hospitals. According to them, patients got well within an average period of six (6) months, depending on factors such as nature, site and extent of BJM, age of patient, and whether or not *egwa ka* (preternatural factors) is involved. They also noted that *fusika gunci e din a* (patients' parts do not get missing under TBS treatment), unlike the modern hospital where limbs could be amputated for one reason or the other, a practice which practitioners condemned in strong terms. In the submissions of one practitioner,

> If a patient is brought here (TBS clinic) for treatment, and another patient with the same problem is taken to the hospital, our own patient will heal faster, than the one who went to the hospital. Also, we don't insert iron into peoples' bone (surgical implant), neither do we cut their legs. For what! Even if a bone is missing, we have medicine to make it regenerate, without putting any artificial thing….
> *(IDI/ TBS/ farmer/Lema/63 years/Muslim)*

In a similar vein, a community leader noted that TBS treatment does not deform patients or cause disability, due to the natural approach that it employs in the healing of BJM. According to him,

> The beauty of *baban* that you see us doing in this village is that people's *fusika* (bodily physiology) does not get missing, unlike in the hospital where they cut people's limbs as if they use it for meat. The God who created man has equally endowed him with a way out of every trouble that he encounters in life. For bone problems and any related disease, *Baban* is the solution, not *asibiti nansara* (modern hospital).
> *(IDI/ Village head/Lema/63 years/Muslim)*

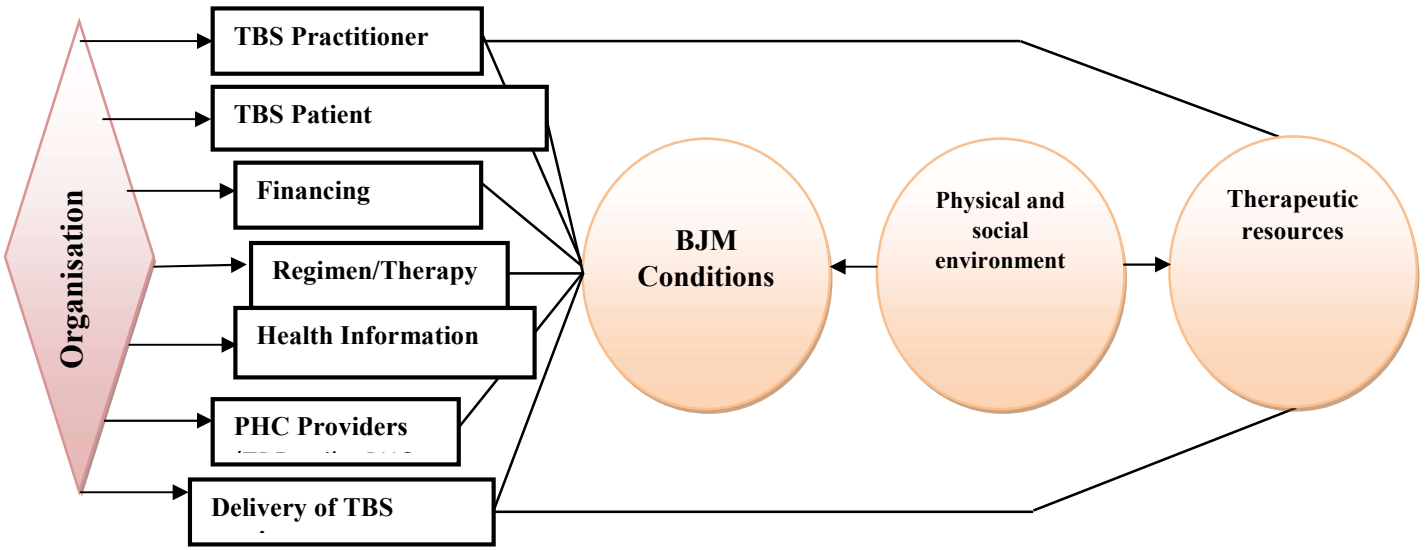
These contradicts the position of scholars (Gyoh, 2010; Nwachukwu et al, 2011; Onyemaechi et al, 2014; Odatuwa-Omagbemi, Adiki, Elachi, & Bafor, 2018). Although death of TBS patients was reported to be a very rare occurrence, none of the practitioners had experienced it within the last five (5) years. It was generally believed that life is a gift from God which can be taken at any time and through any means, including sickness. In the event that a person dies in a TBS community, it was usually reported to the community leader who informs the *Emir* (district traditional leader of cultural and religious significance). Usually, the *Emir* gave permission for the community leader to allocate space for burying the deceased (regardless of his or her religious or ethnic affiliation or place of origin), provided his or her people are willing to have their dead buried in the TBS community. Consequently, the TBS may arrange with religious leaders of either of the prominent faiths (Christianity or Islam) to officiate the burial of deceased

patients. Practitioners generally argued that the fact that fewer patients died in TBS clinic than the hospital where mortuaries were already waiting to "refrigerate" dead patients points to the fact that TBS provided better treatment than hospital. According to them, a patient's death is a function of adequacy of care that he receives, even though God is the ultimate decider.

4.4.4 TBS as a model of a healthcare system

From the foregoing analysis of the nature and structure of TBS, Fig 21 was developed as a schema representing the systemic operation of TBS, guided by WHO (2010) building block framework of the health system and the "four nested levels of the healthcare system" proposed by Ferlie and Shortlie (2001). Although both sources paid negligent attention to traditional medicine in their discourse of the health system, this study provided further purview for the understanding of TBS as a specialised social system-type within communities, the healthcare system.

Fig. 21: A systems framework for TBS practice



(Adapted from the WHO (2010) building blocks of the health system)

Fig 21 shows TBS as a system like the modern healthcare system which is analytically presented in WHO (2010) "building block of the health systems". Using the lens of Parsons' (1951) theory, TBS as a health system in the study areawas self-sufficient, including both human actors and non-human components such as patients, practitioners, finance therapeutic resources, health information, primary healthcare providers and the service aspect, all of which aggregated to form TBS as a system. The practitioner headed the care team comprising patients, their care givers, modern PHC or other traditional medical practitioners that may be enlisted in the therapeutic or referral processes. He also coordinated the *organisation* (informal structure of TBS, its entry/recruitment, training, leadership and authority system) and the *socio-cultural environment* (Nupe cultural and spatial context in which TBS operates). It was the dynamics of connections among these major components that provided a lens for understanding TBS as a social system specializing in the treatment of BJM conditions and therefore, a health system.

Similar to functionalist argument, since society (especially rural communities) must persist in the long term, they had to produce the essential prerequisites for their social system. This was done in the case of treatment of BJM conditions, within the limits of socio-cultural resources, given the fact that modern orthopaedic healthcare was far from the people. This may have accounted for the persistent utilisation of TBS often combined (informally) with available basic modern primary healthcare intervention. Through the *orientational aspect,* the social action of TBS practice and utilisation among the *Nupe*, instilled in the people a cultural pattern that emphasises preference on TBS utilisation.

This was reinforced through a *gratificational aspect, based on* which people preferred TBS as a source of care for BJM using *cost-benefit* considerations in weighing treatment demands against treatment outcomes in the *object world*. Thus, TBS among the Nupe was not only culturally acceptable. It is also a functional prerequisite, particularly as the functional alternative of modern orthopaedic care is not readily

accessible (cost, proximity wise and in terms of cultural acceptability). The system socially reproduces a value system that affirms the persistence of TBS. As noted by Parsons (1951:227), the combination of value orientation patterns which is acquired by the actor during socialisation is a function of role structure and dominant value of the social system and reinforces the choice of TBS as a therapeutic source.

The general tendency for somatic illnesses (including BJM conditions) to be interpreted in supernatural terms and resultant preference for magical (including religious or spiritual) treatment was a factor that accounted for the utilisation of TBS. Parsons (1951:291) specifically noted that "the practice of TBS involves proto-scientific elements as well as an overwhelming quantum of magic". This resonates with the position of Hoff (1997) who had noted that "bones heal naturally", and that in the event of fracture, the primary work of TBS is to set the separated parts in a fitting union, to avoid mal-union. The "joining", as well as diagnostic procedures of TBS - observation, "hand tracing", as well as engagement of modern medical resources in recent times, are all scientific. It is on this ground that advocacy is made for the inclusive approach to exploring the dual potentials of TBS: science and tradition.

4.5 Findings of observation conducted in selected TBS practice units

The researcher carried out unobtrusive observation at four TBS practice units purposively selected from across the study area, based on scale of practice. The observation focused on patients' entry and administrative procedures in TBS, clinic session, regimen and therapeutic approaches, how modern healthcare is engaged in TBS, practitioner-patient interaction and the social organisation of TBS. Two large-scale and two small-scale TBS units were selected for observation, while a more participant observation was carried out during the treatment of a BJM condition which the researcher's sustained in the course of the research. Thus, observation 1 - 4 presents the findings of TBS practice units that were observed by the researcher, while Observation 5 presents the researcher's personal experience under of TBS treatment.

Observation 1: TBS Clinic A

Personnel for TBS

The practice of TBS was a community-wide affair as every son of the Community was believed to possess the *gbere* (root) of TBS practice. However, the practice was limited to those who availed themselves and underwent tutelage. Community A practitioners comprised males of different age categories who drew from different families but related with each other as brothers. Most of the active practitioners were youths aged between 20 and 45 years, while the older practitioners played advisory roles especially in complicated cases that required their input. Recruitment of practitioners occurred when a community member indicated interest or is nominated by the elders. Training involved observation of clinic sessions, running errands, preparing therapeutic materials, assisting patients during clinic sessions, receiving verbal instructions and explanation during treatment sessions, all of which gradually culminated in their participation in the treatment of patients. Many sons of community A were current students at the College of Health Technology in the state.

Administrative procedures

The lead practitioner, a trained community health worker, was the overall head who managed the clinic on behalf of the community, reporting only to the elders. Administrative procedures in community A TBS practice was semi-formal and with some record keeping practices which the lead practitioner introduced by virtue of his education. This included patients' card and a hard cover notebook which was used for documenting information about patients and their healing. However, practitioners were not consistent in the use of documentation for TBS patients as much as they were for other categories of patients that they treated (other than BJM patients), since TBS in community A was combined with other forms of primary health service.

Patient entry

There was no standard entry procedure for patients who needed to utilse TBS. Most patients came in through referrals from community members, former patients or relatives who were familiar with practitioners. Practitioners sought to know what happened to a new patient, where and how; and provide first aid treatment. they were also interested in socio-cultural information on the patient such as his tribe, religion, and place of origin. After stabilizing a patient, practitioner called his/her relatives, usually the person who brought them, to discuss the requirements of treatment, including possible costs. Practitioners also arranged free-of-charge ward accommodation for patients where necessary.

Clinic session

Clinic Sessions held every day, in the morning, evening and whenever new patients came in. The community's clinic facility which was built from the world bank grant served awarded to the community served as house for TBS practice. Aside the core of TBS practice, the lead practitioner who is a community health worker, also provided the modern PHC needs of patients. Assisted by younger practitioners. Clinic sessions involved surgical suturing of open wounds, administration of drugs and injections aside other PHC services in the community's health facility.

Regimen and therapeutic approaches

Regimen for TBS practice comprised socio-cultural and spiritual resources as well as modern healthcare methods and materials. The socio-cultural materials involved food, meat, soup, drink, medicinal herbs, animal parts and culturally woven splints for supporting affected body parts. The spiritual resources included Islamic prayers (since the community was predominantly Muslim), almsgiving, and other forms of *tamako* (help) that practitioners sought from *nunsazhi* (the elders), including diviners and other persons who were believed to possess supernatural capacity to influence patients' healing. Modern primary healthcare involved the use of analgesic, anti-biotics, suturing materials, bandage, hydrogen peroxide, methylated spirit, iodine, Gentian violet, plaster and water disinfectant, all of which were provided by the lead practitioner himself.

How modern healthcare is engaged in TBS

The lead practitioner provided modern PHC for TBS in the community. He bought materials from the market and had patients pay for them. The clinic was also equipped with simple medical equipment such as stethoscope and thermometer which were used in diagnosing patients, in addition to the materials listed above. Modern healthcare was combined with TBS based on perceived needs.

Practitioners, patient and social interaction

There were 17 practitioners and 31 patients, comprising 18 in-patients and 13 out-patients (See Table 8). The BJM conditions treated included fracture, dislocation, spinal injury and congenital deformity, which were treated using physical materials and prayers offered by practitioners and patients regardless of religious affiliation. Interaction between patients and practitioners was informal with high level of congeniality. There were no power or status barriers as the practitioners were friendly with patients and often came to give them company at the shade where they stayed for leisure and rest during the day.

Situation of patients' ward

Patients' wards were of different characteristics, but mostly unorganized and unkempt depending on what was offered to the patients. More than one patient of same sex often stayed in a room using different mats which were the major bedding available to them.

The practice of TBS in clinic A was unique in the study area due to the community-wide nature of the practice which implied large human resources or source of healthcare personnel. Aside personnel advantages, TBS in the community also implicates the role of community support in the development of TBS as a viable therapeutic source for BJM in the study area. This is attested to, by the commitment of community resources (part of the world bank grant awarded to the community) for the building of a clinic for TBS and as well as modern PHC in the community. This is a development in line with WHO (1977) Alma-Ata declaration which recommended the harnessing and development of local resources for PHC. Thus, community A may be described as a model facility that can provide basis for the integration of modern with traditional healthcare. However, there is the need to consolidate on the present feat through rural health systems research and development approaches for the replication of similar models in filling the health resource vacuum in constrained zones like most of Nigeria.

However, other TBS practice units that were observed generally did not have as much involvement of modern primary healthcare in TBS practice, as did community A. This was due to the availability of a TBS practitioner who was also a trained community health worker in community A, as well as the combination of general PHC with TBS practice. As can be observed in the case of TBS clinic B, presented below, practice was family-based. This had implications for the quality and quantity of socio-economic support that was available for TBS practice. For instance, the community, may not devote as much resources to support TBS practice as did community in the case of TBS clinic A.

Observation II: TBS Clinic B

Personnel for TBS

TBS practice in community B revolved around two (2) brothers aged 60 and 45, who inherited the practice from their late father. The younger of the two practitioners had secondary education and trained as an auxiliary nurse, while the older had no formal education at all. They were assisted in the practice by 3 of their children who were not always available due to their schooling.

Administrative procedures

The administration of TBS in community B revolved around the two brothers, with the younger brother doing most of the work, while the elder acted more as the consultant. Unlike community A, community B TBS revolved around the practising family. There were no formal procedures and practice decision was jointly taken by the practitioners who also involved their children whenever they were available. In the event of conflicting views, the position of the older practitioner prevailed.

Patient entry

There were no formal requirements or record for patient entry into the clinic. Patients or caregivers were interviewed, and information were verbally elicited from them. Emphasis was usually on patients' home address and ethnic affiliation among other socio-cultural details. Practitioners were usually interested in the initial stabilization of patients which did not depend on payment of monetary deposits. Any demand for cash or material was after patient had been duly certified as treatable by the practitioners. Discussions on treatment costs were usually done with patient's relative or persons who facilitated contact with TBS. Practitioners no longer had accommodation to house clinic sessions or use as ward for TBS, due to the collapse of the existing *kata baban* (TBS house). Clinic sessions held under the tree, by the dilapidated clinic facility, while practitioners arranged with community members who offered rooms within their houses to serve as ward for TBS practice.

Clinic session

Clinic sessions were not fixed for particular places. Patients could come to the practitioner's house; practitioner could go to patients' place or they both met by the dilapidated facility, depending on the arrangement. Practitioners relied solely on indigenous resources locally sought from the environment as well as prayers from their Pastor, since they were Christians. Although the LGA was said to have seconded a community health worker to provide modern PHC for TBS in the community, the auxiliary nurse was reported to have stopped coming since the collapse of the TBS facility about 2 years before the study. Consequently, the auxiliary nurse-TBS practitioner has been providing the modern PHC needs such as analgesic, antibiotics, wound dressing and suturing of open wound, where necessary. Clinic sessions held in the morning every day, except on Sundays when practitioners went to church in the morning and come back to treat patients in the evening.

Regimen and therapeutic approaches

Regimen were mostly indigenous and locally sought from the market and nearby farms or bushes. Practitioners only reported spiritual source of therapeutic input as prayers, support from their Pastors and holy water which they used for Christian as well as non-Christian patients, though without compulsion. Practitioners did not utilise other spiritual dimensions to healing. However, patients often sought and combined other forms of traditional as well as modern medicine with what the practitioner offered. This included exploring their own religious sources for spiritual help.

How modern healthcare is engaged in TBS

The engagement of modern medicine was solely through the auxiliary nurse-TBS practitioner and patent medicine sellers who were always available and readily provided modern health services to patients at the call of either the practitioner of patients themselves. Modern healthcare was mostly employed for cases characterised by open/complex injury.

Practitioners, patients and social interaction

There were 5 practitioners and 21 patients, comprising 18 in-patients and 13 out-patients. The BJM conditions treated included fracture, dislocation, Arthritis and muscular strains. Practitioner-patient interaction was informal as the practitioners adopted a service-like approach, believing that their work was primarily to the end of patients' wellness. They freely related with patients and listened to their healing experiences as well as other issues of life. Practitioners, patients and interested community members usually sat together to relax under a tree in the afternoons and evenings.

Situation of patients' ward

Patients' wards were offered to practitioners by community members as need arose. Most of the rooms were mud houses and patients slept on mats. In many cases, patients' hosts also provided them with food and sometimes assisted them in fetching water when their caregivers were not available.

Furthermore, the educational level and type of education of the practitioner also had implications for the nature of practice. Only one of the two practitioners in TBS Clinic B had some formal education which did not exceed secondary school. In Nigeria, persons with secondary education are not trained or qualified to provide healthcare services. Furthermore, the auxiliary nurse is not certified to provide healthcare services in Nigeria (Gyoh, 2010). Consequently, we may conclude that the use of PHC services in TBS clinic B is unlawful and may be characterised with quackery and other forms of malpractices that contradict best practices whether it produces adverse treatment outcomes or not. This was not too different from TBS Clinic C which had 2 practitioners, with one having qualified as a trained teacher.

Observation III: TBS Clinic C

Personnel for TBS

TBS Workforce in clinic C comprised a practitioner aged about 60, his 26-year old son who had graduated with a National Certificate in Education (NCE), and a grandson of 15years old who lived with his grandfather and was committed to the practice, as evidenced in his apprenticing and lending of support. The practitioner's two wives also played supporting roles by rising early to boil water for use during clinic sessions every day. Aside this, the women provided food for needy patients who either did not have food to eat or could not prepare their own food. The practitioner had no western education, but the son had secondary education. TBS practice in clinic C did not involve full time PHC providers, but the services of itinerant patent medicine sellers who came around at the request of the practitioner or the patient(s) were utilised. The Pastor of the practitioner's Church also played important roles in the spiritual dimension to TBS practice by offering prayers for patients and providing *nuwan aduwa* (prayer water) for healing purposes.

Administrative procedures

Administrative procedures in clinic CTBS was informal and culturally guided, revolving around the practitioner who also involved his practicing-son in decision-making, and wives, who only gave domestic support. Practitioner also received advice from the itinerant patent medicine sellers who gave suggestions on ways of improving the healing processes for some cases. However, the overall decision-making, management and general administration of the practices rested on the TBS practitioners themselves.

Patient entry

Patient entry and career through the TBS healing system was similar to what obtained in other practice units. There were no formal documentation or monetary requirements for entry. The cost of treatment was only discussed with patients' caregivers after the practitioner had assessed the patient and ascertained that he could treat the case. As much as possible, practitioners preferred that patients came from their own homes or communities as there were only three rooms owned by the practitioners which were available to patients as ward. The other rooms, mostly mud houses that used to be available for patients' accommodation, had dilapidated and the practitioner was just building a new house for himself which he hoped to move into with his family with the aim of converting his former apartment to shelter for patients. Hence, practitioner also travelled from place to place to provide TBS treatment to patients on request.

Clinic session

Clinic Sessions held every morning or as arranged with practitioners, in the case of out-patients. The role of modern healthcare was minimal, as the practitioner met patients' need to the best of his ability. However, patients sought modern healthcare by going to clinics in nearby communities, self-administering over-the-counter-drugs such as analgesic and antibiotics as well as water disinfectants. Practitioner also carried out invasive practices which involved the removal of body parts that were believed to be diseased. A particular patient had a tissue removed from his right ankle, which was believed to be obstructing healing. Soothing with hot water was a major practice during clinic session.

Regimen and therapeutic approaches

The regimen and therapeutics for TBS under the clinic Ctradition was largely based on indigenous resources which the practitioner sought from nearby bush, the farms or markets, while patients were sometimes required to provide some of the materials that were needed for their healing. For the spiritual dimension to TBS, the clinic Cpractice relied on the community's Pastor for prayers, while patients of different religions also prayed for their own healing, especially when relatives or friends came to visit them. Modern healthcare materials and methods were not seen as indispensable to healing under TBS, as the practitioner believed that TBS had the holistic capacity to negotiate every practice challenge that emerged. However, the practitioner's disposition suggested that the use of modern medicine in TBS would always be an added advantage. Like other practices, the socio-cultural materials involved food, meat, soup, drink, medicinal herbs, animal parts and culturally woven splints for supporting affected body parts.

How modern healthcare is engaged in TBS

The use of modern healthcare in community CTBS was not patterned along a particular line. Practitioner and/or patient could initiate or adopt a modern method or material to complement the indigenous TBS healing. The major source of modern PHC came from the patent medicine sellers who either came as part of their routine or were invited to provide care where necessary. There was no modern healthcare facility in the community and there were no referrals between CommunityTBS and any modern healthcare facilities.

Practitioners, patients, and interaction

There were 7 practitioners and 22 patients with fracture, dislocation, sprains and tears. There was observed mutual congeniality which fostered friendly interaction devoid of social differentiation or power distance among practitioners and patients. Like other TBS, the practitioner, patients and community members relaxed together in the afternoon and evenings under a mango tree close to the practitioner's house.

Situation of patients' ward

Patients' wards in TBS clinic C were generally made of mud houses most of which had gone weak and could endanger the lives of occupants. Beddings were mostly mats that were provided by practitioners. Wards also lacked toilet, bathroom and kitchen facilities, so that patients either had to trek to nearby bushes to ease themselves, or do it in a container right in the room, while their caregivers go to dispose of the mess.

The surgical removal of bodily tissue by a TBS practitioner due to the inability to return it to its place, as observed in TBS clinic C suggests that TBS practitioners may have been carrying out such practices and even more risky ones under unhygienic conditions. The patient's consent to the practitioner's suggestion of allowing the tissue to be severed may be attributed to the socio-cultural context in which TBS took place in the area as well as the trust reposed on practitioners in the community and the practitioner's ability to assure that such removal does not portend any adverse outcome. The possibility of this malpractice may not be unconnected with the rural nature of the study area as well as the generally low level of education of community members (see Table 5) which may affect their capacity for informed decisions in healthcare utilisation (Amzat and Razum, 2018; Owumi et al., 2013). However, the practice of surgically invasive activities by TBS practices could result in complications or spread of infection. As noted by Gyoh (2010), such a practice could undermine the functionality of traditional medical practice in the delivery of quality healthcare under standard conditions.

The community of TBS clinic D was the most remote of the study area, with one of the smallest scale of TBS practice. The community was in the far interior of the study area, characterised by poor road access. The nearest modern healthcare facility to TBS clinic D was a PHC located about 25KM away. Thus, access to modern sources of healthcare was acutely low, as patent medicine sellers did not come to the community as frequently as they did other communities. This may be as a result of low market due to low population of the community, as well as the bad condition of the road which was more easily navigated by motorcycles than cars.

Observation IV: TBS Clinic D

Personnel for TBS

The scale of TBS practice in clinic D *wa*s one of the smallest in the study area. The practice revolved around a 35-year-old man whose late father was a TBS practitioner in the community. Unlike the other communities like TBS clinic C*,* there was no primary health facility in TBS clinic D*,* and the only primary healthcare source for TBS came from the patent medicine sellers who routinely came from time to time or were invited by the practitioner or patient. TBS was carried out at the practitioner's residence with his two wives lending support with the domestic needs of boiling water in the morning. The practitioner's eldest son of about 8 years old came to observe clinic session and ran errands as part of tutelage in the practice of TBS.

Administrative procedures

The practitioner solely administered and took decisions on the practice. Depending on the context, practitioner often involved patients on decisions that affected them. Management administration was informal and simple, due to the scale of the practice which had only 3 in-patients and 5 out-patients during the study. The scale of practice may have been affected by the remoteness of clinic D which was far away from the major road and lacked good access roads.

Patient entry

TBS patients in clinic Dentered the care system informally, and similar to the practice in other TBS units, did not have to pay before entering. In most cases, the practitioner often told them to pay whatever they could afford. He however demanded money from them whenever there was need to buy therapeutic materials. However, the practitioner demanded a cock and a fowl from male and female patients respectively, within the first three days of commencing treatment. The practitioner had rooms within his house that served as wards for TBS patients. He also traveled to different parts of the country to provide TBS treatment.

Clinic session

Clinic sessions held every morning and evening where necessary, depending on the availability of patients and their need. The practitioner relied mostly on indigenous materials which were mostly available in and around the community. He carried out treatment together with his 8 year old son who arranged the pieces of clothes and the wooden splints that were used for supporting affected body parts of patients.

Regimen and therapeutic approaches

Regimen in clinic DTBS mainly comprised medicinal products that were locally produced by the practitioner, which were combined with Islamic prayers and consultations with the elders (nunsazhi), a practice that the practitioner inherited from his late father.

How modern healthcare is engaged in TBS

There was low engagement of modern medicine in community D TBS due to various reasons, chief among which was problem of access and practitioner's disposition. The practitioner believed that there was always an indigenous method or material that can do even more than modern medicine can do in any given situation. However, practitioner or patient sometimes invited patent medicine sellers or patronised them when they came to the community. Practitioner believed that modern medicine was most relevant to TBS in the area of suturing open wounds or torn flesh, which were not very common.

Practitioner-patient interaction

Like other TBS units, the practitioner related freely with his patients all of whom were indigenous *Nupe.* They cracked jokes, ate local snacks together and relaxed together in the evening.

Situation of patients' ward

Patients lived in rooms of the same house with the practitioner, a factor that contributed to interpersonal relationship. Each patient lived with their wives who served as caregivers.

This further implicates the role of context in TBS practice. Access to modern healthcare services, socio-demographic characteristics of the practitioner and availability of standard regulations which could subsume the practitioner's personal preference are important for the adoption of modern healthcare under standard procedures. Although TBS appears to be filling an important gap in the delivery of orthopaedic healthcare in rural areas, this role *vis-a-vis* the practice's functionality could be undermined with the uncoordinated use of modern medical resources.

In most of the observed TBS practice units, it was generally observed that practitioners had positive disposition for the use of modern healthcare resources alongside their indigenous approaches. However, this disposition was not matched by the requisite capacity in terms of educational levels, training and human resources, strong health systems, environmental factors, standard regulations and the role of the state. Consequently, practitioners mostly improvised within the affordances of their knowledge and the available resources. Accommodation for patients was another major problem of TBS in the community. Practitioners could not afford to build facilities for practice or patient wards that could provide minimally comfortable shelter for in-patients. Thus, there is the need for strengthened health systems through research and state intervention, education and practice-relevant training based on the contextual need of TBS in the area, establishment of standards for the engagement of modern healthcare in TBS and the regulation of practitioners' activities.

The researcher also had to utilise TBS treatment due to a BJM condition that he sustained from a road traffic accident during the period of the study. After his inability to utilise modern healthcare in the city where the accident took place, due to high costs, the researcher opted for TBS treatment.

Observation V: Researcher's personal experience of TBS Utilisation

Background and choice of TBS

The researcher sustained an injury on the left wrist, which produced enormous pain even after several days. Based on indigenous knowledge and earlier research experience at the TBS, the researcher started with using hot water with ointment to soothe the injured wrist in the morning and evening, while taking modern analgesic. With this, the pain persisted after four days. The researcher decided to go to the modern hospital exactly one week after the injury. He was asked to do an X-Ray which was not affordable for the researcher at that very time. The researcher decided to moot the process of TBS treatment which he thought would be more affordable.

Treatment under TBS

The researcher decided utilise TBS in community C, due to the peculiar congeniality that had built-up with the practitioner. The condition was diagnosed as *tsukun la* (bone crack or crack in the bone) and immediately the practitioner applied a medicinal ointment on the "cracked" wrist. The researcher presented for treatment once in two days for about one week. With the pain drastically reduced at the end of one week, the researcher-patient was given a medicinal ointment to apply on his own everyday after having his bath for the following one week. By the end of the following week, the researcher was completely healed.

TBS Mythology of an Out-Patient

Worthy of note during the researcher's utilisation of TBS was that he was prohibited from keeping the medicinal ointment given to him in a room where people lived. This was based on a socio-cultural belief that the medicine abhors redundancy because it wants to "work" at all times. Thus, keeping it in a room where people live could make the medicine orchestrate an accident that would produce a BJM condition for it to "work". Consequently, the researcher was advised to keep the medicine in the bathroom or kitchen where he could go to use it at any time.

Treatment Cost

In terms of treatment cost, the researcher was treated free of charge. This was based on the relationship between both parties, as well as the practice principle that prohibited merchandisation and profiteering of TBS practice. However, the practitioner asked if the researcher could gift him with anything that he could afford, which was neither a payment for the treatment nor compulsory. The researcher, in turn, offered some money gift to the practitioner, which was profusely appreciated. Further to this, the researcher observed during his treatment, that practitioners received money as well as material gifts from patients which they appeared to prefer to "payment for treatment".

TBS Practitioners' belief about "servants of God"

After his own treatment, the researcher also introduced the practitioner to a Catholic Priest in the state capital, far away from the study area. The Priest had sustained injury from a motor accident and was discharged after 2 months of treatment at the hospital. However, he still experienced pain and could not turn his neck, a problem he mentioned to the researcher. The researcher then offered to connect him with the bone setter who travelled down to assess the condition. He offered to treat the Catholic Priest free-of-charge, provided that the Priest would pay his transport fare to and from the state capital. According to him, practice prohibited that he collected money for services rendered to *Man nya soko zhi* "servants of God" like the Catholic Priest, since according to him, a Priest, like the TBS practitioner, is also a healer of mankind. However, he strongly requested that the priest should pray for him, his family and his work of TBS. He assured the Priest that he would come to treat him 5 times, twice in a week and that by the fifth treatment, the Priest would be healed. The priest was healed, and in addition to the transport fare gave the TBS practitioner some money gift in appreciation of the services rendered to him.

The researcher observed that TBS practitioners estimate the time frame, number and frequency of treatment that was required to heal a BJM condition. They also had a service orientation which necessarily should be the hallmark of a healthcare practice like TBS. Thus, their ultimate goal was always the healing of patients' condition. Similar to the views in the literature (Agarwal and Agarwal, 2012; Owumi et al, 2013; and Adamtey, 2014), these point to the propriety of TBS as a healthcare system that is well fitted into society, having culturally evolved with adaptability to serve society within the systems milieu developed from Talcott (1951).

4.6 Utilisation of TBS among the Nupe of Kwara State

The utilisation of TBS was viewed in terms of the types of BJM conditions among community members, choice of care, time of presentation at TBS, factors affecting presentation, healing duration, perceived advantages and treatment outcomes with respect to BJM conditions among the *Nupe* of Kwara state. TBS was commonly practised in the communities, as an indigenous therapy among the *Nupe,* who were renowned for the practice within the state and beyond. Jegede (2002) noted that the siting of healthcare facilities in Nigeria are generally urban-biased, leaving the rural areas where majority of populations reside in an acute dearth of modern healthcare. Given the generally rural nature of the study area, specialised health services like orthopaedics was generally not available in most rural part of Kwara state including the entire socio-political divide of the state (Kwara north) where the *Nupe's Edu and Patigi* LGAs were located alongside other ethnic groups.

Thus, beyond socio-cultural factors such as beliefs about BJM etiologies (supernatural and preternatural causation), perception about TBS efficacy and cultural orientation in TBS utilisation, the widespread choice of TBS among the study population was also attributed to political economic factors which manifested in lack of access to modern orthopaedic care. This challenges Parsons' (1951) stance, which did not lend adequate credence to the role of political economy in social systems' dynamics. As reported by Gyoh (2010), even where there are health facilities, the personnel deployed to rural Nigeria do not stay at their duty posts, due to the absence of social amenities like electricity, road and portable water.

The practice of TBS was not found in all the communities constituting the study area and there were no official records or statistics on the number of TBS practising communities in the area. In all, fourteen (14) TBS practising communities were identified in the study area, including *Lema, Saba-Gina, Patidzuru, Kpankorogi, Kocitako, Bacita, Sokingi, Patiko, Pututa, Tsaragi, Ndako-Yissa, Dada, Kpengbea* and *Koko-Nna*. However, most of the communities had TBS-practising neighbours within the range of 10-25KM distance. The practice was also mobile, as practitioners provided home-service to patients within and outside their own communities, when the need arose. Thus, TBS was easily accessible, compared to a situation where they would have to travel well over 200KM to the state capital (Ilorin) which was the nearest place where modern orthopaedic care and its ancillary services can be accessed. The accessibility of TBS in terms of availability, proximity and affordability have been well documented as factors promoting the its utilisation (Owumi et al, 2013; Aderibigbe et al, 2013; Onyemaechi et al, 2015).

As implied by Parsons' (1951) theory, the utilisation of TBS for BJM conditions may be situated within the behavioural system which favoured the utilisation of TBS for BJM cases. The behavioural system included socialisation into the cultural system, the social construction and acceptance of a normative pathway to the utilisation of BJM care as well as orientation towards attaining gratification which, in relation to BJM care, TBS was believed to afford more effectively and efficiently. The behavioural system of TBS utilisation itself, as inferred by Parsons (1951), could be based on a personality system of the *Nupe* which resulted from cultural norms, values and belief systems as well as orientation. The behavioural system of TBS utilisation, as produced by the socialisation process, made the peoplebelieve that it was the best alternative for BJM treatment. This was reiterated by interview response of a practitioner who posited that:

> *Baban* is what God gave to *Nupecizhi* (literally translated as *Nupe* people), just the same way he gave *cigbe nansara* (western medicine) to some people. God knows the best, and that is why he gave us this practice... If we don't use God's gift, it means that we are not appreciative of what He has given us. That is why we use *baban* and even teach our children to do so. Besides, *Baban* heals better and faster; it is also cheaper than what they do in the hospital.

(IDI/Practitioner/kpankorogi/57 years old/farmer/Christian)

This was supported by the submission of a community leader who emphasised on the cultural acceptability as well as availability of TBS, in a setting that with limited specialised services for treatment of conditions such as involving BJM. According to him,

> If you don't use *Baban* (TBS) for BJM treatment, what will you use? This is what we know! We received it from our parents who got it from God Himself…, and we have been using it and it has been working for us. I have not been to *asibiti* (the modern hospital) before, but I have seen many people who went there with fracture and related problems come back here for treatment. Hospital is good too, but they are not meant to do *baban* (TBS)work. *(KII/Village head/Patiduru/78years old/primary School/Christian)*

In terms of size (number of patients available, number of practitioners as well as PHC providers that were available in each clinic), TBS varied from community to community. On the basis of size or scale of practice, TBS was classified into large scale and small scale. The large-scale practice comprised situations where TBS had a minimum of five TBS practitioners including support staff of younger generation and PHC providers who complement TBS services; as well as a minimum of 10 in-patients. While most of the practitioners in the study area practised on relatively small scale, three communities met the criteria for large scale practice: *Lema, Patidzuru*, *Saba-Gina*, *Patiko*. The small-scale practitioners were found in communities such as *Kpankorogi, Bacita, Ndako-Yisa*, *Tsaragi, Lafiagi, Kpengbea, kocitako, Ndagba and Dada* among others.

4.6.1 The large-scale TBS clinics

Lema community, the most renowned had the largest TBS in the entire area, and it was the same community that eventually received the world bank grant that facilitated the establishment of a facility where TBS was now practised (see Fig. 7). The community also had the highest number of practitioners, as the practice transcended particular family, which was largely attributed to socio-cultural factors like cross-cousin marriage and *egikpa* (a child-rearing practice that allowed a person's child to be reared by a friend or relative who assumes the role of a "social" father or "social" mother). Similar to the

stance of Parsons (1951), this further underscores the role of the cultural system, both in maintaining latency and in fostering continuity and advancement of the practice. Thus, every single indigene of *Lema* community was believed to have *Gbere baban,* in one way or the other. This was the belief even among practitioners of other communities who often made reference to *Lema* in the course of interview sessions with them. This was buttressed by the village head of the community *(Lema)* who noted that:

> Every son of our village has *gbere baban* and that is where *Lema* is superior to every other community that does *baban*. In The reason for this is that, the people that founded our village were related by blood and they had the *gbere* which they transferred to our fathers and to us and our children. What has helped us is the fact that we marry each other here, as permitted by our religion, and historically and even till now, we rear children for each other to promote cordiality. These are the reasons I think have allowed every son of *Lema* to be able to practice *baban*, except he doesn't want to do so, or he violates the taboo of the practice. *(KII/Village head/Lema/65years old/Muslim/)*

The above account, which also conforms to the perspective of people outside of *Lema* community, was however modified by one of the practitioners in the community whose view was supported by some other members of the community. According to him,

> Although many sons and daughters of *Lema* now practised TBS home and abroad, there was only one family (our own family) who descended directly from *Ndace Sheman* – the pioneer TBS practitioner in *Lema* who had encounter with the lion. We were the ones who had the *gbere* originally. However, *egikpa* and cross-cousin marriage has made us one. *(IDI/Practitioner/32years old/ community health /HND/Muslim)*

This means that important as heredity was in the transmission of the TBS practice across generations, contextual factors of social significance could influence the evolution and spread of TBS practice over time and across space. The availability of TBS human resources in abundant proportions contributed to the existing feat of TBS within *Lema* community. Aside that, the community was most coordinated and had an effective system of resource pool from among their elite, which contributed to general community development, including the world bank grant that was used to build the TBS cum PHC health facility in *Lema* (Fig. 7). The community was one of the major producers of

cassava in the study area, a crop which they also processed for far and near markets. These provided buoyant source of livelihood for the people as well as support for the cause of advancing TBS practice. Furthermore, there was a conscious, deliberate effort by the community to encourage their children to pursue western education, particularly in the area of para-medical disciplines which enjoyed enormous prestige with a popular nomenclature of "doctor" among the populace of the study area. According to a practitioner who also functions as manager of the world bank-funded facility,

> I had trained (with the support of my family) at the school of health Technology, Offa, because I knew that the health profession will help me and our village in treating people who come to use *baban.* Today, we are able to treat not only bone problems but also fevers and other sicknesses. Sometimes our patients need anti-tetanus, drip, blood, anti-biotics or minor surgery. We also take delivery of pregnant women from within and outside our community. Apart from me, there are other members of the community who have also attended the same school of health technology, but they are working in the General hospital and the local government. We all work together with the community association, to develop TBS in *Lema. (IDI/Practitioner/32years old/ community health /HND/Muslim)*

The current feat of TBS practice in *Lema* community may not be unconnected with the viable Cassava-based agricultural economy and its variegated affordances in the community, which provided economic base for TBS practice. Practitioners in Lema had greater economic resources, leveraging on the cassava economy, to better finance TBS practice. The situation was slightly different in other communities where weaker economic bases abound. There was the predominant cultivation of crops like groundnut, melon, guinea corn, and maize in the other communities which were not as economically viable as cassava, given the recent support that cassava enjoyed, nationally and internationally in recent times. Lema, therefore, had an edge in the comity of *Nupe* TBS practising communities in Kwara state.

Unlike *Lema,* TBS practice in each of the other large-scale TBS communities (*Patidzuru, Saba-Gina* and *patiko*)was not a community-wide affair but restricted within specific families. This limited the extent of resources and support that the practice

enjoyed from among their host communities. Community members did not contribute economic resources to the practice in direct ways. However, community members supported the practice by offering their houses or rooms for accommodation of TBS patients, free of charge. This was very important, especially since the major TBS ward accommodation had been wrecked down from a heavy rainfall (See Fig. 3). Some of these community members also offered daily food in support of patients that they accommodated, and also gave some of their farm produce as gifts to the patients who used same for food and sometimes sold them for money. Table 7 presents practitioner and PHC provider-patient composition of the large TBS in the study area.

Table 8: Personnel-patient composition of large scale *Nupe* TBS clinics

		Community			
Personnel		**Lema**	**Patidzuru**	**Saba-Gina**	**Patiko**
TBS	Senior	5	2	1	2
Practitioner	Practitioners				
	Practitioners-in-training	12	3	6	5
PHC	Permanent	3	1	-	-
Provider	Part-time/contract	-	1	1	2
	Total	**20**	7	**8**	7
Average number of patients (monthly)	In-Patient	18	13	15	12
	Out-patient	13	8	7	6
	Total	**35**	**21**	**22**	**18**

Source: Field work (2018)

**(Although practitioners had no patients' record, the figures for in-patients and outpatients were based on monthly average as reported by practitioners)*

Arguably, from Table 7 presented above, *Lema* community had more TBS practitioners, given the prevalent nature of the practice in the area. However, the statistics (in Table 7) presented sons of the community who were committed to the practice. These figures which represented the average (in the case of *Lema*) often varied over time, given the fact that TBS was generally not a full time occupation in the study area. Apart from the fact that some of the practitioner-children who constituted the "practitioners in training" were also farmers, artisans or students at various levels of education, sons of the community at one time or the other may also decide to migrate to the city, seasonally or permanently, where they set up TBS clinics for greener pastures. Generally, there was the indication that, at every point in time, there was adequate workforce to commensurate the number of patients, unlike in modern healthcare where dearth of health personnel, among other resources, has posed enormous challenge in developing countries (WHO, 2010). Practitioners generally reported willingness to always other occupational roles to attend to patients whenever the need arose. The number of TBS patients also varied over time, depending on the incidence of BJM, which was usually influenced by seasonality, and how people had need to utilise the practice. Articulating these, a practitioner noted that

> While we (TBS practitioners) do not pray for people to be involved in accidents, the truth is that it is only when they have such problems they can come to us for treatment. That is why it is not advisable to rely on *Baban* as a full time occupation. There are times that we may not have in-patients at all; and there are also times, particularly during end or the year festivities, that we have to beg our people to assist with rooms to accommodate in-patients. However, we always have out patients who come from their homes or communities, and sometimes we are the ones that go to treat patients where they are. Some of our children are also in Ilorin, Lagos, Abuja and other large cities where they are doing *Baban. (IDI/TBS practitioner/farmer/63years old/Muslim)*

4.6.2 The small-scale TBS practice

The Small-Scale Practitioners (SSP) included indigenes of communities such as *Pututa, Kpankorogi, Bacita, Ndako-Yisa*, *Tsaragi, Lafiagi, Kpengbea, Kocitako, Ndagba and Ndanaku and Sokingi*. Unlike the large-scale TBS, practitioners and patients were fewer in each of these communities, which affected the size of the practice. One major feature that most of these communities had in common was the lack of good, accessible road. The study area was generally sandy in nature, with rocks in some parts. This, with the absence of good road tended to have unsafe implications for potential patients who already had ill-health conditions, as well as their caregivers. *Mashin* (motorcycle), the dominant means of transportation in the area, may also pose further health problems to health seekers. The foregoing further emphasises the role of environment which provides context in the functionality of a partial system, as espoused by Talcott Parsons' theory. Consequently, many of them had no specially designated accommodation for patients' ward, which further implicates the size of practice. Rooms within practitioners' personal houses were used as patients' ward whenever the need arose.

In relation to communities with the large-scale TBS, SSP's communities were more remote, and in many cases, lacked basic amenities like healthcare, portable water, electricity and school. These factors had implications, not only for the advancement of TBS practice, but the general quality of life as well as prospect of persons in the communities. Table 9 shows TBS practitioner and PHC provider-patient composition of the small-scale TBS.

Table 9: Personnel-patient composition of small scale *Nupe* TBS clinics

Community	Healthcare Actor TBS Practitioner		PHC Provider/ Consultant (Contract)	Total	Average number of Patients/monthly		Total
	Senior Practitioner (%)	Practitioners in Training			In-patient	Out-Patient	
Ndako-Yissa	1	1	0	**2**	1	2	**3**
***Tsaragi**	1	2	2	**5**	2	3	**5**
****Bacita**	1	2	1	**4**	0	2	**2**
Kocitako	1	1	1	**3**	0	3	**3**
Kpankorogi	2	1	2	**5**	1	2	**3**
Dada	1	3	2	**6**	2	4	**6**
Ndanaku	3	4	2	**9**	3	3	**6**
Sokingi	1	2	1	**4**	2	2	**4**
Pututa	2	5	2	**9**	5	8	**13**
Fey	1	0	0	**1**	0	4	**4**

Source: Field work (2018)

*(*The community was the district headquarter of the area, where one of the four emirates that made up the study area was located. Practitioners were not indigenes of the community, but migrated (not necessarily for TBS practice trade and artisanship) from interior villages from within the study area. **was the most industrialized community in the study area, where two federal government-owned manufacturing companies were located: The Nigerian Sugar Company, Bacita, and the Nigerian Yeast and Alcohol Producing Company, Bacita. Practitioners' late parents had migrated into the community in the early 1970s. One of the practitioners was an agricultural engineer and civil servant with the State Government of Kwara)*

The small-scale TBS practitioners presented in table 8 did not have particular facilities or rooms dedicated to TBS for use as clinic or ward for accommodating patients. Treatment was carried out outside the practitioners' personal house, while rooms were arranged for patients as ward, as the need arose. TBS practice among small-scale practitioners were more of "itinerant" or "freelance" in nature, as the practitioners got invitation from within and outside the study area to provide BJM care, aside the few patients that came for treatment as in-patient or out-patient in practitioners' communities. This was articulated by one practitioner who posited that:

> I go to different parts of Nigeria to treat my patients, even *Kin Egbozhi* (Igbo land). Most of my patients either come here to receive care, if they can, or I go to treat them in their house. There are different reasons for this. First, our village is very remote and we don't have light here, people may not want to come and stay here. Secondly, I don't have space to accommodate patients. *Lema* and these other communities are not better than us in this work. They only have certain advantages over us… *(IDI/Practitioner/farmer/53years old/Muslim)*

In a similar vein, another practitioner hinted at the political economy dimension to TBS which limits its utility as a therapeutic and socio-economic activity. According to him,

> Apart from the fact that I do not practice *Baban* as a full time occupation, money is my major problem here. If I had money like the *Lema* people, I could provide accommodation for my patients, who I have to go out to treat in many cases. Our road is also bad, so, bringing patients to and from this place will not be advisable, especially for those who have *tsukun zun* (broken bone). Hence, I personally prefer to treat patients right in their own homes. *(IDI/Practitioner/farmer/41years old/Muslim)*

Consequently, practitioners of small-scale TBS did not have need or resources to employ full time PHC workers. Hence, they engaged PHC services whenever the need arose. Unlike the large-scale practitioners, however, the PHC providers engaged by practitioners in this category were not certified community health workers, but mostly

comprised Patent medicine sellers/vendors who were major healthcare providers in the area.

4.6.3 Scope of TBS practice among practitioners

The scope of TBS practice was viewed along two major dimensions: geography and therapy. The geographical scope of TBS practice refers to practitioners' sphere of influence, that is, the range of areas where they provided treatment. In terms of therapy, practitioners' scope is viewed in terms of the range of BJM that fell within the ambit of TBS practice among practitioners in the study area. These two themes were important in understanding the coverage of TBS as important dimensions to the utilisation of TBS among the study population. Geographically, practitioners had no boundary or limitation as to where they went to provide care. Although the practice was domiciled in their respective communities in most cases, practice was flexible, as practitioners also went to different parts of the country to provide treatment, based on invitation. In fact, the extent to which a practitioner went to provide treatment to people in distant places indicated how influential and relevant he was within the community. It also influenced the amount of money that they made from TBS. This was corroborated by the response of a practitioner who noted that:

> I can go to any state in Nigeria or even outside the country if I am invited…, provided the people inviting me are prepared to take care of my transportation and other costs. I travel to places, and that is where we make more money. Not the type of "chikin chanje" that they give us here. Even your own people don't appreciate you as such, if you don't go out. But if you go out, you come back and share experience with them, based on the things that you saw, they will respect you more… *(IDI/Practitioner/farmer/39years old/Muslim)*

"Going out" was considered an indication of extensiveness of practice, or spatial extent of a practitioner's sphere of influence, which further implicated the socio-economic import of TBS, beyond the therapeutic. It was for the socio-economic advantage that accrued to practising outside of the indigenous community, among other reasons, that practitioners' children were beginning to migrate to the cities, where more benefits were believed to abound due to higher patronage, resulting from relatively higher

incidence of BJM conditions as reported by Owumi et al (2016). This view was corroborated by another practitioner as thus:

> It is good to go out because everything is about connection. One of the reason why we have been unable to face TBS as our sole occupation is because our people have not gone out. When you go out, there is higher possibility that people who you go to treat as well as their friends would refer other people to you. Also, you will get to meet people who will collect your number and call you once they need your services. This is aside other Medicine men that you get to meet and you both can consult each other or work together in the future. *(IDI/Practitioner/farmer/32years old/PHC/Muslim).*

Furthermore, yet another practitioner highlighted the need for networking to expand their sphere of influence, both generate more income and to attract more good will, spiritual and material gifts. He noted that:

> One of the reasons why we have not been able to develop TBS in our village is that we don't know people who can help us. Hence, anytime or anywhere people invite us to come and work, we don't hesitate, because you don't know who will ask you "what exactly do you want me to do for you". If you operate only around here without going out, our people will keep capitalizing on the fact that *Baban* does not charge them, and they also will not take initiative to give you something good in appreciation for the work that you do for them. Even though *Baban* was not charging, our fore-fathers had a way of compensating each other with gifts. Some will even give you a wife, which is very good. Others will give you spiritual or other material gifts. But the people of today, they are always stingy and greedy. It is sad… So, we have to go out, and when we do, we come back with money and other gifts like clothes and so on. And we are happy! *(IDI/Practitioner/Tailor/39years old/Muslim)*

In terms of therapy, the scope of TBS practitioners' operation transcended the mere "setting" or treatment of bones as implied by the title "…bone setter". Practitioners provided therapeutic services for various BJM conditions. These included health problems that affected the Musculo-skeletal system of the human body, including bone, joint, muscle, tendon, ligament, and their associated tissues. For each of these body parts,

practitioners' services covered both biological/degenerative conditions which could result from ageing, disease or heredity; and those that were produced by physical damage due to force, pressure, slip or fall. The common biological, degenerative conditions that practitioners treated included *efo nin tuskun* (Osteoporosis), *Kpankoro tan* (Arthritis), *Zuma tan* (lower back pain), hereditary deformities, and stroke. The conditions due to physical damage mostly included fracture, joint dislocation and pain in the Musculo-skeletal system (caused by the stress and strains of everyday, socio-economic activities. Practitioners also corrected cases that had been treated by modern orthopaedic hospital which they argued, often required neutralization or reversal of the hospital treatment, using physical or spiritual means.

However, the most common cases treated by practitioners were bone fracture, followed by joint dislocation, while the degenerative conditions such as stroke were rarer. Agreeing with the report of Ekere, 2011, 2012; Aderibigbe et al, 2013 and Onyemaechi et al, 2015), most of the cases were due to road traffic accidents. Similar to the findings of Owumi et al (2013, 2016), most of the conditions caused by *mashin* (motorcycle) accident, which was the most prominent means of transportation, due to the rural nature of the study area. However, the use of *mashin* in the study area was mostly for personal purposes and not for merchandise.

Practitioners were in agreement over the peculiarity of neck or spine conditions (fracture or dislocation) which they considered the most difficult of the array of BJM conditions that fall within the scope of their practice. According to them, these conditions are even more difficult to heal than stroke. This, they attributed to *egwafi tsukin wawagizhi* (the nested nature of small-sized bones in the region), which is a fairly continued part of the body. They argued that, even the modern orthopaedic system finds it difficult to treat such conditions, which they mostly refer to them. Practitioners noted that it was severe cases like stroke, neck or spine injuries that had defied modern medical intervention that usually took them to provide TBS services in distant locations. They maintained that only a good TBS could adequately treat such conditions. According to a practitioner,

> Although BJM generally are not problems to be solved in the hospital, doctors make efforts that may yield positive results in other BJM conditions, but not stroke, neck or spine. They don't have what it takes to treat them. Those body parts only respond to certain *asiri* (secrets), *cigbe* (medicine) and words that we speak to them, and not injection or tablet. If a person has lost some bone in an accident for instance, *Baban* has what it takes for the bone to be reintegrated into the body.
> *(IDI/Practitioner/Tailor/39years old/Muslim)*

This was supported by another practitioner who claimed to have successfully handled the neck injury of a Nigerian-based white man. According to him,

> the man (whiteman) broke his neck while doing some sporting activities. He was treated with *cigbe nansara* (western medicine) in the hospital, here in Nigeria. Later, he was taken to china where they were able to stabilise him…after his return to Nigeria, the problem started again, and I (the TBS practitioner) was invited to treat him. Today, he is okay, after 2 months' treatment and gradually, he has started going to work. *(IDI/Practitioner/Tailor/39years old/Muslim)*

The scope of TBS within the study area further included the practice of invasive (surgical) practices such as the removal of *tsukun na a tsu na* ("dead bone") which they considered can no longer grow or unionize. They also drained *ebi nuwan shikan* ("bad" liquid) from diseased part through incision; while also facilitating relevant spiritual approaches to resolve non-medical factors in patients' illness experience. These, practitioners either did by themselves or in collaboration with PHC workers, who also provided other supporting services for TBS. Furthermore, practitioners provided opportunities similar to modern physiotherapy, with requisite materials which practitioners fabricate (in collaboration with carpenters) or patients buy from the markets. This complements the direct therapeutic aspects of BJM healing and helps the patient restore mobility and functionality of affected body parts.

4.6.4 Social factors in the incidence of BJM conditions and utilisation of TBS treatment

Man exists in society and engages in a flux of socio-economic activities in his bid to survive while negotiating the challenges of everyday life (Olutayo, 2002). The society, therefore, serves as context of which factors and dynamics affect every aspect of man's life, including exposure to the causes of health problems and their incidence. BJM conditions do not only result from germs or pathological factors. Amzat and Razum (2018) noted that "germ theories" of disease causation also recognize the role of social factors in the aetiology of health problems.

The incidence of BJM conditions in the study area was influenced by social factors in the communities. As revealed by the demographic characteristics (Table 4), majority of the residents (74.4%) were rural dwellers, since the study area itself fell among a predominantly rural setting, except for the two LGA headquarters (Lafiagi and Patigi) that had some urbanization attributes. Similarly, the socio-economic characteristics of residents (Table 5) revealed that majority of the study population (75.1%) did not have tertiary education. This largely accounted for why only 22.8% of them occupationally belonged to the civil service category, the major white-collar job category that was available in the area. The majority (77.2%) were therefore engaged in farming, artisanship and trading, occupations which exposed them more to the causes of BJM conditions.

The root causes of BJM are located in the very socio-economic activities that man engages in, in his everyday life (Owumi et al 2016 and Aderibigbe et al (2013). Generally, occupational factors among the study population, their constituting activities and associated processes, as well as geographical mobility were factors that contributed to the occurrence of BJM in the study area. Aside BJM conditions that resulted from bio-medical pathologies and injuries incurred from occupational hazards (falling from trees, impact of motor parts, work stress and strain on the body), road traffic accident remained the leading cause of BJM conditions in the study area. This is in tandem with the

observation of previous studies (Ekere, 2011; 2012; Owumi et al, 2013; Onyemaechi et al, 2015).

The disease site for most patients was the limb, with fracture being the commonest, followed by joint dislocation. BJM conditions were generally considered "very severe" due to the pain, partial or full incapacitation and consequent socio-economic dependence on significant others which characterised most TBS patients (Researcher's observation, 2018). Once a person has a BJM, he is likely to experience incapacitation of the affected part. Consequently, there is high possibility of not being able to perform social roles, such as occupational activities that would have generated income. These, in the lens of Parsons (1951) theory, are part of the "normative expectations of being sick", hence the concept of "sick role".

In the view of Parsons, being sick is a social condition that involves temporary withdrawal from or passive performance of social roles, which potentially threatens the system" (Parsons 1951: XXII). Thus, the TBS patient depends on significant others for his care as well as socio-economic needs, a situation which compounded the burden due to BJM conditions. Infirmities of the lower limb accounted for higher frequency of patients' localization to one place – their care site, since it affects mobility. Consequently, patients with injury at the lower limb tended to be more among the in-patients admitted in by the TBS so as not to breach the desired immobilisation that their healing required.

Beyond understanding the scope, size and commonness of TBS within the study area, there is the need to understand personal experiences of the study population in relation to BJM conditions. This is to facilitate an adequate appreciation of the dynamics of TBS utilisation in the study area. Based on the survey conducted, table 10 presents data on respondents' personal experience of BJM vis-à-vis how healthcare was utilised.

Table 10: Patterns of BJM conditions and utilisation of TBS treatment among community members

Attributes	Frequency	Percentage
Personal experience of a BJM condition (N = 660)		
I have had a BJM condition before	344	52.1
I have not had a BJM before	316	47.9
Frequency of respondents' presentation of personal cases for TBS treatment (N=344)		
Once	221	64.2
Twice	102	29.7
Thrice	12	3.5
More than thrice	9	2.6
Causes of respondents' latest BJM Condition (N=344)		
Motorcycle Accident	174	51.2
Motor car/Lorry accident	86	25.0
Occupation	32	9.3
Fall/Slip	36	10.5
Heredity/Disease	14	4.1
Type of BJM condition (N = 344)		
Fracture	169	49.1
Dislocation	99	28.1
Back pain	37	10.8
Musculo-Skeletal Pathology	18	5.2
Hereditary deformity	9	2.6
Preternatural BJM condition	12	4.2
Choice/source of care (N = 344)		
Traditional Bone Setting	229	66.6
Only Hospital	22	6.4
Combined with modern medicine	54	15.7
Utilised hospital treatment prior to TBS	39	11.3
Factors that determined respondents' presentation at TBS (N = 344)		
Unavailability of hospital	109	32.0
Cost of hospital care	98	29.0
Superior efficacy of TBS treatment	103	30.0
Natural and supernatural therapy	28	9.0
Healing duration of TBS Treatment		
Less than Two months	39	11.3
Two-Three months	108	31.4
Three-four months	157	45.7
Four months and above	40	11.6
Treatment outcomes		
Functionality of diseased part was restored after TBS treatment	332	96.1
Left TBS for better treatment in the hospital	5	1.6
Only did hospital check-up after TBS treatment	4	1.3

Source: Survey (2018)

It was revealed that more than half of the respondents (52.1%) had experienced one form of BJM or the other within the last five (5) years. From the table, greater than half of the sample population had had a BJM condition, which may be considered high, given the socio-economic implications that the condition portends through physiological incapacitation, the inability to perform social functions or fulfil social roles. Most of the respondents (64.2%) had had a BJM condition only once; 29.7% had it twice; 3.5% had it only thrice while 2.6% of the respondents had a BJM condition more than three times.

However, the relatively high rate of BJM conditions in the area may be attributed to the resurgence of the commercial motor-cycle as popular mode of transportation, mooted by the introduction of "*Loncin* motorcycle credit scheme" by the Kwara state government in 2004, and the opening up of the Nigerian economy to Chinese motorcycle companies, including *Jinchen* and *Bajaj* (Yakubu, 2012). The credit scheme introduced a new brand of motorcycle into the market, as more people began to acquire it with their personal resources. Being a rural area where most roads were bad and many people could not afford to buy cars at the time, acquiring these new motorcycles was seen both as a means of securing better mobility and a way of conforming to the fashionable brand, while enhancing one's social status.

Similar to the findings of previous studies (Olaitan, 2001; Owoseni et al, 2014; Onyemaechi et al, 2015), *mashin* was the leading cause of BJM conditions in the study area (51.2%), accounting for more than half of those who had had BJM within the last 10 years. Apart from the commercial use of *mashin*, many people owned and rode motorcycle privately in the study area. These motorcycles soon became a major socio-economic activity among the youths. At the end of each farming season, they temporarily migrated to the city to operate the motorcycle for commercial purpose (Adefila, 2012). This was supported by the views of a TBS practitioner who noted that:

> …*mashin* (motorcycle) is the commonest cause of BJM conditions in our area here. The reason is that there are no roads. Our area is sandy and many people, especially the young do not ride *mashin* with care. Over-speeding and riding at night without headlight are major reasons why mashin accidents are common here. Unfortunately, *mashin* has only two wheels, unlike a care… With any small pot-hole or distraction, it falls down and break peoples' hand or leg… Although *egacizhi* (witches) follows people up and down, including people who leave the village to do commercial motorcycle in the city…, motorcycle accidents can be reduced if people are more cautious. *(IDI/Practitioner/Farmer/57years old/Christian)*

While implicating the role of motorcycles in the incidence of TBS, a patient further stressed its centrality to socio-economic activities in the community. he reported that:

> most people that come here for treatment were people who had accident from *mashin,* even me myself. There are many other people who also come for treatment from their various homes or villages, whose conditions were caused by *mashin* accident. Yet, *mashin* is very important to us in this area. We cannot do without it, because there are many places it can go, that cars cannot enter. *(IDI/Patient/farmer/36years old/Muslim)*

Similar to the findings of Owumi et al (2013) and Edusei et al (2015), fracture (49.1%) was the commonest BJM condition in the study area, followed by dislocation (28.1%) and back pain (10.8%). These can be attributed to the socio-economic nature of life among the study population, which required physical and geographical mobility on long as well as short term bases. Although preternatural factors have been established as constituting major factors in the construction of health and illness in Africa (Jegede, 2002; Amzat and Razum, 2018), only 4.2% of respondents who had had BJM condition attributed their condition to preternatural factors. This means that generalizations about preternatural dimensions to illness must be health problem-specific, as the perception could vary across different health conditions. This implies that physical and biological factors were perceived to influence the occurrence of BJM conditions more than preternatural factors. Table 4 further revealed that TBS (66.6%) was the first point of call and major healthcare source in the care for BJM conditions among the study population; 15.7% of the respondents simultaneously combined TBS with modern medicine; while

11.3% of the respondents utilised hospital treatment either as a first aid or point of stabilization for those whose conditions were highly severe.

Given that 93.6% of the respondents utilised TBS services in the treatment of the BJM condition, TBS remains the major source of care and provider of therapeutic services in the study area. This may not be unassociated with factors such as lack of modern hospital (32.0%) and its comparatively high cost of care (29.0%), the superior efficacy which TBS is perceived to possess over hospital treatment (30.0%) and the natural and supernatural approach to TBS healing and consequent capacity to address both physical and spiritual factors in BJM cases. This implies that the problem with modern hospital care for BJM conditions is not limited to "access" (affordability, availability, and proximity), but also the belief and perception of the people regarding the practice.

This resonates with Parsons' (1951) submission that implicates orientation and socialisation as factors in the development of actors' personality, their attitude and consequent preferences in relation to alternatives to healthcare choices. This may have been reinforced by the generally positive treatment outcomes reported by majority of the respondents (96.1%) whose diseased body part was completely restored through TBS treatment. Less than 4% of respondents had any cause to go to the hospital during or after TBS treatment of their BJM. This was contrary to the observation of scholars (Dada et al, 2011; Ekere, 2011, 2012; Onyemaechi, 2014, 2015) who had consistently attributed adverse treatment outcomes to TBS intervention in BJM cases. The efficacy of TBS treatment for BJM may be a major factor promoting its persistence and continued relevance, as noted by Owumi et al (2016).

4.6.5 Effect of Respondents' Socio-demographic Characteristics and TBS Utilisation among the Nupe of Kwara State

Multivariate analysis of quantitative data was done at using binary logistic regression, with the aim of ascertaining the effect of socio-demographic characteristics onutilisation of TBS (Tables 13) and odds of time to presentation by effects of respondents' socio-demographic characteristics (Table 14).

Analysis of the odds of utilisation of TBS by respondents based on their sociodemographic characteristics is presented in Table 13. The study explored the effect of sociodemographic variables in six different groups. The 'odds ratio' for education coefficient is .750 with a 95% confidence interval of [.22; 2.62], $p > .01$. There is no significant relationship between respondents' education and TBS utilisation.

Table 13: Odds of Utilisation of TBS by Effect of Respondents Socio-demographic Characteristics

Group	Effect of respondents' sociodemographic characteristics	Odds Ratio	Sig.	95% C.I for *Exp (B)*	
				Lower	Upper
I	**Education** No education **(ref)** Formal education	0.000 .750	.65	.215	2.621
II	**Income** #20,000 and below **(ref)** Above #20,000	0.000 1.679	.25	.694	4.061
III	**Employment** Unemployed **(ref)** Employed	0.000 1.582	.31	.655	3.824
IV	**Marital status** Single **(ref)** Married	0.000 1.229	.65	.510	2.964
V	**Religion** Others **(ref)** Traditional	0.000 1.298	.73	.292	5.780
VI	**Sex** Female **(ref)** Male	0.000 .703	.48	.268	1.847

Source: Field Survey 2018 *Significant at p<0.01

The 'odds ratio' for education coefficient is .750 with a 95% confidence interval of [.22; 2.6], $p > .01$. Thus, there is no significant relationship between respondents' education and TBS utilisation. Similarly, the other socio-demographic characteristics (income, employment, marital status, religion and sex had no significant relationship with the utilisation of TBS for BJM conditions.

Evidences from qualitative data supported this through the submission of a patient who noted that:

> The most important thing is to have your problem solved. No matter how highly placed, rich or elitist a person is, he would not want to joke with his/her health. Rather, he/she would look for the most effective means for treating it. One this that is sure is that the bone setter will never cut your leg or hand. They will surely get you healing, but this may take time. I believe that they are better than modern hospitals in terms if fracture and dislocation. I don't know of other health problems. *(IDI/patient/retired civil servant/62 year old/Christian)*

Alluding to this, a TBS practitioner noted:

> We treat and care for every kind of human being that you can imagine – rich, poor, educated, uneducated, white, black and so on. Even if they cannot come to us, we can go and treat them at home if they invite us. We travel to Abuja and other big cities to treat big men who may not want to come and live here in our village. They invite us based on testimonies of our former patients who usually link us to them. I have even treated a white man before in Lagos… the truth is just that what we can do here, you cannot find in the hospital, and people know this.
> *(IDI/TBS practitioner/53 year old/Muslim)*

Given the cultural acceptability of TBS and widespread information about its efficacy, people may miss the perceived advantages of its therapy especially in the case of BJM conditions in which people are rendered incapacitated due to the immobilisation that usually accompany it.

Furthermore, analysis of the odds of time to presentation among user of TBS based on their sociodemographic characteristics is presented in Table 14. The study explored the effect of sociodemographic variables in six different groups. The 'odds ratio' for education coefficient is 7.067 with a 95% confidence interval of [2.14; 23.30], $p < .01$. This suggests that those who have formal education are almost 7 times more likely to

present early for TBS utilisation than those that are not educated. This is to say that respondents' level of education is significantly related to time to presentation for TBS utilisation. This corroborates the position of Amzat and Razum (2014, 2018) that implicated education as a key factor in the pathway to the utilisation of healthcare. People who have formal education are likely to have higher perceived severity of BJM conditions which usually incapacitates patients from carrying out social roles.

Table 14: Odds of Time to presentation by Effect of Respondents Socio-demographic Characteristics

Group	Effect of respondents' sociodemographic characteristics	Odds Ratio	Sig.	95% C.I for *Exp (B)*	
				Lower	Upper
	Education				
I	No education **(ref)**	0.000	0.00	2.143	23.303
	Formal education	7.067*			
	Income				
II	#20,000 and below **(ref)**	0.000	0.01	.274	.796
	Above #20,000	.467*			
	Employment				
III	Unemployed **(ref)**	0.000	0.01	.279	.803
	Employed	.473*			
	Marital status				
IV	Single **(ref)**	0.000	0.35	.753	2.220
	Married	1.293			
	Religion				
V	Others **(ref)**	0.000	0.11	.167	1.186
	Traditional	.446			
	Sex				
VI	Female **(ref)**	0.000	0.13	.399	1.131
	Male	.671			

Source: Field Survey 2018 *Significant at p<0.01

The ‘odds ratio’ for income coefficient is .467 with a 95% confidence interval of [.27; .80], $p < .01$. This suggests that those who earn more than #20,000 monthly are more likely not to present early for TBS utilisation than those who earn #20,000 and below. This is to say that respondents’ level of income is inversely related to time to presentation for TBS utilisation. This may be attributed to the fact that such persons may have higher financial affordances and taste which may make them not want to present to TBS clinics, most of which, as already noted, are in dilapidated conditions (see figures 8, 10, 11, 17, 18). As noted by Jegede (2002), the ability to pay is a major factor accounting for higher rate of medical tourism among the elite in Nigeria.

The ‘odds ratio’ for employment coefficient is .473 with a 95% confidence interval of [.28; .80], $p < .01$. This suggests that those who areemployed are more likely not to present early for TBS utilisation than those who unemployed. This is to say that respondents’ employment status is inversely related to time to presentation for TBS utilisation. This is in line with the findings of Owumi, Taiwo and Olorunnisola (2013) which revealed that majority of TBS patients first presented to the modern hospital from where they eventually returned to the TBS treatment. Furthermore, employers and work organisations, due to the demands of formal medical report, may influence patients decision to first utilise the modern hospital where they can get these documents to be able to process sick leave.

The ‘odds ratio’ for marital status coefficient is 1.293 with a 95% confidence interval of [.75; 2.22], $p > .01$. There is no significant relationship between respondents’ marital status and time to presentation for TBS utilisation. Similar findings applied to religion and sex, which had no significant relationship with the time to presentation for TBS utilisation.

4.6.6 The decision to utilise TBS and its associated processes

Aside the innate drive to avoid pain and remedy it as soon as it occurs such as in the incidence of a BJM condition, there is also always the need to restore the health of sick members of society for them to be able to perform their expected social roles and contribute to the socio-economic life of their society. This is more important in the case

of a BJM condition which usually leaves the patient incapacitated and most times dependent on significant others for care, support and survival. Consequently, decision is a major factor in the bid to seek care for any health condition. Given the communal nature of life in Africa and the high spirit of social solidarity, family members, friends, community members, work colleagues and "good Samaritans who were eye-witnesses of the onset of the BJM condition play important roles in the decision to utilise TBS services and its associated processes (Owumi et al, 2016). Most patients by the reason of their orientation and socialisation believed that TBS was the best source of care for BJM conditions. Regarding the first point of care, nature and severity of the BJM condition and its complexity (whether or not there is a major open injury, say on a fractured limb) were major considerations. Although practitioners generally believed that they could also treat open injuries, community members tended to be more keen with presenting severe BJM conditions especially those associated with blood loss, first in the hospital where safe procedures can be carried out to stabilise the patient. A primary healthcare submitted that:

> When a person has lost blood or is under shock, he or she needs to be stabilised before anything. The bone setters cannot stabilise patients, so we go there to help them. We can give blood (transfusion), drip or help in cleaning and stitching open fracture. Without this, they (bone setters) cannot do their work... *(KII/PHC Provider/civil servant/39years old/Christian)*

This was corroborated by a patient who shared his personal experience:

> the broken bone in my leg actually came out (protruded) at the time of the accident. Everywhere was dark and I didn't know where I was. When we go to Baba here (the bone setter), he tried to get his own *doctor* (PHC provider) but could not. Eventually they got a car to take me to a hospital in *Tsaragi* (another community where they gave me injection and *nuwan* (drip). I was there for 4 days before coming back here. *Baba* believes that *asibiti nansara* (modern hospital) specialised in healing diseases, including injuries, with the aid of injections and medicine, while his own is to treat bone problems or dislocation. *(IDI/patient/farmer/28years old/Muslim).*

Whereas some of the practitioners believed that they could provide the basic modern PHC care need on their own, there seemed to be a consensus among majority of the actors within the TBS system (patients, community members, community leaders and PHC providers) on the need to first of all, stabilise the patient and relieve pain while addressing the external wear or tear in the case of open fracture and dislocation before further intervention by the TBS, since they believed that the actual treatment of bone and associated bodily tissues laid outside of the sphere of the modern hospital. They believed it was an exclusive area of competence of TBS practitioners whom they believed were most effective in the treatment of BJM conditions. Corroborating this, a TBS practitioner added that:

> Before I treat any patient, I ensure that he is balance (stable and conscious), and that pain is minimised. Although we have our own traditional method of doing this, the use of injection in modern medicine produces faster result, since the medicine goes straight into the blood. That is why we call *Likita zhi* (PHC providers) to help us out whenever there is a serious case… *(IDI/Practitioner/farmer/43years old/Muslim).*

This may account for why TBS practitioners themselves engaged the services of PHC providers from within and around their community. However, the quality of PHC services provided by these practitioners remain suspect, given the conditions under which they carried out their intervention with little or no supervision. Furthermore, the capacity of these practitioners to properly intervene in open/complex cases of orthopaedic dimension is also suspect, given the fact that the area of orthopaedic care may require more equipment and expertise than the PHC workers could afford. This may be a major factor accounting for high morbidity, mortality and disability that were attributed to TBS by previous studies (Dada et al, 2011, Ekere, 2012, Onyemaechi, 2015). While the severity of a case was a major factor in the decision to utilise TBS and its associated processes, it further implicated the need to provide quality PHC support for TBS service.

Other factors influencing the decision to utilise TBS included affordability, prevailing belief system, cultural acceptability, proximity and absence of surgical terror as well as invasive surgical practices including implant and limb amputation. Although

Nupe TBS practice didn't not involve the use of diagnostic equipment such as X-Ray and ultra-sound for effective treatment, practitioners agreed that incorporation of those equipment could strengthen their existing feat. However, they did not believe that biomedical equipment was indispensable for effective TBS practice. Rather, the primary requirement is that a practitioner be born into the healer's family.

4.7 Interface between TBS and modern healthcare

This section presents the aspect of the study that involves an interrogation of the relationship between TBS and the modern, formal healthcare system in the community. Scholars (Abdullahi, 2011; Amzat and Razum, 2014; Anaemene, 2018) have established the plural character of healthcare in Africa as comprising traditional medicine and modern healthcare. The western medicine which was imported into Africa and most countries in the developing world came to relegate indigenous medicine to the background, given formalization as well as policy preference that was accorded it right from the colonial day when it was imported. In spite of this, traditional medicine has demonstrated resilience and continued relevance, since it is rooted in the very socio-cultural realities of the people, resonating with their belief system, which makes it socially acceptable to the people. As argued by Owumi et al (2018), this is a major factor for the persistence of traditional medicine in a rapidly changing society.

Whereas scholars (Gyoh, 2010; Amzat and Razum, 2014) reported little or no collaboration between traditional medicine and modern medicine in Africa, this study found the existence of an interface between TBS and the primary healthcare within the study area. The interface was informal, unstructured and devoid of scientifically recommended standards of healthcare provision, hinged on a mean-end principle. This may also not be divorced from the fact that practitioners, PHC providers and most patients in the study area belonged to the same cultural system with shared sentiments regarding the practice and efficacy of TBS. Similar to the theory of Talcott Parsons (1951), the people are bound in the same cultural system which affects every area of their life, including their worldviews. Most of the actors constituting the TBS system in the study area were born and bred within the area, making them more positive towards the cause of TBS and whatever would advance its cause, including modern PHC. This may

have rendered the PHC providers more open to fostering an interface with TBS in the area. Also, the study area was largely a remote place from the supervisory gaze of government officials and institutions that may thwart such collaborative moves between TBS and PHC. In most cases, TBS practitioners mooted the process of collaboration between PHC providers and themselves in cases that TBS practitioners deemed fit. Practitioners engaged the PHC workers in consultation with the patient and/or his/her care givers who, in most cases gave consent, given the trust that was reposed on the office of a healer like a TBS practitioner. Sharing her personal experience, a patient reported:

> …there was a time I was losing weight and my eyes were getting too white. Baba *(TBS Practitioner)* told me that I needed to get some blood and that he would have to invite a *doctor* to come and check me. The same evening, the *doctor* came around, gave me *cigbe'gia* (blood medicine) and before you know it, I got well…

He continued:

> …my coming here was because I am aware that this is where the solution to my problem lies, not in the hospital. So I do whatever he tells me to do without arguing with him. God himself appointed these people (TBS practitioners) to heal broken bones and some other problems…, so I believe whatever he says. (TBS practice) proper. *(IDI/Patient/Police man/ 38 years/NCE/Muslim)*

Similarly, another patient argued that it was easily possible to access modern medical care while utilizing TBS, than being in the hospital and expecting to utilise TBS. According to him,

> One major thing that TBS treatment has over the hospital is the fact that here, one can easily get hospital services if the *doctor* (TBS) feels that you need it or if you have certain complaints. On the other hand, if you don't know somebody, you may not be able to use TBS treatment in the hospital. So, this place is better because you can easily do the two, which makes the healing faster. You may be surprised that Alhaji (TBS practitioner) actually employed a *doctor* (Auxiliary nurse) here, who takes care of everything that involves hospital services, while Alhaji himself

> focuses on *baban* (TBS practice) proper. *(IDI/Patient/Civil servant /50 years/HND/Christian)*

This was in consonance with the attitude of TBS practitioners generally, towards their practice. There was a relative consensus that incorporating aspects of modern medicine into TBS practice was a development that could advance their practice, positing it for better treatment outcomes. Many of the TBS practitioners in the study area had begun to use modern gloves to prevent infection, as well as the use of disinfectants, anti-biotic and practitioners seemed to have recognized the need to, for instance, ensure that parts of the body that were torn open due to BJM conditions like fracture needed to be closed up e.g. through suturing, which some of them actually did by themselves while others engaged PHC providers to do it. This, in their view, was not only to achieve faster and better healing, but also to "fence" the body against infections that could have come in. Thus, this creates the impression that TBS practice has the potential of coexisting fruitfully with western medicine in a collaborative milieu for the common good of the people. According to one practitioner,

> there are a lot of things that we (TBS practitioners know how to do very well, while they (modern medical practitioners) cannot do it. There are also things that they can do that we cannot do as much as they can, because those things are in their line (specialty). This is why both of us can work together. But the problem is that most of those hospital people don't want to accept that we are also good in some area. Sometimes when I go to see patients in some hospitals in the city, the doctors will just look at you as if you are not even a human being, until they start seeing the result of my work. Since we are both working for healing, there is no reason why we should become rivals. Rather, we need to work together. *(IDI/Practitioner/farmer/Patiko/43 years/Bible school/Christian)*

TBS practitioners generally perceived modern medical practitioners as hostile towards them and their practice, a situation that they thought should not be. They believed that mutual collaboration among practitioners from both sides of the divide would improve the quality of care delivered to patients. While practitioners were open to collaboration, they were however unwilling to take subordinate position under modern medical practitioners. They argued that modern medicine is *cigbe nansara* (whiteman's

medicine), while TBS is *cigbe pazhiko* (medicine of the black people). This distinction, in the view of practitioners were fundamental and must be respected in any merger between the two traditions. According to one practitioner,

> We are ready to work with the hospital people. But it is important to understand that what we do and how we do it is different from what they do in the hospital and how they do it. We and the hospital people both need each other. But doctors always like to think that they are our boss, because they went to school and many of us did not, although our children are now going to school also. It is unfortunate that even the black doctors discriminate against black medicine…whatever the case, we are ready to work with them but we cannot allow them to superintend over us.

He continued:

> They (doctors) know their own work of giving medicine, injection and other things and we also know our work of treating people who have bone problems and some other diseases. In fact, there are things that we can do that doctors cannot do, so we should be the one to lord it over them. Doctors cannot treat broken neck. Also when parts of a person's bone get missing in an accident, doctors cannot make it grow, neither can they heal people whose health is suffering from the forces of darkness. In fact, doctors are unable to ascertain even the cause of such problems, talk less of their solution.
>
> *(IDI/Practitioner/farmer/ 83 years/Bible school/Christian)*

This position is corroborated by the submissions of a community leader who noted that:

> Tradition is tradition and nothing can replace it. *Baban* (the tradition of bone setting) is what God originally provided for mankind to heal bone disease and some other health problems. But as you know, nobody knows it all, not even the TBS practitioners or the hospital people. The TBS man may encounter a challenge that requires the input of hospital people (modern healthcare providers) for instance in giving injection, water (drip) or other problems. Like what is happening here in our village, the hospital people and TBS people can work together without any problem. However, bone problems must strictly be handled by TBS people while other health problems should be addressed by the hospital workers in order to support TBS treatment, just like TBS practitioners around here

> sometimes go to treat people in the hospital to support their own work. Their working together should not be competitive, but they should join hands to ensure that treatment is produced for the poor masses.*(KII/Practitioner/farmer/Patidzuru/83 years/Bible school/Christian)*

This is in consonance with the position of Adodo (2018) who advocated for "collaboration between" traditional medicine and modern medicine, and not the "integration" of both. According to him, the two major types of medical practice belong to two separate traditions, so that one must not be subjugated for or subsumed in the other. This implies that any integration between TBS and modern medicine must not assume a vertical dimension, but must be horizontally organized so that none is placed in a superior position over the other.

Consequently, the view of practitioners did not conform to the position of the WHO traditional medicine strategy (2014-2023) which sought to "integrate traditional medicine products, practitioners, and practice into health systems" (2013:11). With such an arrangement, practitioners of traditional medicine as well as their practice are likely to be subordinated in a health system that is medical and clinical-bias. Given the role that practitioners play as major actors of healthcare delivery recognized in their respective communities, there is the need to take into account their perspectives in any policy that affects them. The interface between TBS and western medicine and the former's subsequent modifications need to be contextualized so that, the outcome is neither too uncomfortable for TM practitioners to operate in, nor too weak to prevent adverse treatment outcomes. Although there was informal collaboration between TBS and primary healthcare providers, the researcher observed that the process was largely merchandised, characterised by the commodification of healthcare by many of the primary healthcare providers who were more of business men and women with profit motives. Whereas an effective referral system is a key element of a functional health system (WHO, 2013; Amzat and Razum, 2014), there was no functional referral system between TBS practitioners and modern primary healthcare in the study area.

Most of TBS collaboration with modern healthcare in the study area were with private health providers or facilities. This may be attributed to the national health policy

in Nigeria, which does not yet accommodate referral between traditional medicine and modern medical practice. Consequently, referral practices were informal and mooted by patients and modern primary healthcare providers in some cases or patients and TBS practitioners in other cases, while patients' family members and significant others played important roles in the process. Thus, the TBS practitioner either went to treat people at the modern health facility (clinic or hospital), or private primary healthcare providers came to treat patients at the TBS clinic. The profit oriented motive of private healthcare sub-sector with little presence of competent regulation and supervision by government agencies may have made their systems porous to allow for TBS intervention, which is against existing policy. This gave room to malpractices within the TBS system due to the porosity in the interface. It is further accentuated by the fact that most modern primary healthcare providers operating within this milieu were para-professionals, comprising mainly auxiliary nurses, patent medicine sellers and community health workers employed by the LGA authorities.

4.7.1 Transformations in TBS practice among Nupe Practitioners

As noted by Owumi et al (2018), traditional medicine has undergone notable transformations due to modernization of social life, advances in biomedical science and technology and society's consequent change in taste and fashion. Like other aspects of traditional medicine, TBS practice in the study area had also aligned with societal change within the environment of practice. This is similar to Parsons' (1951) implication of the environment as a major factor of which dynamics, including social change, innovation and transformations affect institutions and socio-cultural practices like TBS, howbeit in slow, gradual and evolutionary dimensions. The indigenous mythologies of TBS, its practice, principles, diagnosis and treatment procedures as well as devices and equipment of practice are consequently accommodating western dimensions, giving credence to possible roles of clinical science. This was contrary to the observations of Oyebola (1980) among the Yoruba TBS, which portrayed the practice as an entirely conservative and primitive traditional orthopaedic therapy devoid of western interventions or related possibilities. Underscoring the reality of change and transformative advancement of TBS practice in the area, a practitioner submitted that:

> Life itself is not stagnant, including those things that break people's bone. For example, horses and donkeys were the means of transportation at some point and they contributed to the cause of health problems that we treat here. Today, there are cars and motor cycles which are more common among our people. In the same way, the type of BJM that we treat have become more complex, so that *baban* cannot afford to be stagnant. Some of the medicinal ingredients that we used to get easily are not very much available. So, we also need to move, just like the hospital people are advancing their work. Lack of money and support from government have been the major problem of our work. *(IDI/Practitioner/farmer/Patidzuru/50 years/primary school/Muslim)*

While acknowledging the limitation of TBS practice compared to its western clinical counterpart which has the advantage of a rich scientific community as well as comparatively enormous pool of economic resources, the practitioner displayed the recognition of social change and progress as placing an important demand on TBS to keep pace with the times. The realisation of this need led to the gradual opening-up of TBS system through the adoption of innovations and the employment of approaches outside of the practising culture, which are believed would foster the cause of TBS practice. This affects every aspect or level of TBS practice among the Nupe.

At the level of economics, healthcare costing and financing, most of the TBS practitioners had introduced monetary payment (with the credit facility and payment by instalment) in addition to the traditional demands for a cock or a hen and other locally sourced materials such as a mud pot, for cooking medicinal concoction and soup. This has shifted the nature of contract from its traditional character towards a more modern phenomenon with capitalist elements. Practitioners now monetize their services, including those of collaborating healthcare providers. This, they insisted, was due to the need to cover healthcare and its associated cost while equally accruing some income for themselves, again, positing TBS as a socio-economic practice beyond mere therapeutics. A practitioner submitted:

> It is true that our forefathers did not charge money or materials for the services that they rendered to patients, apart from the cock or

> hen…. We also would have loved to do same thing but our own world is different from theirs. Things have changed. During their (ancestors') time, the materials used for making medicine were easily gotten free of charge from the environment. They also enjoyed other things free of charge from other people around them who also provided other services. Today, who will give you anything for free? The cock or hen cannot even cover the treatment cost that we incur in getting the medicine alone. And you know, we also need to eat…, is it only cock and hen that we would be eating? These are the reasons why we now charge some fee… *(IDI/Practitioner/farmer/Saba-Gina/45 years/SSCE/Muslim)*

While recognizing the seeming commodification of TBS and the need to place some price of treatment, another practitioner further emphasised the place of altruism as an important principle of practice that must not be compromised under any guise. As generally projected by the study population, the practitioners argued that altruistic service was the hallmark of authentic TBS practice, which should not be denied anybody in need. According to him,

> we all know that things are now costly and even things that would have been gotten without any cost are now impossible to get without money. But as healers, we must always remember the rule that forbids us from overcharging patients. So doing would affect the treatment outcome or in an extreme case, cause a person to lose his *gbere baban* (capacity for practice). In fact, we must not refuse to treat a patient because of the inability to pay, except they are things that we cannot afford. In any case, we must always try our best... *(IDI/Practitioner/farmer/Bacita/41 years/B.Eng./Muslim)*

This suggests that altruism and humanitarianism remained an important element and a guide in TBS practice, in spite of capitalist tendencies that pervaded every aspect of human society. This may be attributed to the relative conservativeness that characterises rurality as a characterizing decimal in most of the study area.

Whereas there is the of commercialization of TBS practice, practitioners in the study area were constrained by the belief that exploitation of the vulnerable patients had bad implications for treatment efficacy, which could spell doom for the family tradition.

This produced restraint on the part of practitioners who tended to enjoy gifts or appreciation and other forms of goodwill from patients and the community at large. Whereas this situation made TBS more affordable for orthopaedic care within the area, it had negative implications for practitioners' affordance of a decent and hygienic clinic environment for the effective delivery of care, including provision of modest ward facility for patients. Most of the practitioners did not have adequate housing facility for TBS practice. While other mythologies and principles of TBS practice in the study area were still observed, the tension between restrained commercialization and the economic imperatives of a functional TBS clinic remained unresolved, necessitating interventions to better posit TBS as an effective source of primary care for BJM conditions.

4.7.2 Stakeholders and their changing roles in TBS

Whereas Ferlie and Shortlie (2001) identified patient, care team, organisation and environment as the four nested levels constituting the healthcare system, this study revealed that practitioners' community, traditional rulers, the state (local government) and development partners are important stakeholders in TBS operation whose roles had also changed significantly. Each TBS community and its inherent sense of humanity supported TBS practice in unique ways. While *Lema* community was able to pool resources and secure the World Bank's (a development organisation) grant part of which they channeled to building a "model" clinic where TBS was integrated with primary healthcare, other communities supported TBS practice by offering their personal houses for use as TBS patients' ward. This underscores the position of Adodo (2018) that development in Africa must be integral and situated within the socio-cultural peculiarities of community life. As a social system, each community is able to innovate indigenous methods of meeting her own needs, while developing in her unique path. This further resonates with Parsons' (1951) position that emphasises the sustainability of social systems, once functional imperatives are met through the performance of functions by different parts of the society. However, community support for TBS varied from one place to another.

Traditional rulers and the state (local government) were another bloc of stakeholders whose positions afforded the opportunity to pull as well as deploy resources

for the TBS. Practitioners attested to the support that they used to receive from the traditional authorities (emirate council) and the local government authorities, all of which had stopped. According to one practitioner,

> The Emir used to give us mats and sometimes food items to assist the patients. But they stopped doing this a long time ago, close to 10 years. When I went to treat somebody at the Emir's palace sometimes last year, he promised to support my new building, but I have not heard from him since then.

He further noted:

> What we charge the patients is not enough for us…Even the local government that used to give us bed and mattress have stopped doing so. In fact, the *doctor* (auxiliary nurse) that they asked to be assisting us had stopped coming since our building collapsed 2 years ago. He doesn't come to assist us again and nobody has said anything. Things are not as they were anymore…
> *(IDI/Practitioner/farmer/Patidzuru/50 years/primary school/Muslim)*

The community leaders and traditional rulers in the study area, like in most other parts of Africa wielded enormous influence over the people. While they could lobby the local government to support TBS within their respective domains, they could also control some resources within the contexts of the indigenous economy, through which they can mobilize community support for TBS, say through the allocation of lands and pool of community support for practice enhancement. As reported above, traditional rulers used to contribute materially to TBS operation, but this has also changed, due to a factor TBS practitioners and patients generally described as corruption and syphoning of resources that could have been channeled to the cause of community development. Beyond this, the government, particularly at the grassroots, was best posited to support TBS practice in the study area. Healthcare is a concurrent item in Nigeria's health policy and its provision should be part of the functions of the local government, given the fact that such practice was mostly situated within the physical and geographical proximity of the LGA. This should specially include traditional medical practices like TBS. Although the LGAs in the study area used to support TBS through the deployment of experienced auxiliary

nurses and community health workers in some cases, the situation has changed generally. In the few cases where LGA-deployed PHC providers still abound at PHC clinics, there was little or no supervision, unlike what used to obtain. Also, there were no referral arrangements for situations where cases went out of hand, although such situations were almost not recorded among TBS practitioners. However, lack of quality synergy between TBS and PHC could contribute to mortality, morbidity and disability that had been attributed to TBS.

At the federal and state levels, deliberate policies can also be made towards consolidating existing feat of TBS and other traditional medical systems for improving healthcare delivery at the primary level, primary healthcare being the cornerstone of Nigeria's health policy (Scott-Emuakpo, 2010). This will not only contribute to the improved provision of and access to healthcare but also ensure a more sustained development of indigenous knowledge and technology within the social systems context of the study area. The intervention of development organisations in community development was relatively new in the study area. As seen in the case of *Lema* community, the world bank as a development partner/organisation channeled grants directly to the community through the existing framework which gave the community volition to prioritize areas where such funds were devoted, as deemed fit by the community. The intervention of the world bank through which a modern facility was established for TBS and relevant PHC in the area was a major dimension to transformation in TBS operation in the area, which could serve as model for intervention in other TBS community. This could transform not only TBS but other forms of traditional medical practice.

4.8.3 Changes in TBS structure among the *Nupe* of Kwara state

The practice of TBS in the study area was organized around families which bequeathed the tradition to their heirs through heredity. Recruitment was therefore based on heredity and training, informal observation and tutelage from parents or older practitioners within the same family. Although family remained the unit of TBS practice, the major transformation was in the area of diminishing attention that was being accorded the practice by successive generations of TBS family heirs. With the exception of *Lema,* social solidarity and cooperation among TBS family members was being undermined by

individualistic tendencies and conflicts emanating from personal interests of individuals. Furthermore, modernization of fashion and taste as well as the belief that better life is obtainable in the city where higher rates of BJM also exist led to a tide of rural-urban migration among sons of TBS families, a factor that not only had implications for the extent of TBS personnel but could potentially affect the structure of family as the unit of TBS operation.

The increasing recognition of PHC as an important component of contemporary TBS practice also had implications for the structure of practice in the study area. This is because a non-family member is now being incorporated into the practice of a family-based traditional health practice. The PHC provider contributed to diagnosis and treatment, especially during the patient's entry where they advised TBS practitioner as well as the patient. The advent of PHC providers expanded the scope and spectrum of TBS activities as well as its human resource or workforce base. This development, if properly harnessed with intensive quality assurance, had the potential of revamping TBS for the effective delivery of primary orthopaedic care within the contexts of community health, especially in rural areas.

4.9 TBS as a healthcare system

A system comprises different parts and human actors that mutually work towards the performance of set goals within the limits of available resources in a socio-spatial environment. Talcott Parsons' (1951) theory analysed social systems from the view point of social action, the actions performed by component parts and their patterns, including human actors who act based on personality and behaviour that are produced within the socio-cultural environment and the system itself. As argued by Parsons, the cultural system, social system, behavioural system and personality aggregately constitute the healthcare system, which further inter-nested with the larger system of traditional medicine as well as modern primary healthcare as observed in the study area. The physical and social environment of the study population, however, provided the overall context within which TBS operated as a healthcare system. Based on Parsons' theory, the TBS system possessed both objective and subjective dimensions, at the micro and macro levels of sociological analysis. Consequently, the structure of the system has profound

elements of fluidity without proper defined distinction between boundaries that existed between different components of the system.

Originally, the human actors in a TBS system included the practitioners, patients, patients' significant others (family members and relatives), other traditional medical practitioners and community members who played supportive roles both in the pathway to patients' utilisation of care as well as serving as a source of social leverage through which patients' needs such as shelter, feeding and relationship are met, particularly in the case of patients with severe conditions or those who are indigent. However, the advent of modernization advances in biomedical sciences and technology provided a "complementary alternative" source of care in the formal PHC subsector. This is expressed in the increasing roles that PHC providers (community health workers, auxiliary nurses and patent medicine sellers) played in the delivery of TBS services. Justifying Parsons' (1951) postulation that partial social systems like TBS had the tendency of meeting their emerging needs through inherent capacity to negotiate challenges while meeting emerging needs, the increasing roles of PHC in TBS implicates TBS readiness to comply with the fashion and taste of the times. Consequently, the practice was able to demonstrate resilience to the threats of extinction given the challenges of modernity in the face of sophisticated fashion and taste in a fast changing world. In consonance with Owumi et al's (2016) observation, TBS was able to assert itself within the study area and beyond through cultural acceptance by the people, perceived efficacy, easy access (affordability, availability and proximity), supernatural healing as well as the ability to incorporate aspects of modern medical practice into treatment processes. This was highlighted in the submissions of a patient who noted that:

> …there is nothing we can get from the hospital that we cannot get from *baban* (bone setting). On the other hand, there are some things that the hospital cannot do for a patient, that the TBS will easily do for you. At least, *doctors* come here to treat us… We provide both hospital and *baban* healing services here while patients in the hospital do not.
> *(IDI/Patient/farmer/Patidzuru/41 years/primary school/Muslim)*

Another patient further argued that TBS was indigenous to his community, with various advantages over modern orthopaedic care, including cost effectiveness and holistic healing, including spiritual dimensions. He argued:

> *Baban* is our own native healing… and you don't have to go far to get it. It is cheap and available right here in our village. You pay for it when you have the money. Even if you don't have the money, these people (TBS practitioners) will not send you away. I'm sure you also know that hospital cannot heal you when witches have hand in your case. They won't even know the cause. This is where one can get solution to such problems. *(IDI/Patient/trader/Kpankorogi/29 years/NCE/Muslim)*

TBS practitioners had, within their network, a pool of traditional medical practitioners with specialty in other areas than bone setting. These included diviners, pastors, Imams and herbalists who offered guidance in cases that posed challenges to TBS practitioners, especially in situations requiring spiritual intervention. Articulating this, a practitioners noted that:

> Nobody knows or has it all except God… There are times that one would just have to seek help from the elders, especially when a case has *egwa dede* (evil hand) in it. When I say elders, they may not be older than you, but they have power, sometimes more than you and sometimes not more than you. This is important both for the healer and the patient to come out safely from every healing endeavour. You know, sometimes, these wicked people don't want you to loose whoever they have tied… The same way that I seek help from these people is the same way that they also seek help from me, when they have need. They can be one's religious leader whom you can approach for prayers or other *cigbetsozhi* (Medicine men) than TBS practitioners. *(IDI/Practitioner/Civil servant/Bacita/38 years /Muslim)*

However, it was revealed that TBS practitioners had no interface with the *doctor tsukun* ("doctor of bone" or clinical orthopaedic medical practitioners). These practitioners whose specialty directly overlaps with TBS and had produced most literature on TBS in Nigeria, Africa and globally consistently attributed adverse outcomes

to TBS intervention in BJM conditions (Ekere, 2011, 2012). Similar to clinical orthopaedic practitioners' perception, TBS practitioners also had a disdain for the clinicians, arguing that they felt threatened by the superior efficacy of TBS practice and its potential to gradually replace biomedical orthopaedic care. Explaining this, a practitioner argued that:

> There are things that the hospital people are also very good at, but what they can do are mostly diseases that are treatable by medicine and injection. I can also go the the hospital for such diseases, if there is need. But when it comes to treating *tsukun* (bone) and *edin* (muscle), hospital cannot compete with *baban.* They will have to learn from us…
> *(IDI/Practitioner/farmer/Ndako-Yissa/34 years/primary school/Muslim)*

This was further amplified by another practitioner who argued that the hostility of clinicians towards traditional medical practitioners was due to the threat that traditional medicine constitutes to the western biomedical practices, by virtue of the former's superior efficacy.

> Some of modern doctors (clinicians) have used our treatment before, so they know that we are better than them in this work. But they are afraid they will become irrelevant if we are given recognition and all the support that we need. I always tell people to arrange a competition between TBS practitioners and the clinicians, by giving us similar cases to treat, and see which one will heal faster and better. I can even take up the worse of the cases by allowing the clinician to select the patient of his choice. This is a simple way of knowing which one is better; it is not by argument. *(IDI/practitioner/farmer/Patiko/28 years/primary school/Muslim)*

This hostility and "cold war" between TBS and other clinical orthopaedic care, as well as animosity and mutual suspicion between the parties were a major factor that affected synergy between the two traditions of BJM care. Such a tension was also capable of destroying possibilities for referral between them, given the fact that the best referral would have been between TBS at the level of primary care to clinical orthopaedic

practice. The status quo was understandable due to the philosophical underpinning of biomedical science on which western orthopaedic medicine was built, particularly the principles of empiricism and objectivity, which TBS may not be able to demonstrate. Like most traditional medicines in Africa, TBS in the study area had not been documented. The practice of TBS in the study area was also not systematic as there were no particularly uniform methods and materials for carrying out treatment among practitioners in the study area. For example, while majority of the practitioners used hot water, the *Saba Gina*practitioner did not use hot water in treating his patients, regardless of the BJM condition. According to the lead practitioner,

> We don't use hot water like other people do. In fact, we have no particular material that we use. We just pray to Allah to make effective anything that we find to use. Sometimes it is ordinary sand that we just use. At other times, it is ashes or leaf. Since we believe in God, every patient that we have received here goes back home healed, except for a few who choose to leave for reasons best known to them. I like you to know that a lot of patients also leave places where they use water to receive treatment here. If our work is not good, will they come? *(IDI/practitioner/farmer/Patidzuru/41 years/primary school/Muslim)*

Similarly, the *Lema* tradition did not allow the pulling of diseased limbs during treatment. Their tradition prohibited the infliction of pain on patients in the name of providing healing. With respect to the pulling of diseased parts, practitioners acknowledged the sensitivity of the nerves and the damage as well as complications that can be done to bodily anatomy and physiology due to inflammation resulting from the forceful pulling of diseased BJM body parts. Consequently, the practitioners of *Lema* traditionmildly handled the BJM-affected parts by carefully soothing them with pieces of cloth and hot water, after which they applied medicinal ointment. The lack of documentation, harmony and systematic intervention by TBS practitioners in the area could constitute a major divergence among practitioners in the area.

The interface of TBS with modern PHC under investigation is one that requires refinement given the implications that it portends for treatment outcomes. A possible

harmonization of the existing differences among the various practitioners in the study area with the view to developing a single unified method of community care system for BJM conditions is instructive. For reasons of objectivity, such a harmonization may require the intervention of a neutral third party, preferably, the clinicians and other practitioners of traditional medicine including TBS, in collaboration with state and traditional authorities. The variegated composition of this team is to approach the issue with multidimensional objectivity with a view to evolving a unified system of TBS practice in the study area. This will contribute to the preliminary foundations for improved positioning of TBS for primary orthopaedic care in the area and other parts of its sphere of influence.

Whereas the local government (LG) is the tier of political administration located at the grassroots and most proximate to the people, the registration of TBS and other traditional medical practices were done at the state ministry of health in the state capital where the yearly dues were also paid. Since the area was predominantly rural grassroots and far away from the state capital, TBS is best situated within the supervisory purview of the local government tier due to administrative and geographical proximity, health being a concurrent item in the Nigerian constitution. Although the state, through the two (2) LG authorities located in the study area were reported to have donated materials in support of TBS practice in times past, there was minimal TBS engagement with the state in contemporary times. In fact, *Lema,* one of the TBS-practicing communities was reported to have been denied permission to renovate a dilapidated building donated by the LGA. This was attributed to reasons of political wrangling between the community and the local government, as the community was allegedly not supportive of the ruling political party. This led to the eventual collapse of the building as presented in Fig 8.

TBS did not have direct engagement with non-governmental development partners like the World Bank, but some communities did within the study area. However, the grant received from one of those interventions was channeled to supporting TBS in one of the communities. Most of the community members believed that TBS played important role, as evidenced by their preference for and utilisation of the practice. However, there were no structure or systematic interface between TBS practitioners and

the communities. This further attested to the unstructured nature of the TBS system within the contexts of the study area, since the practice was primarily believed to be a heritage of TBS families who are the practice custodians. Community support for TBS was available, almost spontaneously, especially when it involved patients' wellbeing, a thing which evoked emotions of the "common humanity" on community who selflessly gave their all in support of TBS patients. Similar to the findings of Owumi et al (2016), members of TBS communities further played important roles in facilitating contact between patients and their healers.

Systems have interface with the physical and social environment where they operate and with which they interact and necessarily adapt in order to survive (Kapp, Simoes, DeBiasi & Kravet, 2016). They operate in a milieu of input, throughput and output within the socio-spatial locations (Ferlie and Shortlie, 2001). In relation to this study, *input* derived from two major sources, both of which emanated from the environment (proximate or distal): patients or BJM conditions that are produced and therapeutic input (regimen and other resources) that were harnessed and processed in the production of healthcare by the TBS system. Consequently, the TBS system served as the processing or *through-put* unit for the production of healthcare through the processing and application of regimen and other therapeutic resources, for the treatment of BJM conditions. The result is the *output,* represented by the treatment outcome, usually the healing of BJM conditions by TBS practitioners.

In collaboration with 'others,' including patients, their caregivers, other traditional medical practitioners, PHC workers, farmers, hunters, and other artisans (welders and carpenters who fabricate rehabilitation frames), the TBS practitioner sourced the regimen for treatment and rehabilitation of patients from within the environment. Diviners and traditional medical ingredient sellers played important roles in this regard. As reported by practitioners, some of the therapeutic plants, animals and minerals that were used for producing regimen had become more scarce than they used to be. It was through network with these people that scarce therapeutic materials were sourced, usually with a fee, from within the physical and social ecology. While the PHC providers sourced for and administered pharmaceutical medicines, TBS practitioners however preferred materials

that were from within their own ethno-cultural geography, since these were believed to be "customised" for indigenous practice.

Generally, TBS practice among the *Nupe* practitioners was not regulated by any individual, group or governmental agency. In spite of the fact that some practitioners paid registration and annual dues to the state ministry of health, all that was given in return was a certificate of registration, receipt of payment and a sticker. No value was added to the practice in terms of monitoring and supervision by institutions of the state, including the local government and traditional authorities. TBS operation was left all in the hands of each clinic, led by the lead practitioner. This created room for incompetence to thrive, the condoning of malpractices as well as inhibition of opportunities for progress, since limitations can neither be identified nor addressed with neutrality and objectivity. Monitoring and supervision efforts will make it possible to ascertain whether or not, for instance, TBS intervention produces adverse treatment outcomes as alleged by the orthopaedic clinicians. While strengthening the system within the contextual peculiarity of TBS in the area, this will also, in addition to research into the therapeutic aspects of TBS treatment, contribute to advancement of TBS treatment.

Local technology, including knowledge, material, know-how (techniques) and other resources evolved within the limits of the society and culture in the study area. This may be attributed to the fact that the area was predominantly rural with minimum contact with modernity as well as low educational and media influences. Thus, there was little opportunities for innovation and invention, which mostly took place in reaction to necessity or needs encountered in the course of TBS practice. Practitioners gave specifications to welders and carpenters in the area, who fabricated rehabilitation support like crutches for patients, while few of the patients acquired modern ready-made frames to help their mobility. Consequently, there were no major technological development, as practitioners also believed that the most important tools for healing were their "hand", the most important instrument for carrying out TBS practice. However, the gradual adoption of modern equipment and materials including surgical gloves, disinfectants and hydrogen per-oxide solution for treatment and prevention of infection from open injuries was seen. Although TBS has demonstrated sustained relevance with persistent utilisation in spite of

low technological advances in practice, there is the need to refine the practice, similar to developments in sister therapeutics in other countries of the world, especially China where traditional medicine has advanced within the contexts of its own society. This will further the potentials of TBS practice both as a therapeutic source and a socio-economic activity.

The on-material culture of every society among other things include bodies of knowledge that possess the potential of producing technologies for social transformation, while facilitating the adoption of modern science and its adaptation to local communities. To realise this. however, existing bodies of knowledge must not be left to the evolutionary course of nature, but complicated and elaborated through critical thinking and contextual research (Akpomuvie, 2011). In relation to TBS advancement, it is important to engage the existing base of technology through critical thinking and research and innovation. This necessitates the need to understand the indigenous knowledge base of the area vis-à-vis existing local theories on TBS operation. There is also the need to "open up" the TBS system to similar socio-cultural systems of other contexts, as well as the basics of modern orthopaedic care. There was a general readiness on the part of the TBS practitioners to adopt practices that they adjudged beneficial to enhanced operation of their system.

TBS practitioners suspected high hostility from clinical orthopaedic practitioners whom they perceived, believed that their practice that had outlived its relevance to the extent that it now generates adverse treatment outcomes and contributes to morbidity, disability and mortality. A similar attitude was observed in TBS practitioners who correspondingly believed that clinical also contributed to case complications which ultimately ended up coming to them for remedy. Gyoh (2010) noted that traditional medical practitioners possess resources for filling the gap in healthcare infrastructure in rural Nigeria, a function that they had not been performing efficiently. As a socio-cultural practice and socio-economic activity of health value, TBS should not be outlawed or discouraged, especially given the resource constrained nature of the area. Rather, concerted efforts should be coordinated towards optimizing its potential benefits and minimizing the harm that could result from the practice.

In terms of economics, the TBS system operated within the wider agricultural economy of the study area. Wealth was not evenly distributed among communities in the area, due to variation in land nature which afforded some communities the opportunity to cultivate more economic crops than others. Practitioners in the area mostly comprised farmers, some of who either had formal employment with the government or engaged in trade or agricultural business. These activities constituted the major sources of support for TBS practice. With the exception of *Lema,* a community which generated funds in advancement of the practice including devoting externally sourced funds for the advancement of the practice, TBS practitioners did not receive financial support for TBS from any quarters. Each unit of practice financed its operation from the range of resources within its sphere of influence, including revenues generated from the practice. This limited the extent of financing available for TBS development and therefore, the quality and quantity of facilities that practitioners could afford.

4.10 Strategies for the development of traditional bone setting

The importance of TBS as a therapeutic source and socio-economic activity was demonstrated by its persistence and sympathy that it enjoys from the communities within and beyond the study area of this research. The extensive sphere of practitioners' influence which transcended their geographical and socio-cultural boundaries was another testimony to the usefulness of TBS, particularly in developing countries where limited feat has been attained in modern science and technology. The under-development of developing countries is highly felt in terms of biomedical advances, particularly in the area of specialised care like orthopaedics (Anaemene, 2018). Overtime, a country like Nigeria has relied on importation of healthcare resources, many of which also come as aid from the developed countries or agencies (Amzat and Razum, 2014). This has proven not to be sustainable, especially given the expanding population as well as increasing burden that conditions such as BJM conditions constitute, given their adverse implications for the performance of socio-economic roles of patients.

As argued by Parsons (1951), social systems possess inherent capacity for self-sustenance, through their AGIL system. Communities are larger social systems where TBS also exists as a smaller or partial social system alongside other socio-cultural

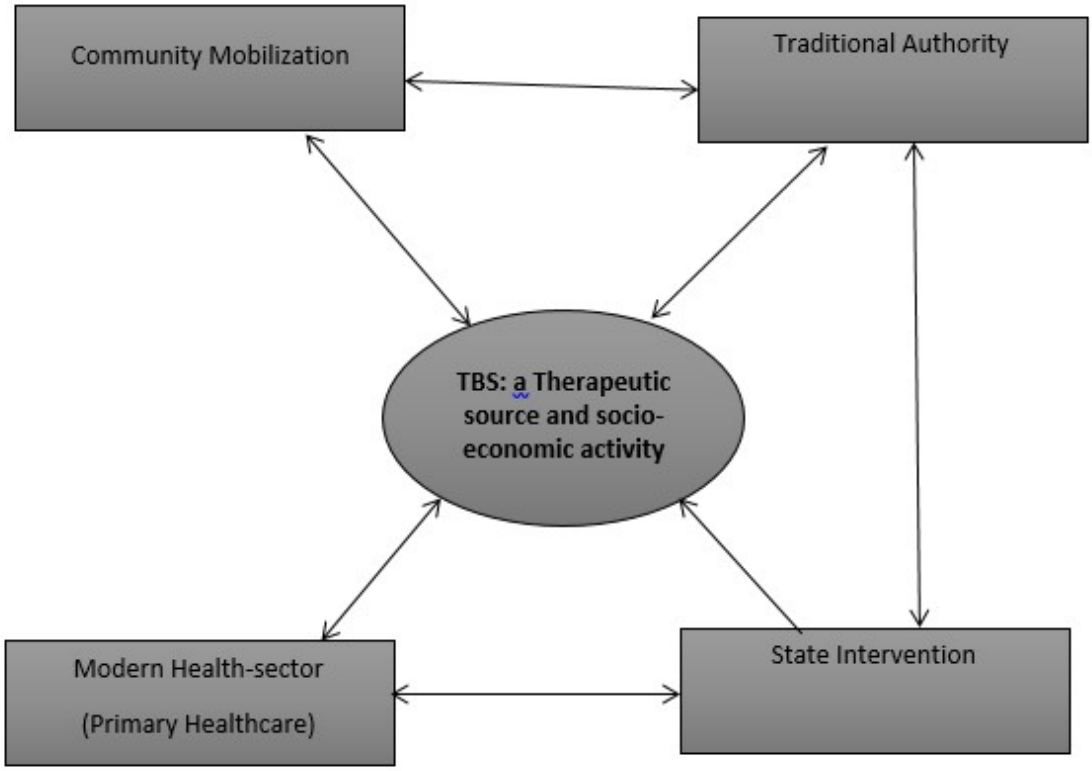
practices, contributing to the survival of the whole. Social change is inherent in human societies, with varying rates and intensity. Parsons' (1951) account viewed social change as slow, instalmental and evolutionary in character, occurring while a system like TBS attempts to adapt to changes in the macro social system. Given the extent to which modern society has changed and the rate at which it continues to change, TBS requires more than the gradually-unfolding form of change as "an evolutionary adaptation of a social system to its environment" (xvii) that was envisioned by Parsons. The "natural course" along which TBS has been evolving, left to chance and without deliberate, conscious intervention, is similar to the espouse of Parsons (1951). According to Parsons, social forms like TBS would have "continual processes of dissolution of old collectivities and formation of new ones" (1951:67), which would translate to natural advancement or development, without deliberate intervention by actors within the system. However, there is the need to introduce conscious but strategic intervention in TBS practice such as would revamp it and position the practice for optimum functioning as a primary orthopaedic care source in a resource constrained setting.

Such intervention would redirect and focus as well as consolidate, while advancing the existing feat and tendencies for the development of TBS as a sustainable BJM care source and socio-economic activity. As revealed by the study, practitioners' disposition and some of their innovations reflect a desire to eschew conservatism and tendencies that may inhibit progress, while conforming with contemporary fashion and taste, for wider acceptability. To some extent, practitioners are engaging the use of modern healthcare, though, the propriety of their engagement is suspect. This justifies the imperative for the revamping of TBS as a system, developing it into a therapeutic unit that can provide primary care for BJM conditions. This is more imperative, given the fact that Nigeria's health policy as well as those of developing countries generally revolve around primary healthcare.

As posited in Parsons' theory, a system like TBS exists within the contexts of larger systems at the level of society. For optimum functioning, TBS must integrate well with these other systems or *partial systems,* as named by Parsons, who further emphasised social equilibrium (order and stability) resulting from social integration as conditions important for social progress. Consequently, certain social blocs are

indispensable as *strategic stake factors* with whom TBS must interface in and integrative manner, if the desired feat must be realised. These stake factors include: community mobilization, traditional authority, modern health sector and state intervention. These are modeled in Fig. 22.

Fig. 22: Strategic stake factors for the development of TBS healthcare system



Source: Researcher (2019)

As already stated, TBS remains remained a viable source of therapeutic and socio-economic value across the study area. The model in Fig 21 implies that traditional authority is critical to the revamping of TBS. It is to interface with communities and lobby the state, while also playing important roles in supporting TBS practice. This is because of the default congeniality between traditional authority and their subjects who constitutes the communities. Furthermore, traditional rulers including the community leaders were custodians of culture who understand the dynamics of social life (including primordial, mystical and ethno-religious aspects), and how best to mobilize the communities into the revamping process of TBS following an established guideline. Effective mobilization can expand the base of local resources through volunteer works, donation and selfless service of community members. Quality community engagement is a prerequisite for the sustainable transformation of indigenous practices (Amzat, 2019). As part of community mobilization, communities need to be encouraged to see and support TBS practice as their own. This would facilitate intra-community pool of economic and human resources on a sustainable basis. As custodians of their respective domains, these traditional leaders are to also serve as link-persons with the state, particularly the government at the grassroots (LGA) and its relevant departments (health education) which are nearest to the people and can easily interact with traditional authority. At the higher tier levels (state and federal), government can facilitate the development of curriculum, policy and empirical studies which will be disseminated to

the communities through the LGAs, alongside other relevant resources. This includes the adoption, where necessary, of frameworks and models of similar transformational processes that have been successful in other countries of the world, including China where traditional medicine has proven to be successful.

Similarly, the state can provide interventions for TBS practice by organizing training and creating a conducive environment for synergizing resources between traditional and modern healthcare system. Although there was existing collaboration between TBS and modern primary healthcare in the study area, the quality of such interface was suspect, due to the operators of such collaboration and the circumstances in which they operated. This as well as relevant referral between TBS and modern PHC would constitute part of the revamping. This further implicates the role of the *modern health sector* of which personnel would jointly implement the "modern" TBS system with the TBS practitioners. With appropriate policy, modern healthcare providers will also be involved in the training of TBS practitioners on basic medical procedures and definition of scope of their intervention which is to be formulated by a heterogeneous team of scholars and practitioners from each side of the both divide. Like the *Lema* example, TBS can actually be incorporated with modern primary healthcare within the same facility, thereby furthering WHO's vision of health for all peoples, within the rural areas. Such facilities could be officially incorporated into the national PHC system.

Alubo (1995) noted the domineering tendency of physicians over every other practitioner in the formal health sector and beyond. This tendency was already perceived by the TBS practitioners. However, it did not conform with their belief or expectation. TBS practitioners did not believe that clinicians were superior to them in the provision of care for BJM conditions. They argued that "heredity" is superior to "acquisition" which they argued was typical of TBS and modern orthopaedic care, respectively. Thus any attempt to integrate modern healthcare into TBS must be done with a philosophy of synergy. The policy framework must neither relegate TBS nor situate clinicians as superiors of TBS practitioners. Rather, the arrangement must be horizontal with collaborative partnership as an end in view.

Certain interventions similarly need to be made for immediate improvement in the operation of TBS practitioners. There is the need for basic education and literacy

improvement in the area, generally. This is necessary in order to make the people more amenable to development efforts generally, open their culture to selective adoptions from other clime, while creating congeniality for the adoption and operation of the strategic model (Fig 21). Thus, the education must be free, basic and compulsory, localized to effectively achieve development needs in the area of TBS and beyond. TBS practitioners are very key to intervention in this regard. Thus, they must be prioritized in the scheme of things. Furtherance to this, a special curriculum should be developed and implemented for healthcare providers, if they must participate in the therapeutic process of BJM under the TBS milieu. Similar education must be given to actors in the modern healthcare sector, to afford them an expanded perspective in the project to revamp TBS. This is necessary if TBS must occupy the necessary space in the macro healthcare system, nationally. Due to the *orientational aspect* of the system which socialises community members to prefer TBS as the best treatment for BJM conditions, the role of education is to enable persons to make informed decisions beyond the sentimental, for or against the use of TBS which, as envisioned, is to become an important component of the national healthcare system.

The revamping of TBS, ultimately, would increase its economic importance, reduce healthcare costs especially in resource-constrained countries. Similar to the observation of Owumi et al (2018), this will also strengthen the capacity of TBS services for export, similar to the feat presently attained by traditional Chinese medicine as a complementary source of healthcare in most countries of the world.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents a summary of the research, while drawing conclusions from findings, and advancing recommendations toward strengthening TBS as a therapeutic and socio-economic activity in rural areas of developing countries. Given the fact that a developing country like Nigeria is characterised by more rural than urban areas, an effective TBS system would have solved the BJM conditions care-need of most patients at least at the level of PHC. Furtherance to summarizing, concluding and making recommendations from the study, this chapter also highlights the study's contributions to knowledge. In sequence, the summary, conclusion, recommendation and gaps in knowledge are hereby presented.

5.1 Summary

The nature of Traditional Bone Setting (TBS) included the socio-cultural, therapeutic and socio-economic dimensions of the practice that provided healthcare for Bone, Joint and Muscle (BJM) conditions using indigenous resources. Aside common BJM conditions like fracture, dislocation, strain and stress of bodily tissues, TBS also provided treatment for congenital disability and degenerative conditions such as arthritis, osteoporosis, as well as neurological conditions like stroke. Most BJM conditions, however, resulted from road traffic accident, particularly motorcycle which was the commonest mode of transportation in the area. Consequently, fracture, dislocations were the commonest cases that were presented at the TBS clinics. Majority of the practitioners combined TBS with other occupations such as farming and trading. Practitioners' sphere of influence transcended their immediate socio-cultural group or geographical environment, as they received patients from different parts of the country, while they also go to treat patients in different states of Nigeria and beyond. This was a major source of innovation into TBS practice. They sourced therapeutic materials from the immediate environment or in some cases, buy from the market. Practitioners also worked closely with other traditional healers like diviners, herbalists, clergy men, and modern healthcare workers whom they often employed. Whereas TBS was originally built on altruistic and humanitarianism which was protected by mythologies and age long principles, the practice has undergone

social change, including rationality and modernization, with tendencies towards commodification and profiteering.

This study adopted Talcott Parsons' theory of the social system in situating TBS within the purview of health systems in the socio-cultural contexts of the *Nupe* of Kwara state, among whom the study was conducted in Nigeria. The study combined qualitative and quantitative methods in investigating the practice and operation of TBS. Unlike previous studies which, based on biomedical perspectives, evaluated the interventions of TBS practitioners in BJM conditions, this study adopted a social science approach in holistically investigating the practice of TBS. Unlike previous studies, this study included a wider range of subjects: TBS practitioners, patients, primary healthcare providers and traditional chiefs, through which holistic investigation was conducted on the subject matter. In addition, a survey was conducted using a semi-structured questionnaire as research instrument which was administered on respondents to appropriate community perception about TBS, complementing the IDI, KII and observation that were conducted.

Findings of the study established that practitioners were open to modern medical innovation, though majority of them had no formal education. This readiness was exemplified by their adoption of basic modern medical methods and materials, engagement of modern PHC providers and encouragement of their children to pursue formal education, particularly in the paramedical sciences. Findings of the study further contradicted the view of biomedical scholars which attributed adverse outcomes to TBS interventions. Community survey established the efficacy of TBS, its cultural acceptability as well as accessibility; while IDIs revealed that many patients voluntarily withdrew from modern orthopaedic hospitals to utilise TBS services. TBS was community based, and the social patients enjoyed social support from their caregivers as well as community members. Organized on informal, benevolent principles, patients had easy access to practitioners, patients and community members in a friendship-like milieu, while the payment regime afforded patients free-of-charge-services, credit facilities, deferred payment and payment by instalment.

Similar to Parsons' theory, the study found that TBS was a self-sustaining social system, gradually evolving with capacity for adaptation. However, it was observed that the evolutionary progress envisioned by Parsons did not match the rate of societal

advancement in modern science and technology, thereby necessitating a conscious, deliberate intervention towards the transformation of TBS into a viable healthcare source for the deficit abounding in rural areas of Nigeria and developing countries generally. A multi-stake factor model was proposed for the transformation of TBS (Fig. 22), and its positioning as a sustainable fit for the existing vacuum in orthopaedic healthcare.

5.2 Conclusion

Based on the study findings, there is the need to appropriate social science approaches in the investigation and discourse of health and healthcare delivery, especially those involving traditional medicine and indigenous knowledge generally. The discourse on TBS had been dominated by clinical scholars based their studies on positivist method and generalized same, devoid of subjective perspectives from TBS practitioners, their patients and communities where the practice abound. TBS possesses inherent resources, including personnel and related resources that could be harnessed to provide primary treatment for BJM conditions. This can be strengthened by integrating BJM with modern healthcare in the community. The *Lema* "modern TBS clinic" which combines TBS with primary healthcare in a single facility can be adopted as a model to be improved upon. There is the need for science and technology-focused studies to harness the resources and opportunities abounding in TBS for advancement of practice as well as economic revenue.

Based on objective one which explored the nature of TBS, it was apt to conclude that the benevolent nature of TBS, cultural acceptability and perceived advantages were the major factors for its continued relevance in the study area. For objective two which bordered on the structure of TBS, it was concluded that there were no formalized structural systems, as age, tradition and other social factors determined what the structure. Thus, government involvement in present-day TBS practice in the study area was only for revenue collection. The examination of TBS utilisation which was addressed in objective three, demonstrated that environmental factors contributed to the incidence of BJM conditions and that the choice of TBS was not influenced by socio-demographic characteristics of community members. Based on objective four, which focused on the interface between TBS and modern healthcare, the study concluded that there were no

official interfaces between TBS and modern healthcare in the study area. Only unofficial collaboration facilitated by practitioner or patient from either divide existed. Based on objective five which sought to identify strategies for the development of TBS, the study found that community mobilisation, government support, PHC development and involvement of traditional authority were the major factors that can facilitate the development of TBS in the study area.

5.3 Recommendations

The widespread preference for, and utilisation of TBS in the treatment of BJM conditions has been variously acknowledged by scholars. However, the practice of TBS did not seem to be without shortcomings, as the practice was not coordinated under uniform principles. Practice was determined by socio-cultural factors and the contextual attributes of a community which due to lack of uniformity, may make it difficult to implement frameworks for transforming TBS. Consequently, the following recommendations are made, based on the findings of this research:

1. Basic education should be provided for TBS practitioners with a view to subsequently introducing basic elements of human physiology, anatomy and elementary clinical procedures into their training. This would help minimize possible harm emanating from the practice, while building capacity for improved operational efficiency.
2. A policy framework should be developed to coordinate the integration of TBS with modern primary healthcare services. This would eliminate malpractices that may arise from the haphazard employment of healthcare providers and the direct execution of clinical procedures by TBS practitioners themselves. This would support the realisation of WHO (1978) Alma-Ata declaration which envisions the integration of traditional medicine in the development of pluralistic healthcare systems in developing countries.
3. Beyond collection of registration fees, the state and local governments should, through special committees and boards, regulate the activities and operation of TBS practitioners and PHC providers involved in the provision of healthcare for BJM conditions.

4. Social science approaches should complement natural science endeavours in investigating indigenous knowledge, which are integral to social systems, encapsulating the indigenous resources for the development of societies. This would not only provide holistic narratives including the perspectives of under-represented persons (like TBS practitioners, traditional chiefs and community member) and groups, but further foster the complication and critical investigation and consequent development of socio-cultural practices like TBS. This applies to other aspects of indigenous knowledge of which discourse has had been largely top-down in approach.
5. Traditional rulers/community leaders and community health workers are strategic partners that must be engaged in the formulation of and implementation of policies on traditional medicine.

5.4 Contributions to knowledge

Generally, this study expanded the frontiers of knowledge in the area of indigenous knowledge and the scholarly discourse on traditional medicine and health systems research. Specifically, the study contributed to knowledge in the following ways:

1. It provided a holistic understanding of TBS, beyond the clinical prism generated by biomedical scholars, which did not recognize the strategic place of TBS in the provision of care for BJM conditions. Using sociological approaches, the study revealed that study reveals that therapeutic potential abound in TM practice, which could be explored for health systems strengthening and improved access, especially in resource constrained-countries.
2. The study also introduced the WHO (2010) “building blocks of the health system” as a guide for traditional medicine analysis and discourse (Fig. 21). Specifically, the narrative and analysis of TBS demonstrates the feasibility of integrating TBS with modern healthcare, particularly at the level of primary healthcare.
3. Furthermore, the study presented a platform through which TBS practitioners were able to articulate their perspective, which hitherto, had been subdued by perspectives of clinicians who attribute adverse treatment outcomes to TBS intervention in BJM conditions.

4. The study established the existence of successful collaboration between TBS practitioners and PHC providers in communities, as well as the conduct of certain medical procedures by TBS practitioners. Although these may not be in the best interest of public health, it lends credence the propensity for transformation and development of a refined TBS system.
5. Finally, the study developed a model of stake-factors for the revamping of TBS, highlighting the role of community engagement and identifying strategic components for the transformation of TBS.

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APPENDIX 1: QUESTIONNAIRE
Department of Sociology
Faculty of the Social Sciences
University of Ibadan

Serial No_____ Date _____

Dear Respondent,

I am a doctoral student of the Department of Sociology, Faculty of the Social Sciences, University of Ibadan. This questionnaire is desig2ned to obtain information on the **Sociocultural context and utilisation of traditional bone setting (TBS)** among the Nupe of Kwara State, Nigeria. your open and sincere response will be treated with utmost respect and confidentiality. The information is required solely for research purpose.

Thank you.

Victor I. Kolo.

SECTION ONE: RESPONDENTS' SOCIO-DEMOGRAPHIC CHARACTERISTICS

SN	QUESTIONS	RESPONSES	CODE
1	How old are you as at your last birthday?		Actual
2	What is your sex?	Male Female	1 2
3	Ethnic Affiliation		1 2 3 99
4	Marital Status	Single Married Separated Others (please specify)	1 2 3 99
5	Religious affiliation	Christianity Islam	1 2

		Traditional Others (please specify)	3 99
6	Ethnic Affiliation	Nupe Yoruba Hausa Igbo Others (specify)	1 2 3 4 99
7	What is your highest level of education?	Non formal Primary Secondary Tertiary Others (specify)	1 2 3 4 99
8	Where do you live?		Actual
9	Are you currently employed?	Yes No	1 2
10	If yes, occupation	Civil servant Business Man Farmer Artisan Others (Specify)	1 2 3 4 99
11	If no, what do you do?		Actual
12	Level of income (Monthly)	Below # 10,000 #10,000 - #50,000 #50,000 - #100,000 #100,000- #150,000 Above #150,000	1 2 3 4 5

SECTION TWO: SOCIAL ORGANISATION OF TRADITIONAL BONE SETTING

S/N	QUESTIONS	RESPONSES	CODE
1	How did the practice of bone setting emerge?		Actual
2	For how long, have the bone setters been in the practice?		Actual
3	In what ways do you think that the knowledge of bone setting is acquired?	Inheritance Apprenticeship Formal Education Others (Specify)	1 2 3 99
4	Who constitutes the practitioners of traditional bone setting in your community?		Actual
5	Do you think that there are rules guiding		Actual

	entrance into the profession? If yes, kindly explain		
6	What are TBS practitioners viewed in your culture?		Actual
7	What does a bone setting outlet looks like?		Actual
8	Who is the head of a bone setting outlet?		Actual
9	Who determines the cost of treatment under TBS?		Actual
10	In your opinion, what is the procedure for establishing a bone setting clinic?		Actual
11	Have you ever received treatment from traditional bone setters?	Yes No	1 2
12	What is the procedure for entry and training of practitioners in TBS?		Actual
13	How are patients received for treatment under TBS?		Actual
14	Have you ever referred/taken a patient for TBS treatment?	Yes No	1 2
15	If yes, how was the patient received?		
16	Do bone setters provide accommodation for in-patients?	Yes No	1 2
17	Are there formal procedures for patients' entrance into the care system?	Yes No	1 2
18	If answer to the preceding question is 'yes', please explain		Actual
19	How many bone setting outlets are there in this community?		Actual
20	Who are the practitioners?		Actual
21	Do traditional bone setters collaborate with each other, for better treatment outcomes?	Yes No	1 2
22	Please explain the reason for your answer above		Actual
23	Do you believe that traditional bone setters collaborate with other traditional medical practitioners like Diviners or Herbalist?	Yes No	1 2
24	Please explain the reason for your answer above		
25	Do you have native doctors in this community?	Yes No	1 2

26	Are native doctors different from TBS?	Yes No	1 2
27	If yes, please explain		Actual
28	Do bone setters collaborate with modern health workers (hospitals, community health workers, Auxiliary Nurses, patent medicine sellers)?	Yes No	1 2
29	How do bone setters handle complex cases that involve bleeding or require modern services like blood transfusion?		Actual
30	Do TBS have a professional association in this area?	Yes No	1 2

SECTION TWO: DYNAMICS OF UTILISATION OF TRADITIONAL BONE SETTING

SN	QUESTIONS	RESPONSES	CODE
1	In your view, what are the major causes of orthopaedic conditions in this area?		Actual
2	Do you believe that such causes usually have spiritual influences other than what appears in the obvious/physical?	Yes No	1 2
3	If yes, kindly explain		Actual
4	Have you ever experienced the onset of an orthopaedic condition?	Yes No	1 2
5	What was the nature of the condition?	Fracture Dislocation Sprain/tear of tissue Neurological condition (e.g. stroke) Degenerative condition (e.g. Arthritis) Others	1 2 3 4 5 99
6	Where was the patient taken to, for treatment?	TBS outlet Hospital	1 2
7	Do you think that the nature of the condition influenced the type of treatment sought?	Yes No	1 2
8	Please explain the reason for your response in the preceding		Actual
9	How was the decision reached, on where to		Actual

	seek treatment?		
10	Apart from TBS practitioners, which set of people participate in treatment under TBS? Please name		Actual
11	How do these people collaborate with each other?		Actual
12	Do you believe that traditional bone setting is very important source of healthcare in your community?	Yes No	1 2
13	What specific advantages do you believe that TBS possess over modern orthopaedic care?		Actual
14	Do you think that people generally prefer TBS treatment to modern hospital services?	Yes No	1 2
15	Give reasons for your answer to the preceding question		Actual
16	Has any member of your community been hospitalized in a modern orthopaedic hospital clinic?	Yes No	1 2
17	If yes, why did he not receive treatment from the TBS practitioner?		Actual
18	Do you believe that limited access to modern orthopaedic service is a reason why people opt for TBS?	Yes No	1 2
19	If yes, Please give reasons for your questions		Actual
20	In your opinion, what are the major shortcomings or limitations of TBS?		Actual
21	Do you believe that TBS treatment can result in unfavourable treatment outcomes?	Yes No	1 2
22	If yes, what (in your opinion) is the rate of such unfavourable outcomes?	Very high High Low Very low	1 2 3 4
23	What is the nature of such unfavourable outcomes?	Infections/Complications Disability Death Others (specify)	1 2 3 99

24	In your opinion, what are the causes of the complications?		Actual
25	How are such complications commonly addressed?		Actual
26	In what ways do you think the complications can be prevented?		Actual
27	In your opinion, do you think that the advantages of TBS outweighs the disadvantages?	Yes No I don't know	1 2 3
28	Give reasons for your answer		Actual
29	Have you used TBS treatment in the last 1 year?	Yes No	1 2
30	If yes, what was the reason for your use of TBS at that time?		Actual
31	If you are to choose or advise between TBS and modern orthopaedic treatment, which would you opt for?	TBS Modern orthopaedic treatment	1 2
32	Give reasons for your answer		Actual

SECTION FOUR: INTERFACE BETWEEN TBS AND MODERN HEALTHCARE

1	Are there modern health facilities in this community?	Yes No	1 2
2	What is the nature/type of the facilities?	Public Clinic/Dispensary Public hospital Private facility/Patent Medicine vendors (PMS) Others	1 2 3 99
3	What type of personnel work in the health facilities?		Actual

4	Do the personnel live in this community?	Yes No	1 2
5	Are there also medical equipments and other materials	Yes No	1 2
6	Is the facility well equipped with drugs?		Actual
7	How would you describe the relationship between the health facilities and TBS practitioners?		Actual
8	Do the two groups collaborate in treating orthopaedic patients?	Yes No	1 2
9	If yes, how do they collaborate in the treatment of patients?		Actual

SECTION FIVE: STRATEGIES FOR THE DEVELOPMENT OF TRADITIONAL BONE SETTING

1	Do you believe that TBS practice needs to be improved?	Yes No	**1** **2**
2	Give reasons for your answer		Actual
3	What are the major challenges facing TBS practice in your community?		Actual
4	In which specific areas/aspects do you think that TBS need to improvement?		Actual
5	How can the practitioners contribute to the development of TBS?		Actual
6	What can your community do, to foster the development of TBS?		Actual
7	What are your general recommendation on how TBS operation can be improved?		Actual

APPENDIX 2: IN-DEPTH INTERVIEW GUIDE FOR PATIENTS

I am Victor Ibrahim Kolo, a doctoral student of the Department of Sociology, University of Ibadan. The aim of this discussion is to investigate the Nature of traditional bone setting as a therapeutic source among the *Nupe* of Kwara state. Your honest responses will go a long way in contributing to the successful completion of the research. Please, be informed that information provided are strictly for the purpose of research. Confidentiality and anonymity are therefore guaranteed. Also, you are free to opt out of the session at any time you deem fit.

Thank you for the anticipated cooperation.

1. **Socio-demographics**

   Age:

   Sex:

   Educational status:

   Religion:

   Marital status:

   Ethnic group:

   State of Origin:

   Occupation:

   Annual estimate of Income:

   Duration of stay at the TBS Clinic:

2. **What is the nature of your condition?**

   Probe for:

   a. Cause and type of patient's Musculo-skeletal condition(s)

   b. Perceived role of spiritual factors in the onset and course of patient's injury

   c. why patients' attribute his/her condition(s) to spiritual factors

   d. How patients know that spiritual factors are being addressed in the TBS q treatmentprocess

3. **Why did you choose TBS over hospital?**

   Probe for:

   a. Pathway to patient's utilisation of care

   b. The decision process that culminated in the choice of TBS

   c. Patients source(s) of information about the TBS clinic (how contact was made with practitioner)

   d. Factors that influenced such decision

   f. Perceived advantages of TBS over TBS

   g. treatment cost-related issues

3.How has been life like in the TBS clinic?

   Probe for:

   a. The authority system in the TBS clinic (who takes major decisions?)

   b. How patients meet basic needs such as housing (ward), food and therapy

   c. Nature of division of labour, if any, among practitioners

   d. How practitioner interact with patients

   e. How fellow patients interact with each other

   f. Care giver(s) and their role in patient's therapy and general welfare

   g. Patients' daily routine in the TBS clinic (including leisure activities)

   h. Attitude of community members towards patients

4. What has been your experience since you started receiving treatment in this TBS clinic?

a. How patient's condition was diagnosed

b. Did diagnosis reveal spiritual influences in cause and course of patient's condition?)

b. Materials used in treatment (Physical and spiritual materials)

c. Extent of Physician-patient communication (to what extent is the patient carried along in the treatment of his own body)

d. Whether patients regret choosing TBS over the modern hospital

e. Improvements in the recovery process

f. Major challenges that patient has observed in the operation of TBS as a therapeutic source

g. strategies for the improvement of TBS

APPENDIX 3: IDI Guide for TBS Practitioners

I am Victor Ibrahim Kolo, a doctoral student of the Department of Sociology, University of Ibadan. The aim of this discussion is to investigate the Nature of traditional bone setting as a therapeutic source among the *Nupe* of Kwara state. Your honest responses will go a long way in contributing to the successful completion of the research. Please, be informed that information provided are strictly for the purpose of research. Confidentiality and anonymity are therefore guaranteed. Also, you are free to opt out of the session at any time you deem fit.

Thank you for the anticipated cooperation.

1. **Socio-demographics**

   Age:

   Sex:

   Educational status:

   Religion:

   Marital status:

   Ethnic group:

   State of Origin:

   Other Occupation(s):

   Annual estimate of Income:

   Number of wives:

   Number of children:

Length of practice:

2. Were the circumstances of your birth in any way connected to bone setting which you now practice?
3. Tell us the history of traditional bone setting in your family
4. At what point in your life did you know that you were going to practice as a bone setter?
5. How and when did you begin to treat bones?
6. Was there any particular event that marked your competence in offering TBS services
7. Did you have to do apprenticeship under anybody?
8. How did the community come to know you as a TBS practitioner?
9. Please recall the first case/patient that you handled as a bone setter
10. In what way is the Nupe TBS different from those of other ethnic groups?
11. What form of orthopaedic condition do you treat the most, which of them have highest frequency of occurrence?
12. How do you get your patients, and how do they contact you?
13. What are the roles of your wives/children in your TBS practice?
14. How do you receive your patients, what do you do when they first arrive?
15. Do you involve other traditional medical practitioners in diagnosing and treating your patients?
16. If yes, At what point and why?
17. How do you get your treatment materials?
18. How does your physical environment influence the practice of TBS differently from what obtains in other places?
19. Apart from the TBS practitioner, which other persons or group participate in therapeutic activities?
20. What is the role of patient's family and significant others in the therapeutic process?
21. How do you diagnose cases, to decipher whether spiritual factors are involved in a particular case?

22. How do you manage emergency cases, such as coma or complex cases involving loss of blood?
23. Do you involve other TBS practitioners or other traditional medical practitioners, in managing serious cases?
24. If yes: at what point, why and how; what is usually their roles?
25. Do you ever see the need to employ modern healthcare materials, practices or procedures in treating your patients?
26. If yes, what are those needs and how do you meet them?
27. What are your patients required to do when they newly arrive?
28. What materials do you use in treating your patients?
29. Do these vary based on whether or not, their condition has spiritual influences?
30. How do you keep track of therapeutic progression of your patients, do you document them?
31. From which ethnic group does most of your patients come from?
32. Where a patient is unable to pay his bill, what happens?
33. What is your relationship with the local chief in this community, and the district traditional ruler?
34. What notable changes/progress have you observed in the practice of bone setting since you started practising?
35. What are the major challenges that you have faced in your practice of bone setting?
36. Do you adopt any western practice in your therapeutic activities? If yes, which one and how?
37. What are the advantage does TBS over modern orthopaedic care?
38. It has been alleged that western medicine has certain advantages over TBS, which makes its treatment more efficacious. What is your reaction to this?
39. It has been argued integrating modern orthopaedic methods into TBS will produce better outcomes. What is your disposition towards this?

APPENDIX 4: Key Informant Interview guide for Local Chiefs

I am Victor Ibrahim Kolo, a doctoral student of the Department of Sociology, University of Ibadan. The aim of this discussion is to investigate the Nature of traditional bone setting as a therapeutic source among the Nupe of Kwara state. Your honest responses will go a long way in contributing to the successful completion of the research. Please, be informed that information provided are strictly for the purpose of research. Confidentiality and anonymity are therefore guaranteed. Also, you are free to opt out of the session at any time you deem fit.

Thank you for the anticipated cooperation.

1. **Socio-Demographic Characteristics**

   Age:

   Sex:

   Educational status:

   Religion:

   Marital status:

   Other Occupation(s):

   Annual estimate of Income:

   Number of wives:

Number of children:

2. **About the *Nupe***

Probe for:

a. Origin of the Nupe ethnic group

b. Geographical distribution of *Nupe* across Nigeria

c. political Administration among the *Nupe* of Kwara state

d. Material and non-material aspects of the *Nupe*

e. Socio-economic life of the *Nupe* of Kwara state

f. Nupe Cultural beliefs about health and Illness

g. Nupe cultural perspectives on, and approach to Musculo-skeletal conditions

2.Over-view of Musculo-Skeletal Conditions among the *Nupe*

Probe for:

a. The causes of Musculo-skeletal conditions in/around the community (identify the commonest cause)

b. Belief about the role of spiritual factors in the incidence of Musculo-skeletal conditions (why and how such factors operate)

c. Cultural mechanismsemployed in seeking redress by victims of spiritually orchestrated Musculo-skeletal conditions

d. Beliefs about efficacy of TBS treatment in relation to modern orthopaedic care

3. **The concept of traditional bone setting among the *Nupe***

Probe for:

a. Cultural beliefs about Musculo-skeletal conditions and its healing

b. Socio-cultural processes in the evolution of traditional bone setting

c. How practitioners acquire skill and ability for bone setting

d. Basis of organisation of the TBS practitioners in the community

e. Social status of TBS practitioners in the community (cultural meaning/value ascribed to TBS practitioners in the community)

f. Socio-economic impact of practitioners' clinic on the community

g. The role/support of the community in TBS operation (community support for patients)

h. The role of Nupe traditional religion(s) in TBS therapeutic processes

i. Existing association/group of TBS practitioners in Nupe land

4. Dynamics of Utilisation of TBS treatment

Probe for:

a. Factors influencing the choice of TBS by patients

b. Perceived advantages of TBS over modern treatment

c. The role of community members in the treatment of TBS patients

d. Community support for TBS therapeutic processes

e. The use of modern therapeutic methods and materials by TBS

f. Relationship between TBS and modern healthcare providers in the area (community health workers, patent medicine sellers)

g. How community manages cases where a patient dies while undergoing TBS treatment

h. Attitude of TBS practitioners to patients, and to community members

i. Alternatives to TBS as a therapeutic source in the community

j. Challenges to the optimization of TBS as a therapeutic source

k. Strategies for maximizing TBS as a therapeutic source for Musculo-skeletal conditions in the community

APPENDIX 5:KEY INFORMANT INTERVIEW GUIDE FOR PHC WORKERS

My name is Victor Ibrahim Kolo, a Ph.D student of the Department of Sociology, University of Ibadan. The aim of this discussion is to investigate the Nature of traditional bone setting as a therapeutic source among the Nupe of Kwara state. Your honest responses will go a long way in contributing to the successful completion of the research. Please, be informed that information provided are strictly for the purpose of research. Confidentiality and anonymity are therefore guaranteed. Also, you are free to opt out of the session at any time you deem fit.

Thank you for the anticipated cooperation.

1. **Socio-demographics**

   Age:

   Sex:

   Educational status:

   Religion:

   Marital status:

   Ethnic group:

   State of Origin:

   Type/Qualification of modern healthcare personnel: Other Occupation(s):

Annual estimate of Income:

Length of stay in the community:

2. **Overview of Musculo-skeletal conditions**

Probe for:

a. Causes of Musculo-skeletal conditions (emphasis on the leading causes in the area)

b. Types of conditions and their relative prevalence

c. Belief about spiritual factors in the cause and course of Musculo-skeletal conditions

d. Pathway to the utilisation of orthopaedic care in the area (identification of usual first point of

call, and available alternatives for new orthopaedic conditions)

e. Capacity of existing modern health services/personnel to provide orthopedic care

f. The role of TBS in providing orthopaedic services (extent to which TBS is able to meet

the orthopaedic need of the area)

3. **Interface between modern healthcare (and personnel) and TBS operation**

Probe for:

a. dynamics of referral processes

b. other forms of collaboration and associated practices between TBS and existing

modern healthcare providers

c. The process of negotiating collaboration between TBS and modern practitioners (the

role of TBS practitioner, patient and modern healthcare worker)

d. Disposition towards the integration of traditional medicine with western practices

e. How complex cases are managed (cases involving blood loss, coma, wear and tear

of body tissues)

f. The role of community members in the utilisation of orthopaedic services in the area

g. Modern therapeutic inputs to the TBS treatment

4. **Challenges and prospects of TBS as a therapeutic source in the management of Musculo-**

skeletal Conditions

Probe for:

a. Thoughts on access (availability, affordability and proximity) to orthopaedic services in the area

b. The role of TBS in the delivery of orthopaedic care

c. Incidences of unfavourable outcomes (complications, disability, morbidity and mortality) due to the TBS treatment (and how such outcomes have been managed over time)

d. Factors responsible for such outcomes and attempts to control them

e. Modern healthcare needs of TBS operation

f. Thoughts on the situation of TBS outlets (Hygiene of physical environment and therapeutic procedures)

g. Challenges/Factors limiting the usefulness of TBS as a therapeutic source

h. Strategiesthat can be employed in overcoming such challenges/limitations

APPENDIX 6:INFORMED CONSENT FORM

Nature of Traditional Bone Setting as a therapeutic source among the Nupe of Kwara State, Nigeria

Name of Researcher: KOLO, Victor Ibrahim

Name of Institution: University of Ibadan, Ibadan, Nigeria

Introduction: My name is KOLO, Victor Ibrahim. I am a graduate student of the Department of Sociology, Faculty of the Social Sciences, University of Ibadan, Ibadan. I am conducting a research on traditional bone setting (TBS) as a culturally developed therapeutic source among the *Nupe* of Kwara state, Nigeria.

Purpose of the research: the purpose of this study is to investigate the Nature of TBS as a therapeutic source among the Nupe of Kwara state, Nigeria.

Procedures: you are encouraged to participate in this research project. Your acceptance to participate makes you eligible to fill a questionnaire or participate in an interview or focus group discussion sessions. You are free to answer or not answer any question. However, it is important for the research that you answer all questions. Only the researcher and his colleagues will be present to administer questionnaires, conduct

interviews or moderate at focus group discussions. All information you will supply are confidential and only for academic research purposes.

For the interview sessions, we will take notes and your responses will be recorded so that we can remember everything you will tell us. The filling of questionnaire will take an estimate of 40 minutes while the interview and focus group discussion sessions will last for approximately 45 and 60 minutes respectively.

Risks or Discomforts: You may feel uncomfortable talking about some issues. At such point, call our attention to it. Since we do not wish this to happen, you are free to withdraw your participation.

Benefits: the study will provide proper understanding of TBS and proffer policy strategies for its improvement and repositioning as a viable therapeutic source among the Nupe of Keara state, Nigeria. It is the information provided by you that will help realise this benefit.

Confidentiality: all information to be gathered will be kept confidential. To achieve this, following steps will be taken:

a. Filling of questionnaires and interviews will take place outside in your house or any other secured place that you deem fit
b. All information collected in this research project will be kept in a confidential file in secured room with lock and key.
c. The file will not have your name on it, but a number will be assigned to it.
d. The questionnaires and interview audio recordings will be kept for 5years after which it will be destroyed.

Alternative to participation: You can decide not to take part in this research, if you wish so. Your decision will not at any point in time preclude you from benefiting from the outcome of this research.

Statement of person obtaining informed consent

I have fully explained this research to …… and have given sufficient information, including risk and benefits, to make an informed decision.

Signature and Date……

Name……

Statement of person giving consent

I have been invited to take part in the research on 'Nature of Traditional Bone Setting as a therapeutic source among the Nupe of Kwara State, Nigeria'. I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions, which have been answered to my satisfaction. I consent voluntarily to be a participant in this study. understand that I have the right to withdraw from the interview at any time without being afraid of any consequences.

Signature & Date…….. Name…….

Witness signature:……. Witness' name…….

CERTIFICATE OF CONSENT FOR QUALITATIVE STUDY

I have been invited to take part in the research on 'Nature of Traditional Bone Setting as a therapeutic source among the Nupe of Kwara State, Nigeria'**.** I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions, which had been answered to my satisfaction. I consent voluntarily to be a participant in this study and understand that I have the right to withdraw from the interview at any time without being afraid of any consequences.

Print Name of Participant Signature of the Participant & Date

……. ……/---/---/2016

Print Name of Researcher/ Moderator Signature of the Participant & Date

…… ……/---/---/2016

ASSENT FORM

The purpose, methods, risks and benefits of the study have been explained to me in such a way that it is clearly understood and I am satisfied with the explanation Based on the description of this research explained by the researcher, freedom to participate, make clarifications and withdrawal when I am not comfortable with the discussion, as a result, I hereby willingly allow the researcher to proceed with the study.

Date…… Name…….