

Fracture treatment by bonesetters in central Ghana: patients explain their choices and experiences

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Summary

OBJECTIVE To understand factors influencing patients' decisions to choose either fracture treatment by a bonesetter or in the hospital and to explore patients' experiences with bonesetter treatment.

METHOD In-depth interviews with 46 patients with a radiological proven fracture in a district hospital in central Ghana.

RESULTS Traditional healers, such as bonesetters, play a substantial role in the Ghanaian healthcare system. Over a period of 3 months, 14 patients with a proven fracture left hospital for treatment by a bonesetter. The hospital is considered the only institution where emergency care can be provided and reliable, extensive diagnostic and treatment facilities are available for fracture treatment. Patients opting for bonesetter treatment are guided by the severity of the fracture, availability of the service, their financial status and past experiences. The healing methods used by different bonesetters are based on mutual comparable principles.

CONCLUSION Fracture treatment can serve as a model for respectful and efficient co-existence of traditional and biomedical medicine.

keywords bone fractures, traditional medicine, allopathic medicine, health-seeking behaviour, Ghana

Introduction

Surveys indicate that, in planning healthcare, Ghana faces serious short-term and long-term constraints in extending health services to the majority of its citizens who live in rural communities. Healthcare workers are relatively few and concentrated in the larger urban communities. The exodus of Ghanaian doctors and nurses to European, North American and other high-income countries has reached alarming proportions (Friedman 2004). In 2000, one doctor served a population of about 40 000 inhabitants in rural areas and one surgeon was available per 300 000 inhabitants (MOH 2000). These conditions constitute an additional reason for continued reliance on 'traditional' medical practitioners. The presence of traditional medicine (TM) and its contribution to overall healthcare is, however, largely neglected in publications on the state of Ghanaian medicine (i.e. Horton 2001; WHO 2002–2005).

Already in 1978, during the World Health Organization (WHO) conference on Primary Health Care in Alma Ata, it was recognized that besides biomedical healthcare, TM and complementary medicine existed, which was widely available and quite affordable. The Alma Ata report

suggested that cooperation could contribute to improving access to healthcare. In Ghana, the importance of TM was underlined by the formation of the Ghana Traditional Healers Association and its recognition by the government (Ministry of Health 1995).

A traditional healer can be defined as a person who is recognized by his/her community as competent enough to provide healthcare by using herbs, animal and mineral substances, or other methods. These methods are based on social, cultural and religious principles, including knowledge, attitudes and beliefs regarding the physical, mental and social well-being that are prevalent in their community. In Techiman district, where this study was conducted, people recognize mainly two types of (traditional) medical practitioners: priest-healers and herbalists. Herbalists share, to a large extent, the 'causative' and 'technical' thinking of modern medicine. Some herbalists have specialized in treating fractures and dislocations, and are called bonesetters (Warren 1974; Tijssen 1979; Ventevogel 1996). However, in the local language Twi, no specific term for their specialty exists.

Like other African countries, Ghana has experienced a general increase of traumatic injuries as a result of urbanization and a growing dependence on motor vehicles.

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This results in a significant increase of fractures coupled with an increased complexity (Museru *et al.* 1998; Quansah *et al.* 2001; Nantulya & Reich 2002). Initial fracture management in Ghana differs, however, from management of the same in Western countries. Many patients leave the hospital after the diagnosis of a fracture to seek treatment from a traditional bonesetter.

Bonesetters command great respect for their treatment of fractures in many African countries. Although bone-setting has a long tradition, the safety and efficacy of traditional methods are sparsely evaluated, with the main focus being on treatment complications (Lashari 1984; Van der Horst 1985; Onuminya *et al.* 1999; Museru & Mcharo 2002; Onuminya 2004). A study in Nigeria revealed that the outcome of traditional bonesetter practice is good for closed fractures of the shaft of the humerus, ulna, radius and tibia, but poor for peri-articular and open fractures. Non-union, malunion, traumatic osteomyelitis and limb gangrene were the common major complications (Onuminya 2004). A study in Northern Ghana showed the efficacy of treatment by local bonesetters. Most respondents ($n = 82$) reported that their present condition was perfectly normal; 14% had slight deformities and 2% had major deformities (Ballu, unpublished). Van der Horst (1985) presented similar observations in the north of Ghana.

The study of Ventevogel in the Techiman area in 1996 showed that 94% of the 34 interviewed people preferred to present a 'simple' fracture to a traditional healer, and 57% were determined to treat even a 'complicated' fracture in the same way. By contrast, nearly all interviewees would take a person wounded by a cutlass to the hospital (Ventevogel 1996).

Few studies have evaluated the results and differences between both types of fracture management, usually with no clear conclusions regarding cooperation (Lashari 1984; Van der Horst 1985; Onuminya *et al.* 1999; Museru & Mcharo 2002; Onuminya 2004). Information on patients' views and experiences with traditional and hospital fracture management is lacking. However, this information is needed in the discussion about the role of TM (e.g. bone-setting) and to develop cooperation.

Participants and methods

Objective

We explored patients' reasons for choosing between fracture treatment by either a hospital or a bonesetter in central Ghana. We tried to unravel the main factors that influenced their decision-making process. To get more in-depth information about fracture treatment by

bonesetters, patients were asked to describe their treatment, and the first two authors verified their descriptions by visiting practising bonesetters.

Study design

The study was exploratory and qualitative, using in-depth interviews and direct observation. All patients agreed to take part in the research.

Setting

This study was conducted in the Holy Family Municipal Hospital in Techiman, in the Brong Ahafo Region, in central Ghana. The hospital has 150 beds serving a community of 200 000 people, and is one of the three surgical referral centres for the surrounding district hospitals, with emphasis on trauma care. The facilities and expertise allow modern methods of fracture treatment to be used. Situated on the main road between North and West, the hospital consequently receives a lot of major trauma cases. In 2003, 335 people were admitted after road traffic accidents (3% of total cases admitted).

Techiman district has an ethnically diverse population, although most people are autochthonous Akan (Bono and Asante). Traditional medicine is commonly used, as is reflected by the large number of traditional healers in the district (>300 registered in 1991).

Patients

In the period March to May 2005, the first two authors collected data of patients with a fracture visiting the hospital. All patients were X-rayed for diagnostic confirmation. After diagnosis, some patients decided to undergo hospital treatment (further referred to as 'stayers'), while others decided to leave the hospital for treatment by a bonesetter ('leavers'). Another group initially received treatment by a bonesetter and afterwards opted for hospital treatment ('returners').

Data collection and analysis

Stayers consisted of patients interviewed at the surgical ward during their admittance. Leavers were either interviewed at the emergency department before leaving the hospital or while being treated at the clinic of a bonesetter. Three bonesetters mentioned by several patients were also visited. They were willing to share their knowledge and skills with the researchers, and allowed them to interview some of their patients after the treatment session. The

returners were interviewed while attending the surgical OPD for delayed hospital treatment.

Interviews were conducted with the assistance of an interpreter. The topic guide was informed by a review of the literature and discussions with the medical staff. A non-judgemental stance was adopted throughout the interview in relation to returners and leavers. Treatment strategies of bonesetters and patients' experiences with this treatment were also studied. Interviews, which lasted 30–75 min, were summarized by extensive note-taking and immediately afterwards transcribed.

Data collection and analysis were intertwined and interactive. Each interview was examined to identify main categories and leading concepts. Emerging ideas and themes were explored in subsequent interviews. The researchers compared themes within and across patients' accounts, and with issues highlighted in the literature. They analysed all interviews independently to maximize rigour, with another member of the team also analysing all interviews. They compared and validated alternative interpretations. When no new major themes emerged in the last few interviews, they concluded that saturation had been achieved in the respective groups.

Results

In a relatively short period, the researchers were able to interview 46 patients with a radiological proven fracture. They were interviewed at different moments during their diagnostic or treatment process. Five patients (all returners) went straight to the bonesetter after the accident. Forty-one patients, who first visited the emergency department (A&E), were asked about their motives for coming to the hospital. Twenty-four of them decided to leave the A&E immediately for treatment by a bonesetter. They explained their motives for choosing (initial) fracture management by

a bonesetter and the returners reported about the received treatment there. Thirty-two patients received hospital treatment and explained their motives to choose fracture management in the hospital immediately (stayers) or after initial treatment by a bonesetter (returners).

Thus, three patient groups arose, consisting of 17 patients who only received hospital treatment ('stayers'), 14 patients only treated by a bonesetter ('leavers'), and 15 who opted for hospital treatment after initial treatment by a bonesetter ('returners') (Table 1). The fractures of all patients were confirmed by X-rays taken in a hospital. A likely fourth group, those who never reported at the hospital, was not included in this research study.

Patient characteristics

The patient characteristics of each group are summarized in Table 2a. The groups are similar in age and gender; and all groups contained people of different social backgrounds, in diverse professions, varying from farmers to traders and students. Stayers were more severely affected because of more road traffic accident patients, which led to more compound and comminuted fractures. The types of fractures in all groups are mentioned in Table 2b.

Returners included more referral cases from outside Techiman. The proposed treatment at the hospital and the received treatment are summed up in Table 3. Of the two groups that received hospital treatment, 75% were operated upon and methods like external and internal fixation were used.

All forty-one patients visiting the emergency department suspected the presence of a fracture and complained about severe pains and impaired function. In all groups, patients with unconsciousness, deformities and open wounds were present. But, stayers had more severe complications such as massive bleeding and bones sticking out.

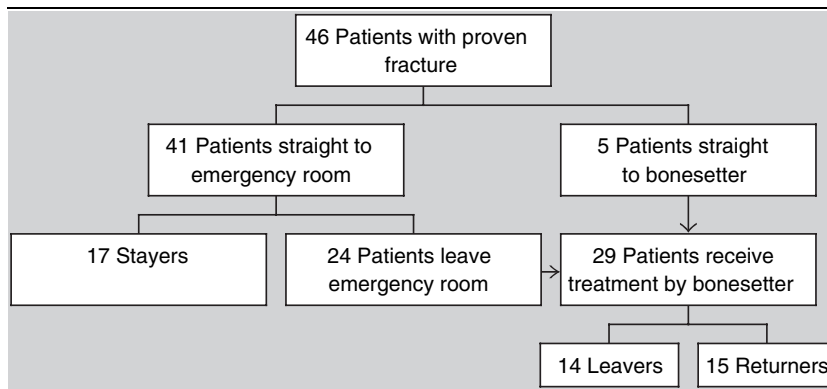


Table 1 Overview of patients taking part in research

Table 2A Patients' characteristics

	Age			Sex		Hometown			F. type*		Comm.#†		RTA/incident		
	N	0-18	19-40	≥40	Male	Female	Techiman	Rural T'man	Outside region	Open	Closed	Yes	No	RTA	Incident
Leavers	14	5	7	2	12	2	6	3	5	2	12	1	13	8	6
Stayers	17	2	11	4	13	4	6	5	6	6	11	7	10	12	5
Returners	15	3	4	8	8	7	2	2	11	2	13	0	15	8	7
Total	46	10	22	14	33	13	14	10	22	10	36	8	38	28	18

*F. type, fracture type.

†Comm.# = comminuted fracture.

Table 2B Type of fracture

Leavers <i>n</i> = 14	Stayers <i>n</i> = 17	Returners <i>n</i> = 15
1. Femur shaft # and humerus shaft #	1. Open, comminuted tibia # and fibula #	1. Pelvic # (right ramus)
2. Head of femur #	2. Femur #	2. Head of femur #
3. Open # humerus	3. Head of femur #	3. Ulna # and radius #
4. Head of humerus #	4. Comminuted, open humerus #	4. Fibula #
5. Tibia #	5. Comminuted pelvic #	5. Open tibia #
6. Radius # and ulna #	6. Femur #	6. Tibia #
7. Open tibia #	7. Comminuted Femur #	7. Femur #
8. Comminuted elbow #	8. Open tibia #	8. Humerus shaft #
9. Radius #	9. Open humerus #	9. Humerus shaft # and clavícula #
10. Radius #	10. Fibula #	10. Head of femur #
11. Humerus shaft #	11. Patella #	11. Radius # and ulna #
12. Femur shaft #	12. Comminuted femur #	12. Femur #
13. Cervical vertebra C4-C5 #	13. Comminuted, open tibia #	13. Femur #
14. Open # humerus	14. Head of femur #	14. Open tibia #
	15. Tibia # and fibula #	15. Radius #
	16. Open tibia # and fibula #	
	17. Comminuted humerus #	

Motives for going to the A&E

Stayers chose hospital care for diagnostic reasons and emergency care, like repair of the wound, stopping of bleedings and pain management. Leavers and returners particularly mentioned the availability of diagnostic facilities and emergency care at the hospital. Two patients left immediately after the X-rays had been taken, and others departed after stabilization of the vital functions. Some of the patients, who initially left and then returned, did so because of pain and infection management. Some stayers mentioned non-availability of bonesetters after dark; others were concerned about the severity of the fracture.

Nearly all patients understood the hospital diagnosis. An equal number of patients in all groups feared complications like amputation. Some stayers said they were concerned about permanent impaired function. Three leavers and two returners were not fully convinced

that the bonesetter was able to cure their fractures. The majority of stayers felt that they had received insufficient information about their treatment. Two leavers said that they were given the option of whether to stay or to leave. *If the doctor had said you must be admitted, I would have stayed, but he offered me two options; so I chose the most convenient one for me and my family* (Male, 51 years old, teacher, leaver).

Motives for treatment by a bonesetter

This section concerns leavers and returners. Despite the fact that most of them had problems, e.g. unconsciousness, severe pains or worries about their condition, they left the hospital. For the leavers, this decision was mainly taken by others (family). Often, the entire family was involved and it could take several hours before senior family members arrived at the A&E (or were consulted over telephone) and a final decision was taken. *You receive*

Table 3 Proposed and final procedures

Proposed treatments in hospitals†										
	Referral to other hospitals			Traction therapy		Admission		PoP	Operation	
Leavers‡	5			1		1		5	4	
Stayers	–			4		–		4	11	
Returners§	–			1		–		1	5	
	Received-treatment hospital				Operation methods					
	Operation	Traction	PoP	Operation after traction	Ext. fixateur	K-wire	Plate/screw	Nail	DHS/total hip head replacement	
Leavers	–	–	–	–	–	–	–	–	–	
Stayers	11	4	4	3	5	4	4	1	1	
Returners¶	10	–	1	–	–	–	5	2	3	

†Some patients received multiple-fracture treatments.

‡One patient left before treatment proposal was given; in two cases, fracture treatment was not available.

§In three cases, fracture treatment was not available; five patients immediately went to the bonesetter.

¶In four cases, no hospital treatment was possible anymore after long delay.

many different advices from other people; so you cannot decide easily for yourself. You have to listen to others (Male, 51 years old, teacher, leaver).

The final decision did not seem to be influenced by the doctor's advice. Surprisingly, four patients decided to leave after they had been referred by another hospital. Once a fracture had been diagnosed at the A&E, half of the patients and their families decided to leave because they were convinced that bonesetters have more expertise in fracture treatment. This was often underlined by stories about own experiences or relatives having been successfully treated. *Herbalists offer more extensive treatment; besides applying a kind of plaster of paris (PoP), they also add medicinal herbs* (Senior brother of 22-year-old male patient, leaver).

In open fractures, you need a few days of hospital treatment to heal the wounds, and then you must go to a bonesetter to cure the fracture (Male, 27 years old, driver's mate, leaver).

Treatment by a bonesetter costs on average 13 € (range 0–60 €) and hospital treatment 300 € (range 25–800 €). Patients often do not have to pay anything if the treatment of the bonesetter fails. More than one-third of the patients put forward this difference as an important reason for their decision: *Hospital treatment is too expensive for many Ghanaians. They tell you that you have to pay a certain deposit, but you never know how much you have to pay in the end* (Male, 54 years old, trader, returner).

I would prefer to stay in the hospital, but I cannot gather the money to pay the deposit (Male, 22 years old, student, leaver).

Six of the returners from outside Techiman district said that they had been advised by a health clinic to try treatment by a bonesetter first, because specialized fracture treatment was not available in the area. Three leavers and six returners feared proposed methods like PoP and internal (metal) fixation, and left: *I fear an operation because the doctor will put metal inside my leg, which eventually can cause an amputation* (Male, 22 years old, student, leaver). *The sight of the surgical ward scared me: all those patients with metal sticking out of their limbs* (external fixation) *and patients hanging in constructions with weights* (traction therapy) (Male, 70 years old, trader, leaver).

Other reasons for leaving were the opinion that treatment by a bonesetter or hospital gives equal results but differs in convenience; the larger distance between hometown and hospital, and the bad and impersonal organization of hospital care: *I just sow my seed and have small children, so it is better to be treated at home* (Male, 32 years old, farmer, leaver). *They looked at the OPD card and prescribed some medicines without examining our ill child and his painful shoulder. Within 30 s, we were outside the consultation room again* (Parents of 6-year-old boy who went for treatment by a bonesetter).

Six stayers considered treatment by a bonesetter, but not before completing hospital treatment (wound healed, external fixation out). They wanted the bonesetter to strengthen the bones and preferred to recover in a more convenient and private atmosphere: *A surgeon repairs the bones; a bonesetter strengthens those* (male, 52 years old, truck driver).

Two mentioned that they preferred plantain leaves to PoP and one hoped that the bonesetter would be able to

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improve the disappointing hospital result. Most stayers concluded, however, that combining both treatments was not necessary and could even be dangerous: *No black medicines on my metal* (Male, 42 years old, businessman).

Some stayers declared they prefer treatment by a bonesetter in case of a future fracture, because hospital treatment takes longer and is expensive.

Motives for surgically supervised treatment

Main motives for immediate hospital care were the presence of a compound fracture and the opinion of patients and their family that doctors have more expertise. Others mentioned that bonesetters can be dangerous and cannot provide 'sick notes', nor antibiotics or pain relief: *Bonesetters tell you they can cure everything, even AIDS. I don't want to be treated by people who declare such things* (Male, 56 years old, trader, stayer).

In this group, patients mainly decided themselves to opt for hospital treatment, or they made this decision together with their family. Most stayers were satisfied with the hospital treatment, although they stated that, on an average, it takes longer than the bonesetter's. Most leavers sought a review at the hospital for their fracture, mainly in case the treatment failed, or to evaluate the result with new X-raying of the bones: *A bonesetter cannot detect what is going on inside the body. He has no X-ray machine to see what is wrong, how the treatment works and whether the bones are in line or not* (Uncle of 6-year-old girl who left the hospital).

Some leavers mentioned that they would switch to hospital treatment if money became available. Main reasons for returners to opt eventually for hospital treatment were disappointing results of bone-setting like ongoing handicaps, pain and visible deformities: *They only tie, and tie, week after week; and if you are lucky, the bone will heal by itself* (Female, 37 years old, teacher).

Nearly half of the returners took the advice of family members to change treatment, and an equal number of returners were referred by a bonesetter. *Tissue inhibits the healing of the fracture, because it is between the two bone pieces* (bonesetter). *The fracture pieces are smooth; I am unable to cure the fracture. You need to go to the hospital* (bonesetter). Ironically, two returners concluded that in the end, treatment in the hospital saved money and fractures healed faster, reasons that are usually put forward in favour of treatment by a bonesetter.

Fracture management by bonesetters

All returners were questioned about the treatment they received in the past. At the time of the study, four leavers were under treatment by a bonesetter, and we attended

their treatment sessions. In total, we visited three bonesetters and attended parts of their treatment, during which time they explained their methods and backgrounds.

We found that all patients were familiar with the kind of fracture treatment a bonesetter offers. We got the impression that a bonesetter diagnoses and treats all fractures in a more or less general way and uses the same method for all patients. He starts by examining the affected area thoroughly. Half the number of patients reported that the bonesetter also studied their X-rays taken at the A&E, to get additional information about the fracture. Subsequently, the bonesetter usually pulls and tries to reposition the affected body part. The affected area is massaged with shea butter to improve blood flow (Figure 1a,b), and afterwards dried herbs are applied (Figure 2). A bandage is made with either a mat of small wooden sticks or plantain leaves (Figure 3). Irrespective of the type of fracture, the



Figure 1 (a) Shea butter is applied on the affected limb; (b) massage of the affected limb.

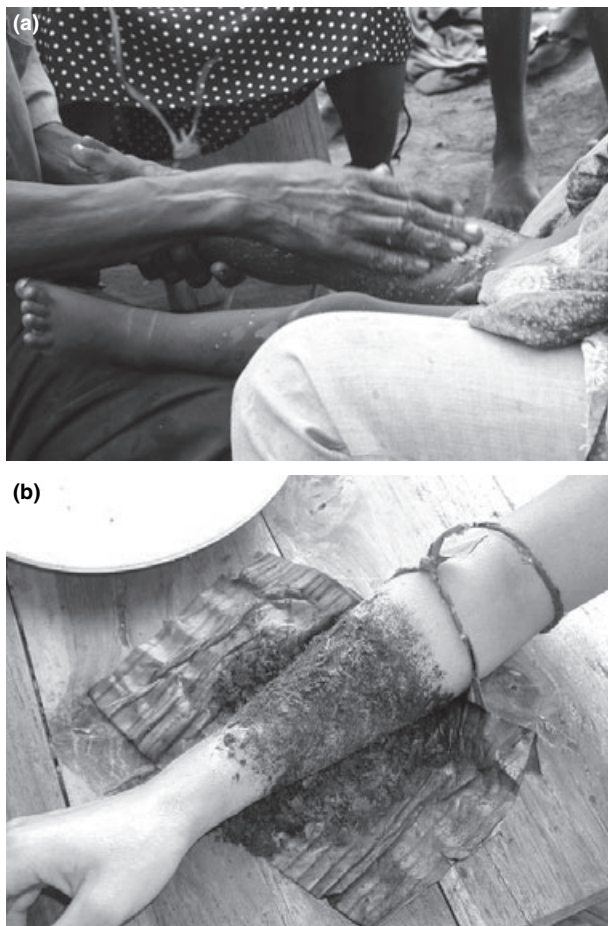


Figure 2 (a) and (b) Dried herbs are applied on the broken limb.



Figure 3 (a) A bandage of plantain leaves; (b) the dried herbs under the bandage.

limbs are preferably bandaged in an extended position (Figure 4). The reason for that remained unclear to us. *The upper leg contains two bones (!), in contrary to the lower leg (!). Most of the times, only one bone is broken, and so a fracture of the upper leg doesn't need a splint. The lower leg always needs a splint for stabilization* (Bonesetter).

Only few patients received splints or crutches. Occasionally, they received a massage of the skin or had to drink boiled water ('medicine water'). According to the patients, there is no specific or important spiritual role for the bonesetter, nor is there a necessity to perform rituals in case of a fracture. Bonesetters held different views. Two contrasting remarks: *Rituals are not needed to be performed because bonesetters are no fetish priests* (Female bonesetter, 36 years old). *Patients and bonesetters must perform rituals to the ancestors to hasten healing of the bones* (Male bonesetter, 61 years old).

Many patients reported that the leg of a fowl was intentionally broken and treated to predict the healing of the patient's fracture. If the fowl's leg healed, the patient's prognosis was believed to be favourable. Treatment took several weeks to months; and every 3 days, on an average, the fracture was inspected, mainly to renew the applications. Patients usually mentioned that bonesetters need less time to heal a fracture than doctors. A consistent advice by the bonesetter was to immobilize the limb for days to weeks. Irrespective of the kind of fracture, patients were advised to fully use and carry weight on the body part after 3 to 4 weeks, even if they felt pain. One-third of the patients wanted to have another X-ray taken after some time, to check the position, occasionally on advice of the bonesetter. For three returners, the result of the second X-ray was a reason to switch to hospital treatment.



Figure 4 Child with a broken left upper arm, bandaged position.

Discussion

Traditional healers play a substantial role in the Ghanaian healthcare system. Fractures are often managed by bonesetters, whose services are praised as easily (also in financial terms) and are widely available for the whole population (WHO 1978, 2002). The increasing shortage of medical services in Ghana and other sub-Saharan countries, as a result of brain drain, makes it advisable for healthcare policy makers to take advantage of traditional bone-setting (Mensah *et al.* 2005).

Much has been said about cooperation between 'modern' and 'traditional' medicine; but so far, systematic reviews in biomedical literature on methods and results of bonesetter treatment are lacking. A recurrent argument is that in comparison to hospital-delivered fracture management, their treatment is not formally organized, which makes assessment difficult. But our data reveal that treatments offered by different bonesetters in Ghana seem quite similar with regard to methods, materials and follow-up, and are comparable with methods described in the past (Tijssen 1979; Van der Horst 1985).

For policy makers, it is essential to understand patients' views on and experiences with modern and traditional fracture treatment. Patients consider the hospital as the only institution where emergency care can be provided and reliable diagnostic facilities are available. Confidence in knowledge and expertise of doctors, together with the presence of severe injuries constitute motives for hospital fracture treatment. The long-standing, well known practices of bonesetters, however, form a strong argument for choosing their treatment. Disappointing bonesetter results and the availability of both extensive diagnostic investigations as well as surgical expertise at the hospital make some patients opt for hospital review at last.

Interpretation of findings in the light of previous research

Literature on healthcare in African countries seems to indicate that bone-setting seldom plays a role in fracture management. However, the fact, that within 3 months, at least 14 patients left the hospital for bonesetter treatment and many others returned after such treatment, suggests the opposite to be true.

It has been difficult to compare our results with studies elsewhere in Africa, simply because such studies are scarce (exceptions are Ofiaeli 1991; Onuminya *et al.* 1999; Solagberu 2005). Many studies on the use of TM in Africa suggest that patients prefer traditional treatment for complaints having a spiritual or psychological background. Interestingly, this does not apply to the choice of treatment by a bonesetter. Patients' preferences for bonesetters were overwhelmingly technical and practical. Solagberu (2005) reported on a group of patients who visited the hospital after initial (failed) bonesetter treatment for a long bone fracture. In this group, the main motives for visiting the bonesetter first were lower costs and a belief in faster healing.

Traditional fracture treatment finds itself in a market position that is very close to the biomedical approach. This fact makes our discussion about the relationship between the two traditions in fracture treatment particularly relevant.

The treatment methods described by our patients and observed at three bonesetters are comparable with methods used elsewhere in Africa. A massage with water or shea butter followed by immobilization with plantain leaves or bamboo sticks covering herbs is the treatment for all fractures. At times, some practitioners would also fracture an equivalent bone in a fowl, in an attempt to build up the conviction that this fracture would unite at about the same time as that of the bird (Tijssen 1979; Ofiaeli 1991; Green 1999; Onuminya *et al.* 1999).

What is new?

Patients and bonesetters in central Ghana are aware of the advantages of both biomedical and bonesetter treatment and selectively use both, which seems to frustrate many doctors. The hospital is often visited in the second instance for services that a bonesetter cannot deliver and in case of more severe or non-healing fractures. This not only applies to patients with a low income or low education. The question arises if bonesetters will be able to regulate their practices in the future and act within their limitations. Equally relevant is the question if medical doctors are willing to leave conservative treatment of some fracture types to bonesetters.

The reluctance of biomedical practitioners to take bonesetters seriously is surprising in the light of the widespread belief that bonesetters are more effective, faster and less expensive than hospital treatment of fractures. Professional aversion on the part of hospital personnel can do injustice to the skills and proficiency of bonesetters, but does not prevent Ghanaian patients from relying on the services of bonesetters. Ghanaians have outspoken ideas about the merits and limitations of various medical traditions and do not let themselves be discouraged (Warren 1974; Ventevogel 1996).

What can be said about future patients with fractures in Ghana?

High treatment costs and the sparse availability of facilities and expertise will remain as important barriers to opt for hospital treatment in the near future. This is so for nearly all developing countries where traditional bone-setting is what most patients can afford (Green 1999). In Ivory Coast, 14–17% of urban households shifted from modern to TM when the Franc got devalued — a figure that is likely to be higher among rural households (Shrestha & Lediard 1980). The gradual replacement of the 'Cash and Carry' health financing system with a 'National Health Insurance Scheme' (NHIS) in Ghana can improve the autonomy of patients by reducing their financial dependency on family and peers. However, there is much discussion on what is exactly covered of orthopaedic aids and surgery. Arnhinful stated in 2003 that rural health insurance in Ghana is also delayed by social and cultural obstacles. Therefore, decision-making in fracture treatment may not be much influenced by this policy change in the near future.

Since 1978, the WHO has been promoting cooperation between modern and TM (and has been criticized for it). A study in North-West Nigeria on the complications of fracture treatment by bonesetters concluded that traditional healers can be integrated, but they need to be taught

on alarming symptoms like skin ischaemia, reduced skin temperature and sudden absence of pain (Musa 1998). In 1979, the Primary Health Training for Indigenous Healers Project (PRHETIH) was started in the Techiman area to train traditional healers to widen their skills (Warren *et al.* 1982). Ten years later, the programme's impact was evaluated. Disappointingly, the PRHETIH hardly influenced the healers' treatment methods and its impact on the healthcare system was negligible (Ventevogel 1996). Cooperation failed as the pathophysiological backgrounds of both medicines differed too much. This, however, hardly applies to fracture treatment.

Formal cooperation between bonesetters and medical doctors, as was tried by Van der Horst (1985) in North-West Ghana, is not needed for *rational* decision-taking. Nevertheless, it would be a major step forward, if patients and their families would receive clearer information on the types of fractures that can be best treated by either bonesetter or hospital. Bonesetters could further gain expertise in conservative treatment and get the recognition they deserve. The sparse hospital services can concentrate on more difficult and complicated cases. As the majority of patients visit the hospital's emergency room, selection of cases for either hospital or bonesetter care could take place there. Additional solutions for more randomly and financially available fracture treatment in hospitals may be to rely more on conservative methods (like PoP or Steinmann pin for traction), which should be considered standard. Furthermore, the use of and the education on simple new techniques, such as the affordable external fixator, should be promoted. This technique is easy and may decrease morbidity and improve outcome, especially in open fractures (Museru & Mcharo 2002).

Limitations

This study was an exploration and does not claim any statistical validity; the sample was relatively small and some of the leavers could not be interviewed during their visit to the hospital. Moreover, this study was undertaken in an expert surgery teaching hospital, and its findings will be less applicable to more rural areas. In addition, patients who never visited the hospital were excluded from the study, which may have led to an underestimation of the popularity of bonesetters. Despite several visits to bonesetters' clinics, the researchers did not get the opportunity to observe the management of fresh fractures at the bonesetters' clinics, to have a first-hand account of initial treatment, reviewing X-rays and repositioning fractures.

We had to rely on interpreters for the interviews, as only a minority of the patients spoke adequate English. We realize that interpretation has the potential of reducing the

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reflection and impact of patients' original views. The cultural and professional background of the interviewers could have evoked desirable answers. By not involving themselves in the diagnostic course and treatment proposal, the researchers tried to express objectivity to the patients.

Conclusion

Patients and their families in central Ghana make clear decisions about fracture treatment in a hospital or by a traditional bonesetter. They are guided by the apparent severity of the fracture, the availability of a service, their financial status and past experiences. We suggest that fracture treatment can serve as a model for how respectful and efficient co-existence of traditional and biomedical medicine can be organized in developing countries facing healthcare shortages. At first, systematic reviews need to be conducted on bonesetters' treatment results concerning different fracture types.

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References

- Arhinful DK (2003) *The Solidarity of Self Interest: Social and Cultural Feasibility of Rural Health Insurance in Ghana*. African Studies Centre, Leiden.
- Friedman EA (2004) An action plan to prevent brain drain: building equitable health systems in Africa. Report by Physicians for Human Rights, Cambridge, MA, USA.
- Green S (1999) Orthopaedic surgeons: inheritors of tradition. *Clinical Orthopaedics and Related Research* 363, 258–263.
- Horton R (2001) Ghana: defining the African challenge. *The Lancet* 358, 2141–2149.
- Lashari MS (1984) Traditional and modern medicine – is a marriage possible? *World Health Forum* 5, 175–177.
- Mensah K, Mackintosh M & Henry L (2005) The 'skills drain' of health professionals from the developing world a framework for policy formulation. Online paper commissioned by Medact, London, UK.
- Ministry of Health (1995) *Traditional and Modern Health care: Partnership for the Future: A Report on National Consensus*. Ministry of Health, Accra.
- Ministry of Health (2000) *Medium Term Health Strategy towards Vision 2020*. Ministry of Health, Accra.
- Musa AA (1998) The causes of amputations in Sokoto, Nigeria. *Tropical Doctor* 28, 249.
- Museru LM & Mcharo CN (2002) The dilemma of fracture treatment in developing countries. *International Orthopaedics* 26, 324–327.
- Museru LM, Leshabari MT, Grob U & Lisokotala LNM (1998) The pattern of injured patients seen in the orthopaedic and trauma wards at Muhimbili Medical Centre- Dar es Salaam. *East and Central African Journal of Surgery* 5, 15–21.
- Nantulya VM & Reich MR (2002) The neglected epidemic: road traffic injuries in developing countries. *British Medical Journal* 324, 1139–1141.
- Ofieli RO (1991) Complications of methods of fracture treatments used by traditional healers: a report of three cases necessitating amputation at Ihiala, Nigeria. *Tropical Doctor* 21, 182–183.
- Onuminya JE (2004) The role of the traditional bonesetter in primary fracture care in Nigeria. *South African Medical Journal* 94, 652–658.
- Onuminya JE, Onabowale BO, Obepka PO & Ihezue CH (1999) Traditional bone setter's gangrene. *International Orthopaedics* 23, 111–112.
- Quansah RE, Afukaar FK & Salifu M (2001) Casualty trends in road traffic accidents. *Ghana Medical Journal* 35, 4–7.
- Shrestha RM & Lediard M (1980) *Faith Healers: A Force for Change. A Preliminary Report of An Action Research Project*. UNICEF, Kathmandu.
- Solagberu BA (2005) Long bone fractures treated by traditional bonesetters: a study of patients' behaviour. *Tropical Doctor* 35, 106–108.
- Tijssen I (1979) Traditional bone setting in Kwahu, Ghana. In: *Search of Health Essays in Medical Anthropology* (eds S Van der Geest & K Van der Veen) CANSa: Amsterdam.
- Van der Horst J (1985) *The role of traditional medicine in the primary health care process. An example from Upper-West Ghana*. Thesis Master of Public Health, Royal Tropical Institute, Amsterdam.
- Ventevogel P (1996) *Whiteman's things: training and detrainning healers in Ghana*. Het Spinhuis, Amsterdam.
- Warren DM (1974) Bono traditional healers. *Rural Africana* 26, 25–34.
- Warren DM, Bova GS, Tregoning MA & Kliever M (1982) Ghanaian national policy toward indigenous healers. The case of the primary health training for indigenous healers (PRHE-TIH) program. *Social Science and Medicine* 16, 1873–1881.
- World Health Organization (WHO) (1978) *The Promotion and Development of Traditional Medicine*. TRS No.622, WHO, Geneva.
- World Health Organization (WHO) (2002) *World Health Report. Traditional Medicines Strategy 2002–2005*. WHO, Geneva.
- World Health Organization (WHO) (2002–2005) *Cooperation Strategy: Ghana 2002–2005*. WHO, Geneva.

M. J. H. Ariès *et al.* **Fracture treatment by bonesetters in Ghana**

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Traitement des fractures par des rebouteurs dans le centre du Ghana: Explications des patients sur leurs choix et expériences

OBJECTIF Comprendre les facteurs influençant la décision des patients pour le choix entre le traitement des fractures par un rebouteur ou à l'hôpital; explorer les expériences des patients dans le traitement par rebouteurs.

METHODE Entretiens détaillés avec 46 patients avec une fracture radiologiquement confirmée, dans un hôpital de district du centre du Ghana.

RESULTATS Les guérisseurs traditionnels tels que les rebouteurs jouent un rôle important dans le système de santé ghanéen. Sur une période de trois mois, 14 patients avec une fracture confirmée sont partis de l'hôpital pour se faire soigner par un rebouteur. L'hôpital est considéré comme étant le seul établissement où les soins d'urgence peuvent être obtenus et un service (étendu), fiable pour le diagnostic et le traitement des fractures est disponible. Les patients optant pour le traitement par un rebouteur sont guidés par la sévérité de la fracture, la disponibilité du service, leur situation financière et les expériences antérieures. Les méthodes curatives employées par différents rebouteurs sont basées sur des principes similaires.

CONCLUSION Le traitement des fractures pourrait servir de modèle à la coexistence respectueuse et efficace entre la médecine traditionnelle et biomédicale.

mots clés fractures osseuses, médecine traditionnelle, médecine allopathique, comportement de recours à la santé, Ghana

Tratamiento de fracturas por *bueseros* (bonesetters). en Ghana central: los pacientes exponen sus preferencias y experiencias

OBJETIVO Entender los factores que influyen en los pacientes a la hora de tomar decisiones sobre quien ha de tratarles en caso de fractura: si un *buesero* o en un hospital, así como explorar las experiencias de los pacientes tras un tratamiento con un *buesero*.

MÉTODO Entrevistas en profundidad con 46 pacientes con fractura probada radiológicamente en un hospital distrital de Ghana central.

RESULTADOS Los sanadores tradicionales, como es el caso de los *bueseros*, juegan un papel importante en el sistema sanitario Ghaniano. Durante un periodo de tres meses, 14 pacientes con una fractura probada dejaron el hospital para buscar tratamiento con un *buesero*. El hospital se considera como la única institución en la que se puede ofrecer tratamiento de emergencia y en la cual se dispone de la infraestructura fiable (y extensa), para el diagnóstico y tratamiento. Los pacientes que preferían ser tratados por *bueseros*, iban guiados por la severidad de la fractura, la disponibilidad del servicio, su condición financiera y experiencias pasadas. Los métodos de sanación utilizados por diferentes *bueseros* están basados en principios comparables.

CONCLUSIÓN El tratamiento de fracturas puede servir como modelo de la coexistencia eficiente y respetuosa entre las medicinas tradicional y alopática.

palabras clave fracturas óseas, medicina tradicional, medicina alopática, búsqueda de salud, Ghana