



Contents lists available at ScienceDirect

African Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/afjem

ORIGINAL ARTICLE

A qualitative study exploring nurses' attitudes, confidence, and perceived barriers to implementing a traumatic brain injury nursing chart in Uganda

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A B S T R A C T

Introduction: In Africa, traumatic brain injuries frequently result from road traffic injuries and assaults. Despite limited resources and the high costs of life-saving neurosurgical interventions, secondary brain injury prevention has the potential for improving outcomes. However, nurses and other medical personnel infrequently monitor vital signs, blood sugar, and pulse oximetry and only sporadically re-assess neurological status.

Methods: In one-on-one, semi-structured interviews, 27 nurses from Mulago Hospital's emergency centre, a tertiary care trauma hospital in Kampala, Uganda, provided feedback regarding a traumatic brain injury-focused education session and use of a nursing chart for detecting secondary brain injury. The interviews explored the nurses' confidence and perceived barriers to long-term chart implementation and traumatic brain injury care, as well as their ideas for improving this intervention. Interviews were audio recorded, transcribed, and coded using ATLAS.ti: Qualitative Data Analysis and Research Software (Cleverbridge, Inc., Chicago, USA) and Microsoft Word and Excel (Microsoft Office, Redmond, USA) for thematic content analysis.

Results: Key findings identified in the interviews included the nurses' attitudes toward the chart and their feelings of increased confidence in assessing and caring for these patients. The main barriers to continuous implementation included inadequate staffing and resources.

Conclusion: Nurses were receptive to the education session and nursing chart, and felt that it increased their confidence and improved their ability to care for traumatic brain injured patients. However, lack of supplies, overwhelming numbers of patients, and inadequate staffing interfered with consistent monitoring of patients. The nurses offered various suggestions for improving traumatic brain injury care that should be further investigated. More research is needed to assess the applicability of a standardised traumatic brain injury nursing education and chart in a broader context.

African relevance

- The barriers to using a structured chart for monitoring secondary brain injury in Uganda can be applied to other African contexts.
- A nursing perspective to implementing an intervention into patient care should be encouraged.
- This article presents ideas for overcoming barriers to patient care in the Emergency Centre.

Introduction

In Uganda, traumatic brain injury (TBI) contributes to more than 60% of mortality seen in emergency centres (EC) [1,2]. These TBIs are often caused by assaults or road traffic injuries (RTI) involving motorcycle taxis, or boda-bodas, which serve as a common form of transportation in Uganda [3–5]. The World Health Organization's (WHO) 2015 Global Status Report on Road Safety estimates that 27.4 RTIs occur per 100,000 individuals in Uganda [4]. In efforts to reduce TBI, laws stipulating that motorcycle riders and passengers wear helmets

Peer review under responsibility of African Federation for Emergency Medicine.

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Received 12 July 2017; Received in revised form 23 December 2017; Accepted 21 January 2018

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have been introduced, but have been ineffective due to poor enforcement and compliance [3–5].

Despite a high prevalence of TBI, in 2015 Uganda had only six neurosurgeons serving a population of over 33 million [6]. This shortage of neurosurgeons severely limits patient access to surgical intervention and care. In such settings, emergency centre nurses are prime candidates to take the lead in improving care and reducing secondary brain injury. These nurses provide a substantial portion of direct patient care. They triage patients, monitor vital signs and patient progress, and provide treatment [7].

Without proper care, patients with TBI are at risk of secondary brain injury [8]. Secondary injuries disrupt the brain's ability to auto-regulate the body's vital mechanisms (i.e. blood pressure, temperature, heart rate) [8,9]. Frequent assessment of vital signs allows for early detection and treatment of secondary injury, which may improve outcomes.

This study is a qualitative follow-up study evaluating TBI nursing education (Appendix 1) and a TBI nursing chart (Appendix 2) introduced during a research study in the EC at Mulago National Referral Hospital [10]. The concurrent research study focused on determining the impact of increased monitoring on the mortality of moderate to severe TBI patients. This study seeks to determine the nurses' attitudes, confidence, and perceived barriers in relation to the TBI education and nursing chart implementation.

Methods

The study involved interviews of emergency centre (EC) nurses and was conducted from June 2016 through July 2016 at Mulago Hospital in Kampala, Uganda. This tertiary hospital is comprised of 1500 beds and cares for approximately 140,000 patients a year [3,11,12]. Patients arriving to the hospital with TBI are triaged and admitted to the EC. Their care begins in the EC where clinical officers and nurses perform an initial assessment and begin treatment. Patients are then taken to surgery, admitted to the surgical side of the EC for monitoring, or transferred to a specialised unit (i.e. orthopaedics, neurosurgery).

The Institutional Review Boards from Mulago Hospital and Makerere University College of Health Sciences approved the study. Yale University reviewed the research and issued an Institutional Review Board exemption. Informed, written consent was obtained from all participants. No incentives were provided.

During the study there were 33 nurses working in the EC who rotated between eight-hour day, evening, and night shifts. The number of nurses on each shift varied and ranged from one to four nurses. Participants were selected through convenience sampling. Exclusion criteria included a lack of clinical bedside work, inability to obtain proper consent, refusal to participate in interviews, and a lack of exposure to the TBI education and chart. The initial study sample included 31 nurses, however, four nurses were ultimately excluded. The final sample size included 27 nurses.

The nursing education consisted of a PowerPoint presentation that discussed recognising, treating, and recording secondary brain injury, an organised chart for monitoring vital signs, and a reference card. MG and LW presented these informal education sessions. After the nurses had been provided with opportunities to attend the education session, the researchers verbally invited the nurses to participate in semi-structured interviews. The nurses were informed of their right to refuse participation without consequence and their right to end the interview at any time. The interviews included twelve questions and were conducted in English (Appendix 3). Prior to beginning interviews the questions were vetted for clarity and appropriateness by a colleague outside the research team. Two interview questions requested demographic information regarding years of nursing experience and education. The remaining ten questions focused on TBI in Kampala, the TBI education, and the chart. At the end of the interviews the nurses were given an opportunity to share additional thoughts regarding the education session and nursing chart. Each interview was audio recorded

and uploaded to SecureBox (Box, Inc., Redwood City, USA), a password protected file system. The length of the interviews varied depending on the nurses' contributions to the discussion (ten to 40 min).

Throughout the course of the interview process, LW conducted and transcribed the recorded interviews. The authors engaged in planned, informal discussions throughout the interview process to review emerging themes obtained during the interviews. Prior to coding, LW and MG proofread the transcripts and checked for accuracy by re-listening to the audio recordings. Thematic content analysis was selected to help understand the nurses' overall responses and salient themes [13]. An iterative process was used to code and analyse the interviews using a combination of Atlas.ti: Qualitative Data Analysis and Research Software (Cleverbridge, Inc., Chicago, USA) and Microsoft Word and Excel (Microsoft Office, Redmond, USA). LW and MG individually coded the transcripts to ensure inter-coder reliability. The codes were organised and narrowed to conceptualise the nurses' attitudes toward using the chart, their confidence attained through the education session and use of the chart, and their perception of barriers to continued implementation of the chart. Disagreements on interpretation of data were discussed and clarified among the research team.

Results

The 27 nurses included in the sample had varying education levels (Table 1). The participants' years of experience ranged from nursing interns (fifth year of nursing school) to 30 years of clinical practice. Eleven percent of participants were male.

Perception of traumatic brain injury in Kampala

All of the nurses acknowledged the problem of TBI and agreed that it needed to be addressed. Most cited boda-boda, RTI, and assault as the main causes of TBI in Kampala. Lack of helmet use, uneducated and reckless drivers, and poor law enforcement were identified as major factors contributing to these injuries. "There is a lot of reckless driving and, uh, these motorists don't want to take the precautions because if you walk around the streets of Kampala you'll see very, very many of them without helmets" (Nurse 20). Several nurses also recognised the long-term effects of TBI and poor prognosis.

Attitude toward practice change and chart implementation

The nurses were asked to describe their process of recording vital signs prior to implementing the TBI nursing chart. This provided an understanding of the nurses' attitudes toward chart implementation. Practices varied and there was no consensus on how vital signs were recorded or how patients were monitored. Nurse 15 stated, "You [find] that [you are] using a fluid balance chart to put the vitals." Nurse 18 detailed her process of recording vital signs, "I would just write in the file- make a table, mostly behind their file- the patient's file. Just make a table, vitals, BP [blood pressure], temperature, stuff like that. And then you put the different times it's taken... Though sometimes if you be lazy, you just write in the file." Throughout the interviews the nurses

Table 1

Nursing education level and the number of nurses holding each degree at the Mulago National Referral Hospital in Kampala, Uganda.

Educational Level	Number of Nurses with Degree (n)
Bachelor of Science in Nursing	2
Diploma	16
Certificate	4
Intern (obtaining Bachelor of Science in Nursing)	4
Degree Not Stated	1

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