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# FREQUENCY OF COMPLICATIONS AMONG TRAUMA PATIENTS TREATED BY TRADITIONAL BONE SETTERS

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## ABSTRACT

**Background:** Traditional bone setter's (TBS) treatment is skill and due to lack of public attention and non-availability of modern facilities has survived more than 3,000 years. Traditional bone-setters also having a support of all classes of our community from the illiterate to the extremely knowledgeable society. In most communities, there is a general conviction that TBS is better than Orthopaedic practitioners in fractural treatment.

**Objective:** This study was done to determine the frequency of complications among trauma patients treated by traditional bone setters

**Materials and methods:** This cross sectional multi-centre study was conducted at Department of Orthopaedics and Trauma, Qazi Hussain Ahmed Medical complex nowshera and other private medical centers of Peshawar Pakistan, from November 2021 to December 2022. All the patients who presented with mismanagement done by quacks in Orthopaedic outdoor clinic were recruited for the study from November 2021 to December 2022. Their age, gender, type and site of injury, type of TBS management and its complication were recorded in a predesigned proforma. The obtained data was analyzed using SPSS version 23.0 software.

**Results:** In the current study, a total of 100 patients were enrolled. There were 75 (75%) males and 25 (25%) female patients in our study. Based on methods of treatment, 72 (72%) were treated by sticks and bandages, 25 (25%) were treated by tight bandages while only 3 (3%) patients were treated by massage. Based on the complications, 25 (25%) patients has joint stiffness, 18 (18%) has developed Volkmann's Ischaemic Contracture, 16 (16%) patients developed gross swelling of the limb and 13 (13%) patients has skin necrosis.

**Conclusion:** Our study revealed that the management of trauma patients by traditional bone setters, primarily due to their limited expertise, often results in grave complications.

**Key words:** Frequency; Complications; Trauma; Traditional bone setters

## INTRODUCTION

Traditional bone setter's (TBS) treatment is skill and due to lack of public attention and non-availability of modern facilities has survived more than 3,000 years[1]. Traditional bone-setters also

having a support of all classes of our community from the illiterate to the extremely knowledgeable society. In most communities, there is a general conviction that TBS is better than Orthopaedic practitioners in fractural treatment[2]. A century before, Hugh Owen Thomas, an allopathic medical practitioner started Orthopaedic treatment inherited from his forefathers. An unskilled clinician in allopathic medicine who took the experience from forefathers, had no any proper guidance in current Orthopaedics, of fracture treatment. At least 10-40% of patients with fractures and dislocations are treated by unexperienced experts worldwide. The traditional bone setter is a layman for the treatment of fracture and joints[3,4]. Eighty percent (80%) of the population on the ruralareas fails to get modern treatment for orthopedic problems[5]. Studies have found, over the years that bone fracture patients transfer from their residence to the conventional orthopedic clinic for treatment. Therefore, most bone settlers use the traditional approach[6]. Bone setters use traditional method by using herbs splints and massage to manage fractures[7]. Numerous reasons to support conventional bone-setters include: simple accessibility, fast delivery, concern for implants and foreign items like musculoskeletal traction devices, ease and versatility in traditional treatment, discomfort with orthopedic community and lack of awareness regarding the new centers[8]. Ogunlusi and his colleagues have identified other preference factors. The factors include fear for metal work within and outside the limbs verses the convenience and flexibility of TBS, the familiarity with TBS and unknown to the modern Orthopaedic facility[9]. The traditional bone environment has always been practiced and is found in almost every community in the world. The results of bone treatment are good for closed fractures, but unacceptable for open and complex fractures[7]. The use of bandages with a paste of the leaves, roots, herbal medicine made with Turmeric (Haldi) and sometimes cow dung results in worsening of the condition[1,5]. The splint content is modified every four days, so that the medicinal substance is reapplied by the conventional bonesetter and the leg is massaged, which leads to further worsening of complications[10]. The close binding splints and immobilization of the patient limb in an abnormal position act as a tourniquet, leading to venous occlusion and an interruption of the blood supply, which results in complications like Volkman's Ischemic Contracture deformity, bone and joint infection and limb threatening gangrene, which needs proximal amputation and often death due to tetanus and septicemia[11]. Since we attend the number of patients in OPDs and emergency, treated by potters ending with complications are challenging for orthopedic com- munity. Therefore this study was done to determine the frequency of complications among trauma patients treated by traditional bone setters. This study aims to provide a comprehensive analysis of the repercussions stemming from the treatments administered by TBS. By examining these cases, the study sheds light on the extent of complications arising from non-professional fracture management. This assessment is crucial for understanding the impact of traditional bone setting practices on patient outcomes and the additional challenges they present to professional medical practitioners in orthopedics. The findings of this study are expected to contribute valuable insights into the intersection of traditional and modern medical practices, particularly in the context of fracture treatment in developing countries.

## MATERIALS AND METHODS

This cross sectional multi-centre study was conducted at Department of Orthopaedics and Trauma, Qazi Hussain Ahmed Medical complex nowshera and other private medical centers of Peshawar Pakistan, from November 2021 to December 2022. All the patients who presented with mismanagement done by quacks in Orthopaedic outdoor clinic were recruited for the study from November 2021 to December 2022. Their age, gender, type and site of injury, type of TBS management and its complication were recorded in a predesigned proforma. All the patients who presented with complications due to delayed presentation were excluded from the study. The obtained data was analyzed using SPSS version 23.0 software. Ethical approval was sought from ethical committee of hospital.

### Results

In the current study, a total of 100 patients were enrolled. All these patients were presented to the Orthopaedic outpatient clinic with complications after being treated by quacks. There were 75 (75%)

males and 25 (25%) female patients in our study. (Figure 1) The mean age (SD) was 25 (2.11) years with the minimum age of 7 years and maximum age of 75 years. Based on involvement of limb, upper limb was involved in 70 (70%) patients while lower limb was involved in 30 (30%) patients. (Figure 2) Based on methods of treatment, 72 (72%) were treated by sticks and bandages, 25 (25%) were treated by tight bandages while only 3 (3%) patients were treated by massage. (Figure 3) Based on the complications, 25 (25%) patients has joint stiffness, 18 (18%) has developed Volkmann's Ischaemic Contracture, 16 (16%) patients developed gross swelling of the limb and 13 (13%) patients has skin necrosis. Other complications observed were valgus/varus deformity, skin blisters, nonunion, malunion exposed bone and compartment syndrome. (Table 1)

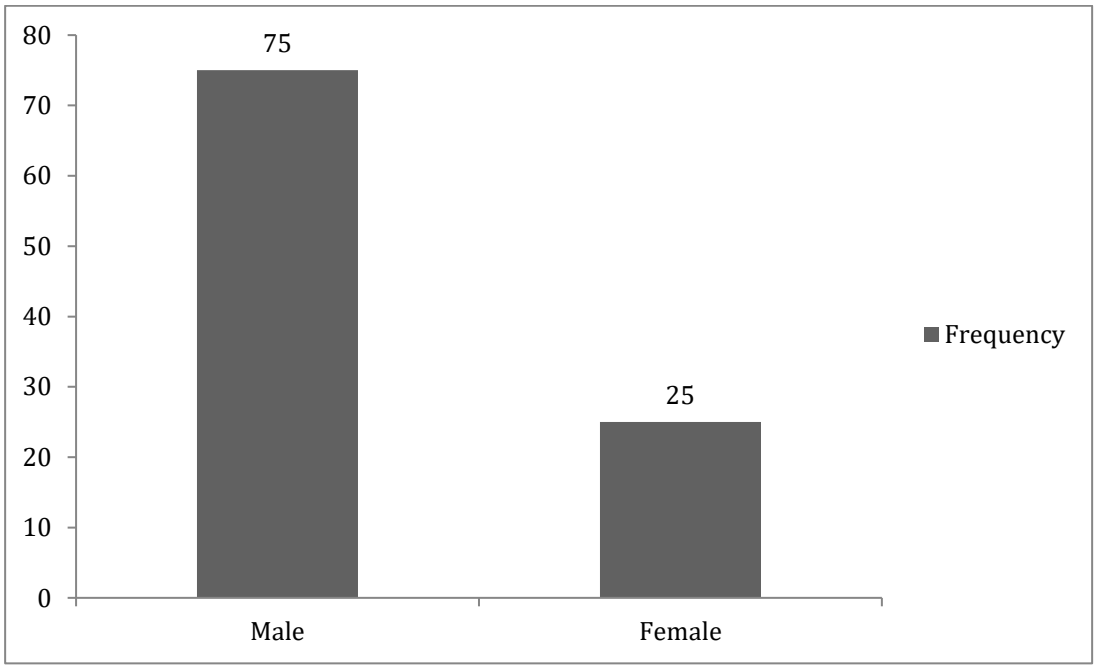


**Figure 1: Distribution of patients based on gender**

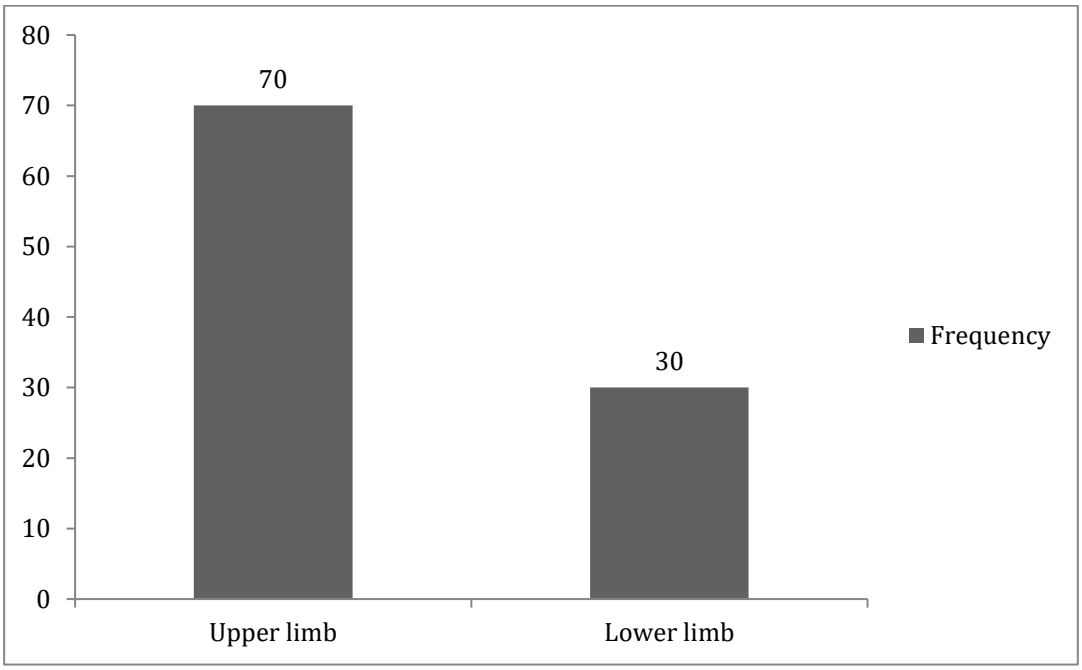


**Figure 2: Distribution of patients based on limb involved**

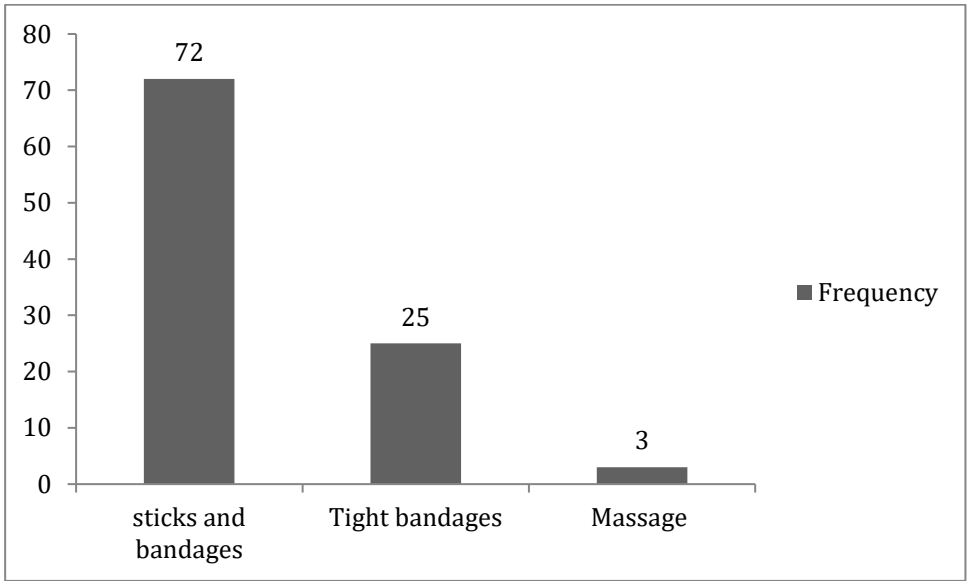


**Figure 3: Distribution of patients based on methods of treatments**

**Table 1: Complication observed amongst enrolled trauma patients**

| **Complications** | **Frequency (%)** |
|---|---|
| Joint stiffness | 25 (25%) |
| Volkmann's Ischaemic Contracture, | 18 (18%) |
| Gross swelling | 16 (16%) |
| Skin necrosis | 13 (13%) |
| valgus/varus deformity | 6 (6%) |
| Skin blisters | 5(5%) |
| Nonunion | 4 (4%) |
| Malunion | 4 (4%) |
| exposed bone | 3 (3%) |
| Compartment syndrome. | 3 (3%) |
| Chronic Pain | 1 (1%) |
| Gangrene | 1 (1%) |
| Dislocation | 1 (1%) |

## DISCUSSION

Orthopaedic surgeons are highly accomplished in managing bone trauma and they are successful in almost all cases in restoration of bone function. Even though their success rate is high a large fraction of population patronizes quacks. Ogunlusi et al found out that most people visit traditional bone setters because they wanted cheaper and quicker services than modern surgical management.[2] The TBS relies solely on the conservative method of fracture treatment, and all fractures are reduced by the closed method and stabilized with an external traditional splint and a protracted period of immobilization.[5] These modes of management usually result in life long disability. Orthopaedic surgeons and government facilities are overburdened by such complications as they spend their expertise and resources on them instead of focusing on modern orthopaedics.[2, 6, 7, 8] The high male ratio in this study emphasizes that males are predominantly injured due to their involvement in injury-prone activities.[9,10,11] Patients in their twenties were most commonly affected. It is explained by the fact that the young adult group that engages in daily high energy activities either to earn livelihood or for recreation are therefore more likely to sustain severe injuries to the limbs. [12] The deleterious effects of TBS treatment hence reduces economic productivity of the society. [13] In the current study, a total of 100 patients were enrolled. All these patients were presented to the Orthopaedic outpatient clinic with complications after being treated by quacks. There were 75 (75%) males and 25 (25%) female patients in our study. (Figure 1) The mean age (SD) was 25 (2.11) years with the minimum

age of 7 years and maximum age of 75 years. Based on involvement of limb, upper limb was involved in 70 (70%) patients while lower limb was involved in 30 (30%) patients. (Figure 2) Based on methods of treatment, 72 (72%) were treated by sticks and bandages, 25 (25%) were treated by tight bandages while only 3 (3%) patients were treated by massage. (Figure 3) Based on the complications, 25 (25%) patients has joint stiffness, 18 (18%) has developed Volkmann's Ischaemic Contracture, 16 (16%) patients developed gross swelling of the limb and 13 (13%) patients has skin necrosis. Other complications observed were valgus/varus deformity, skin blisters, nonunion, malunion exposed bone and compartment syndrome. Ekere et al had similar finding.[14] Sticks and bandages were most commonly used by TBS for fracture and joint management. Onuminya [5] et al also had similar findings. The most common complication observed was Volkmann's Ischaemic Contracture. Tantray et al found 21 cases with Volkmann's Ischaemic Contracture after tight bandages done by Traditional bone setters. [15] VIC was followed by local skin necrosis, gross swelling of the affected limb and joint stiffness. Extensive blister formation at the site of sticks and bandages were also observed. Pressure on the skin from tight splintage especially over bony prominence is responsible for this. [14] Eshete et al, found that these splints were not removed when pain increases after immobilization. [16]Therefore a compartment syndrome with its permanent sequelae, or death of tissue and gangrene may follow. For these latter cases, amputation with delayed primary or secondary suture is the only possible treatment. Death may result from such complications as tetanus and septicaemia. [16] Long term complications observed were malunion, valgus/varus deformity, nonunion and exposed bone were seen as bone alignment and reduction were not considered by TBS. Tight bandages along joint for extensive period of time immobilized it eventually leading to joint stiffness. Joint stiffness occurs due to reduced lubrication of joint. The stiffness is more often due to oedema and fibrosis of the capsule, the ligaments and muscles around the joint or adhesion of the soft tissues to each other or the underlying bone. [17] In the report by Ikpeme and colleagues, joint stiffness constituted 11.6% half the percentage observed in our study. [18] Massage of the hip joint lead toits avascular necrosis of in one of the patients. No significant statistical association was seen between ages of patient, type of fractures and their complications.[18]

## CONCLUSION

Our study revealed that the management of trauma patients by traditional bone setters, primarily due to their limited expertise, often results in grave complications. The most frequently encountered issues were joint stiffness, Volkmann's Ischaemic Contracture, gross swelling of the limb conditions typically associated with good prognoses if managed correctly. These findings underscore the critical need for widespread community education on proper fracture management. There is an imperative requirement for the implementation of specialized programs aimed at either training traditional bone setters in evidence-based practices or curtailing their malpractice. Such interventions would not only reduce the burden on orthopedic surgeons, who frequently face complex cases as a result of initial mismanagement, but also ensure safer and more effective treatment outcomes for patients. This approach holds the potential to significantly improve patient care and reduce the long-term complications associated with improper fracture treatment.

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