

## ORIGINAL ARTICLE

# Determinants of utilization of traditional bone setters in Ilorin, North Central Nigeria

S.A. ADERIBIGBE, S.R. AGAJA, J.O. BAMIDELE\*

Department of Epidemiology &amp; Community Health, College of Health Sciences, University of Ilorin, Kwara State, Nigeria;

\*Department of Community Medicine, College of Health Sciences, LAUTECH, Ogbomoso, Oyo State, Nigeria

## Key words

Determinants • Utilization • Traditional Bone Setter (TBS) • Ilorin West

## Summary

**Background.** Traditional bone setting (TBS) practice is an important part of health care delivery in many developing countries and has been in Nigeria for long. Despite the complications that arise from the cultural practice, TBS services is still in high demand by a significant number of people. This study was conducted to determine the factors that influence the utilization of TBS practice.

**Methods.** A descriptive cross-sectional study was carried out using a semi structured questionnaire to gather information from 400 randomly selected residents of Ilorin West LGA in north central Nigeria. Multistage sampling technique was used in selecting the respondents.

**Results.** The respondents were between the ages of 18-72 years with a mean age of  $36.3 \pm 12.3$ . Three hundred and three (77.3%) of the respondents know of TBS practice as a way of getting treatment for bone injuries. More than two third 210 (69.3%) of the respondents who know TBS practice as a form of treatment for bone injuries think that TBS therapy is preferable to Orthodox medicine in handling bone injuries. Reasons for preference are that it is cheap 134 (63.8%), acceptable 123 (58.6%) and acces-

sible 109 (51.9%) to them. More than half (52.3%) of the respondents had patronized TBS treatment at one time or the other. Main reason for patronage of TBS was influence from family members and friends (53.6%). However, factors that influence the respondents decision to utilize TBS treatment include attitude of health workers 310 (77.5%), delay in hospitals 284(71.0%) fear of amputation 272 (54.35) and fear of operation 217(54.3%) in hospitals. There was a statistically significant ( $p < 0.05$ ) relationship between respondents age, sex, marital status, occupation, ethnicity as well as the income level of the respondents and the utilization of TBS.

**Conclusions.** Utilisation of TBS is quite popular among the studied population because it is believed to be cheap, acceptable and accessible to them and a high proportion of the respondents utilize TBS notwithstanding that they live in a community where they have better access to orthodox medical care. Influence from family and friends is the main reason for consulting TBS. Regulations should be made concerning the advertisement of TBS practice by relevant agencies and the public should be made aware through health education on the dangers of TBS treatment.

## Introduction

Traditional healers were practicing long before orthodox medicine was introduced to the developing world [1]. The first orthodox hospital was built in Lagos, Nigeria in 1873 [2]. Prior to this, traditional medicine was the only available form of health care. Presently both orthodox and traditional medicines co-exist side by side and are patronized by patients [3].

Traditional bone setting is a specialization in Traditional Medicine passed from father to child but some non-family members receive training via apprenticeship [4]. A traditional bonesetter (TBS) is a lay practitioner of joint manipulation. He or she is a practitioner who takes up the practice of healing without having had any formal training in accepted medical procedures [5]. Modern day healthcare has evolved greatly following advances in technology and medical research. Despite the availability of these services, traditional bone setting has continued as an alternative health care service. It is practiced in many communities of the world, especially in developing countries in the continents of Asia, South America and Africa with less developed healthcare resources and

plays an important role in their healthcare delivery system. According to an estimate, between 10 to 40% of patients with fractures and dislocations in the world are managed by unorthodox practitioners [5].

In Nigeria however many people believe that TBS know more about bone disorders than orthodox practitioners probably due to cultural beliefs, ignorance and poverty; as such a good number of patients that cut across class, profession and religion patronize them irrespective of age and gender. Up to 85% of patients with fractures present first to the TBS before coming to the hospital and therefore this mode of care delivery cannot be overlooked in Nigeria [6].

In most developing countries where Traditional bone setting is practiced, many failures of bone setting procedures have been reported due to the use of irrational methods adopted by Traditional bonesetters (TBS) that are not scientifically based. These methods of treatment lack the knowledge of anatomy, physiology, radiology and basic principles of infection prevention/control and soft tissue care which have led to limb and life threatening complications [6]. These complications range from acute compartmental syndrome, tetanus, deformities, chronic

osteomyelitis, gangrene, amputation and death [7], and have become a major concern on morbidity and mortality. Oginni calculated a high failure rate of 66.7% among patients who voluntarily opted out of TBS treatment [8]. In Hyderabad district, India, a study reported 43% mal-union and non-union along with other complications from TBS [9]. In Gambia, Bickler et al found out that bonesetters gangrene occurred almost exclusively in children from rural areas most of which underwent proximal extremity amputation [10]. Many complications from mismanaged fractures by TBS have been reported in various parts of Nigeria [6, 7]. The complications account for about 50-60% of limb gangrene necessitating amputation in our hospitals [11]. Nwankwo et al. reported 4 deaths (26.7%) from 15 patients who developed limb gangrene following TBS treatment [12]. Eighty three percent of patients in a study had complications like mal-union and non-union, most of whom became disabled or deformed [7].

A study in Ilorin, Kwara State highlighted eight cases mismanaged by TBS in which four of the cases were children under ten years. Out of the four children, three of them lost their right upper limb through above elbow amputation while the fourth child lost his right lower limb through above knee amputation. The other four were young adults; two of which lost their lower limbs through above knee amputation and the other two who did not lose their lower limbs were in the hospital for several months and one later died of gas gangrene and septicemia [13]. TBS have also gone beyond the treatment of fractures into areas like congenital anomalies and caring for patients with bone tumors and bone infections [14].

The health and socioeconomic effects resulting from the cultural practice is enormous. Despite the shortcomings of the TBS practice, more than 70% of the Nigerian population at present live outside the vicinity of modern hospitals and rely almost exclusively on the traditional medicine healers for their healthcare services [15], thus the terrible consequences of TBS remain an important and complex issue in the healthcare system in Nigeria. Because of the persistence of TBS complications and the constant use of their services by the public, the objective of this study was therefore aimed at determining the factors that influence utilization of traditional bone setting practice in North Central Nigeria.

## Methodology

Ilorin, the capital of Kwara state is located in North Central Nigeria at the geographical and cultural confluence of the North and South of Nigeria. The study was conducted in Ilorin West Local Government Area (LGA), one of the three LGAs in Ilorin metropolis. It has a population of 365,221 [16] delineated into 12 wards, with at least 3 communities in each ward.

A descriptive cross sectional design was used for the study. Multistage sampling technique was used to recruit the subjects from 6 districts/wards and 12 communities in the study area. A total of 400 respondents were interviewed using a semi structured questionnaire. In select-

ing the required house within each selected community, grid method [17] was used by spinning a bottle at the center of the communities to determine the index house. Thereafter, every other houses with eligible respondents were included in the study until the desired sample size was attained. The questionnaire elicited information on the respondents' sociodemographic/economic characteristics, if they have ever used TBS and their reasons for utilization. Factors that influence their decision to patronize TBS were also elicited.

Analysis was done using Epi Info version 3.5.3. Cross tabulations of variables were constructed and F-test and chi-square with p-values were calculated to determine statistical significance if any. Significant p-value was predetermined at  $p < 0.05$ . The data was collected from July - September 2011.

Tab. 1. Socio-demographic characteristics of respondents.

Variables	Frequency (N=400)	Percentage (%)
<b>Age (years)</b>		
< 20	37	9.3
21-30	103	25.8
31-40	158	39.5
41-50	52	13.0
51-60	24	6.0
61 and above	26	6.5
<b>Sex</b>		
Male	232	58.0
Female	168	42.0
<b>Marital Status</b>		
Married	242	60.5
Single	129	32.3
Widowed	23	5.8
Separated	6	1.5
<b>Ethnic Group</b>		
Yoruba	261	65.3
Igbo	37	9.3
Hausa	26	6.5
Others	76	19.0
<b>Religion</b>		
Islam	208	52.0
Christianity	171	42.8
Traditional	21	5.3
<b>Educational level</b>		
None	13	3.3
Quranic	27	6.8
Primary	23	5.8
Secondary	97	24.3
Tertiary	240	60.0
<b>Occupation</b>		
Civil servant	118	29.5
Trading	92	23.0
Student	78	19.5
Artisan	51	12.8
Unemployed	31	7.8
Farming	11	2.8
Others	19	4.9

## Results

The respondents mean age was  $36.3 \pm 12.3$ . The modal age group for the study was 31-40 years constituting 158 (39.5%) of all the respondents. There was a male preponderance with 232 (58%) males. Two hundred and forty two (60.5%) of the respondents were married; two-third 261 (65.3%) belong to the Yoruba ethnic group; 208 (52%) were Moslems; while 171 (42.8%) were Christians. Three hundred and thirty seven (84.3%) of the respondents had secondary education and above; 27 (6.8%) had Quranic education; 23 (5.8%) had primary education while 13 (3.3%) had no form of education. Respondents were mostly Civil servants 118 (29.5%), while 31 (7.8%) are unemployed (Tab. I). About half 151 (50.3%) of the respondents in this study earn an income of less than fifty thousand naira (< N50, 000.00) per month but more than N10,000.00 per month. This implies majority of the respondents earn more than \$2.00 a day, the required amount by WHO to sustain a daily living.

Majority 303 (77.3%) of the respondents know TBS practice as a form of therapy for treating bone injuries. As reported in Table II, more than half 209 (52.3%) of the respondents who know TBS practice as a form of therapy for bone injuries have patronized TBS treatment at one time or the other while 60 (28.7%) have used TBS treatment in the last 12 months of this study. Conditions that prompted visit to TBS were dislocations 131 (62.7%), broken bones 106 (50.7%) and infections 36 (17.2%). One hundred and nineteen (56.9%) had received one form of treatment prior to TBS treatment (Tab. II). About 63 (52.9%) had been to orthodox hospitals prior to TBS treatment.

The respondents' main reason for consulting TBS was influence from family and friends 112 (53.6%). Two hundred and fifty nine (64.8%) of the respondents in this study can advice a person with bone injury to visit TBS instead of orthodox treatment (Tab. III). Attitude of health workers 310 (77.5%), delay in hospitals 284 (71.0%), fear of amputation 272 (68.0%) and fear of operation in hospitals 217 (54.3%) are factors that would influence respondents decision to patronize TBS treatment. There was a statistically significant relationship

**Tab. II.** Practice of traditional bone setting.

Variables	Frequency	Percentage (%)
<b>Ever patronized TBS treatment (N=400)</b>		
Yes	209	52.3
No	191	47.8
<b>Patronized TBS treatment in the last 12 months (N=209)</b>		
Yes	60	28.7
No	149	71.3
<b>Conditions that prompted visit to TBS* (N=209)</b>		
Broken bone	106	50.7
Dislocation	131	62.7
Infection	36	17.2
<b>Received treatment prior to TBS treatment</b>		
Yes	119	56.9
No	90	43.1
<b>Treatment received prior to TBS treatment (N=119)</b>		
Orthodox treatment	63	52.9
Self medication	50	42.1
Others	6	5.0
<b>Reasons for visit to TBS (N=209)</b>		
Influence from family members	91	43.5
Influence from friends	21	10.1
Delay in hospitals	69	33.0
Fear of operation or amputation	17	8.1
Others	11	5.3
<b>Never patronized TBS before but would visit TBS in case of bone injury (N=191)</b>		
Yes	78	40.8
No	77	40.3
Don't know	36	18.8
<b>Can advice a person to visit TBS (N=400)</b>		
Yes	259	64.8
No	141	35.3

\*Multiple responses

**Tab. III.** Factors that influence respondents decision to patronize TBS Treatment (N = 400).

Factors	Yes		No	
	Frequency	(%)	Frequency	(%)
Cultural belief	144	36.0	256	64.0
Superstition	80	20.0	320	80.0
Delay in hospitals	284	71.0	116	29.0
Fear of operation in hospitals	217	54.3	183	45.8
Fear of amputation in hospitals	272	68.0	128	32.0
Use of Plaster of Paris (POP)	67	16.8	333	83.3
Attitude of health workers	310	77.5	90	22.5
Cost of treatment	116	29.0	284	71.0

\* Multiple response

**Tab. IV.** Influence of income level on utilization of TBS.

	Utilization of TBS	
	Yes (%)	No (%)
<b>Income level</b>		
< N10,000.00	42 (72.4)	16 (27.6)
< N50,000.00	80 (53.0)	71 (47.0)
> N50,000.00	60 (65.9)	31 (34.1)
	p = 0.0170	

between respondents age, sex, marital status, occupation, ethnicity as well as the income level of the respondents and the utilization of TBS as all test of associations were statistically significant ( $p < 0.05$ ) (Tabs. IV, V).

## Discussion

Treatment of bone injuries using traditional methods is an age old art which has been confined into the backstage due to access to western biomedicine, adequate education, employment opportunities and economic growth in most families especially in the urban communities in Nigeria [18]. However, despite documented complications that arise from the cultural practice [6, 7, 15] there is still a high demand for TBS services by people of various class, profession and religion irrespective of age and gender.

The respondents in this study are aged 18-72 years with majority of them between 31-40 years age group. This age group belongs to the productive age group of the population. Studies [7, 19] have shown that this age group, the working population are mostly involved in bone trauma due to involvement in injury prone activities. Three hundred and three (77.3%) of the respondents know TBS treatment as a form of therapy for bone injuries. This may be due to promotional information on TBS practice through which this study found out was gotten mainly through Radio and Television. This is not surprising as there is a high level of uncontrolled radio coverage. This finding is in tandem with that of Bamidele et al. [18] who stated that in recent times there has been renewed interests of residents of urban communities as a result of the pronouncements on radios and TV by Alternative Medical Therapists with claims that their 'wares' can cure all diseases ever known to mankind.

More than one third (64.8%) of the respondents in this study would advise a person with bone problem to seek TBS care instead of orthodox therapy. This may be because TBS practice is intricately interwoven with the culture of the respondents - a socio-economic and socio-cultural heritage as described by Elujoba et al. [20]. This is in line with the fact that the practice of TBS is common among Yorubas, the predominant ethnic group among the respondents in this study and in Ilorin as confirmed by the findings of Oyebola [4] and Suleiman et al. [21]. The main reason for preference by this group is because it is cheap (63.8%), acceptable (58.6%) and accessible (51.9%) to them. This finding corroborates the findings by Udosen et al. [22] and Dada et al. [19] that it is popular belief that TBS is cheaper in the treatment of bone injuries. This may be due to the fact that TBS allow multiple little payments and payments in kind. An earlier study in Nigeria by Osujih [23] also reported that in developing countries where in addition to the dearth of orthodox medical services, institutions and personnel, Alternative Medical Therapy is cheaper, socio-culturally accessible and acceptable.

Respondents in this study also believe that TBS give better attention (60.4%) and offer quicker services (71.0%) than orthodox health care workers. This may be due to delays in hospitals which in this study was found to account for 62.4% of respondents reasons for preference, attitudes of health workers and poor quality of service in some hospitals [19]. Solagberu [24] reported on a group of patients who visited the hospital after initial failure of TBS treatment that their main motives for visiting the bonesetter first were lower cost and belief in faster healing. Majority (54.8%) felt TBS are very competent or competent (20.5%) while 9.9% believe they are incompetent. Sixty six percent of the respondents felt TBS are indispensable (cannot do without). These findings are similar to that of Thanni [25] where 40% of the respondents felt TBS are competent or very competent, 23% believe they are incompetent while 37% believe they are indispensable (cannot do without) and 32.8% believe they are desirable (can do without, though useful).

It is noteworthy that majority of the respondents in this study had tertiary level of education and majority are gainfully employed. These are factors that should influence utilization of the several orthodox healthcare facilities in the study area. However, more than half (52.3%)

Tab. V. Association between selected sociodemographic characteristics and utilization of TBS.

Variables	Utilization of TBS				
	Yes (%)	No (%)	X <sub>2</sub>	df	p-value
<b>Age (years)</b>					
< 20	15 (40.5)	22 (59.5)	22.3397	5	0.0005
21-30	42 (40.8)	61 (59.2)			
31-40	89 (56.3)	69 (43.7)			
41-50	40 (76.9)	12 (23.1)			
51-60	10 (41.7)	14 (58.3)			
61 and above	13 (50.0)	13 (50.0)			
<b>Sex</b>					
Male	137 (59.1)	95 (40.9)	10.243	1	0.00014
Female	72 (42.9)	96 (57.1)			
<b>Marital status</b>					
Married	151 (62.4)	91 (37.6)	28.7741	3	0.0000
Single	50 (38.8)	79 (61.2)			
Widowed	8 (34.8)	15 (65.2)			
Separated	0 (0.0)	6 (100.0)			
<b>Occupation</b>					
Artisan	32 (62.7)	19 (37.3)	45.2975	6	0.0000
Civil Service	80 (67.8)	38 (32.2)			
Farming	6 (54.5)	5 (45.5)			
Student	22 (28.2)	56 (71.8)			
Trading	45 (48.9)	47 (51.1)			
Unemployed	21 (67.7)	10 (32.3)			
Others	3 (15.8)	16 (84.2)			
<b>Ethnicity</b>					
Hausa	12 (46.2)	14 (53.8)	11.2190	3	0.0106
Igbo	14 (37.8)	23 (62.2)			
Yoruba	152 (58.2)	109 (41.8)			
Others	31 (40.8)	45 (59.2)			

of the respondents in this study have patronized TBS treatment at one time or the other. The conditions that prompted their visit to TBS were mainly dislocations (62.7%) and fractures (50.7%). OlaOlorun et al. [7] reported 85% of femoral fractures presented to TBS while Dada et al. [19] documented 155 musculoskeletal injuries treated by TBS with the resultant complications. The main reason for patronage of TBS by the respondents was influence from family members and friends (53.6%). The influence of this group is important because of the existing social system in Africa where family and friends will normally contribute towards defraying the cost of treatment. In Solagberu's study in Ilorin [24] 74.9% of the studied population were urged to visit the TBS by this group of people. Other reasons for patronage by the respondents in this study are delay in hospitals (33.0%), and fear of operation and amputation (8.1%). These reasons are similar to those findings of Dada et al. [19], Nottidge et al. [26] and Udosen et al. [22]. While the orthodox practitioners have little control over the above stated reasons for patronage of TBS, it is noteworthy that some of the activities of the orthodox practitioners like strike actions also contributed to these problems [19]. Nonetheless, the result of these studies further raises the issue of lack of confidence in modern orthopaedic practice by the general population.

This study also showed that 52.9% of the respondents who had patronized TBS treatment had first visited hospitals. Oyebola [4] was impressed by the fame the TBS enjoyed in their locality as patients voluntarily discharge themselves from orthodox hospitals to receive treatment from TBS. This may be due to influence from family and friends on the patients cultural belief, unnecessary bottlenecks in hospitals, attitude of health workers and work stoppages which are valid factors that may influence voluntary discharge from hospitals. The major factors in this study that influence the respondents decision to patronize TBS are attitude of health workers (77.5%), delay in hospitals (71.0%) and fear of amputation in hospitals (68.0%). This is similar to the findings of Ogunlusi et al. [3]. There is an association between the income level of the respondents and the utilization of TBS as test of association was statistically significant ( $p < 0.05$ ). Respondents who earn less than N10, 000.00 per month utilize TBS more (72.4%) than other income earners. This is expected considering the fact that they earn less than \$2.00 a day; the WHO amount required for daily sustenance and will consider TBS services to be cheaper. This corroborates with the findings of Dada et al. [19] that patients patronize TBS because they think it is cheaper than orthodox medicine, possibly because TBS allow multiple payment options.

Utilization of TBS by respondents in this study is also affected by their age, sex, marital status, occupation and ethnicity, as test of associations were statistically significant ( $p < 0.05$ ). Utilization is highest among males than females. This may be due to the fact that males are more adventurous and engage in more injury prone activities than females. Respondents that are married utilize TBS more than those that are single, separated or widowed. This may be due to the influence of the heads of households or spouses involved in decision making in the household. The practice of TBS is more common among respondents that belong to Yoruba ethnic group. This may be due to the cultural heritage of TBS practice among this ethnic group as confirmed by the findings of Oyebola [4] and Suleiman et al. [21].

## Conclusion and recommendations

More than half of the respondents had patronized TBS treatment at one time or the other. Influence from family

members and friends are one of the main reasons for use of TBS or voluntary discharge from hospitals for TBS treatment by the respondents. Other factors that encourage utilization of TBS by respondents were attitude of health workers, delay in hospitals and fear of operation and amputation. More so, the age, sex, marital status, occupation, ethnicity as well as the income level of the respondents were found to influence the utilization of TBS.

The public must be enlightened on the dangers associated with patronizing traditional bone setters with their attendant complications. Orthodox healthcare services should be made affordable and accessible to prevent delays and aid quicker attention which may reduce the rate of “leaving hospitals to the traditional bone centres against medical advice”. Equally important is the need to train and retrain orthodox health care personnel on the need for excellent communication skills with clients to reduce the perception of “unfavorable attitude of health workers” on the part of the clients.

## References

- [1] Hoff W. *Traditional health practitioners as primary health care workers*. Trop Doct 1997;27:52-5.
- [2] Schram R. *A history of the Nigerian Health Services*. Ibadan: Ibadan University Press 1971.
- [3] Ogunlusi JD, Okem IC, Oginni LM. *Why patients patronize traditional bone setters*. Internet Journal of Orthopaedic Surgery 2007;4:1-7.
- [4] Oyebola DD. *Yoruba traditional bonesetters: the practice of orthopaedic in a primitive setting in Nigeria*. J Trauma 1980;20:312-22.
- [5] Green SA. *Orthopaedic Surgeons, Inheritors of tradition*. Clin Orthop Relat Res 1999;363:258-63.
- [6] Omololu AB, Ogunlade SO, Gopaldasani VK. *The practice of traditional bonesetting*. Clin Orthop Relat Res 2008;466:2392-8.
- [7] OlaOlorun DA, Oladiran IO, Adeniran A. *Complications of fracture treatment by traditional bonesetters in southwest Nigeria*. Fam Pract 2001;18:635-7.
- [8] Oginni LM. *The use of traditional fracture splint for bonesetting*. Niger Med Pract 1992;24:49-51.
- [9] Faheem AM, Gulzar S, Bilal F, et al. *Complications of fracture treatment by traditional bonesetters at hyderabad*. J Pak Orthop Assoc 2009;21:58-64.
- [10] Bickler SW, Sanno-Duanda B. *Bone setter's gangrene*. J Pediatr Surg 2000;35:1431-3.
- [11] Onuminya JE. *The role of traditional bonesetter in primary fracture care in Nigeria*. S Afr Med J 2004;94:652-8.
- [12] Nwankwo OE, Katchy AU. *Limb Gangrene following treatment of limb injury by traditional bone setter: a report of 15 consecutive cases*. Niger Post Grad Med J 2005;12:57-60.
- [13] Agaja SB. *Failures and complications of traditional bonesetters treatment – case reports*. Niger J Orth Trauma 2005;4:84-95.
- [14] Agaja SB. *Radial club hand, gangrenous as a result of treatment by traditional bone setters: a case report*. Niger J Orth Trauma 2007;6:32-54.
- [15] Onuminya JE. *Misadventure in traditional medicine practice: an unusual indication for limb amputation*. J Natl Med Assoc 2005;97:824-5.
- [16] Federal Republic of Nigeria. *Federal Republic of Nigeria Official Gazette of the 2006 National Population and Housing Census*. The Federal Government Printer Lagos, Nigeria FGP 71/52007/2, 500(OL24) 2007;94:175-98.
- [17] Grais R, Rose A, Guthmann J. *Don't spin the pen: two alternative methods for second-stage sampling in urban cluster surveys*. Emerg Themes Epidemiol 2007 4:8.
- [18] Bamidele JO, Adebimpe WA, Oladele EA. *Knowledge, attitude and use of alternative medical therapy amongst urban residents of Osun State, Southwestern Nigeria*. Afr J Trad CAM 2009;6:281-8.
- [19] Dada A, Giwa SO, Yinusa M, et al. *Complications of treatment of musculoskeletal injuries by bonesetters*. West Afr J Med 2009;28:333-7.
- [20] Elujoba AA, Odeleye OM, Ogunyemi CM. *Traditional medicine development for medical and dental primary health care delivery system in Africa*. Afr J Trad CAM 2005;2:46-61.
- [21] Suleiman AA, Binang SN. *Knowledge, attitude and practice of traditional bone setting among residents of Ibadan, Nigeria*. W Afr J Arch 2002;32:123-41.
- [22] Udosen AM, Otei OO, Onuba O. *Role of traditional bone setters in Africa: Experience in Calabar, Nigeria*. Ann Afr Med 2006;5:170-3.
- [23] Osujih M. *Exploration of the frontiers of tradomedical practitioners: basis for development of alternative medical health-care services in developing countries*. J Roy Soc Promot Health 1993;113:190-4.
- [24] Solagberu BA. *Long bone fracture treated by traditional bone-setters: a study of patients behavior*. Trop Doct 2005;35:106-8.
- [25] Thanni LO. *Factors influencing patronage of traditional bone setters*. West Afr J Med 2000;19:220-4.
- [26] Nottidge TE, Essien EM, Alonge TO. *Traditional bone setter and orthopaedic fracture care: reasons for preference in a Southern Nigerian community*. Can J Surg 2009;52:346-56.

■ Received on October 12, 2012. Accepted on January 23, 2013.

■ Correspondence: SA Aderibigbe, Department of Epidemiology & Community Health, College of Health Sciences, University of Ilorin, Ilorin, Kwara State, Nigeria - E-mail: tayonov23@yahoo.com