***Original Research Article***

# Indigenous medical knowledge and bone setting among the Igbo of Southeast Nigeria

Short title: **Indigenous medical knowledge and bone setting**


## Abstract

This paper examines the indigenous healthcare practice in Southeast Nigeria and how this can be integrated into modern healthcare system using bone setting as a case study. Traditional bone setting continues to enjoy wide patronage despite the availability of modern orthopaedic medicine in the treatment of bone injuries. The paper studies the basic therapeutic methods adopted in bones setting and how these can be integrated into modern health practice in Ogboji and Owerre Eze Orba communities. Indepth interview and direct observation were used to elicit information from the research subjects, comprising the bone setters, patients and members of the communities. Research results reveal that people see bone setters as effective way of addressing orthopaedic challenges and a great number of patients seek their attention before going to modern practitioners, if the need be. It is seen to be relatively cheaper, the primary raw materials used are adjudged not to have side effects and amputation is rarely recommended. The study argues that there is need for synergy between traditional bone setters and orthodox orthopaedic practitioners for enhanced bone health care.


**Keywords:** bone setting, communication, indigenous knowledge, orthopedic, health care

## Introduction

Indigenous healthcare or traditional medicine refers to the brand of medical practice which employs customary method of treatment of disease and of natural healing. It is transmitted by word of mouth and by example. The practitioner of traditional medicine "familiarizes himself with what constitutes good moral living, learns to detect by [physical examination] and spiritual diagnostic signs, how, when and where departure from the normal or natural has taken place, and then applies his knowledge and skill, aided by the various kinds of treatment, to help bring about a return to the normal and natural."[1] He also diagnoses ailments which through observation, inspiration and experiments may involve trial and error. Thus, traditional medicine can be defined as "an art, science, philosophy and practice following definite natural, biological, chemical, mental and spiritual laws."[2] WHO defines traditional medicine as "the sum total of the knowledge, skills, and practices based on the theories,

beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness."[3]

This predates the introduction of orthodox medicine in the developing world. This form of medicine has been described as a cultural gem and it includes all kinds of folk medicine, and therapeutic practices that had been handed down by the tradition of a community or ethnic group.[4] This practice is classified into herbal medicine, traditional birth attendance, traditional surgery, traditional medicinal ingredient marketing, traditional psychiatrics and traditional therapeutic occultism. Traditional bone setting is considered under traditional surgery as the practitioners have to contend with wounds requiring surgery. In giving treatment, traditional healers utilize roots, barks and leaves of trees, and animal parts[1].

Amongst Africans, health and illness have two basic features: biological and social. The first recognizes that the human body may malfunction due to old age, invasion by organism such as worms, or because of injuries sustained from accidents[5]. Illness is also believed to result from bad food, weather changes and poisonous substances. The social basis of illness on the other hand derives from such factors as breach of taboo, dishonored oath and effects of a curse[5]. In other words, the African recognizes that the air we breathe, the water we drink and the food we eat contain millions of micro-organisms which can be dangerous to human health. Howbeit, germ theory cannot account for all illness. For apart from germ, some other factors that can cause disease are sorcery, spirit intrusion, diseased objects, ghosts of the dead and acts of the gods[6].

Consequently, "the traditional healer appeals to both scientific and metaphysical means in an attempt to achieve a comprehensive cure of any malady. Through observations he diagnoses ordinary illness and through divination, he probes into the causes and cure of obscure maladies[6]". It has also been pointed out that in African traditional medicine, patient treatment was based generally on the healer establishing a rapport between the sick and social groups value system….This means among others that healers had to penetrate and manipulate the patient's symbolic universe[7]. Ekere submits that traditional medical practice is based on the belief that the natural resources have active therapeutic principles as well as supernatural forces which can be manipulated by those who know

how, in order to produce healing results[8]. This assumption implies that Africans believe in using the natural way to treat illnesses rather than the modern and scientific method that was brought from the western societies[9]. It is opined that many African societies were and still are ahead of European societies in some aspects of medical science, particularly in areas of psychiatry and medicinal herbs[7]. The traditional medicine practice enjoys high patronage by the people. As reported by the World Health Organization, African traditional medicine accounts for up to 80% of primary health care needs in Africa[10].

Bone setters or physiotherapists are those who specialize in the physical manipulation of parts of the human body. World Health Organization describes traditional bone-setting as that health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to diagnose and treat fracture in human body[10]. Some handle various types of fractures and dislocations. Others massage various parts of the body[5]. Thus, they cover among others: bone fractures, dislocation of joints, ligament sprain, spinal sprain, synovial fluid and/or lipoma, muscle cramp and mobile muscular pains[11]. Bone setters are widely respected in most African societies…popular belief holds that they do a better job than the cosmopolitan ones, who in any case are rare both in the rural and urban area[5]. Some acknowledge however, that bone setters rarely have the capacity to treat patients with fresh open wounds accompanying broken bones instead, these patients are sent to hospital to prevent wound infection[11]. They are free to come afterwards for treatment by the bone setter.

The need to integrate indigenous medical knowledge into modern medicine has figured very sparingly in the literature of social medicine. This is in spite of its value in sustainable healthcare. Howbeit, there is a growing realization about the need to incorporate local knowledge into modern knowledge in the effort to promote sustainable development. For it has been noted that, there is the need to allow local knowledge to flourish and contribute to global knowledge; where people learn from one another as they also innovate on their own; and where local and global knowledge inform action and influence change[12]. It is instructive that indigenous knowledge relating to nature conservation, human reproduction, herbal medicine, maternal and child healthcare and support

system, settlement patterns among others, are found in many communities in Nigeria. These need to be retrieved, documented and disseminated so as to find ways of harnessing their potentials.

Indigenous knowledge are those knowledge systems that are unique to a given society or culture having evolved out of many years of practical experience and successful adaptation to solving local problems. It also refers to particularistic knowledge which marks out one culture from the other and therefore one ethnic taxon from others[13]. Such knowledge deals with the fact or condition of knowing something with familiarity gained through experience or association; knowledge originating or being produced or living naturally in one's environment; or ideas, concepts or materials which were developed internally by a particular group using both human and natural endowment of its environment.

Indeed, indigenous knowledge constitutes a body of ideas, concepts and materials built up by a group of people through generations by living in close contact with their environment (both human and material). In essence, indigenous knowledge can be acquired through internally generated methods of learning and expressing grassroot initiatives in social and technological spheres[7]. It can be expressed literally in scripts (writing) or orally transmitted. Hence verbal art or oral literature, customs, beliefs, gestures and material symbols, among others, constitute some of the avenues for expressing indigenous knowledge and concerns. These avenues of indigenous creativity have been described as cultural knowledge[7].

In Africa, indigenous knowledge was expressed in several non-linguistic signs such as objects, gestures and ritual acts as well as many non-emotional signs and speech acts which were both propositional and non-propositional, but which essentially form part and parcel of the people's culture[7]. With indigenous or "cultural" knowledge, which manifests itself in material and non-material aspects, man in Africa utilized, and still utilizes, the opportunities offered by nature to influence and/or change the environment. While the material aspect includes all the products of man's industry or concrete realities, such as technology, subsistence, land use and architectural features, the non-material resources consist of the worldview, norms, morals, motivations, language and values etc. shared and transmitted through generations. Both material and non-material aspects of culture "are

fundamental in the analysis of cultural pattern that is the general mode of conduct, systematic and integrated context of behaviour which is characteristic of society[14].

It must be pointed out that indigenous medical knowledge has made invaluable contributions in healthcare delivery in Africa. This must therefore be harnessed and integrated into our primary healthcare system to ensure its sustainability. Our argument is predicated on the recognition that "the exclusive application of formal scientific concept is not enough for the complex task of achieving sustainable developments against a background of ecological and cultural diversity (in Africa). Indigenous knowledge and practices hold a crucial key to sustainable development"[15] [including sustainable healthcare].

In a research on traditional medicine, it was argued that:

> There is enough convincing evidence that a good number of preparations in our traditional medicine can hold their own as alternative to the conventional medicine and can be developed scientifically…(that) if our traditional medical practice had been organized and systematized; if the traditional medical practitioners had been communicative, a proper system of medical practice would have evolved, and our traditional medical practice would have been properly integrated into the modern medical system[16].

It was also noted that remedies in traditional medicine consist of formulae from various natural substances - vegetables and animals used singly or in combination[16]. "The vegetable remedies account for 70-80%. These herbal remedies are either swallowed, rubbed into scarifications, poured into wounds, boiled and inhaled as fumes splashed into eyes, smoked in pipes or sniffed as snuff. It was also noted that liver extracts have been used traditionally to treat pernicious anemia, long before it was discovered that liver contains vitamins B12, which is the only remedy for the disease. And for many years, quinine remained the major drug for treating malaria. *Cinchona* species are well known for their anti-malaria properties and the constituent alkaloid quinine is still acknowledged as an effective drug…. Most people in Nigeria also use *Azadirachta indica* (Dogonyaro) in treating malaria. Crude extracts from plants like *Brucea javanica, Simba cedron* and *Ailanthus altissima* are used in traditional medicine for treatment of malaria[16].

In his study of health seeking behaviour in Kenya, it was argued that there is need for cooperation between modern and indigenous knowledge systems[5]. Four main forms of interaction were identified between indigenous and cosmopolitan medicine. The first form of interaction is referred to as "sequential zig-zag." Here there is oscillation between the two forms of medicine as a particular illness develops. The second is supplementary relationship in which only one of the two forms of medicine can be used for the management or prevention of a condition at a particular time. There is also the competitive interactions. This occurs particularly when the cause of ailment has biological basis. The patient therefore utilizes either form of medicine depending on his/her socio-cultural background and economic disposition. The last form of interaction is that of complementarity. In this form of relationship, people consider both types of medicine to be necessary for complete healing to occur. The complementary relationship is common when chronic illness thought to involve psycho-social and spiritual factors occur[15].

This paper examines the indigenous healthcare practice in Southeast Nigeria and how this can be integrated into modern healthcare system using bone setting as a case study. Bone setting has been in Nigeria for centuries and reports has it that up to 85% of patients with fractures present themselves first to the traditional bone setters before going to orthopaedic hospitals[9]. Besides, the fear of amputation, high cost of treatment in orthodox hospitals and the application of plasters of Paris (POP) in orthodox orthopaedic centres[4], along with its believed efficacy, constitute the reasons for the high patronage of the bone setter. Specifically, the paper attempts to: (1) ascertain the basic therapeutic methods adopted in bones setting, (2) evaluate the place of indigenous methods of bone setting as a way of addressing orthopaedic problems, (3) examine the relationship between modern and traditional practices in this area of endeavour, (4) determine the place of communication in the process. This will hopefully help to provide the way forward while integrating traditional and modern healthcare practices in the country.

**Methodology**

We used direct observation and indepth interview to elicit information from informants in the two communities studied. On site visits, in-depth interviews, and site observation are invaluable tools for gathering information of this nature. First, they provide the opportunity to appreciate first-hand the

various therapeutic methods employed by bone setters; second they allow flexibility in the manner information is elicited, thereby giving room for the unexpected to emerge; and third they provide access to detailed information commonly associated with qualitative research.

During our field visit, there were about 50 patients on admission and about the same number of outpatients in the two bone healing centres studied. A convenient sampling method was used for recruiting the respondents, whereby we interviewed two bone setters, ten patients and five care givers (those who attend to the in-patients) in the study communities. Apart from being the most renowned in the individual communities, the two bone setters also have clinics (usually in their personal homes) and long history of practice. The study recruited the patients and care givers that were disposed to answer questions at the time of interview. Through semi-structured questions and on the spot assessment we elicited information and reported our findings qualitatively.

***The Setting***

The two communities under study, Ogboji Orimogu and Owerre Eze Orba, are Igbo by ethnic origin and they live in southeast Nigeria. The communities were chosen for study because of their fame in bone setting in this culture area. Although a number of communities within the area practice bone setting, Ogboji Orimogu and Owerre Eze Orba are renowned for their resounding prowess in the profession, which is said to have been handed down through generations.

Ogboji Orimogu is one of the communities that make up Ezza 'nation'. It is situated at the northern part of Ebonyi State Southeast Nigeria. It has a population of about 12,000 people. Ogboji people are reputed farmers planting such crops as yam, cassava, cocoyam and rice. They also produce pottery wares.

Owerre Eze Orba on her part, is one of the seven villages that make up Orba, a rural community in neighbouring Enugu State. It has an estimated population of 15,000. The people are majorly farmers and artisans. The two communities under study derive information through different channels of traditional communication and mass media. Traditional channels of communication are informal channels of communication which are viable in many rural communities in Nigeria. This is because they are not only available, accessible and intelligible, but are also owned and controlled by the people themselves.

The traditional bone setter is often without western education and do not formally learn the skill. They claim that the gods choose whom they wish to use for the healing. They acknowledge also that the knowledge is inherited and passed from one generation to another through skills and experience acquired as part of an ancestral heritage. This method had existed for decades and indeed clusters of family and homes practice it and practitioners keep it as a family secret. Any person, male or female, from Ogboji can practice bone setting outside Ogboji community, but within the community, it is the prerogative of Omeinyi Alo and Udeogu families who transmit the trade from generation to generation. In Owerre Eze Orba, however, it is not just a family affair, but always transmitted through the first sons.

## Results

### *Treatment*

The bone setters claim to treat all forms of dislocations and bone fractures as well as ligament sprains, spinal pains, muscle cramps and muscular pains etc. Diagnosis in both centres visited was by observation, running the fingers through the affected part and applying pressure when necessary. In Owerre Eze Orba, *miriogwu* (liquid from a mixture of different roots and herbs), is also applied to trace the fractured spot.

In both centres, the fractured bone is set raw without the use of any pain reliever or anesthetics. The bone is held in place using thread. The bone setter in Owerre Eze Orba (Attamah 2017) explains that he rubs the fluid from the root of *okpudele* plant (*Hymnodictyon pachayantha*), *eluaku,* palm kernel oil and *ebuba eke*, fatty oil extract from python on the affected part(s) and thereafter splints it to prevent movement. On the other hand, the traditional bone setter (Nwafor 2016) in Ogboji Orimogu uses palm oil or *okwuma* (shea butter) on the affected part(s). He claims that they make the area soft, ease pain and improve blood circulation. Thereafter, the back of palm frond, cleaned and cut to shape and size, is used to hold the bone in place.

Bamboo stick, raffia cane and/or palm frond baton, bandage and tissue paper are used for splinting. The tissue paper prevents the affected part from being injured further, the baton provides support and prevents movement of the bone so as to ensure effective healing, while the bandage holds the baton firmly. Chijioke Attamah the bone setter, on February 2017, also informed us that he places

his patients on calcium tablets to promote bone marrow growth. The patient is often advised to sit or lie on a mat or hard or flat surface to enable the bone set properly. S/he is also advised not to shave his/her hair or cut his/her nail during the period of treatment. The bone setters claim that these will compete with the bone nutrients and consequently inhibit quick recovery. Again, s/he is not allowed to have sex, or to take any alcoholic drink. However, if the bone is taking long to heal, the bone setter may investigate if there are spiritual forces working against such and then act accordingly. Indeed, care is generally taken to ensure that the patient does not move the fractured part.

Treatment at the centres lasts between one to three months, depending on the severity of the cases. In cases of open wounds, the patients are referred to patent chemists or hospitals as the case may be, who treat the wound first before bone setting commences. Patients range from children even infants born with dislocation, to adults who may be accident victims. They come from all parts of Igbo land and beyond, including Rivers, Cross River and Benue states.

***Perceived efficacy of traditional bone setting***

Bone setting is seen by the study communities as an effective way of addressing orthopaedic challenges. The patients interviewed revealed that they seek care from bone setters for a number of reasons:

1. The bone setting centres are the closest and easily accessible source of care for orthopaedic problems.
2. The cost of treatment is low relative to modern care. Lack of money does not also stop treatment as patients could be treated and allowed to come later to pay. This could be paid once or in instalments. In Owerre Eze Orba, indigenes are treated free of charge because bone setting is seen as a privileged gift from the gods to help the community. According to Chijioke Attamah, “such patients are only expected to give any gift of interest to them to thank the gods for the care. Bone setting calls for selfless service. Besides, the wrath of the gods will descend on him if charges his people or others exorbitantly.”
3. The primary raw materials used is believed not to have side effect.
4. Bone setters rarely amputate their patients.
5. They resort to spiritual forces in extreme cases, which is in tandem with the people’s belief.

All these explain why they are highly patronized in these parts.

***Relationship with modern practice***

The bone setters interviewed revealed that modern practitioners discriminate against them. They see them as illiterate, unskilled and quacks. Nevertheless, one of the bone setters informed us that he is often invited on a private arrangement by doctors in orthopaedic hospitals, to treat some complicated cases. He also claimed that his father was approached with an offer of official appointment in a public hospital during his hay days, but he turned it down.

On referral to orthodox practitioners, the bone setters said that they refer cases with serious wounds for suturing after which the patients come back for bone setting. They noted that patients sometimes leave the hospitals in preference to their services. They both claimed that they could handle complex bone problems, fix them and the patients remain healed. They also claimed that there is no condition that will make them amputate either the limb or the hand if the patients or their family consulted them early enough.

***Role of communication***

In spite of the pivotal role of communication in health care delivery across the globe, the bone setters interviewed claimed not to have promoted their practice in any way whatsoever to the public. However, further investigation and interaction with patients showed that their main source of information about the individual practitioner is oral communication media, particularly inter personal communication. Some of those interviewed called it oral testimonies that were given by those who were successfully treated or their relations and friends or both. Among the sources through which information on these bone setters reached them are family visits, meetings and group fora.

**Discussion**

Traditional bone setters play a pivotal role in orthopaedic healthcare delivery in the two communities under study. They constitute the first points of contact for orthepaedic challenges due to their perceived efficacy, accessibility and low cost (including their psycho-cultural attachment). Fractures that fail to heal with the routine treatment of splinting and massaging are given further traditional treatment (after consultation with the gods). This view was also canvassed by some scholars in their study of methods of bone setting in Nigeria, pointing out that further treatment may be given by way

of scarifications, sacrifices and incantations[17]. The study communities hold the therapeutic methods used by bone setters and the way they address orthopaedic problems in high esteem and this is expressed in their increasing patronage of the process. Earlier studies showed that the patronage of traditional bone setting in some parts of Nigeria ranged between 50% and 43%[18,19]. Thus, given the importance of traditional bone setting to the people of the study communities, it is vital that the practice be understood.

Observations made during the study visits revealed that the roots of plants, shea-butter, palm kernel oil and python fats and variable types of splints are the major raw materials for the treatment of bone challenges. It has been argued that African traditional medicine is anchored on the belief that natural resources have active therapeutic principles …which can be manipulated spiritually and/or physically by those who know how to and produce marvelous results[9]. We also found that the bone setters used bandage, tissue paper, hand gloves and x-rays during therapeutic care. One of them also placed patients on calcium tablets to promote healing. These materials are generally associated with orthodox medicine, and along with the increased patronage of traditional bone setters, present the need for collaborative efforts, and a possible synergy between the two practices. As earlier averred, the high patronage of traditional bone setting portends that the orthodox system also has some deficiencies, and therefore requires an audit in order to correct their inadequacies[20].

In spite of the increasing patronage of traditional bone setting and the perceived efficacy of the process, a number of flaws appear to militate against it.

1. The informal process of training and acquiring skills (often hereditary in nature), including oral tradition, which does not give room for documentation and formal transmission of knowledge, thereby restricting new entrants into the profession.
2. The spiritual undertone of treatment in some cases, which makes it difficult for the process to be reviewed and formally transferred.
3. The drug administration procedures are seen as a misnomer, leading to unrestrained criticism from the orthodox practitioners.

However, given the confidence that the traditional society has on the traditional bone setters, it is pertinent that their capacity be built in a number of areas to enhance their effectiveness. First, it is

vital to improve their process of diagnosis via the use of radiography and other modern diagnostic facilities[9]. It must be noted that some of them have learnt how to read x-rays and this facilitates treatment. Second, they need to embrace current drug administration procedures, including pain reduction, administration of calcium and other therapies available in modern orthodox practice. We have noted in the preceding pages some of the modern inputs that have been injected into the traditional practice, including the use of bandage, POP and tissue paper. These are some of the ways we can integrate the traditional healing process into the western modern medical practice. It is also important that efforts be made at regulating their practice, including the establishment of a sound referral system and adoption of a standard capacity building programme. Though there may be some inherent deficiencies as shown above and inadequate accommodation for in-patients, it is apparent that they are invaluable to the society. Their inputs will be optimally utilized if they are trained to function at the primary level especially in the rural areas where the demand for their services is high.

Given that traditional bone setting is generally rural-based, oral communication can be employed in a more patterned manner to promote the practice so as to create public awareness, enhance process utilization and provide a platform for integrating traditional and modern practices. Using this form/mode of communication, information can be disseminated at meetings, market places, group fora, churches and religious gatherings etc. This form of communication constitute the primary and efficacious mode of communication among rural people. As can be seen from our earlier discussion, the strength of bone setting in these parts lies in its dynamism and willingness to incorporate new ideas, including those coming from its main rival, the hospital[11]. This is where communication becomes absolutely vital.

This research has established that bone setters do not only play a critical role in addressing orthopaedic challenges in the two communities studied, but are also increasingly utilising modern health care materials to improve their services. The orthopaedic doctors were also found to have utilized their services while handling some challenges. Consequently, the need to integrate the two practices becomes pertinent. This entails not just the designing of capacity building and training programmes for traditional bone setters to improve their services, but also encouraging orthodox doctors to learn and incorporate knowledge gained from the traditional bone setters into their

profession. It is therefore arguable that bone setters are integral and indispensable part of our present health system whose prospects cannot easily be wished away soon.

**References**


1. Onu AO. Social basis of illness: A search for Therapeutic meaning in AI Okpoko edited *Africa's Indigenous Technology*. 1999;178-187 Ibadan: Wisdom Publishers.
2. Okonkwo EE. Traditional healing systems among Nsukka Igbo. *Journal of Tourism and Heritage Studies* 1(1): 2012;69-81.
3. WHO (World Health Organisation). Traditional Medicine Definitions. 2017. Available: www.who.int/medicines/areas/traditional/definitions/en/.
4. Okutachi SE. Traditional bone setting among Igala people of Kogi State, Nigeria. *International Journal of Basic and Applied Science.* Vol. 03, No. 02, 2014 October, pp. 181-187.
5. Nyamwaya DO. *African Indigenous Medicine: An Anthropological Perspective for policy makers and Primary Health Care Managers*. 1992;1-44. Nairobi: African Medical and Research Foundation.
6. Aja E. Metaphysics and medicine: The traditional African experience in AI Okpoko edited *Africa's Indigenous Technology*. 1999;168-177. Ibadan: Wisdom Publishers.
7. Andah BW. *African Anthropology*. 1988;1-279. Ibadan: Shaneson C. I.
8. Ekere AU. The scope of extremity amputations in a private hospital in south-south region of Nigeria. *Nigerian Journal of Medicine*: *journal of the National Association of Resident Doctors of Nigeria*. 12(4): 2003;225-228.
9. Omololu AB, Ogunlade SO & Gopaldasani VK. "The practice of Traditional Bone setting: Training Algorithm." *Clinical Orthopaedic and Related Research*. 2008 466:2392. Doi:10.1007/s11999-008-0371-8
10. Kasilo OM, Trapsida JM, Mwikisa C & Lusamba-Dikassa PS. An Overview of the Traditional Medicine Situation in the African Region World Health Organization. 2010. Available: https://www.aho.afro.who.int/en/ahm/issue/13/reports/overview-traditional-medicine-situation-african-region on 29/03/2017.
11. El Tom AO. The bone setter: a case study from Central Sudan. In *African Anthropology*. Journal of the Pan African Anthropological Association Vol III Number 1 1996;91-112 March.
12. Leautier FA. Sustainable Development- Lessons learned and challenges ahead. *Crossroads* Vol. 9, No. 5, 2002 August.
13. Onwuejeogwu MA. The place of indigenous technology in present day Africa in AI Okpoko edited *Africa's Indigenous Technology*. 1999;7-27. Ibadan: Wisdom Publishers.
14. Otite O & Ogionwo W. *An introduction to sociological studies*. 1979;1-419. Ibadan: Heineman Educational Books (Nig).
15. IKDM (Indigenous Knowledge and Development Monitor). Indigenous Knowledge for the Conservation and Management of Biodiversity. Conference Announcement. *Indigenous Knowledge and Technology Monitor* Vol. 5, Issue 3, 1997 December.
16. Akah PA. Traditional medicine and drug development in AI Okpoko edited *Africa's Indigenous Technology*. 1999;198-203. Ibadan: Wisdom Publishers.
17. Dada AA, Yinusa W, Giwa SO. Review of the practice of traditional bone setting in Nigeria. *African Health Sciences* 11(2): 2011;262-265.
18. OlaOlorun DA, Oladiran IO & Adeniran A. Complications of fracture treatment by traditional bone setters in southwest Nigeria. *Family Practice*. 2001 Dec 18(6) 635-637.
19. Solagberu BA. The Complications seen from the Treatment by TBS. *West African Journal of Medicine*. 2003 22(4):343–4. ncbi.nlm.nih.gov.
20. Owoseni JS, Oluwadare CT & Ibikunle AM. Traditional Bone-Setters and Fracture Care in Nigeria. *Merit Research Journal of Art, Social Science and Humanities*. 2014 2(6) 237-250. Available online http://www.meritresearchjournals.org/assh/index.htm.

Oral Interviews:

1. Simeon Chita Nwafor (70 years) Ogboji Bone setter
2. Chukwudi Nweke (38 years)
3. Anna Nwafor (55 years)
4. Opoke Stephen (54 years)
5. Onyema Egwu (47 years)
6. Enoch Dimgba (41 years)
7. Silas Onwe (43 years)
8. Attama Chijioke (30years) Owerre Eze Orba Bone setter
9. Mr. Osienu Adams (32 years)
10. Mr. Ezediora Jude (49 years)
11. Mr. Ebuka Ede (32 years)
12. Sunday Ugwuoke (33 years)
13. Ezeorba Osondu (51 years)
14. Eze Chiamaka (31 years)
15. Sunday Okoli (42 years)
16. Clara Eneh (64 years)
17. Ngozika Ossai (50 years)