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“What do kids know”: A survey of 420 Grade 5 students in Cambodia on their knowledge of burn prevention and first-aid treatment[☆]

Marvin Hsiao^a, Brian Tsai^a, Pisey Uk^c, Harrison Jo^e, Manuel Gomez^b,
James G. Gollgoly^d, Massey Beveridge^{e,*}

^a University of Toronto, Faculty of Medicine, Toronto, Canada

^b Ross Tilley Burn Centre, Toronto, Canada

^c Université des Sciences de la Santé, Phnom Penh, Cambodia

^d Children's Surgical Centre, Phnom Penh, Cambodia

^e Office of International Surgery, University of Toronto, 70 Richmond St. East, Suite 315, Toronto, Canada

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ABSTRACT

Introduction: Cambodia is a developing country of 13 million people where there are an estimated 20,000 burns and 2000 burn deaths annually. Two thirds of the burns occur to children under the age of 10 years. The purpose of this study was to determine the knowledge of burn prevention and first aid for burns in Grade 5 Cambodian school children, as baseline information to design a burn prevention campaign.

Methods: A 34-question survey regarding burn prevention and first-aid treatment for burn injuries was developed. Additional questions on TV watching habits were included to determine the feasibility of a targeted TV burn educational campaign. The survey was translated into Khmer language and tested on a trial class for accuracy and ease of administration. After obtaining the school director's permission and children's consent the survey was administered by Canadian medical students helped by trained translators and teachers to Grade 5 students from eight different elementary schools in the Kampot province.

Results: A total of 420 students were surveyed. Average age was 12.5 years (range 9–17 years) and 55% were females. Seventy-four percent routinely cared for other children. Only 52% had TV at home but still 78% managed to watch TV for an average 2 h per day. Even though 36% of students indicated they had received information about burn prevention and first aid, only 13% mentioned application of cool water as initial treatment, only 7% knew to roll on the ground if their clothes caught fire, and nearly 50% would pour water on a burning pot of oil. Half of students indicated that they would not believe a TV message promoting application of cold water on acute burns. Top reasons given were parental influence, belief in other treatments, and not trusting TV messages. Interestingly, 62% of these skeptics would change their mind if the TV message was endorsed by an authority figure such as a physician, teacher, parent, or the Ministry of Health. A set of five Public Service Announcements for Cambodian TV were developed and produced based on the results of this survey.

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* Corresponding author. Tel.: +1 416 864 6060x3360; fax: +1 709 454 3952.

E-mail address: massey.beveridge@sympatico.ca (M. Beveridge).

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Conclusions: This survey identified significant inadequacies in Cambodian children's knowledge about burn prevention and first aid and suggested that a televised burn prevention campaign could be an effective method to improve their knowledge, especially if it was endorsed by an authority figure.

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1. Introduction

Burns are a common problem in developing countries. Globally, over 95% of fire-related burn deaths occur in low- and middle-income countries. South and South-East Asia alone account for over one-half of these deaths [1]. In Cambodia, a developing country of 13 million people, there are an estimated 20,000 burns and 2000 burn deaths annually. These numbers have been extrapolated from WHO figures [1] due to the paucity of global epidemiological data on burns [2]. Two thirds of the burns occur to children under the age of 10 years, who have a higher mortality rate compared to adults [1,3].

Since 2000, members of a Canadian regional burn centre have been providing training for Khmer surgeons, nurses, and therapists at an NGO hospital that provides free treatment for disabled people in Phnom Penh, Cambodia. Over 1200 burn patients have been assessed and treated at this hospital to date, most presenting years after the initial injury with severe and preventable contractures, as is often the case in developing countries [4]. Our experience treating patients with debilitating chronic sequelae of burn injuries suggested that a large proportion of Cambodians do not have access to timely modern medicine and have minimum knowledge on burn prevention and first-aid treatment. This observation underscores the importance of primary burn prevention.

There are many studies describing the etiology and risk factors of burn injuries in developing countries [5-14]. However, there are very few reports of burn prevention programs implemented in these countries [15]. To the best of our knowledge, there are currently no other burn prevention initiatives in Cambodia. The purpose of this study was to determine the knowledge of burn prevention and first aid for burns in Cambodian school children as baseline information to develop an effective burn prevention campaign in Cambodia.

2. Methods

A 34-question written survey was developed to ascertain the knowledge of Cambodian school children regarding burn prevention and first-aid treatment for burn injuries. The survey included demographic questions, open-ended scenario-based questions and retrospective multiple-choice questions. Questions regarding past personal burn injuries were also included. Questions on television watching habits were included to determine the feasibility of a targeted televised burn education campaign.

The survey was translated into Khmer and back translated into English to verify translation accuracy. The survey was

pre-tested on a trial class for accuracy and ease of administration, and to identify problematic questions and edit them appropriately.

Eight elementary schools in the Kampot province were chosen to encompass a range of socioeconomic status based on proximity to the capital city of Kampot. Schools further north in the province and away from the capital city are more rural and of lower income. Two to three Grade 5 classes from each school were randomly selected to be surveyed. Elementary School Directors' permission and children's informed consent were obtained and surveys were administered in class by Canadian medical students with help from trained translators and the teachers.

Raw data was compiled and coded by a Cambodian medical student. Then, it was analyzed using descriptive statistics.

3. Results

3.1. Demographics

A total of 420 Grade 5 students from eight different elementary schools in the Kampot province were surveyed. Average age was 12.5 years (range 9-17 years) and 55% were females. The average household size was 6 people and 74% of children routinely cared for 2.5 other children on average.

3.2. Burn prevention and first-aid knowledge

Thirty-six percent indicated that they had received information about burn prevention and/or first aid for burns previously. The main sources of information were school (40%), family (22%), books (15%), television (12%), physicians (9%), and Internet (0.5%) (Fig. 1).

When asked how to extinguish the fire if their clothes caught on fire, only 7% knew to roll on the ground. Popular

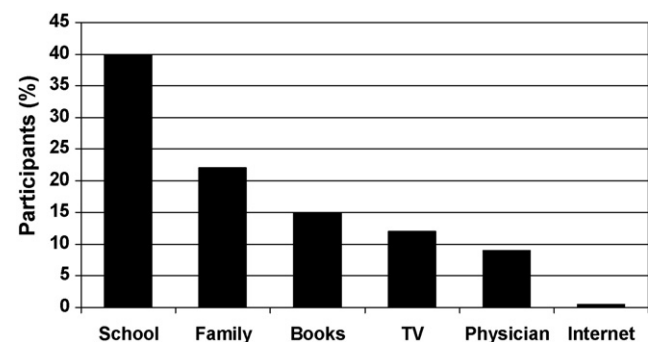


Fig. 1 – Main sources of burn prevention and first-aid information.

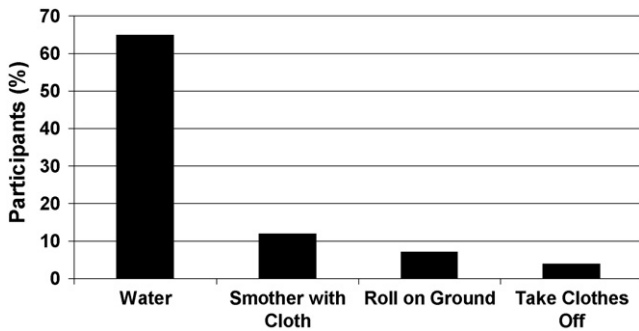


Fig. 2 – How to extinguish their clothes on fire?

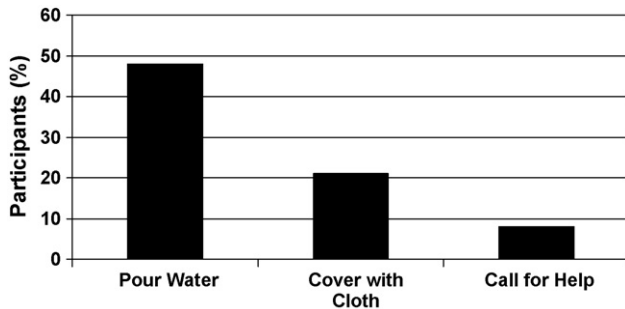


Fig. 3 – How to extinguish a pot of oil in fire?

answers included using water (65%), smothering with a cloth (12%), and taking the clothes off (4%) (Fig. 2). When asked what to do if a pot of oil caught on fire, top answers were pouring water (48%), covering with a cloth (21%), and calling for help (8%) (Fig. 3). When asked what to do immediately after getting burned, only 13% mentioned application of water. Other top answers were to apply toothpaste (18%), apply medicine (14%), go to the hospital (12%), apply bandage (8%), and call for help (7%) (Fig. 4).

When asked to name up to three ways to prevent a burn from happening, 37% were unable to name one. The rest responded with not playing with fire (16%), being careful with fire (12%), and staying away from fire, candles, kerosene lamps, and other hazardous objects (11%). Other responses included keeping things away from fires (e.g. mosquito net, clothes, gasoline; 8%), not burning things (8%), and putting out fires after use (e.g. stove, kerosene lamp, candle; 8%) (Fig. 5).

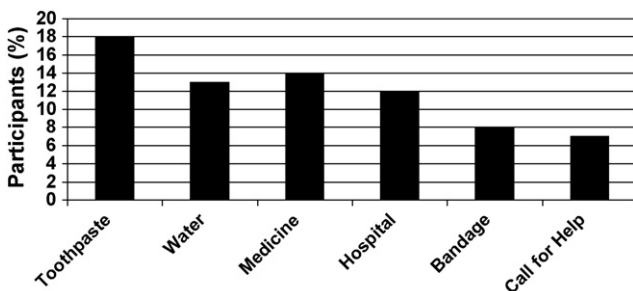


Fig. 4 – What to do after getting burned?



Fig. 5 – How to prevent a burn?

3.3. Previous burn injury

When asked if they have suffered a burn in the past 2 years, 29% answered yes. The majority of these injuries occurred at home (83%). The most common etiologies include scalding liquids (e.g. hot grease, hot water; 30%), open fires (e.g. candle, stove top; 20%), burning rubbish (20%), and contact with hot surfaces (e.g. pot, motorcycle exhaust pipe; 17%) (Fig. 6).

3.4. Television watching habits

Even though only 52% of the children had television at home, 78% managed to watch television for an average 2 h per day: at home (60%), friend's house (24%), store/restaurant (4%), relative's house (2%), or unspecified (10%). Popular television programs included movies (31%), various children's programs (31%), music videos (12%), and news (8%). The evening (70%) was the most popular time for watching television compared to morning (4%) and afternoon (14%).

Half of students indicated that they would not believe a television message promoting application of cold water on acute burns. Top reasons given were not trusting television messages (26%), belief in other treatments (25%), and parental influence (20%). Interestingly, 62% of these skeptics would change their mind if the message was endorsed by an authority figure such as a physician, teacher, parent, or the Ministry of Health.

4. Discussion

This study shows significant inadequacies in Cambodian school children's knowledge on burn prevention and first-aid

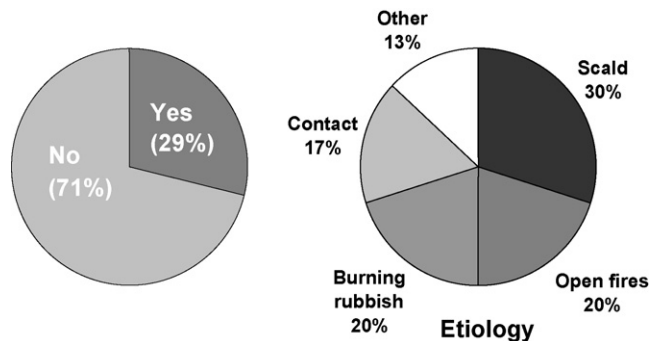


Fig. 6 – Previous burns.

treatment for burn injuries. The results show definite room for improvement in what Cambodian children know about burns. Specifically, very few children knew the well-recognized burn messages such as applying cool water to burns, "stop, drop, and roll," and smothering a burning pot of oil with a lid. Also, a large number were unable to name any burn prevention strategies. Even though this study was done in a small town/rural setting, it is likely that Cambodian children in urban areas would have similar level of knowledge about burns and first aid for burns.

Good understanding of the etiological patterns of burn injury is necessary for an effective burn prevention program [16]. The epidemiology of burns in Cambodia is not well described. Hospital data of acute burn patients are scarce; furthermore, patient access to hospitals is often hindered by various factors including poverty and belief in traditional medicine. This study provided some preliminary data indicating that most burns experienced by children occur in the home and involve scalding liquids, open fires, burning rubbish, and contact with hot surfaces. This data is in concordance with the patient records at a NGO hospital that provides free, non-acute surgical treatment for disabled people in Phnom Penh, Cambodia (Children's Surgical Centre). The finding that most burns to children occur in the home concurs with other studies from developing countries [5-8].

A burn prevention campaign with messages pertinent to the common causes of burn could be effective in reducing the burden of burns in Cambodia. We believe that school children are a logical target of such a campaign because they are subject to burn injury themselves, they are often caregivers to their younger siblings, and they will be parents in the future. It is seen from our survey results that 74% of the survey population routinely care for multiple other children, which is the norm in Cambodia. There have been many burn prevention programs targeted at educating children and these are generally successful in increasing the children's knowledge about burns [17-21]. However, it has been noted that an increase in knowledge does not necessarily translate into a decreased incidence or severity of burn injuries [16,22]. Despite this, WHO stills considers fire safety education to be a major component of burn prevention [23].

A multi-pronged approach to burn prevention is likely to be more effective [24]. Based on the percentage of children who have access to television and the amount of television they watch, a television campaign could be an efficient method to reach a large proportion of this population. Furthermore, a number of children already cite television as a source of burn-related knowledge. Endorsement by an authority figure such as a physician, teacher, parent, or the Ministry of Health was identified as an important component to a successful television campaign. The evening was identified as the optimal time for airing the campaign; the most popular shows and the channels were also noted. Since school and family members are indicated as main sources of information for the children, a burn prevention campaign should also explore these avenues.

Using the results of this study, a set of five culturally appropriate Public Service Announcements (PSA) for Cambodian television were produced and have been aired daily on Cambodian television since October 2005, on a bimonthly schedule [25].

In addition, 10,000 copies of a children's book containing expanded versions of the burn prevention stories in the PSA video have been distributed to 600 schools in Cambodia. The impact of the PSA and children's book will be assessed with follow-up studies in the summer of 2006.

5. Conclusions

This study identified significant inadequacies in Cambodian children's knowledge about burn prevention and first aid for burns, and suggested that a televised burn prevention campaign could be an effective method to improve their knowledge, especially if it was endorsed by an authority figure.

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