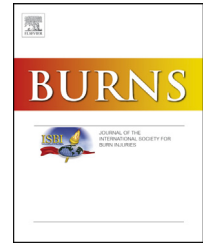


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Attitudes on first aid for paediatric burns: Pilot survey of a developed city state



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ABSTRACT

Introduction: Burn-related injuries are prevalent worldwide. Caregiver first aid can mitigate the devastating effects of paediatric burn injuries. Our aim was to assess knowledge of paediatric burns first aid among caregivers and determine whether knowledge levels can be raised following a short educational intervention.

Method: Over a 13-week period we surveyed 274 caregivers at the children's emergency department of KK Women's and Children's Hospital. The questionnaire assessed caregiver demographics and knowledge of burn first aid pre-intervention. There was an educational interlude during which the moderator educated the caregiver using a simple pictorial guide. The survey resumed thereafter and the post-intervention questions were completed.

Results: Of the 274 surveys conducted, 272 complete responses were obtained. We found a substantial and statistically significant increase in knowledge of caregivers immediately following the intervention. Two statistically significant predictors of adequate post-intervention scores were the caregivers' highest educational level and their total score in the pre-interventional assessment. Caregivers who scored well in the post-intervention questionnaire relied on school ($p = 0.013$) and the Internet ($p = 0.130$) as sources of information on burns first aid. Caregivers without prior personal experience with burns tended to fare better in the post-interventional survey.

Conclusion: Our study shows it is possible to correct knowledge gaps in the immediate period through a simple pictorial guide. Our study also identified a structure for a focused national educational campaign.

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1. Introduction

1.1. Prevalence and types of burn injury

Worldwide, injuries caused by burns are prevalent and carry with them significant morbidity and mortality [1,2]. The World

Health Organisation reports that 322,000 deaths each year are caused by fire, with further death from complications and other burn-related injuries as well as morbidity undergoing hospital admission [3]. Children are a vulnerable cohort and paediatric burns can similarly result in death and devastating long-term effects such as physical [4] and psychological scars [5,6].

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Physical effects can be either impairments or disabilities, as described in The International Classification of Impairments, Disabilities and Handicaps [7]. A study was conducted in Ghana [4] on the epidemiology of burn-related physical impairment and disabilities in new-borns to 5-year-olds to determine the prevalence and risk factors of burns. The authors felt there was a need for the implementation of suitable secondary prevention programmes to raise awareness of alternatives to traditional methods. Traditional methods locally employed include treating burns with coffee powder, toothpaste or hair cream. These secondary prevention programmes are also very relevant in modern first-world cities where a large proportion of caregivers rely on traditional methods of healing passed down from their elders—as is the case in Singapore.

Psychological effects of burns can be assessed using diagnostic criteria from the American Psychiatric Association's Diagnostic and Statistical Manual [8]. A study conducted by Stoddard et al. [6] on children recovering from burns found that these children had a higher likelihood of suffering from depression and other affective disorders. There was no association between extent of the burn and depression, suggesting that the very occurrence of the burn was sufficient to trigger psychological effects.

1.2. International studies on burns first aid knowledge

Several international studies have assessed burns first aid knowledge among caregivers. One looked at whether parents in the UK were equipped to provide adequate burns first aid [9]. In this study, the authors found a need for improved parental awareness of stripping of hot clothes, appropriate cooling times and dressings. The correct measures were summarised with the simple mnemonic STOP: Strip clothes, Turn on the tap for 10 min, Organise help, and put on Plastic film.

Another study looking at burns treatment showed that public understanding of cold water therapy was poor, favouring inappropriate dressings including butter, toothpaste and topical lotions [10]. These dressings have no effect on cooling and may even cause tissue destruction. The study suggested that public education programmes on burns first aid should add cautionary notes on hypothermia in children and refraining from the use of ice. In addition, the current recommendation from the Australian and New Zealand Burns Association [11] is to cool the burn wound with cold running tap water for 20 min, up to 3 h after injury.

1.3. Local studies on burns first aid knowledge

Locally, based on a cross-sectional nationwide study [12] conducted in Singapore in 2005, the leading cause of death for children between 5 and 14 years of age was injury, and the prevalence rate was found to be higher in the Indian and Malay communities, and among boys compared to girls. This suggests that any educational campaign launched to address injury prevention in Singapore should include these ethnic communities. Of the 452 injured children studied, 45% of injuries occurred in the home. Of these, burns and scalds ranked third as a cause of injury, after falls and sharp objects.

The same authors also noted that primary caregivers generally had poor knowledge of home safety and first aid [13] compared to their knowledge of road safety and choking hazards.

1.4. Our aims

Our aim was to assess knowledge of paediatric burns first aid among caregivers and determine whether knowledge levels can be raised following a short educational intervention. Our secondary aim was to identify the next steps in an organised framework directed toward a focused public education campaign in paediatric burns first aid.

2. Materials and methods

2.1. Study design and setting

This was a questionnaire-based prospective pilot survey to document first aid knowledge among caregivers of the paediatric population before and after an educational intervention. Over a 13-week period from 17 December 2014 to 15 March 2015, 274 caregivers were surveyed using questionnaire forms filled out by trained moderators at the paediatric Emergency Department (ED) of KKH.

KKH is the only level one tertiary trauma centre for paediatric patients in Singapore, and the paediatric ED attends to patients between the ages of 0 and 16 years. The setting of the survey was within the ED itself to minimise caregiver inconvenience.

2.2. Study population

A convenience sample of caregivers was surveyed. There was purposeful selection to ensure that the participants were recruited over weekdays as well as weekends and during morning, afternoon and night shifts to acquire a broad spectrum of caregiver responses. Caregivers were interviewed either in the waiting area before consultation with the doctor, in the observation room after initial consultation pending further medical review, or in the consultation room after being discharged. An interview priority assessment was made regarding patient safety, and caregivers of paediatric patients in urgent need of medical attention were bypassed.

The survey was conducted in the English and Mandarin language. Caregivers were first approached in English, which is the first language of most of the population, but if they expressed a preference for communicating in Mandarin, the interview then proceeded in Mandarin. In these instances, the entire survey and educational intervention was then translated verbally by a moderator whose first language was also Mandarin. This occurred in a small minority of participants (less than one per cent). No caregiver requested to have the survey conducted in any other language.

There was minimal risk and inconvenience to the caregivers involved in the anonymous and confidential survey. They understood that they were free to terminate the interview at any time.

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