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ORIGINAL RESEARCH ARTICLES

Households' preparedness for first-aid of burns and falls in Khartoum



Préparation des ménages en termes de premier secours en cas de brûlures et de chutes à Khartoum

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Background: Reports of natural disasters and injuries have increased in recent years in both low and high-income regions. Household emergency preparedness can limit the effects of not only natural disasters but also simple injuries. Little is known regarding the level of emergency preparedness in Sudan households.

Method: A cross sectional community based survey was conducted in the Alemtidad region of Sudan between September 2012 and December 2012. A random selection of 89 households was done from 3200 in the region as per power calculation. Data were collected using a structured designed questionnaire and analysed using the statistical package for social science (SPSS) program version 20 and demographics were presented accordingly.

Result: Less than half of households surveyed had any first aid supplies and most of these supplies were incomplete. Only 66% of housewives demonstrated knowledge about first aid for burns and falls, 88% took preventive measures against burns and falls and 51% had an action plan in case serious injury occurred. Knowledge levels of housewives reflect unacceptable levels of preparedness. Education is a significant predictor of preparedness.

Conclusion: Household emergency preparedness is poor. It can be encouraged by community based outreach and education programmes focused on prevention and treatment of common injuries.

Contexte: Les rapports faisant état de catastrophes naturelles et de blessures sont en augmentation ces dernières années dans les régions à bas revenus comme dans celles à hauts revenus. La préparation des ménages en cas d'urgence peut non seulement limiter les effets des catastrophes naturelles, mais aussi des simples blessures. Des informations sont disponibles sur le niveau de préparation des foyers en cas d'urgence au Soudan.

Méthodes: Une enquête communautaire transversale a été menée dans la région d'Alemtidad au Soudan entre septembre 2012 et décembre 2012. Une sélection aléatoire de 89 foyers a été réalisée parmi 3200 foyers dans la région selon les calculs de consommation d'électricité. Les données ont été collectées en utilisant un questionnaire structuré, analysées en utilisant le logiciel SPSS (Statistical Package for the Social Sciences) version 20, et des données démographiques ont été présentées en conséquence.

Résultat: Moins de la moitié des ménages interrogés disposaient d'une trousse de premiers soins généralement incomplète. Seules 66 % des femmes au foyer disposaient de connaissances sur les premiers secours en cas de brûlures et de chutes, 88 % prenaient des mesures préventives contre les brûlures et les chutes et 51 % avaient un plan d'action en cas de blessure grave. Les niveaux de connaissances des femmes au foyer révèlent un niveau de préparation inacceptable. Le niveau d'éducation est un indicateur significatif de la préparation.

Conclusion: La préparation des foyers aux urgences est faible. Celle-ci peut être appuyée par une sensibilisation communautaire et des programmes éducatifs axés sur la prévention et le traitement des blessures courantes.

African relevance

- Preparedness is crucial for the achievement of sustainable development in Africa.
- There is a need to strengthen communities to contribute to improving health care.

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Introduction

Accidental injuries, which can include anything from falls and burns to wounds, often occur at home. In fact, it is the second most common location of accidental fatal injuries.¹ Unsurprisingly, first responders are usually also from within those same households or immediate communities. During large-scale disasters, households should be prepared to be self-sufficient until first responders (and relief) can reach the affected areas and residents. Preparing for emergencies improves the chance of survival irrespective whether this results from an isolated injury or a regional disaster.²

Preparedness refers to all the activities taken in the context of threats that cannot otherwise be controlled.³ Although it has been defined inconsistently, preparedness generally has

two aims: to help people avoid threats by applying preventive measures and to build capacity and improve knowledge and skills to facilitate an effective response. Household preparedness requires knowledge of first aid protocols and access to first aid supplies. Ideally, households should maintain supplies in an emergency kit.³

Preparedness for emergencies is crucial for households, businesses, and communities. Past disasters serve to highlight the need for individual responsibility and local coordination to ensure the ability to respond to and recover from major events.³ During the period 1980–2004, over 95% of disaster deaths occurred in Low to middle income countries (LMICs) and their direct economic losses were compared to high income countries (HICs).⁴ The Annual Disaster Statistical Review showed that the incidence of disaster within Africa is on the increase and that the estimating damages remain extremely challenging as data are often poorly reported or lacking altogether.⁵

Despite the significant advances that have been made in the field of household preparedness, gaps remain in our understanding of household preparedness in LMICs and for the purpose of this study, the Alemtidad region of Sudan. These gaps stem from a poor understanding of the factors that affect the effectiveness of efforts by government agencies and local civil society organizations.³ Finding ways to promote preparedness in LMICs, which bear an increasingly disproportionate share of losses when regional and individual disasters occur, has become more important of late.⁶

This study assessed households' first aid preparedness for burns and falls in Alemtidad, Sudan. It evaluates the availability of first aid equipment, knowledge regarding first aid, and prevention measures utilized at the household level. The results are expected to assist in identifying shortcomings and areas for improvement in household safety in the region.

Methods

A descriptive cross-sectional community based survey was conducted to assess household preparedness for falls and burns. This study included housewives living in the Alemtidad area during the time of study. There were 3200 housewives as reported by the local administrative unit. The required sample size in this study was calculated to be 89 housewives ($\alpha = 0.05$). A random sampling technique was used to select 89 households.

Household preparedness was calculated from a nineteen question, pre-coded, structured questionnaire (Table 1, online data supplement). Data obtained were anonymized after collection and all personal identifiable information was removed prior to data analysis. Responses to questions were binary; correct responses were scored one and incorrect responses scored zero. Overall scores for each participant were represented as a percentage of the whole. An average for the sample was then calculated. The questionnaire was tested and validated prior to the study commencing using twenty housewives from a similar area to Alemtidad. Cronbach's alpha was above the acceptable level (0.87). The authors obtained permission from the local health office of Alemtidad and written informed consent from the housewives surveyed. Approval from the Nursing Faculty at the University of Medical Sciences and Technology, Sudan was also granted. SPSS version 20 was used to conduct statistical analysis.

Table 2 Characteristics of surveyed housewives in Alemtidad.

Variable total ($n = 89$)	n (%)
<i>Employment status</i>	
Employed	30 (33.7%)
Unemployed	59 (66.3%)
<i>Level of education</i>	
Illiterate	8 (8.9%)
Primary	22 (24.7%)
Secondary	24 (26.9%)
University	35 (39.3%)
<i>Economic status</i>	
Good	26 (28.9%)
Fair	51 (57.8%)
Poor	12 (13.3%)
<i>House tenure</i>	
Owner occupier	66 (74%)
Rented	34 (26%)
<i>Completed first aid course</i>	
Yes	28 (31.5%)
No	72 (68.5%)
<i>Age (years)</i>	
Mean	40
Std. deviation	5
Minimum	18
Maximum	75

Results

The study enrolled 89 subjects. Demographic characteristics are described in Table 2. This reflects that 66.3% of participants were unemployed. Most housewives (74%) own the houses they occupy and most had a school education (91.1%). The mean age of participants was 40 years.

The availability of first aid items within the home is described in Table 3. A fire extinguisher was found in only 16.9% of households. Various treatments for burns, such as gauze, plaster, ointment, saline solution, running water pipe and a clean towel, were available in 50.6% of households and 50.6% of households had a plan of action for first aid in case of a burn or a fall. A number of housewives (67.4%) were interested to learn more about first aid.

The level of household knowledge is presented in Table 4 (online data supplement). The mean of knowledge was 66% with a SD of 13%, and a range of 39% to 97%. It was also found that 88% of housewives took preventive measures against burns and falls. They included: removing hazards at home, observing children inside the home, keeping children and adults away from the kitchen, locating the kitchen away from bedrooms and sitting areas, helping elders with mobility and observing them, keeping the house clean, and removing tools that can cause falls from corridors.

The relationships between total household knowledge about preparedness (calculated from the questionnaire) and its determinants were investigated and the results are illustrated in Fig. 1. There are insignificant relationships between preparedness and house tenure, history of attending a first aid course, and employment, with level of confidence 95%. A significant relationship was found between housewives' education and household preparedness (p -value = 0.003). As education level increases so did the degree of preparedness. The

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