



ORIGINAL ARTICLE

Knowledge, Attitude and Practice of Public School Teachers Regarding Traditional Bone Setters, Khartoum Locality

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Abstract

Background: In Sudan, traditional bone setting (TBS) is still popular and has serious complications. Therefore, awareness and education are essential for TBS. School teachers having a close association with students and parents could be an appropriate medium for health education about TBS after evaluating their awareness.

Objectives: To review the knowledge, attitude, and practice among public school teachers toward TBS practice.

Methodology: A community-based cross-sectional descriptive study 588 school teachers participated from Khartoum locality, Sudan. Data were collected using self-administered questionnaires.

Results: Of 588 participants, 246 (41.8%) were males and 342 (58.2%) were females having the age range between 22 and 65 years, and (69.2%) received bachelor's degrees. Around 249 (42.4%) believed that all/some of the TBSs had good basic knowledge and 331 (56.3%) participants thought that all/some of the TBSs had clinical knowledge and skills. Half of the participants 300(51%) believed that some/all TBSs knew about trauma complications and 283(48.1%) participants believed that all/some of TBSs can make an accurate diagnosis. The two main reasons for the popularity of TBS were the cost (60%) and illiteracy (52.9%). Most of the teachers (79.8%) will take their injured students directly to the hospital. (41%) teachers visited TBS for themselves, and around 51% showed their commitment to TBS. Most teachers (96%) said that they will advise parents to take their child to the hospital, while only 4% said they will advise taking them to the TBS. In a situation, if the parents insist on taking their child to TBS, the majority (67.7%) teachers will advise the parents to take their students to the hospital.

Conclusion: The study demonstrates that most participants' knowledge level was below expectations and they have a positive attitude and strong beliefs toward the traditional bone setters. Making awareness in society is essential by organizing educational programs introducing how orthopedic hospitals are better for fracture treatment than traditional bone setters.

Keywords: Traditional bone setters, knowledge, attitude, practice, fracture, school.

Introduction

Traditional bone setters (TBS) have existed for decades in many countries. Their treatment can lead to several complications; the most dangerous one is extremity gangrene and amputation.¹ Despite the complications that arise from their practice, TBS services are still in high demand by a significant population.² During our practice in Sudan, it was common to see patients with traditional bone setting TBS complications; some patients come early so the complications could be treated or prevented, but the late presentation is associated with catastrophic results such as amputations, sepsis, and death. Not only the patients having simple trauma but also those with open fractures go to traditional bone setters before going to hospitals.

There are many reports about the popularity of TBS in society, besides recent advancements in orthopedics practice. Some studies reported that patients' decision to attend TBS and not hospital is mainly due to the dependence on their sponsors for treatment in addition to cultural beliefs.^{3,4} According to Omololu B *et al.* Since several efforts in society as poverty or lack of education are not the major causes of seeking the help of the traditional healers, but probably the culture and traditional beliefs.⁵ Serious TBS complications like limb gangrene are avoidable.⁶ A two-year retrospective survey in southern Ethiopia revealed that from 49 amputations had been performed 25 were for gangrene following a tight splint applied by TBS.⁷ Dada A *et al.* found 168 complications of treatment using the traditional bone setters in 121 patients 155 musculoskeletal injuries.¹

Despite the efforts in health education that have been conducted in our society, still, patients consulting TBS end up with avoidable complications. The school teachers' community is a large community that can play a major role in health education by delivering strong messages to every student family and to the best of our knowledge, there is no study evaluating the knowledge and attitude of school teachers on TBS practice has been done in Sudan. Therefore, in this study, we have attempted to ascertain the level of knowledge among school teachers about traditional bone setting practice and its complications.

Materials and Methods

Study design

This was a descriptive, cross-sectional, community-based study of knowledge, attitude, and practice of public-school teachers toward traditional bone setters. It was conducted among 588 primary school teachers in 12 administrative units of the Khartoum locality in Khartoum state of Sudan. The study was conducted in July-September 2017.

Study Population

There are 4970 teachers working in the primary and secondary public schools of Khartoum locality that's out of 39830 teachers in the whole Khartoum state. Those 4970 teachers are working in 234 schools with a range from 12 to 58 teachers per school and 68039 students for all locality schools.

Sample method and size

We used the survey monkey website to calculate our sample size with the following equation⁸

$$\text{Sample size} = \frac{Z^2 \times P(1-P)/e^2}{1 + (Z^2 \times P(1-P)/e^2N)}$$

$$\text{Population Size} = N = 4970 \text{ teachers}$$

$$\text{Margin of error} = e = 5\%$$

$$Z\text{-score} = z = 2.58 \text{ for } 99\% \text{ desired confidence}$$

$$P = \text{Expected proportion} = 0.5$$

A total of 588 school teachers were included using multistage sampling: the schools were randomly sampled from the administrative unit's then all teachers of these schools who were available at the time of data collection were included in this study. The sample size was divided into the 12 administrative units (49) teachers per administrative unit. Then, from each administrative unit, 3 to 4 schools were randomly selected.

Data Collection

The questionnaire comprised demographic details, the attitude of the teachers toward TBS practice, and their knowledge about trauma and complications that arise from TBS treatment.

The study was explained to the participants before enrolling them in the study. The researchers distributed the questionnaire personally among the teachers. The survey was voluntary and all

respondents were assured of the confidentiality and anonymity of their responses. Questionnaire forms were distributed in the morning and collected in the evening, ensuring that the respondents obtained adequate time to complete their replies and, that they did not use any external source for answering the questions.

Data Analysis

Variables include age, gender, educational degree, teachers' awareness of TBS (knowledge, clinical practice, complications, abilities, reasons of popularity) school teachers' opinions and actions toward an injured student, and teachers' personal experience with TBS consultation. All were collected using a questionnaire and entered in SPSS version 20. Means and standard deviation were obtained Descriptive statistics including frequencies and percentages were used to summarize data and demonstrated in tables and figures.

Ethical consideration

The study was approved by the Sudanese Medical Specialization Board Institutional Ethics Committee. Permission was obtained from the administration of education of the Khartoum locality. All participants signed an explanation and consent attached to the questionnaire.

Results

A total of 588 school teachers were enrolled in this study. Table 1; shows the distribution of age, gender and educational degrees of the study group, the majority 342(58%) were females. Male-to-female ratio was 1:1.4. Their age ranged from 22 to 65 years and the mean was 44.07-/±9.24. Most of the teachers 237 (40.3%) were between the ages of 40–49 years. The majority 407 (69.2%) were bachelor's degree holders.

Table 2 highlights the awareness of participants

toward TBS practice; around 249 (42.4%) believed that all/some of TBSs had good basic knowledge and 331 (56.3%) participants thought that all/some of TBSs had clinical knowledge and skills. Half of the participants 300(51%) believed that some/all TBSs knew about trauma complications and 283(48.1%) participants believed that all/some of TBSs can make an accurate diagnosis. (Figure 1) shows the beliefs of the respondents regarding the reasons for the popularity of TBS; the two main reasons were the cost (60%) and illiteracy (52.9%).

The practice of the Teachers if a student had a trauma or injury is shown in (Figure 2) most of the teachers (79.8%) will take their injured students directly to the hospital. The personal experience of respondents' consultation with TBS treatment found that 41% visited TBS for themselves, and around 51% showed their commitment to TBS. Most teachers (96%) said they will advise parents to take their child to the hospital, while only 4% said they will advise taking them to the TBS.

In a situation, if the parents insist on taking their child to TBS the teachers' attitude is shown in (Figure 3) the majority (67.7%) will advice the parents to take their students the hospital.

Table 1: shows the distribution of participants by age, gender, and educational qualification

Age	Values
Less than 30 years	6.8%
30–39	21.8%
40–50	40.3%
50 and above	31.1%
Gender	
Male	42%
Female	58%
Educational degree	
Secondary school	13.4%
Diploma	2.7%
Bachelor degrees	69.2%
Higher degrees	14.6%

Table 2: shows the level of awareness and understanding of TBS practice and its complications among the study groups

Variable	values		
	yes	no	Some TBS
TBS got enough basic knowledge	41(7%)	339(57.7%)	208(35.4%)
TBS got enough clinical knowledge & skills	90(15.3%)	257 (43.7%)	241 (41%)
TBS knows trauma complications	101(17.2%)	288 (49%)	199 (33.8%)
TBS knows how to prevent trauma complications	56(9.5%)	366 (62.2%)	166 (28.2%)
TBS capable of treating the complications	41(7%)	377 (64.1%)	170 (28.9%)
TBS knows when to refer the patient to the hospital	153 (26%)	204 (34.7%)	231(39.3%)
TBS reach the right diagnosis	24 (4.1%)	305 (51.9%)	259 (44%)
Traditional bone setting can lead to complications	287 (48.8%)	74 (12.6%)	227 (38.6%)
TBS practice can cause patient death	394(67%)	194(33%)	NA
TBS practice can lead to life threatening sepsis	453(77%)	135(23%)	NA
TBS practice may lead to limb amputation	496 (84.4%)	92(15.6%)	NA
Personal consultation for TBS	241(41%)	34759(%)	NA

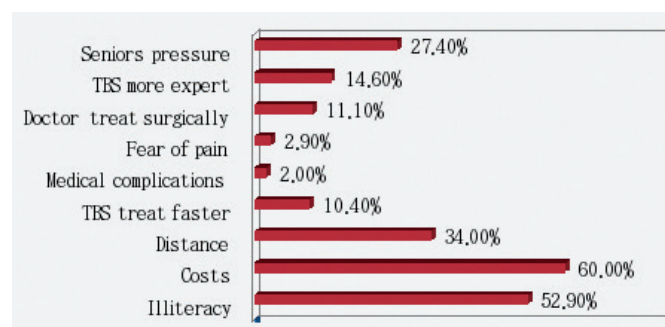


Figure 1: Shows the awareness of school teachers of the Khartoum locality the study group regarding the reasons for the popularity of traditional bone setting

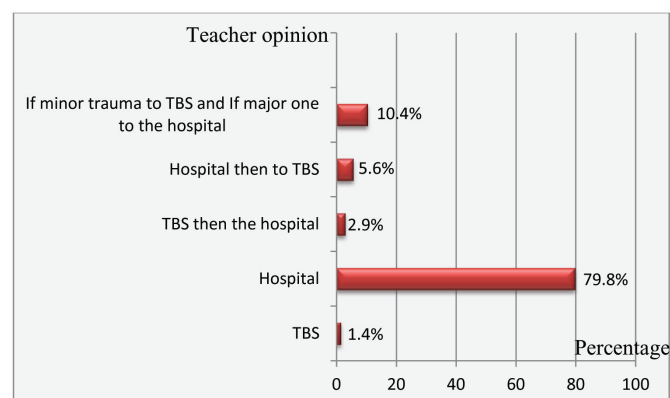


Figure 2: Shows the action of study subjects in the Khartoum locality regarding treating the traumatized students

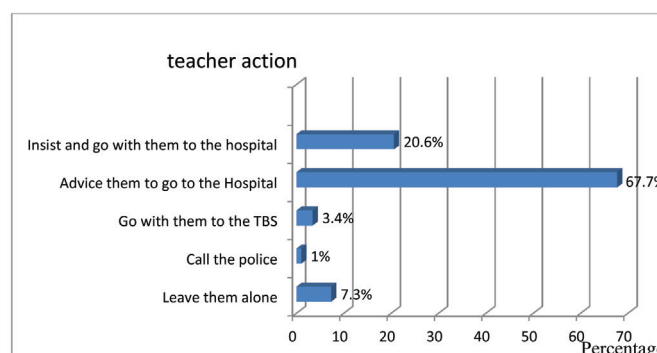


Figure 3: Shows the action-plan of school teachers if the parents of students take their student to a traditional bone setter for treatment

Discussion

Bone setting is a widely used form of traditional medical practice in Sudan for primary fracture care. There is a belief in the Sudanese society that TBS is better at fracture treatment than hospital practitioners. Orthopedic surgeons working in Sudan spend their expertise in the management of TBS complications.⁹ These complications cause financial, physical, and communal burdens to the affected individuals, families, and society.⁵ In reality, the teacher is the best source of knowledge, and information not only for the students but for the entire society. Hence, in this study, we have selected

public school teachers as the best medium to educate people regarding traditional TBS practices, which raise complications such as trauma, gangrene, and even death.

About one-third of the teachers think that some TBS can prevent and treat the complications of fractures if happened. It is difficult for TBS to treat or prevent fracture complications as they work in a primitive environment, and they do not know the principles of wound or fracture management. Even if they do; they don't have proper sterilization methods or operating rooms. Traditional bone setters can't perform fasciotomy for compartment syndrome, which is a major complication of their method of splinting.¹⁰

Regarding academic education of the participants, 69.2% were bachelor's degree holders, besides they lacked knowledge about TBS complications, about (23.1%) teachers were not aware that traditional bone setting can lead to sepsis; (84.4%) participants were not aware that TBS can cause limb amputation and (32.7%) participants didn't believe that it can even cause death.

In practice, TBSs manipulate and splint the limbs tightly leading to limb gangrene. The open fractures were not cleaned or sutured. TBSs do not give antibiotics or analgesics. With all of this mismanagement, the patients' presentation to hospitals will be delayed and can be complicated with sepsis, ischemia, amputation, or death.^{11,12}

Of the study subjects, about half of the teachers believe that all or some TBS know when to refer the patients to the hospital. While in practice; usually patients discharge themselves lately from the TBS follow-up and then go to the hospitals; indicating suffering for a long time, complications occurrence, failure of traditional bone treatment, and difficulties will be faced in further orthopedic management.¹³

Nearly half of the participants thought that some TBS always reach the right diagnosis. This wrong concept should be changed. Since TBS can't do or read x-rays, CT, or MRI. Diagnosis is not easy without imaging also they have been face with patients with minor soft tissue injuries from tight splinting by TBSs.¹⁴

Almost half of the school teachers subjected in our investigation had a past history of treatment by TBS. This is surprising that even educated people believe in TBS practice rather than orthopedic doctors. According to the participants, the reasons behind TBS's popularity are mainly accessibility and financial status. Of this group of school teachers who went to TBS, half of them discharged themselves voluntarily from the TBS treatment course and consulted a doctor later on. This is most likely because of the failure of TBS treatment or complications.^{15,16} Ideally, the school teachers should set an example for the students, parents, and society. However, in this study, we found a strong belief in the TBS practice, which might help increase the popularity of TBS.

Even though the treatment of fractures by TBS is associated with complications, people prefer to visit them. In this regard, orthopedic care service is located at a distance from a mainstream population, and the cost-demanding treatment, cannot be underestimated. Educational programs introducing how orthopedics hospitals are better at fracture treatment than traditional bone setters should be organized to empower not only the teachers but the entire society.

Conclusion

The knowledge levels of the study group were below the expectations of the authors, but further studies can help with more evaluation and planning. TBS practices have unjustified complications that could be prevented by avoiding TBS. Teachers' positive attitudes and practice can set a good example in society. The current need is to focus on health education by empowering the school teachers and society that might help increase awareness of TBS complications, prohibiting their practice.

Declarations

Conflict of interest

All authors have no conflicts of interest

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