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**ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PATRONAGE OF TRADITIONAL  
BONE SETTING AMONG RESIDENTS OF OGBOMOSHO, SOUTH WESTERN NIGERIA**

## ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PATRONAGE OF TRADITIONAL BONE SETTING AMONG RESIDENTS OF OGBOMOSHO, SOUTH WESTERN NIGERIA

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### ABSTRACT

#### Introduction

The aim of this study was to determine the utilization of traditional bone setters among residents of Ogbomosho, South Western Nigeria.

#### Methods

It was a cross-sectional study where 350 respondents were selected using multistage sampling technique. Data were collected using pre-tested self-administered semi-structured questionnaire; analyzed using Statistical Package for Social Sciences version 23 and presented using appropriate tables and charts. Level of significance was set at 0.05.

#### Results

The mean age of the respondents was 32.6 ±1years with majority being young adults (56.6%), males (51.1%), married (56.6%), those with primary education (43.7%), residents in urban area (52.9%) and self-employed (48.3%). In terms of knowledge, awareness is high but the comprehensive knowledge of the inherent dangers of using such settings such as having tetanus infection and mismanagement is low. Overall, more than half of the respondents (56%) had poor knowledge of the dangers of patronizing traditional bone setters. However, regarding attitude, more than half (65%) had unfavorable attitude using the mean score. In terms of practices, less than one quarter of respondents (23.7%) had patronized

traditional bone setters in the past due to reasons such as cost of hospital treatment, bone infection, attitude of health care staff, fear of operation, and delay in hospital treatment among others.

#### Conclusion

There is low comprehensive knowledge to inherent dangers, coupled with high patronage of traditional bone setters among respondents. Therefore, there should be an aggressive health promotion intervention and integration of such practices into modern settings.

**Keywords:** Attitude, Knowledge, Patronage, Residents, Traditional bone setting.

### INTRODUCTION

Before orthodox medicine was introduced in the developing countries, traditional medicine was a form of art in Africa. Saying that it predates the appearance of man on earth would not be an exaggeration. In many communities around the world, this kind of medicine has been referred to as a cultural jewel. It encompasses all varieties of conventional and folk medicine as well as any treatment modalities that have been passed down through an ethnic or communal heritage. Traditional medical practices include traditional birth attendance, traditional surgery, traditional therapeutic occultism, and traditional psychiatrists. Herbal medicine is also used to treat a

variety of illnesses in traditional medicine. Traditional surgery is a subtype of traditional bone setting, in which practitioners deal with surgically necessary wounds. Traditional bone setting is a specialty in Traditional Medicine that is transferred from a father to his kid(s). However, some non-family members gain instruction through apprenticeship.<sup>1</sup> A lay practitioner of joint manipulation is referred to as a traditional bonesetter (TBS). He or she is a healer who begins to practice without having had any official education in recognized medical practices.<sup>2</sup>

In many developing nations such as Nigeria, traditional bone setting (TBS) is a crucial component of the healthcare system. TBS services are in high demand by a sizable number of individuals, old and young, educated and unlettered, male and female, despite the issues that result from the cultural practice. An estimate states that between 10 and 40 percent of patients with fractures and dislocations worldwide are treated by unconventional medical professionals.<sup>2</sup> However, due to cultural beliefs, ignorance, and poverty, many people in Nigeria believe that TBS practitioners are more knowledgeable about bone disorders than conventional practitioners. As a result, patients of all classes, professions, and religions frequently seek their services, regardless of their age or gender. TBS cannot be disregarded in Nigeria because up to 85% of patients with fractures present there first before going to the hospital.<sup>3</sup>

Traditionalists' approach of setting bones is not without its flaws. About 80% of fracture-related morbidity and death cases that present to different government hospitals in our vicinity are caused by failures after bone setting by traditionalists. In numerous locations around Nigeria, TBS fractures have been documented to have caused numerous complications.<sup>3</sup> In many communities, traditional bone setting is well patronized despite criticism by orthodox doctors as well as poor outcomes especially with open fractures.<sup>4</sup> A research showed that 4 deaths occurred in 15 patients with limb gangrene after TBS treatment.<sup>5</sup> In one study, 83% of

patients experienced problems such as mal-union and non-union, and the majority of them developed disabilities or deformities.<sup>6</sup> TBS practitioners have expanded their scope beyond the treatment of fractures to include congenital deformities, the care of patients with bone malignancies, and the treatment of patients with bone infections.<sup>7</sup> The cultural practice has significant negative repercussions on both health and society.

The TBS's activities significantly impede the use of contemporary orthopedics in Africa. Though this may not provide the desired result, others have argued that TBS should receive training and be incorporated into the community health system. National and international institutions should act quickly to prevent the difficulties brought on by conventional bone setting through primary health and community health systems. This can be accomplished by eradicating poverty and illiteracy as well as by creating the necessary registration to stop this threat.<sup>8</sup> The start of neighborhood initiatives to raise awareness among TBS and patients might deter these dangerous behaviors.<sup>8</sup> Perhaps more than any other group of traditional caregivers, traditional bone setters are highly regarded and trusted by society.<sup>9</sup> Though there are many factors that affect TBS patronage, the perceived lower fees are a significant one. This has been better described as numerous small payments that are permitted by bonesetters as well as payment in kind with clothing and living things.<sup>10</sup>

In addition, Africa as a whole has deep social and familial ties. Therefore, friends and family have a significant role in deciding what kind of care the injured or ill relative would receive. There are, however, some good reasons to use TBS, such as its simple accessibility and speedy service compared to hospitals, where there are procedures and lines before patients may be seen.<sup>10</sup>

The activities of traditional bone setters in Nigeria, their contribution to the health care services, and issues resulting from their acts and inactions have all been examined in a number of earlier studies. According to a



study done at the University College Hospital in Ibadan, traditional bone setters' patient catchment has no boundaries because both educated and illiterate people use their services, and the severity of issues that arise after such treatment keeps growing.<sup>3</sup> However, despite the known drawbacks of the cultural practice, regardless of age or gender, there is still a considerable demand for TBS services from people of diverse classes, professions, and religions.<sup>3</sup> Due to the foregoing issues and frequent usage of these services, it is crucial to investigate some of the reasons that contribute to the patronage of traditional bone setters, notably in Ogbomosho, South Western Nigeria because of the persistence of complications and constant use of these services. The objective of this study is, therefore, to determine factors influencing patronage of traditional bone setting among residents of Ogbomosho town in Oyo State, Nigeria.

## METHODS

### *Study Setting*

The study took place in Ogbomosho, Oyo State. This is a city in the Northern part of Oyo state located on Lat. 8.1227°N and Long.4.2436°E. It was founded in the mid-17th century. It is populated mainly by Yoruba tribe of the South West though it has in abundance Igbo, Hausa and Fulanis from the south east and northern part of the country respectively. The traditional occupation of its people is farming with other commercial activity holding sway too. The population of Ogbomosho by the 1991 population census was approximately 645,000 but has risen to about 1.2 million by the end of 2005. It has two university teaching hospitals, a government teaching hospital and a missionary teaching hospital, and several private hospitals.

### *Research Design*

This was a cross-sectional descriptive study design.

### *Study Population*

The study population were occupants confirmed to be residing within selected Local Government Areas in Ogbomosho.

### *Inclusion criteria*

Respondents whose age were between 15 – 49 years and confirmed to be resident in the study area were included in the study.

### *Exclusion criteria*

Respondents whose ages were less than 15 years were excluded from the study. Individuals within 15-49 years residing outside Ogbomosho were also excluded from the study.

### *Sample Size Determination*

The sample size of 350 respondents was used for the study. The sample size was determined using Leslie Fisher's formula for the calculation of the minimum sample size required for the study, thus:

$$n = \frac{z^2 pq}{d^2}$$

Where: z = score at 95% level of confidence = 1.96

n = sample size (minimum desired size)

p = prevalence of the condition as evidenced in literature = 28.7%<sup>11</sup>

$$= 0.287$$

$$q = (1 - p) = 1 - 0.287 = 0.713$$

$$d = \text{margin of error} = 0.05$$

$$n = \frac{1.96^2 \times 0.287 \times 0.713}{0.05^2} = 314$$

Adding 10% attrition, thus;

$$314 + 31.4 = 345$$

### *Sampling Technique*

A multi-stage sampling technique was used in conducting the study.

**Stage I:** Selection of 2 LGAS out of 5 LGAS in Ogbomosho metropolis, using simple random sampling by balloting.

**Stage II:** Selection of wards from the selected 2 LGAS, using simple random sampling by balloting.

**Stage III:** Selection of communities from selected wards, using simple random sampling by balloting.

**Stage IV:** Selection of households out of selected communities, using simple random sampling by balloting.

**Stage V:** All the eligible respondents who consented were then interviewed by administering the questionnaire in the selected households.

### ***Data collection method***

The instrument used for data collection was a semi-structured, self-administered questionnaire consisting of 4 sections:

Section A- Socio-demographic characteristics of respondents

Section B- Knowledge of respondents on traditional bone setting

Section C- Attitude of respondents to traditional bone setting

Section D- Utilization of traditional bone setting and reasons among respondents

The questionnaire was developed using study objectives and research questions as well as consultation of relevant literatures in addition to modification of questionnaires used in previous studies on related matters to ensure content validity. Reliability of the instrument was tested by conducting a pilot study using respondents from a Primary Healthcare Centre. The result of this was used in making necessary corrections and adjustments on the instrument before data collection.

Data were collected by distributing questionnaires to consenting respondents after explanation of the purpose of the research. A total number of 350 questionnaires were administered to the respondents as described in the sampling technique. The questionnaires were administered and retrieved same day and those who could not read nor write were assisted by reading and explaining to them the questions.

### ***Scoring methods***

#### ***Overall score on knowledge of complimentary alternative medicine***

Questions related to the knowledge of the respondents towards practices of traditional bone setters were asked and scored. Correct answers were scored 1 while the wrong answers were scored 0. Total score and mean score were computed and respondents that had the mean score and above were classified as having good knowledge while those below the mean score were classified as having poor knowledge.

#### ***Overall score on attitude towards complimentary alternative medicine***

Respondents' attitude was measured on a 5-point Likert scale (S/A=1 to S/D=5). The maximum score and mean score were computed. Respondents having the mean score and above were classified as having favourable attitude while those below the mean score were classified as having unfavourable attitude

### ***Statistical analysis***

The returned questionnaires were sorted out and the data entered for analysis using Statistical Package for Social Sciences (SPSS) version 23. Cross tabulation and Chi-square ( $\chi^2$ ) test statistics were done where necessary, and were used to make comparisons of proportions between groups. Level of significance was set at p-value less than 0.05.

### ***Ethical Considerations***

Ethical clearance was obtained from the ethical committee of the College of Health Sciences, Osun State University, Osogbo. Also, permission was obtained from community leaders in selected communities to collect data using questionnaire from the respondents. All respondents were informed that the survey was voluntary, and that they did not have to participate if they chose not to or could withdraw at any time. Respondents were assured that confidentiality of responses will be maintained during and after data collection.

## RESULTS

Three hundred and fifty respondents were recruited for the study with the mean age of  $32.6 \pm 1.1$  years. Most of the respondents were young adults 198(56.6%) and 179(51.1%) were males while 171(48.9%) were females. Majority of the subjects 189(56.6%) were married. 42(12.0%) had no formal education, 153(43.7%) had primary education, 120(34.3%) had secondary education, and 35(10%) had tertiary education. 185(52.9%) resided in the urban areas and 165(47.1%) resided in rural areas. 169(48.3%) were self-employed, 78(22.3%) are civil servants, 36(10.3%) were unemployed while 55(15.7%) were students [Table 1].

**TABLE 1: Socio-demographic characteristics of the respondents**

VARIABLE	FREQUENCY n=350	PERCENTAGE %
<b>Age group (years)</b>		
18-35	198	56.6
36-54	152	43.4
<b>Gender</b>		
Male	179	51.1
Female	171	48.9
<b>Marital status</b>		
Married	189	54.0
Single	144	41.1
Separated	11	3.2
Divorced	6	1.7
<b>Educational status</b>		
None	42	12.0
Primary	153	43.7
Secondary	120	34.3
Tertiary	35	10.0
<b>Religion</b>		
Christianity	158	45.1
Islam	185	52.9
Others	7	2.0
<b>Area of residence</b>		
Rural	165	47.1
Urban	185	52.9
<b>Occupation</b>		
Unemployed	36	10.3
Self employed	169	48.3
Civil servant	78	22.3
Schooling	55	15.7
Others	12	3.4

All (100%) of the respondents were aware of other methods of treating bone problems. Family 198(56.6%) and friends 68(19.4%) were the main sources of information. Media 60(17.1%), social gatherings 11(3.1%), religious meeting 10(2.9%) and medical practitioners 3(0.9%) were other sources of information. Majority, 325(92.9%), affirmed TBS as places where bone conditions can be treated outside the hospital while 18(5.1%) and 7(2.0%) indicated spiritual home and others respectively. More than half 195(55.7%) were aware of the dangers associated with such places.

Nearly half, 87(44.6%), said infection was the commonest complication, especially tetanus 54(27.7%), while mal-union 39(20.0%) and mismanagement 15(7.7%) were the other complications [Table 2].

The extent of agreement with a number of statements regarding traditional bone setting practice showed 151(43.1%) agreed that traditional bone setters could cure all bone ailments, 155(44.3%) agreed that traditional bone setting is more effective than orthodox medicine, 124(35%) agreed traditional bone setting is cheaper than orthodox and 128(36.1%) believed traditional bone setting is preferable to orthodox medicine [Table 3]. Out of the 350 respondents, 83(23.7%) of the respondents had visited TBS in the past; out of which 33(9.4%) visited TBS in the last 12 months. Less than a fourth, 61(17.4%) affirmed they would opt for TBS if they sustained bone ailments while 289(82.6%) will not like to be treated by TBS [Table 4]. Reasons for patronage included cost of treatment within the hospital 57(68.7%), fear of operation 45(54.2%) and attitude of health care staff 39(47%). Others were religious factor 33(39.8%) and delay in hospital treatment 30(36.1%) while the least was bone infection 1(1.2%) [Table 5].

Age ( $p=0.001$ ), area of residence ( $p=0.011$ ) and occupational status ( $p=0.024$ ) were statistically significant factors associated with patronage at the level of  $P<0.05$  [Table 6]. There was no statistical difference

between attitude and the patronage of traditional bone setting among respondents [Table 7].

**Table 2: Knowledge of traditional bone setting practice**

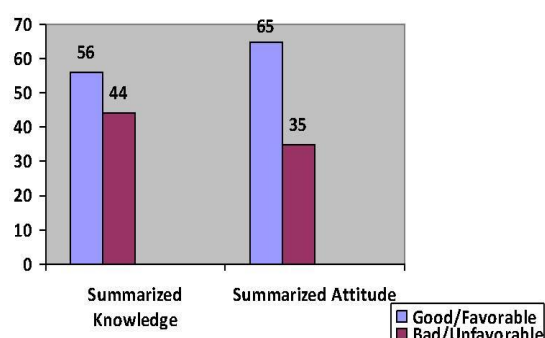
VARIABLE	FREQUENCY n=350	PERCENTAGE %
<b>Are you aware of any other way bone injuries can be treated outside the hospital environment</b>		
Yes	350	100
No	0	0
<b>If yes, source of the information</b>		
Media/ radio	60	17.1
Family	198	56.6
Friends	68	19.4
Medical practitioners	3	0.9
Social gathering	11	3.1
Religious meeting	10	2.9
<b>Which of these places outside the hospital can ones bone be treated when injured</b>		
Spiritual homes	18	5.1
Traditional bone setting	325	92.9
Others	7	2.0
<b>Are you aware of the dangers associated with visiting such places with bone injury</b>		
Yes	195	55.7
No	155	44.3
<b>Which of these dangerous effect do you know</b>		
Tetanus	54	27.7
Infection	87	44.6
Mismanagement	15	7.7
Mal-union	39	20.0

Also, there was no statistical difference between summarized knowledge and patronage of traditional bone setting [Table 8]. Out of 350 respondents, 155(44%) had good knowledge while 195(56%) had poor knowledge of traditional bone setters practice. A total of 123 (35%) respondents had favorable attitude while 229 (65%) had unfavorable attitude towards traditional bone setters' practice [Figure 1].

**Table 3: Attitude of respondents towards usage of traditional bone settings**

SA (%)	A (%)	DK (%)	D (%)	SD (%)
<b>Traditional bone setters can cure all bone ailments</b>				
47 (13.4)	104 (29.7)	105 (30.0)	66 (18.9)	28 (8.0)
<b>Traditional bone setters is preferable to bone treatment within hospital environment</b>				
33 (9.4)	95 (27.1)	117 (33.4)	77 (22.0)	28 (8.0)
<b>Traditional bone setting practices is cheaper than orthodox medicine</b>				
42 (12.0)	82 (23.4)	107 (30.6)	79 (22.6)	40 (11.4)
<b>Traditional bone setting practices is more effective than orthodox medicine</b>				
36 (10.3)	119 (34.0)	98 (28.0)	61 (17.4)	36 (10.3)

\*SA=Strongly Agree, A= Agree, DK= Don't know  
D=Disagree SD=Strongly disagree



**Figure 1: Summarized knowledge and attitude of traditional bone setters practice using mean score**

**Table 4: Patronage of traditional bone setters**

VARIABLE	FREQUENCY N=350	PERCENTAGE %
<b>Have you ever patronized traditional bone setters?</b>		
Yes	83	23.7
No	267	76.3
<b>Have you ever patronized traditional bone setters in the past 12 months?</b>		
Yes	33	9.4
No	317	90.6
<b>Will you like to be treated by traditional bone setters following injury?</b>		
Yes	61	17.4
No	289	82.6

**Table 5: Reasons for Patronage**

VARIABLE	Yes (%)	No (%)
Broken bone/ joint dislocation	83 (100)	0 (0)
Bone infection	1 (1.2)	82 (98.8)
Delay in hospital treatment	30 (36.1)	53 (63.9)
Fear of operation	45 (54.2)	38 (45.8)
Attitude of health care staff	39 (47)	44 (53)
Cultural factors	26 (31.3)	57 (68.7)
Religious factor	33 (39.8)	50 (60.2)
Cost of treatment within the hospital	57 (68.7)	26 (31.3)

**Table 6: Association between socio-demographic factors and patronage of traditional bone setters**

VARIABLE	YES (%)	NO (%)	X <sup>2</sup>	Df	P-VALUE
<b>Age</b>					
18-35	44 (22.2)	39 (25.7)	16.399	3	<b>0.001</b>
36-54	154 (77.8)	113 (74.3)			
<b>Gender</b>					
Male	46 (25.7)	133 (74.3)	0.797	1	0.372
Female	37 (21.6)	134 (78.4)			
<b>Marital Status</b>					
Married	41 (21.7)	148 (78.3)	1.838	3	0.607
Single	36 (25)	108 (75)			
Separated	4 (36.4)	7 (63.6)			
Divorced	2 (33.3)	4 (66.7)			
<b>Education</b>					
None	10 (23.8)	32 (76.2)	2.790	3	0.425
Primary	39 (25.5)	114 (74.5)			
Secondary	23 (19.2)	97 (80.8)			
Tertiary	11 (31.4)	24 (68.6)			
<b>Religion</b>					
Christianity	38 (24.1)	120 (75.9)	0.354	2	0.838
Islam	44 (23.8)	141 (76.2)			
Others	1 (14.3)	6 (85.7)			
<b>Area of residence</b>					
Urban	54 (29.2)	131 (70.8)	6.502	1	<b>0.011</b>
Rural	29 (17.6)	136 (82.4)			
<b>Occupation</b>					
Unemployed	8 (22.2)	28 (77.8)	11.224	4	<b>0.024</b>
Self employed	33 (19.5)	136 (80.5)			
Civil servant	18 (23.1)	60 (76.9)			
Students	17 (30.9)	38 (69.1)			
Others	7 (58.3)	5 (41.7)			



**Table 7: Association between summarized attitude, summarized knowledge and patronage of Traditional bone settings**

		Have you ever patronized traditional bone setting in the past 12 months?		DF	X2	P
		yes	no			
<b>Categorized attitude</b>	Favorable attitude	17(7.4%)	212(92.6%)	1	3.12	0.077
	unfavorable attitude	16(13.2%)	105(86.8%)			
<b>Categorized knowledge</b>	Good knowledge	18(9.2%)	177(90.8%)	1	0.02	0.89
	Poor knowledge	15(9.7%)	140(90.3%)			

## DISCUSSION

Traditional bone setting is a service that is readily available in Ogbomosho, a city in the northern part of Oyo state, Nigeria. In the study period, 350 participants were recruited for the study, most of whom were indigenes of Ogbomosho, others were indigenes of neighboring towns but resident in Ogbomosho. The results from this study are in line with a study done in Nairobi, Kenya where ninety-nine percent of community members admitted of having heard about traditional bone setting.<sup>12</sup> The source of information was mainly relatives and friends and indeed the community knew who provides this service and which specific ailments the traditional bone setters treat.

Cost is considered to be a big consideration even though accessibility, response speed, culture and pressure from friends were all factors that affect TBS patronage. Most of the respondents believe that traditional bone setters can treat some bone ailments. Almost half of the respondents (43.1%) believe that traditional bone setters can cure all bone ailments, 44.3% believe that traditional bone setting is more effective than orthodox medicine, 35.% believe traditional bone setting is cheaper than orthodox and 36.5% believe traditional bone setting is preferable to orthodox medicine. This supports research that found that patients who went to the hospital after TBS treatment failed initially primarily did so for financial reasons and because they thought doing so would result

in a speedier recovery.<sup>13</sup> In our study, less than a fourth of the respondents had patronized traditional bone setters, with 9.4% patronizing TBS in the last 12 months. Reasons for patronage included high cost of treatment within the hospital (68.7%), fear of operation (54.2%) and attitude of health care staff (47%). This study supports the notion that bone injuries are commonly treated with TBS because it is less expensive. This might be because TBS accepts several small contributions as well as payments in kind. An earlier study also found that alternative medical therapy is more affordable, socially and culturally acceptable, and available in underdeveloped nations where there is a shortage of conventional medical services, facilities, and personnel.<sup>14</sup>

Age, area of residence, and occupational status of the participants were statistically significant (P value <0.05) for the patronage of TBS treatment. The older age groups seemed to prefer TBS treatment as compared to the younger age groups. This could be because of the low level of education and socio-cultural influence in the older age groups. Other studies also indicated that the youth do not seem to prefer TBS as a form of treatment.<sup>3</sup> This finding differs from the findings of a study that "age, occupation, and educational status did not seem to influence patients' beliefs about TBS practice and the outcomes of their treatment".<sup>15</sup>

## CONCLUSION

There is low comprehensive knowledge to inherent dangers, coupled with high patronage of traditional bone setters among respondents. Therefore, there should be an aggressive health promotion intervention and integration of such practices into modern settings.

## RECOMMENDATIONS

### Individual level

- Continuous enlightenment of individuals using mass media such as radio, television etc.

### Community level

- Attitudinal change could be through education, advocacy, public enlightenment on dangers associated with patronage of Traditional bone settings.
- Public programs of enlightenment on the need to prevent patronage of Traditional bone setters should be taken to all categories of people through the mass media.

### Modern/Traditional bone setting level

- A collaborative effort on the part of governments, professional orthopaedic societies, private/charitable organisations and traditional healers is needed to integrate TBS into modern fracture care .
- Training program should be arranged on continuous basis for traditional bone setters on need to refer early cases of bone fractures to modern health care settings. The overarching goal of any bone setter training program should be that the bone setters understand which fracture types to treat and which fracture types to refer to hospital.

### Government level

- Professional associations need to advocate for healthcare policies directed at prioritizing integrating modern and traditional bone practices.

## Conflict of interest

The authors had no conflict of interest

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