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PRACTICAL ADVICE

The Practice and Tradition of Bonesetting

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ABSTRACT

Context: Traditional bonesetting is an art that in the face of urbanization, lack of public attention and lack of modern facilities has survived more than 3,000 years. This article explores the role of bonesetters in the developing world, their successes and failures and possible utilization of their services as part of the healthcare system of a country.

Methods: Articles depicting working or techniques of bonesetters or those related to training and education issues of traditional bonesetters, especially in developing countries, were reviewed. The current scenario of healthcare delivery and medical education along with existing socioeconomic conditions prevailing in India were analyzed with generalization of findings to the healthcare delivery systems of other developing countries.

Findings: Bonesetting has its strengths and weaknesses. With current socioeconomic conditions and the types of health needs prevailing in developing countries, it would be difficult to abolish traditional bonesetting. These providers have widespread community acceptance and support. Complications can be minimized and practice potentially improved with training and education.

Conclusions: Pending infrastructure and socioeconomic development, it appears that traditional bonesetters will remain providers of healthcare. Their methodology utilizes regional resources and is commonly believed to be cheaper and effective. Although the deficiencies of traditional bonesetters have been shown, with adequate training in the basics of orthopaedic care, they can be utilized to provide useful health services at the primary care level.

Keywords: traditional bonesetting, orthodox and unorthodox treatments, developing countries



Background and Context

A traditional bonesetter (TBS) is a lay practitioner of joint manipulation. He or she is the “unqualified practitioner” who takes up the practice of healing without having had any formal training in accepted medical procedures^{1,2}. Modern day healthcare has greatly evolved following advances in technology and medical research. But despite the availability of these services, traditional bonesetting has continued as an ‘alternative’ health service. In developing countries - especially in the Indian subcontinent, Africa and South America with less developed healthcare resources - these unorthodox practitioners still play an important role in providing primary ‘medical’ support.

Although not widely acknowledged, bonesetting has roots in most countries, though the name, art and practice may vary from place to place. However, accurate statistics about traditional bonesetters’ distribution or numbers are unavailable in most countries. According to one estimate, between 10 to 40% of patients with fractures and dislocations in the world are managed by unorthodox practitioners¹. In a developing country like India, traditional bonesetters are one of the largest specialist groups practicing traditional medicine³. Their numbers are superseded only by traditional birth attendants or Dais³. It is believed that there are about 70,000 traditional healers and bonesetters in India and that they treat 60% of all trauma⁴.

Methods

This article examines the role of bonesetters in the developing world. It provides a background and perspective on bonesetting, including historical and professional context, strengths and weaknesses and how bonesetters can be relevant and important to healthcare delivery, particularly in developing countries.

The analysis is based on PubMed-indexed English literature of the last 50 years, focusing on the topics of ‘working or techniques’ of bonesetters and ‘training/education issues’ of traditional bonesetters, especially in developing countries. Search terms and combinations used were: *traditional bonesetting; bonesetter; bonesetters; traditional bone setting; bone setter; bone setters*. Out of a database of over 200 citations, a thorough search was conducted for articles comparing traditional bonesetting with modern methods of treatment and those exploring the possible role of traditional bonesetters in primary healthcare in the developing world. Of the total citations, there were 15 articles dealing with TBS in the context of their training, education or role in healthcare or comparison of their techniques with modern methods. The cross-reference of these 15 articles, which did not appear in the PubMed search using the above mentioned keywords, were also scanned.

For final inclusion in our review, preference was given to research and investigational studies. Overall, there were five articles relating to TBS patients’ perceptions or behaviours, seven describing the methods and techniques of bonesetters and 34 focusing on complications of bonesetting. Additionally, an appraisal of the available healthcare resources in India was carried out with the aim of discussing some of the study findings within the healthcare context of a developing country.

Strengths and Weaknesses of Bonesetting

Thanni⁵ studied factors influencing patronage of traditional bonesetters and their continuing popularity. Perhaps surprising from Thanni’s work was that education level of respondents did not seem to influence the patronage of and belief in bonesetters. TBS offer cheaper and utilize allegedly faster healing methods. Fear of heavy plaster of paris bandages, prolonged periods of



immobilization and amputation influenced people to visit TBS. In other cases, apathetic attitudes of orthodox hospitals or coaxing by relatives, neighbors and TBS canvassers led clients to TBS. They were viewed as 'specialists' for minor fractures, easily accessible, reassuring and also offering home treatment⁶. For these types of reasons, bonesetters have enjoyed strong regional influence and popularity⁷⁻⁹.

Traditional bonesetters' proficiency in bonesetting is passed from generation to generation without any formal documentation whatsoever. TBS are extremely careful about their reputations and for their clients they try to act to the best of their knowledge. Several of these healers have extensive experience and sound knowledge of regional resources. Many investigators have attributed arguable competence to the TBS. Tella¹⁰ has pointed out that a highly remarkable degree of expertise and skill is involved, especially as there are no radiological aids employed in their practice. Oyebola⁷ was impressed by the fame the TBS enjoyed in their locality as patients took voluntarily discharge from orthodox hospitals to receive treatment from TBS.

Sir James Paget, famous orthopaedic surgeon of the 19th century, recognised that there was actually some value in many of the manipulations performed by the bonesetters. In a lecture "Cases that Bone-Setters Cure", published in the *British Medical Journal* in 1867, Paget stated 'Few of you are likely to practice without having a bonesetter for a rival; and if he can cure a case which you have failed to cure, his fortune may be made and yours marred. Learn then to imitate what is good and avoid what is bad in the practice of bonesetters'². It is interesting to recall that Hugh Owen Thomas, whose memory is honored even today as the Father of Orthopaedics in England, was a traditional bonesetter.

There are several bonesetting practices reported in the literature that are either equivalent to or far better in results than orthodox practice. Hemmila et al.¹¹ reported better results with bonesetting in chronic back pain in an observer blinded, randomized clinical trial in 132 patients as compared to standard physiotherapy sessions. The universally accepted treatment for fracture of forearm bones in adults is open reduction and plate fixation. Shang et al.¹² tried the Chinese method of boneseparator pads and splint immobilization in 2,221 forearm fractures. They found that the method is not only simple, economical and effective but also eliminated delayed union or non-union. In another observation, Fang et al.¹³ used paper roll spreaders and wooden splints in 147 patients with forearm fractures. They concluded that by preserving interosseous membrane, manipulative reduction is greatly simplified and that simple wooden splints were found to be much more effective and satisfactory than plaster of paris for immobilization of fractures of shafts of both forearm bones. Additionally, randomized trials in buckle fracture of the distal radius have shown that they can be effectively treated in soft bandage¹⁴. The technique is simpler, cheaper and much more comfortable for children. The modern practice of 'functional cast bracing', advocated by Sarmiento and Lata¹⁵, bears close resemblance to some of the 'bamboo' bandaging pattern of traditional bone healers.

Besides being accessible, there are economic benefits of bonesetting techniques as well. Many articles cite the increased cost of treatment when the patient has primarily been treated by a bonesetter and then referred to a modern hospital^{16,17}. Aries et al.¹⁸ refer to an example where a bonesetter treatment costs on average € 13 (range € 0-60) and hospital treatment € 300 (range € 25-800). Several other references also indirectly cite the cost effectiveness of non-medical healthcare providers in rural clinic settings¹⁹⁻²².

On the other hand, many failures of bonesetting procedures have been reported, leading to a bad reputation of the providers. Bonesetters have been widely criticized for their use of 'irrational' methods. Oginni²³ calculated a high failure rate of 66.7% among patients who voluntarily opted out of TBS treatment. The traditional bandaging method of applying splints directly to skin has often been mocked as nothing more than the *traditional tourniquet fracture splint*²⁴. The literature is full of reports detailing gruesome complications caused by bonesetting practices²⁴⁻³³.



Impact of Bonesetters related to Healthcare Delivery

Modern practitioners often point out that when bonesetters try to treat more serious injuries, the patient usually ends up requiring operative intervention resulting in diminished chances of successful outcomes. In their opinion, the bonesetters' main reputation comes from treating minor injuries such as sprains or soft tissue damage. Abebe and Ayehu³⁴ have observed that modern health practitioners generally stand against the promotion of traditional medicine and its integration with the modern healthcare delivery system. Thus, there is an atmosphere of mistrust between the two sectors. But Bishaw³⁵ stated that the alleged antagonism between orthodox and unorthodox practice is a mere exaggeration and practitioners in each seldom realize that they are actually dependent on each other.

The current scenario of healthcare delivery and medical education in the developing world indirectly lends support for the practice of traditional bonesetters. As an example, we describe the current situation of orthopaedic care in India. The Indian healthcare system faces the challenges of a predominance of a rural population (almost three-quarters of the country's population), low per capita income, inadequate transportation capabilities, overcrowding, illiteracy, inadequate resources, lack of supporting services such as orthopaedic nursing, unstructured referral practice and a meager health insurance system. Modern orthopaedic services and training are most often directed toward the urban population. The National Rural Health Mission of the Ministry of Health and Family Welfare in India³⁶ state that: only 10% of Indians have some form of health insurance; about 75% of healthcare is being provided by the private sector; hospitalised Indians spend an average of 58% of their total annual income; over 40% of hospitalised Indians borrow heavily or sell assets to cover expenses; and over 25% of hospitalised Indians fall below the poverty line because of hospital expenses. Specialised orthopaedic operations, requiring a technically up-to-date infrastructure and costly implants, are practically out of reach for the common man. In rural India, the condition is even worse as primary health centres are practically devoid of any orthopaedic services.

Overall, providers of orthopaedic care in the rural developing world have widely recognised the contributions of traditional and regional practitioners. Just as no certificate is required to deliver babies, no certificate is required to set bones. The acceptance or non-acceptance of such practices is solely defined by societal norms. A scientifically-trained general practitioner can effectively treat nearly 90% of common orthopaedic and trauma conditions³⁷. In the face of infrastructural improvements, use of non-medical healthcare providers in rural clinic settings has been advocated as a viable low cost alternative¹⁹⁻²¹.

Considerations for Training and Certification of Bonesetters

The trained TBS may provide essential and culturally relevant health services to their communities in developing countries, if adequately trained in the basics of orthopaedic care³⁸. They can serve as the first point of contact at the primary healthcare level, reducing the burden on secondary and tertiary institutions. Omololu et al.³⁸ in their study of the practice of bonesetters in Ibadan, Nigeria, suggested that there was a need to educate and train traditional bonesetters in fracture treatment both to minimize the mismanagement of fractures and to reduce the healthcare burden on secondary and tertiary institutions. Their proposed training algorithm included introduction of radiographs to urban bonesetters, recognition of open and displaced fractures, guidance in the approximate duration of fracture healing and training in recognition of complications of fracture treatment. TBS also need to understand when they should refer a case to the hospital for management.

Shah et al.³⁹ undertook training programmes for rural health practitioners in Nepal. After six years, they observed significantly improved knowledge and working skills of TBS practitioners after completion of the training courses. Eshete⁴⁰ offered a one-day



instructional course to 112 traditional bone healers in Ethiopia and found that this was associated with a marked decrease in amputation rates. Finally, in a two-year prospective study in Nigeria, Onuminya⁹ noted a statistically significant difference between the rate of gangrenous limbs, infection, and non-union and mal-union in tibial shaft fractures at a trained TBS centre compared with an untrained centre. This teaching and learning interaction with TBS and traditional healers may not necessarily be one-sided or unidirectional. There may be a body of important knowledge that needs to be studied, understood and employed from traditional medicine. The use of regional resources and the extensive experience of these bonesetters may in many ways be enlightening to our modern day practice of medicine¹⁹.

Attempts have been made to include traditional treatment methods in the medical curriculum⁴¹. This integration has already been adopted in medical education in Nigeria, China, France and Sweden, with positive results⁴¹. The involvement and strong commitment to train traditional bonesetters by the government, orthodox orthopaedic surgeons and the public is essential. TBS can be encouraged and permitted to attend as “traditional orthopaedic attendants” in the primary trauma departments of district hospitals²⁴. After training, the TBS can be certified for practice as a ‘trained’ TBS; and, eventually, all TBS must have this certification to practice, made compulsory through legislation. This certification would require periodic evaluation to confirm set standards of orthopaedic care – and the TBS may be required to participate in continuing education and training.

In turn, the trained TBS should be recognised as a primary orthopaedic practitioner for fracture treatment before sending patients to secondary or tertiary institutions. Similarly, other types of healthcare practitioners can be integrated within the primary healthcare system of a country⁴². For example, a similar initiative for incorporating the services of “local dais” and “traditional birth attendants” into primary healthcare delivery in rural India, after training in the basics of safe delivery methods, has resulted in significant reduction in maternal morbidity and mortality⁴³. The World Health Organization has taken a similar approach related to traditional healers in Africa, rural South America and underdeveloped regions of Asia^{44,45}. This needs to be supplemented by legislation and regulations imposed upon these traditional practices to ensure that the practices are carried out in a safe manner²⁵.

Study Limitations

The practice of TBS in developing countries is still an understudied field. The current paper is an initial attempt to pull together findings on the practice of traditional bonesetting. In this regard, this paper is based on the experiences of other observers rather than on original research on practices by TBS. While careful attention was given to present a balanced view of the strengths and weaknesses of TBS, not all citations related to TBS are included in our literature review. There is the possibility of bias in our presentation of the literature. Accurate statistics about traditional bonesetters is still very limited and the prospective role of bonesetters in the healthcare system remains uncertain. We recommend that a systematic global study of bonesetters’ practices and their role in the healthcare system be undertaken.

Conclusions

Developing countries lack appropriate healthcare infrastructure and resources when compared to developed countries. Although the deficiencies of traditional bonesetters have been shown, after training in the basics of orthopaedic care, it appears they could be utilized to provide needed health services at the primary care level and be integrated into the existing healthcare system of a country – particularly in rural regions and developing countries.



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