



WESTERN NIGERIA JOURNAL OF MEDICAL SCIENCES (WNJMS)

**ORTHOPAEDIC CARE FOR BONE INJURY AMONG ADULTS: WHY DO PATIENTS
PREFER ORTHODOX MEASURES?**

ORTHOPAEDIC CARE FOR BONE INJURY AMONG ADULTS: WHY DO PATIENTS PREFER ORTHODOX MEASURES?

Yusuf MB¹, Ojo OD², Ogundipe KO², Kadiri IA¹, Popoola SO¹, Ogunlusi JD¹

1. Department of Surgery, Ekiti state University, Ado-Ekiti, Nigeria.
2. Department of Surgery, Afe Babalola University, Ado-Ekiti, Nigeria.

Correspondences to: Yusuf MB, Department of Surgery, Ekiti State University, Ado-Ekiti, Nigeria.

Telephone: +234-8037153176; E-mail: moruf.yusuf@eksu.edu.ng

ABSTRACT

Introduction: In developing countries, many patients see traditional bonesetters (TBS) as the first choice for caring for bone injuries. Notwithstanding hospital bureaucracy and supposedly higher cost of care, some patients prefer accessing care from orthodox facilities. This study examined factors influencing patients' patronage of hospital's orthopaedic services.

Methods: Descriptive cross-sectional study done over six months utilizing a structured questionnaire to obtain information on patients' biodata, cause and nature of the injury, place of initial presentation, reasons for patronizing orthodox care, areas of dissatisfaction with orthodox care, outcome of treatment and suggestion on ways hospital could satisfy patients better. Univariate and bivariate data analysis were done with level of statistical significance set at $p < 0.05$.

Results: The study had 102 patients: 65 males and 37 females, aged 19-95 years. Road traffic injury accounted for 76.5% of the injuries. Tibiofibular {29(28.4%)} and femoral {24(23.5%)} fractures occurred the most. Forty-six (45.1%) had presented elsewhere earlier; 92(90.2%) came to the hospital because they believed the hospital was better in bone treatment. Patients did not consider TBS because they believed hospital care was more standard, 63(61.8%), or to avoid complications, 17(16.7%). All would recommend orthodox bone care to others except one. Satisfactory outcomes were obtained in 88(86.3%), while patients who

had visited TBS 17(16.7%) had the highest complications. Suggestions on how the hospital could serve patients better included improved attention to patients and reduced cost.

Conclusion: Patients access orthodox care for bone injury because they believe orthodox care is better, standard, and has fewer complications.

Key Words: Bone injury; fracture; traditional bone setter.

INTRODUCTION

In developing countries, a large proportion of patients see Traditional Bonesetters (TBS) home as the first place of choice for the care of bone and joint injuries.¹ TBS is found in almost every community, are easily accessible, and have a good local reputation.² Patients often opt out of orthodox facilities to seek care at TBS places.^{3,4} Several investigators have written about the activities of TBS and, more importantly, complications resulting from their practice.^{3,5,6} However, some patients still prefer accessing care for bone injuries from orthodox facilities, regardless of the hospital bureaucracy and supposedly higher cost of care.⁷ A review of literature showed a paucity of studies on factors that influence patronage of orthodox hospitals for bone injuries. This study looks at possible factors that influence patronage of the orthopaedic services at our hospital, for the care of bone injuries. Findings from the study will help the institution to uphold areas

of strength and strive to improve on the areas of weakness.

METHODS

This is a descriptive cross-sectional study of factors that influence the patronage of the orthopaedic facility of our hospital. Ethical clearance for the study was obtained from the Ethical and Research Committee of the hospital (EKSUTH/A67/2024/06/014). One hundred and two consecutive adult patients who have commenced definitive treatment at the study center for bone injury were recruited. The study was for a period of six months, from September 2020 to February 2021. With the aid of a structured questionnaire, patients' biodata, cause and nature of the injury, place of initial presentation, who advised coming to the hospital, reasons for patronizing orthodox care, reasons for not considering going to traditional bone setter for treatment, treatment given at our facility, areas of dissatisfaction with orthodox care, outcome of treatment and suggestions on ways the hospital could satisfy patients better were obtained. Patients that were 18 years and above, whose definitive treatment for the bony injury have commenced and gave consent to be recruited for the study were included, while patients who have not started outpatient follow-up and those who declined to be recruited into the study were excluded.

The sample size was determined using the sample size determination formula in cross-sectional studies.⁸ Assuming the proportion of patients that stayed for orthodox treatment as 50%, a confidence level of 95%, and a sample estimate precision of 5%, the estimated sample size was 92.

Data were analyzed with IBM SPSS Statistics, Version 23 (2015) and Microsoft Office Excel. Frequency distributions of variables were found and results are presented in tables and charts. Chi-square was used to determine the association between variables and the level of statistical significance was $p < 0.05$.

RESULTS

The questionnaire was administered to 102 patients, sixty-five were males and 37 were females with M:F of 1.8:1. Their age range was 19 – 95 years with mean age of 46.35 ± 16.73 years.

Occupations of the patients are shown in Table 1: 24.5% were traders; and driver /motorcyclist and security personnel were 3.9% each. Fifty-nine (57.8%) of the patients had education up to tertiary level, 25(24.5%) secondary level, 12(11.8%) primary level, while 6 (5.9%) did not have any form of education.

Table 1: Occupation of the patients

| Occupation | Frequency (%) |
|------------------------|--------------------|
| Trading | 25 (24.5) |
| Civil servant | 16 (15.7) |
| Skilled labour | 11 (10.8) |
| Schooling | 8 (7.8) |
| Teaching | 8 (7.8) |
| Clergy | 7 (6.9) |
| Farming | 7 (6.9) |
| Retiree | 7 (6.9) |
| Unskilled labour | 5 (4.9) |
| Driving / motorcyclist | 4 (3.9) |
| Security personnel | 4 (3.9) |
| Total | 102 (100.0) |

Table 2: Causes of injury

| Causes of injury | Frequency (%) |
|-------------------|--------------------|
| RTC | 78 (76.5) |
| Fall | 19 (18.6) |
| Recreation/sports | 3 (2.9) |
| Gunshot | 2 (2.0) |
| Total | 102 (100.0) |

Road traffic crash (RTC) and gunshot accounted for 78(76.5%) and 2(2.0%) of the injuries respectively (Table 2) with 58.9% of the RTC having motorcycle components. Table 3 shows the diagnosis of the various cases; tibiofibular fracture, 29(28.4%), and femoral fracture, 24 (23.5%) were the commonest while tibiofibular fracture non-union, 1(1.0%), and tarsometatarsal fracture dislocation, 1(1.0%) were the fewest. Fifty-six (54.9%) of the patients presented directly

at our facility while 46(45.1%) had presented somewhere before coming to our facility, Reasons given for coming to our facility were: to seek better care-25, for proximity to relations-9, persistent deformity and pain-9 and non-healing of the fracture-3.

Table 3: Spectrum of Diagnoses

| Diagnosis | Frequency (%) |
|--|--------------------|
| Tibiofibular fracture | 29 (28.4) |
| Femoral Shaft fracture | 24 (23.5) |
| Radioulnar fracture | 16 (15.7) |
| Humeral shaft fracture | 5 (4.9) |
| Ankle fracture dislocation | 4 (3.9) |
| Femoral neck fracture | 4 (3.9) |
| Multiple Fractures | 4 (3.9) |
| Old unreduced ankle fracture dislocation | 3 (2.9) |
| Femoral fracture non union | 2 (2.0) |
| Humeral fracture non union | 2 (2.0) |
| Tibia plateau fracture | 2 (2.0) |
| Elbow joint flexion contracture | 1 (1.0) |
| Infected tibia fracture | 1 (1.0) |
| Malunited femoral shaft fracture | 1 (1.0) |
| Patella fracture non union | 1 (1.0) |
| Radioulnar fracture non-union | 1 (1.0) |
| Tarsometatarsal fracture dislocation | 1 (1.0) |
| Tibia fracture non-union | 1 (1.0) |
| Total | 102 (100.0) |

Regarding who advised the patients to come for orthodox care: 45(44.1%) were personal decisions and 1 each was sponsored by state government or brought to the hospital from the accident scene by Federal Road Safety Corps. Others were relations - 32 (31.4%), well-wishers - 11 (10.8%), referral - 9 (8.8%) and friends - 3 (2.9%) Ninety-two (90.2%) and 1(1.0%) came to the hospital for bone injury care because a hospital is better in bone care and to access the National Health Insurance Scheme (NHIS) respectively (Table 4).

Table 5 shows reasons why the patients did not consider going to TBS for bone injury care: hospital care is more standard, 63 (61.8%); to avoid complications, 17 (16.7%) and they know little about bone treatment, 1(1.0%). All the patients would recommend orthodox care to other patients with bone injury but one patient would only recommend orthodox care if there is a reward for doing so. Forty-five (44.1%) of the patients had operative intervention while 57(55.9%) had non-operative care. Eighty-eight (86.3%) patients had satisfactory outcomes while 14(13.7%) had complications. Figure 3 showed complications of treatment (n=14); 3 (21.4%) and 1(7.1%) had limb shortening, and wrist drop respectively. Table 6 shows the cross-tabulation of place of first presentation and outcome of care. The highest percentage (41.2%) of complications was recorded in patients who had visited traditional bone setters and there was a statistically significant association between the place of first presentation and development of complications, $p = .01$.

Table 4: Reasons for coming to hospital for bone injury care

| Reasons for coming to hospital for bone Injury care | Freq. (%) |
|---|--------------------|
| Hospital is better in bone treatment | 92 (90.2) |
| To correct the deformity and take care of the pain | 7 (6.9) |
| Easy accessibility | 2 (2.0) |
| To access NHIS | 1(1.0) |
| Total | 102 (100.0) |

Table 5: Reasons for not considering going to a traditional bonesetter (TBS) for bone injury treatment

| Reasons for not considering going to TBS for treatment | Freq. (%) |
|--|--------------------|
| Hospital care is more standard | 63 (61.8) |
| To avoid complications | 17 (16.7) |
| Because of previous bad experience | 14 (13.7) |
| TBS have lesser knowledge in general care of patient | 2 (2.0) |
| Because they are not educated | 1 (1.0) |
| Because they use crude method | 1 (1.0) |
| I have no idea of how it works | 1 (1.0) |
| TBS use diabolic powers in treatment | 1 (1.0) |
| They do not use x-ray to monitor healing | 1 (1.0) |
| They know little about bone treatment | 1 (1.0) |
| Total | 102 (100.0) |

Table 6: Place of first presentation and outcome of treatment

| Place of first presentation | Outcome of treatment | | Total (%) |
|--------------------------------------|----------------------|-------------------|--------------------|
| | Satisfactory (%) | Complications (%) | |
| None | 52 (92.9) | 4 (7.1) | 56 (100.0) |
| Public hospital outside Ekiti State | 7 (87.5) | 1 (12.5) | 8 (100.0) |
| Public hospital within Ekiti State | 11 (91.7) | 1 (8.3) | 12 (100.0) |
| Private hospital outside Ekiti State | 2 (66.7) | 1 (33.3) | 3 (100.0) |
| Private hospital within Ekiti State | 6 (100.0) | 0 (0.0) | 6 (100.0) |
| TBS place | 10 (58.8) | 7 (41.2) | 17 (100.0) |
| Total | 88 (86.3) | 14 (13.7) | 102 (100.0) |

Suggestions given by patients on how the hospital could serve them better were: the hospital should maintain the good things they were doing, 38(37.3%); need for prompt and adequate attention to patient and reduction in cost of care, 26(25.5%); better funding of the hospital, 9(8.8%); need to have more health personnel / provide good food for patients and staff should be more dedicated / provision of adequate equipment, 7(6.9%) each; provision of cheaper care, 6(5.9%); need to improve on amenities in the hospital, 2(2.0%); decentralization of payment for care, ensure good patients and relative control in the emergency room, extensive counseling to allay anxiety about every stage of the treatment and recovery, get more stable electrical power supply, improve on laboratory services and prompt release of results, patient should be attended to in the order of their arrival in the clinic and need to stop imposing food on patients and get more modern facilities or patient should be attended

to in the order of their arrival in the clinic, 1(1.0%) each.

DISCUSSION

Some patients still prefer accessing care for bone and joint injuries from orthodox facilities, regardless of the hospital bureaucracy and supposedly higher cost of care.⁷ From our study, more males had a bony injury with an approximate M/F ratio of 2:1, the mean age of respondents was 46.35 years, and more than 80% of the patients were young and middle-aged adults and this was the active age of the population. This is similar to the findings of the study by Meling et al.⁹ of long bone fractures in the Norwegian population, the male: female ratio was 2:1 among those <50 years. Bergh et al.¹⁰ in a study of fracture incidence in Sweden had a mean age of 57.9 years, and more females were affected. A review of the epidemiology of adult fractures in Edinburg, had a mean age of 49.1 years and gender ratio of 1:1.¹¹ A study on incidence

and pattern of extremity fractures of both paediatric and adult patients by Omoke et al.¹² in Abakaliki, Nigeria had a male-female ratio of 3.4:1. This variation could be from subjects' selection; subjects from our study were from wards and clinics while other studies could have taken into consideration patients seen at accident and emergency departments.

Level of education was expected to influence the choice of orthodox care for bone injury, knowing the possible complications of going for alternative care for bone injury. More than 80 % of the respondents had a minimum of secondary education. However, Onyemaechi et al.¹³ and Yusuf et al.¹⁴ reported respectively that 54.1% and 68.9% of patients who presented with complications from TBS care in their facilities had a minimum of secondary education. This implied that education alone could not be a strong factor in influencing preference for orthodox care for bone and joint injuries.

More than three-quarters of the bony injuries in our study were caused by road traffic crashes and more than half of the RTC had motorcycle components. Studies by Dkhar et al.¹⁵ and Patil et al.¹⁶ in India also showed that bony injuries were predominantly caused by motorcycle crashes. Reasons alluded to this included but were not limited to lack of body protection and no strict enforcement of the use of crash helmets and other safety measures.^{17,18} Our study showed that long bones of the lower limb were commonly injured; this was the common finding in orthopaedic injuries from road traffic accidents.^{18,19}

Following injury, a patient usually presents at the nearest health facility for care, at least for the initial first aid. Seventeen of study subjects presented first at TBS place. TBS places might have been the closest facilities to receive care following the injury, although, Katchy et al. reported in that 85% of patients with femoral fractures first presented at a TBS place.²⁰ It took more than 12 weeks after injury for > 70% of patients that first presented at TBS place to re-present at

EKSUTH for continuation of care. This implied that this set of patients came to our facility purposely for the management of complications that resulted from the initial care at TBS.

Patients assess the progress of their treatment and the social support they received during their treatment and make a critical decision. The timing of such a decision will affect the outcome of care. Reasons given by respondents who took their discharge from the place of initial presentation and came to EKSUTH for further care were: to seek better care (54.3%), for proximity to relations (19.6%), persistent deformity and pain (19.6%) and non-healing of fracture (6.5%). Outside influence played a key role in patients' decision to assess orthodox care for bone injury. Less than 45% of the respondents in this study made a personal decision to come to the hospital for their bone injury care.

Patients prefer orthodox care for bone injury for varied reasons. The majority of the respondents' preferred orthodox care because; they believed hospitals are better for bone treatment. Whereas few of them patronize orthodox care to correct deformities, because of easy accessibility and to access health insurance. The hospital setting of the study could have biased the decision of the respondents in saying the hospital is better for bone treatment. An attempt was made to get data from a set of patients who opted for non-orthodox care for bone injury and were satisfied with the outcome for comparison, this was very difficult. This would have added more strength to our study. However, a community survey done by Thanni et al. had a higher percentage of the participants respond that modern orthopaedic services achieve better healing.⁷

Apart from hospital care being more standard as a reason for not considering non-orthodox care for bone injury, other reasons given by respondents were to avoid complications and because of previous bad experiences. It has been documented by several authors that complications from non-orthodox care of bone injury ended up in hospitals.¹⁸⁻²¹ Most of

the respondents would recommend orthodox care for bone injury because of good care, monitoring, and good outcomes and because of good personal experience. Patients would play a strong advocacy role by recommending orthodox care for bone injury to others. Satisfactory experience of orthodox care would be a strong determining factor. Fourteen of the respondents had unsatisfactory outcomes of care and seven of them had initial care at TBS places.

Patient-centered care would give the populace more confidence in accessing orthodox care for bone injury. Suggested ways the hospital could serve patients better were: prompt and adequate attention to patients and reduction in cost of care; better funding of hospitals; need to have more health personnel; and provision of good food for patients. These were clear pointers that the government needs to dedicate more funds to the health sector and create an attractive package to retain the workforce.

CONCLUSION

This study showed that patients accessed orthodox care for bone injury to get better care, to correct deformity and persistent pain from non-orthodox care, to avoid complications, and because of previous bad experiences from non-orthodox care in decreasing order of importance. With patient-centered care and satisfactory outcomes, patients would play a strong advocacy role in recommending orthodox care to others for bone injury.

Authors' contributions: MBY was involved in all stages of the work; ODO, KOO, IAK, SOP and JDO were involved in study design, literature search, data analysis, manuscript preparation, manuscript editing, manuscript review and final approval.

REFERENCES

1. Nwachukwu BU, Okwesili IC, Harris MB, Katz JN. Traditional bonesetters and contemporary orthopaedic fracture care in a developing nation: historical aspects, contemporary status and future directions. *Open Orthop J.* 2011; 5:20.

2. Agarwal A, Agarwal R. The practice and tradition of bonesetting. *Educ Health.* 2010; 23(1):225.
3. OlaOlorun DA, Oladiran IO, Adeniran A. Complications of fracture treatment by traditional bonesetters in southwest Nigeria. *Fam Pract.* 2001; 18(6):635–637.
4. Popoola SO, Onyemaechi NOC, Kortor JN, Oluwadiya KS. Leave against medical advice (LAMA) from in-patient orthopaedic treatment. *SA Orthop J.* 2013; 12(3):58–61.
5. Nwankwo OE, Katchy AU. Limb gangrene following treatment of limb injury by traditional bone setter (Tbs): a report of 15 consecutive cases. *Niger Postgrad Med J.* 2005; 12(1):57–60.
6. Solagberu BA. The complications seen from the treatment by traditional bonesetters. *West Afr J Med.* 2003; 22(4):343–4.
7. Thanni LO. Factors influencing patronage of traditional bone setters. *West Afr J Med.* 2000; 19(3):220–224.
8. Pourhoseingholi MA, Vahedi M, Rahimzadeh M. Sample size calculation in medical studies. *Gastroenterol Hepatol Bed Bench.* 2013; 6(1):14–17
9. Meling T, Harboe K, Søreide K. Incidence of traumatic long-bone fractures requiring in-hospital management: A prospective age- and gender-specific analysis of 4890 fractures. *Injury.* 2009; 40(11):1212–1219.
10. Bergh C, Wennergren D, Möller M, Brisby H. Fracture incidence in adults in relation to age and gender: A study of 27,169 fractures in the Swedish Fracture Register in a well-defined catchment area. *Plos One.* 2020; 15(12):e0244291.
11. Court-Brown CM, Caesar B. Epidemiology of adult fractures: a review. *Injury.* 2006; 37(8):691–697.
12. Omoke NI, Ekumankama FO. Incidence and pattern of extremity fractures seen in accident and emergency department of a Nigerian teaching hospital. *Niger J Surg.* 2020; 26(1):28–34.
13. Onyemaechi NOC, Onwuasoigwe O, Nwankwo OE, Schuh A, Popoola SO. Complications of musculoskeletal injuries

treated by traditional bonesetters in a developing country. *Indian J Appl Res.* 2014; 4(3):313–316.

14. Yusuf MB, Popoola SO, Oluwadiya KS, Ogunlusi JD, Ige OE. Management of complications of age-long tradition presented at Ado-Ekiti, Southwest Nigeria. *Afr J Trauma.* 2015; 4(1):16.

15. Dkhar I, Hazra D, Madhiyazhagan M, Joseph JV, Abhilash KPP. A retrospective study on the profile of long bone injuries in trauma patients presenting to emergency department. *Curr Med Issues.* 2019; 17(3):60.

16. Patil SS, Kakade RV, Durgawale PM, Kakade SV. Pattern of road traffic injuries: A study from western Maharashtra. *Indian J Community Med.* 2008; 33(1):56–57.

17. Konlan KD, Hayford L. Factors associated with motorcycle-related road traffic crashes in Africa, a Scoping review from 2016 to 2022. *BMC Public Health.* 2022; 22(1):1–13.

18. Muhammad Nadeem Y, Muhammad Javaid I, Muhammad Rizwan A, Ch Rasul A. Pattern of orthopaedic injuries in motorcycle accidents. 2013; 7(1):77-84

19. Banskota C, Shrestha S, Chaudhary RK, Rajbhandari T, Rijal S, Shrestha BK, et al. Patterns of orthopaedic injuries among motorbike accident admissions presenting to a tertiary care hospital in Kathmandu. 2016; 14(32):51-57.

20. Katchy AU, Nwankwo OE, Chukwu CC, Ukegbu ND, Onabowale BO. Traditional bonesetters' treatment of femoral fractures. How far. *Niger Med J.* 1991; 21:125.

21. Onuminya JE, Obekpa PO, Ihezue HC, Ukegbu ND, Onabowale BO. Major Amputations in Nigeria: A Plea to Educate Traditional Bone Setters. *Trop Doct.* 2000; 30(3):133–135.