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Seeking health care from a general hospital in Uganda following a fracture or a dislocation



La recherche de soins de santé auprès d'un hôpital général en Ouganda suite à une fracture ou une luxation

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Introduction: Selecting a treatment approach and a facility to get treated from, poses a challenge in musculoskeletal injuries in Africa. The study aimed at determining demographic and injury characteristics of patients with musculoskeletal injuries and how these impact the time and reason for presenting to a general hospital in Uganda.

Methods: An observational study was carried out at Entebbe general hospital on patients presenting with musculoskeletal injuries between 1 November 2014 and 28 February 2015. The patient demographics, injury characteristics, duration of injury to presentation for treatment and reason for seeking treatment from this hospital were noted.

Results: A total of 101 patients were recruited. Of these, 95 had fractures while six had dislocations. Patients took an average of 96 h before presenting for care, females taking significantly longer than males (191.2 and 58.6 h respectively, $p = 0.005$). The fractured segment of bone significantly influenced the patients' choice for care at this hospital ($p = 0.02$).

Discussion: Entebbe General Hospital serves a young and unemployed population for musculoskeletal injuries. These patients present late for care, especially females. Patients base their choice for care from this hospital on the character of the injury.

Introduction: La sélection d'une approche de traitement et d'un établissement où l'on peut se faire soigner pose un problème en matière de lésions musculosquelettiques en Afrique. L'étude visait à déterminer les caractéristiques démographiques et des blessures des patients atteints de lésions musculosquelettiques et leur incidence sur le délai et le motif de la consultation dans un hôpital général en Ouganda.

Méthodes: Une étude d'observation a été effectuée à l'hôpital général d'Entebbe sur des patients présentant des lésions musculosquelettiques entre le 1^{er} novembre 2014 et le 28 février 2015. Les données démographiques des patients, les caractéristiques des blessures, le délai entre la blessure et la consultation en vue de se faire traiter, et le motif de la recherche de traitement auprès cet hôpital ont été enregistrés.

Résultats: Au total, 101 patients ont été étudiés. Parmi ceux-ci, 95 souffraient de fractures alors que 6 souffraient de luxations. Les patients ont mis en moyenne 96 heures à consulter pour se faire soigner, les femmes prenant bien plus de temps que les hommes (191,2 et 58,6 heures respectivement, $p = 0,005$). Le segment fracturé de l'os a influencé de façon significative le choix des patients de se faire soigner dans cet hôpital ($p = 0,02$).

Discussion: L'hôpital général d'Entebbe a pour patients une population jeune et sans emploi en ce qui concerne les lésions musculosquelettiques. Ceux-ci se présentent de façon tardive pour obtenir des soins, en particulier les femmes. Les patients fondent leur choix de prise en charge par cet hôpital en fonction de la nature de la blessure.

African relevance

- The study provides insight into the patterns of injury that present to poorly resourced hospitals.
- Local governments should disseminate information on available health facilities to their populations.
- More research is required in African health financing.

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Introduction

Selecting a treatment approach and setting to get treatment following trauma possess a challenge to the patient in Africa.^{1,2} The Anderson and Newman framework³ states that health service utilization is governed by three main factors: predisposition, enablement and perception of need for care.

In Uganda, health care following musculoskeletal (MSK) injury (in this study representing a fracture and/or a dislocation) is provided either by the western biomedical approaches (WBA) or by traditional bone setters (TBS). The patient with MSK injury haphazardly seeks for WBA care since Uganda

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has no established guidelines disseminated to the general population showing which health facility handles what type of injuries. Given the staff crisis in Sub-Saharan African Hospitals,⁴ the number and level of training of staff at a given level of health facilities are not uniform. Here, some general hospitals have two or three general doctors while others have one or none. Worse still, some groups of service providers are not regulated by any legal body (Table 1). These factors put doubt in the patients' minds as to whether the accessible facilities have the appropriate staff, supplies and equipment necessary to manage their injuries. It is postulated that the above challenges lead to delays in presentation for WBA care and poor clinical outcomes of MSK injuries. Additionally, the pattern of injury may influence the patient's decision to seek for WBA care from a particular hospital.

Therefore, the study aimed at a) defining the demographics of patients and how these relate to the former's decision to seek for WBA care at a selected general hospital, b) establishing how demographics and injury characteristics relate to the time of presentation for care and c) identifying the factors onto which patients base their decisions to seek WBA care from this hospital.

Methods

The study was conducted from 1st November 2014 to 28th February 2015 in Entebbe General Hospital (a mid-level hospital) in Uganda. This public hospital is situated on the highway from Entebbe International Airport to Kampala city. For purposes of this study, Ugandan health facilities were grouped into three levels: (i) national and regional referral hospitals-higher level facilities, that have orthopedic surgeons in their staff establishment, (ii) general hospitals- mid-level facilities, that have medical officers, general surgeons and orthopedic assistants in their staff establishment, and (iii) Health Center IV with a general doctor, Health Center III with a medical assistant, Health Center II with a nurse in their staff establishment and can give emergency care to MSK injuries, constituted the lower level. As stipulated in the Ministry of Health Human Resource Information System (HRIS) Strengthening Plan 2010/11–2014/15,⁵ this hospital provides preventive, promotive, curative, maternity, in-patient health services, surgery, blood transfusion, laboratory and medical imaging services. However, its operations are limited by factors like a small staff (it serves a population of about 500,000 people but has two orthopedic assistants, five medical officers and one general surgeon). The orthopedic assistants work alongside medical officers and general surgeons in emergency systemic stabilization, clinical and radiological assessment of patients,

reduction and splinting of closed fractures. Additionally, the medical officers and surgeons debride open fractures, screen and refer patients requiring definitive orthopedic surgical intervention to hospitals with orthopedic surgeons.

Following ethics clearance from the research and ethics committee of Makerere University School of Medicine, a verbal consent from the patient or the guardian of a child was sought. A pretested questionnaire was used to collect data. Data were collected at the time when the patient had received the appropriate orthopedic care. A non-randomized procedure was used to consecutively recruit 101 patients. Patients with dislocations, and open or closed fractures were included. Unconscious patients without a caretaker to answer key questions in the questionnaire were excluded.

Patient demographics noted included age, sex, level of education, occupation, distance between the patient's home and the hospital, whether a patient had received initial treatment from any other hospital before seeking care from the hospital under study and the cause of injury. The time interval between injury and presentation for care was noted.

Injury characteristics noted included injury type (dislocation or fracture), fracture pattern (simple, segmental or comminuted), fracture location (upper limb, spine, pelvis or lower limb), bone fractured, segment of bone involved in fracture (shaft, proximal peri-articular or distal peri-articular), joint dislocated and the time of day when injury occurred.

The reasons onto which patients based their decisions to seek treatment from this hospital were also noted.

Analysis was done using SPSS, version 21.0; SPSS Inc. Chicago, IL, USA. Cross tabulations of variables were constructed and Fisher's exact test and chi-square with *p*-values were calculated to determine statistical significance, if any. A one way analysis of variation (ANOVA) was performed to compare means between groups and Pearson's correlation index was performed to identify relationships between continuous variables. A *p*-value was predetermined at *p* < 0.05.

Results

From 1st November 2014 to 28th February 2015, 101 patients were recruited in the study. These included 72 (71.3%) males and 29 (28.7%) females. Their ages ranged from three to 79 years, with a mean of 24.8 (SD 16.7) years. During the study period, four unconscious patients without a caretaker were excluded. Each presented with a head injury and a fracture.

Level of education – 51 (50.5%) patients were school drop-outs, and only two (2%) graduates were included, while two (2%) were of pre-school going age. 46 (45.5%) patients attending this hospital were unemployed or students, 37 (36.6%)

Table 1 Bodies charged with regulation of Health professionals in Uganda.

Health Worker Cadre	Accrediting Institution	Legislation
Doctors and Dentists	Medical and Dental Council	Medical and Dental Practitioners Act Statute No. 11 of 1996
Nurses and Midwives	Nursing and Midwifery Council	Nursing and Midwifery Act Act No. 2 of 1996
Allied Health Workers	Allied Health Council	Allied Health Practitioners Act Statute No. 10 of 1996
Pharmacists	Pharmacy Council of Uganda	Pharmacy and Drugs Act of 1970 (is being updated)
Traditional practice (Traditional bone setters are included here)	(No legitimate agency)	No attempt yet

were self-employed and one (1.0%) civil servant attended this hospital for WBA care.

Distance to hospital – 82 (80.2%) attending this hospital lived at a distance ranging from 1 to 30 km from the hospital, 16 (15.8%) within 10 km, 41 (40.6%) between 11 and 20 km and 25 (24.8%) between 21 and 30 km while only two (2.0%) patients lived beyond 51 km from the hospital.

Initial care – Up to 81 (80.2%) patients had received initial care from another facility before attending this hospital; 48 (47.5%) patients from a lower level, 30 (29.7%) from a mid-level and three (3%) patients from a higher level.

Time of injury – 57 (56.4%) sustained injuries in the evening hours (17:00–22:00 h), while seven (6.9%) patients sustained injuries between 22:00 and 24:00 h of the day (Table 2).

Injuries were mainly caused by road traffic accidents affecting 36 (35.6%) patients. 95 (95.0%) patients presented with fractures (91 as fractures alone and four as fracture with a dislocation) while six (6.0%) presented with dislocations (three lower limb and three upper limb dislocations). The majority of patients ($n = 79$; 78.95%) with fractures had simple fractures. Up to 94 out of the 95 patients had limb fractures – 52 upper-limb and 42 lower-limb. Only one spine fracture was recruited. The segment of bone that was mostly involved in these fractures was the distal peri-articular region ($n = 44$), followed by involvement of the diaphysis (i.e. shaft) in 37. Least involved was the proximal peri-articular region ($n = 10$). 90 patients had closed injuries (i.e. intact soft tissue coverage for the underlying fracture or dislocation) while 11 patients had open fractures, all classified as Gustilo and Anderson⁶ type I open fractures (Table 3).

Patients took an average of 96.67 (more than 4 days, range 0.17–1440) hours to present for WBA care. 62 (61.4%) patients presented within 24 h, 49 of whom were male while only 13 were female patients. Out of the 29 female patients included in the study, 11 (37.9%) presented for care after three days

(Table 4). The male patients took an average of 58.6 h, while the female patients took an average of 191.2 h to present for care following injury. The difference in time of presentation for care between sexes was statistically significant ($p = 0.005$). Other assessed demographic and injury characteristics did not have statistically significant relationships to the time of presentation for care.

Up to 33 (32.7%) patients came to this hospital because it is the nearest facility from which they could receive WBA care for their MSK injuries. 32 patients had no choice of either being brought to this hospital for care or not. These were mainly unemployed persons or students whose point of care was decided by parents or guardians. 22 patients felt that the facility is financially affordable while 14 patients trusted the care given by this hospital. Out of all the studied demographic and injury characteristics, only the segment of bone involved in a fracture significantly affected the patients' choice to seek WBA care from this hospital ($p = 0.02$). Out of the 95 patients who presented with fractures, 59 had peri-articular fractures: 43 were distal and 16 were proximal peri-articular fractures. 36 patients had diaphysis (i.e. shaft) fractures: 20 of lower limbs and 16 of upper limbs. The majority ($n = 32$; 33.7%) of patients with fractures gave "nearest big hospital" as their main reason for seeking WBA care from this hospital, whereas only 13 (13.7%) out of the 95 patients "trusted" the WBA care given, therefore gave it as the reason for attending this hospital (Table 5).

Discussion

Determination of the type of population and characteristics of trauma that presents to a particular health facility is a prerequisite in planning for any administrative or operational interventional strategies that lead to a comprehensive health care.⁷

Table 2 Patient demographics.

Level of education	<i>n</i> (%)	Occupation	<i>n</i> (%)
Graduate	2 (2.0)	Civil servant	1 (1.0)
Diploma	3 (3.0)	Employee of NGO	17 (16.8)
Certificate	4 (4.0)	Self-employed	37 (36.6)
Students	39 (38.6)	Others (unemployed + students)	46 (45.5)
School dropout	51 (50.5)	Total	101 (100)
Pre-school	2 (2.0)		
Total	101 (100)		
Distance from home	<i>n</i> (%)	Initial treatment center	<i>n</i> (%)
1–10 km	16 (15.8)	Lower level	48 (47.5)
11–20 km	41 (40.6)	Mid-level	30 (29.7)
21–30 km	25 (24.8)	Higher level	3 (3.0)
31–40 km	15 (14.9)	None of the above	20 (19.8)
41–50 km	2 (2.0)	Total	101 (100)
51 km and above	2 (2.0)		
Total	101 (100)		
Time of the day when the injury occurred	<i>n</i> (%)		
08:00–14:00 h	20 (19.8)		
14:00–17:00 h	17 (16.8)		
17:00–22:00 h	57 (56.4)		
22:00–24:00 h	7 (6.9)		

NGO = non-government organization.

Table 3 Characteristics of the injury.

Cause of injury		<i>n</i> (%)	
Road traffic accident		36 (35.6)	
Assault		3 (3.0)	
Fall from a height		31 (30.7)	
Games and sports injury		24 (23.8)	
Gunshot/explosion		1 (1.0)	
Others		6 (5.9)	
Total		101 (100)	
Injury type	<i>n</i> (%)	Fracture pattern	<i>n</i>
Fracture	91 (90.1)	Simple	79
Dislocation	6 (5.9)	Segmental	10
Fracture and dislocation	4 (4.0)	Comminuted	6
Total	101 (100)	Total	95
Fracture location	<i>n</i>	Upper limb dislocations	<i>n</i>
Upper extremity	52	Shoulder	2
Lower extremity	42	Elbow	1
Spine	1	Total	3
Total	95		
Bone involved in fracture	<i>n</i>	Lower limb dislocations	<i>n</i>
Humerus	15	Hip	1
Radius and/or ulna	27	Ankle	2
Femur	11	Total	3
Tibia and/or fibula	28		
Spine	1		
Hand	7		
Foot	6		
Total	95		
Segment of bone fractured	<i>n</i>	State of soft tissue cover at fracture or dislocation site	<i>n</i> (%)
Diaphysis	36	Closed	90 (89.1)
Proximal peri-articular	16	Open	11 (10.9)
Distal peri-articular	43	Total	101 (100)
Total	95		

Table 4 Time of presentation for treatment in relation to the sex of the patient.

Time	Male	Female	Total
00:00–23:59 h	49	13	62
24:00–47:59 h	5	5	10
48:00–71:59 h	2	0	2
> 72 h	16	11	27
	72	29	101

This study has established that Entebbe General Hospital attracts a relatively young (24.8 ± 16.7 years) population for WBA care. These are students, the uneducated and the unemployed sections of the population. These groups have no income, therefore they attend a public hospital that provides health care free of charge. The educated and better employed patients seek care from higher level facilities with better WBA-care, shorter waiting time, and better skilled orthopedic human resource. In a related study in Uganda, Musoke et al.⁸ established that the populations that seek care from general hospitals are relatively young with meager domestic incomes. These take advantage of Uganda's National policy of abolition of user fees in public hospitals.⁹ However, this policy has led to

high patient loads in public hospitals resulting in constant stock-outs on drugs, supplies and poor remuneration of health staff. These situations negatively impact the utilization of health services in public hospitals, especially by the elite and formally employed populations in Uganda.

About 80% of patients in this study had visited another facility before presenting to the study site. It is postulated that most of these patients were turned away from the referring facilities due to stock-outs on splinting supplies like Plaster of Paris, or some patients could have received emergency care from the referring facility before being sent to the study site. Additionally, this can be explained by the low awareness and poor perception of the referral protocol of the health care system among the people of Uganda. A related study with comparable findings in Nigeria recommends that policies on referral and hospital utilization could be improved if the public is systematically and periodically sensitized on any developments in the system.¹⁰ The relatively high referrals from lower facilities (47.5%) can be explained by the trust staff in lower facilities have in the care provided by this hospital, but it could also be explained by the recently improved referral system as stipulated in the Uganda Health Systems Assessment of 2011.⁵

Up to 57 (56.4%) patients sustained injuries in the evening time of the day (17:00–22:00 h). This finding compares well with that of other studies.^{11–13} The high rate of injuries during

Table 5 Segment of bone involved in fracture related to the reason for seeking care from this hospital.

Segment of bone involved	Nearest big hospital	Financially affordable	I trust the care provided	I did not have any choice being brought to the hospital	Totals
Diaphysis (i.e. shaft)	12	5	5	14	36
Proximal peri-articular	3	9	0	4	16
Distal peri-articular	17	8	8	10	43
Totals	32	22	13	28	95

these rush hours can be explained by increased traffic jams in Uganda as well as increased human activities in the evenings that predispose the population to accidents and injuries. An earlier study¹⁴ has established underlying factors for the high rate of injuries in evening time as the dangerous driving conditions on Ugandan roads, over-loading, over speeding, drunk driving, incompetent drivers, poorly lit narrow roads and lack of protective gear (e.g. head helmets and reflector jackets) for motorcyclists. This has also been pointed out in the Uganda Police Annual Crime, Traffic and Road Safety report 2013.¹⁵

The urgency with which health care for diseases is sought by the population significantly influences the efficient utilization of health facilities. This directly represents the trust and confidence the population has built in the facility in question.¹⁶ This is also pointed out in the Anderson and Newman three domain framework of health seeking behavior.³ This study has established that patients take long to attend for WBA care. This can be explained by a number of factors like shortage of orthopedic surgeons, high cost of orthopedic care, belief that TBS will result in better and faster healing, and familial influences on treatment selection. Among all studied demographic and injury characteristics, only sex was found to have a significant influence on the time of presentation for WBA care. The male patients present earlier for treatment compared to female patients ($p = 0.005$). This is due to the fact that in many Ugandan families, men are the bread winners and therefore the controllers of domestic health spending. So their injury takes priority to any house hold expenditure and is handled as an emergency, hence the observed earlier presentation for treatment for men in this study. In a related study in India¹⁷ focusing on the disparity in health seeking behavior and domestic health spending, it was found that expenditures on female adults are significantly less than those on males. These findings are representative of the crisis of health financing in the developing regions of the world.¹⁸

Among all studied patient or injury characteristics, only segment of bone involved in a fracture significantly influenced the patients' choice for WBA care from this hospital. Additionally, these fractures were simple ($n = 79$; 83.2%) or peri-articular fractures ($n = 59$; 62.1%). This can be explained by a number of reasons. First, the health staff that refers patients from lower facilities to this hospital is cognizant of the worse-off clinical outcome of the complex (e.g. badly comminuted) and open fractures compared to the former. So they refer the complex fractures to higher level facilities with a more trained human resource (orthopedic surgeons) and equipment to manage them. Secondly, Ugandan and many African populations alike tend to seek care for diaphysis fractures from traditional bone setters.^{14,19} These are easier to manage with the rudimentary splinting methods and come with less complications compared to the peri-articular fractures in the TBS's hand, hence the observed little numbers of diaphysis fractures presenting

to this hospital. Thirdly, it is postulated that the catchment population of this hospital is aware of the extent of care to MSK injury that can be received at this hospital; hence the observed presentation of simple and closed fractures (about 90%) other than the complex fractures.

In an earlier study in rural Kenya²⁰ it was found that poor communities attach a lot of importance on the proximity of the health facility during the process of choosing a health care provider. The shorter the distance, the higher the probability for choosing health care from a given facility. Despite the non-statistically significant relationship of distance of home of patient from the hospital in this study, proximity of a health facility is key in the selection process especially for poor populations seeking care from a free public hospital in the Ugandan setting. An increase in distance implies paying an added cost to travel to the source treatment. This has been established in another study in Kenya.²¹

The major goal of this study was to analyze the patient factors that underpin their health seeking behavior from a general hospital following musculoskeletal injuries. For a broader view of these injuries, it would be preferable to include data sets in a similar perspective from all hospitals at the same service level in Uganda; however, such data are not available since there is no systematic data collection across these facilities for musculoskeletal trauma. Additionally, the pre-hospital care given to the referred patients from lower facilities and self-referrals was not assessed, the outcome of which could have been clinical complications, therefore directly influencing the patients' choice of this hospital.

In summary, the hospital serves a relatively young population with no income and most of these are referrals from other health facilities. These patients, particularly females, present late for treatment. The pattern of the injury directly influences patients' choice of WBA care from this hospital. However, other studied patient and injury demographics do not influence health seeking behavior.

The factors determining patient health seeking behavior may be seen in various contexts: patient (socio-economic), institutional (hospital capacities) and enabling environments (cultural dictates and geo-political support).²¹ Based on the finding of this study it is important:

1. For policy makers to understand the drivers of health seeking behaviors in patients with musculoskeletal trauma in a more pluralistic pattern.
2. To employ an inter-sectoral collaborative approach when designing public campaigns focusing on health facility utilization.
3. To engage in research that will identify the determinants of women's delay in seeking health services in Uganda, paying special attention to the accessibility, affordability, and appropriateness of services.

4. To identify and analyze best practices in health service delivery in Uganda that prioritize gender variables so as to enrich training and human resource development programs for the health sector.

Dissemination of results

Findings have been locally disseminated by the authors.

Author contribution

The authors have all contributed equally to the conception of the work; the acquisition, analysis, or interpretation of data; drafting and revising; final approval of the version to be published; and agreed to be accountable for all aspects of the work.

Conflict of interest

The authors declare no conflict of interest.

Appendix A. Data supplement

A French translation of this paper has been provided by the authors. The translation has not been checked by the editorial team. Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.afjem.2016.05.008>.

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