

Self-reported Unintentional Injuries in Families Visiting the ‘Childhood Safety Campaign’ in Saudi Arabia

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ABSTRACT

Background: As a consequence of unintentional injury or trauma, children may develop permanent disabilities such as limb amputations or disfigurement; and in severe cases these injuries can lead to death or severe neurological disabilities.

The aim of this study was to identify the most frequently reported type of unintentional injury sustained by children in Saudi Arabia, as well as the most common locations in which such injuries take place. This paper will also examine the long-term consequences of children’s unintentional injuries on their parents and the different types of care that are needed post-injury

Methodology: This research was carried out in the form of a cross-sectional survey that was intended to be used as an evaluation tool during the first ‘Childhood Safety Campaign’ in Riyadh, Saudi Arabia. The campaign was conducted over 4 days (14 - 17 March 2017) and provided parents with free childhood safety educational resources. The campaign also aimed to capture the personal experiences of families using pre-designed electronic surveys that were completed both before and after attending the campaign. Data was subsequently analyzed using SPSS[®] version 21.0 basic descriptive software.

Results: Out of the 374 parents who were surveyed, 32% (N=122) reported that at least one child of theirs had sustained an injury of some sort in the 12 months preceding the campaign.

The most common type of unintentional injuries that were reported were falls (50.9%), whilst the most common location for the occurrence of such injuries was at home (66%).

Parents also reported that, as a consequence of the injuries, most children endured a contusion/abrasion (28.7%). The families that took part in this survey also reported that most of the medical care needed as a consequence of injury took place in the Emergency Department. However, hospitalization was needed in (2.3%) of cases.

Conclusion: Accidental injuries are most commonly reported by the parents of children in Saudi Arabia. Incidentally, the majority of these accidents occur at home and can be easily treated in the ER Department. Occasionally, however, certain serious types of injury took place thereby requiring hospitalization. By raising awareness of these types of preventable injuries via the use of educational awareness campaigns, the risks posed to vulnerable young children may be greatly reduced.

Keywords: Unintentional, injury, pediatric, self-reported.

INTRODUCTION

Children explore their environment as part of their normal development, thereby expanding their knowledge and skills as children grow and develop, so do their risks for injury. With the time children developing better perceptual and cognitive abilities to evaluate these risks and the motor skills to avoid injuries^[1]. Injury is defined wither it intentional or unintentional “a body lesion at the organic level, resulting from an acute exposure to energy (mechanical, thermal, electrical, chemical or radiant) in amounts that exceed the threshold of physiological tolerance. In some cases, (e.g. drowning, strangulation, freezing), the injury results from an insufficiency of a vital element^[2].”

The center for the disease control and prevention (CDC) Childhood Injury Report described patterns

of unintentional injuries among 0–19 year old in the United States from 2000 – 2006 using data from the National Vital Statistics Systems as well as the National Electronic Injury Surveillance System – All Injury Program, to provide an overview of unintentional injuries in this age group^[3]. According to this report, 12,175 children death each year from unintentional injuries. These injuries were related to: drowning, falls, fires or burns, poisoning, suffocation, and transportation.

Other surveillance reports pertaining to unintentional injuries sustained by children in Bangladesh, Colombia, Egypt and Pakistan found that approximately half of all the children who sustained such injuries needed emergency room treatment and were left with some form of disability as found^[4].

For kids who survive from major injuries, these injuries affected them and their families by physical, mental or psychological disability.

Childhood injuries can occur either at home or outside. Santagati et al., 2016 found that most of the unintentional injuries occurred at home (45.4%), in the road/street (24.3%), and at sports facilities/fields (20.3%). The main result was a bruise; in more than 3/4 of the events that were recorded; the injuries happened in the lower appendages or in the region of the head. Just 9.2% of the injuries necessitated a visit to the Emergency Department ^[5].

Another study in Nepal by Pant (2015), showed 193 cases of non-fatal unintentional child injuries from 181 households and estimated that the annual rate of non-fatal injuries for children of both sexes was 24.6/1000; notably, however, the injury rates for boys were double the rate for girls (i.e. 32.7/1000 for boys) and (16.8/1000 for girls). The rates were higher amongst children of the age groups 1–4 years and 5–9 years ^[6]. Multivariate logistic regression analysis discovered that parents who did not believe that it is possible to prevent unintentional injuries had more than one child who has been injured at least ^[5].

These unintentional injuries result in significant financial costs, and are considered to be a burden to both the family and the community. Unintentional home injuries were shown to cost U.S. society at least \$217 billion in 1998. The cost of fatal unintentional injuries alone was \$34 billion, with nonfatal injuries accounting for the remaining \$183 billion. The largest cost was the value of lost quality of life which was shown to be a staggering \$162 billion. Medical costs and indirect costs were \$22 billion and \$33 billion, respectively ^[7].

As the consequences of unintentional injuries may also include the loss of family income, these childhood injuries can very often be a catalyst to household breakups and poverty ^[4].

The aim of this study was to identify the most common types and places of unintentional injuries in children in the Saudi community, as well as to explore the consequences of these childhood injuries as reported by the parents of these children.

METHODOLOGY

This was a cross sectional study, in which various surveys were used as evaluation tools. It was conducted during the ‘Childhood Safety Campaign’ (14 - 17 March 2017, in Riyadh, Saudi Arabia).

The targeted population of this study were parents who attended either of the two campaign sites (i.e. either the King Khalid University Hospital site or a shopping mall, in Riyadh, Saudi Arabia).

The study sample included parents of children (up to 17 years of age) who had been living in Saudi Arabia for at least 1 year. Parents who had no children living in Saudi Arabia were excluded from the study.

As no previous data existed locally, a convenience sampling technique was used.

The type of questions that were included in the survey were close-ended questions, which were presented to the study participants in the form of electronic questionnaires (similar to ‘Survey Monkey’). The questionnaire was piloted amongst 10 parents. Afterwards, the questionnaire was modified accordingly and tested for validity and consistency before using it in the Childhood Safety Campaign.

The main components of the questionnaire were as follows: Sociodemographic data information (for example, the parents’ ages, their educational level, their current employment status as well as their current relationship status, and the number of children they have). Other questions in the survey tried to gather information regarding the various different sources of information regarding childhood safety, and the knowledge, attitude and practice of the parents in relation to childhood safety, as well as the frequency of unintentional injuries amongst their own children.

Study participants were queried as to whether their child had experienced an unintentional injury in the last 12 months preceding the interview date. An unintentional injury was defined as an event that was not deliberately caused, for which the child received subsequent medical care at a hospital or a private office or in the form of first aid from someone (Children who were not the recipient of medical attention/treatment but who had to miss one-half day or more of regular activities were still counted in the survey). If the child had been injured, participants were asked about the last 3 episodes of injuries, specifically: what type of injury they had sustained, the location of where the injury had occurred, the consequence of that injury, and the type of medical care that was needed as a result of the injury.

Data collection methods

Each questionnaire was headed with a letter stating that participation/involvement in the survey was voluntary and that no identification data were required prior to participating in it. Ethical approval was granted by the Institutional Review Board of the College of Medicine, at King Saud University.

Statistical analysis

Analysis was performed by using the Statistical Package for Social Sciences (SPSS)[®] version 19.0 (IBM Corp., USA) for Windows[®]. Basic descriptive analysis was utilized to calculate the frequency and proportion of study variables. Means and standard deviations were calculated in order to describe the continuous variables.

RESULTS

A total of 374 parents participated in this study, with the majority of these being Saudi nationals (n= 253, 67.6%).

Table (1) shows the demographic data of the participants. In most cases, the responding parent was the mother (n= 259, 69.3%). Moreover, most of the participants in the study were married (93.9%).

Multiple Response categories was used to analyze education level of parents, the responding spouse had a female spouse with educational level that varied between illiteracy (2.1%), Elementary education (4.8%), Intermediate education (5.6%) to high school (19%) but the majority had college or higher education (68.4%). Likewise, the male spouse had education, as well, between illiteracy (3.2%), Elementary education (2.7%) or intermediate education (2.1%) but the rest had education level with high school (17.6%) or higher education (74.3%). Notably most of families had parents with college education or greater. The employment status of the parents revealed that the majority of the mothers surveyed (66.8%) were not engaged in any form of employment, whilst the majority of the fathers (88.5%) were employed.

As far as the socioeconomic status of the participants was concerned, the participants who responded to the questionnaires were in the high (35.3%) or medium (32.9%) range of monthly incomes.

Table 1: Demographic Information

	Frequency	Percentage
Respondent		
Mother	259	69.3
Father	115	30.7
Marital Status		
Married	351	93.9
Widowed	8	2.1
Divorced	15	4
Nationality		
Saudi Arabian	253	67.6

	Frequency	Percentage
Arab National	121	32.4
Mother's Age		
20 years of age or below	2	0.5
21-30	148	39.6
31-40	148	39.6
41-50	46	12.3
51-60	19	5.1
>60	9	2.4
Not applicable/missing	2	0.5
Father's age		
20 years of age or below	1	0.3
21-30	39	10.4
31-40	185	49.5
41-50	85	22.7
51-60	32	8.6
>60	21	5.6
Not applicable/missing	11	2.9
Mother's Education		
Illiterate	8	2.1
Elementary school	18	4.8
Intermediate school	21	5.6
High school	71	19
College or higher	256	68.4
Father's Education		
Illiterate	12	3.2
Elementary school	10	2.7
Intermediate school	8	2.1
High school	66	17.6
College or higher	278	74.3
Mothers employment		
Unemployed	250	66.8
Employed	113	30.2
Not applicable	3	0.8
Retired	8	2.1
Father's employment		
Employed	331	88.5
Unemployed	17	4.5
Not applicable	8	2.1
Retired	18	4.8
Gross Annual Income		
Less than 5000 SR	30	8
5000 – 10,000 SR	123	32.9
More than 10,000 SR	132	35.3
Prefer not to answer	73	19.5

Table 2: The responses of the families on key Childhood Safety Perceptions.

	Frequency	Percent
Have any of your children had any unintentional injury last year?		
Yes	122	32.6
No	252	67.4
How many unintentional injuries have your children sustained in the past 12 Months? mean (SD)	1.7 (1.3)	—

The parental perceptions on the safety places to play in within their home boundaries were also explored, and whether any of their children had had an injury of any type in the previous year (see Table 2). According to the majority of the parents, the most dangerous location of the house with regard to childhood safety within home was the kitchen (as confirmed by 82.4% of the participants who were surveyed).

Moreover, out of the 374 surveyed parents (n=122, 32.6 %) responded that at least one child of theirs had had an injury of some type within the past 12 months. The mean number of these self-reported injuries was = 1.7 (SD =1.3), denoting that approximately they reported nearly of 2 child injuries on average according to these 122 parents.

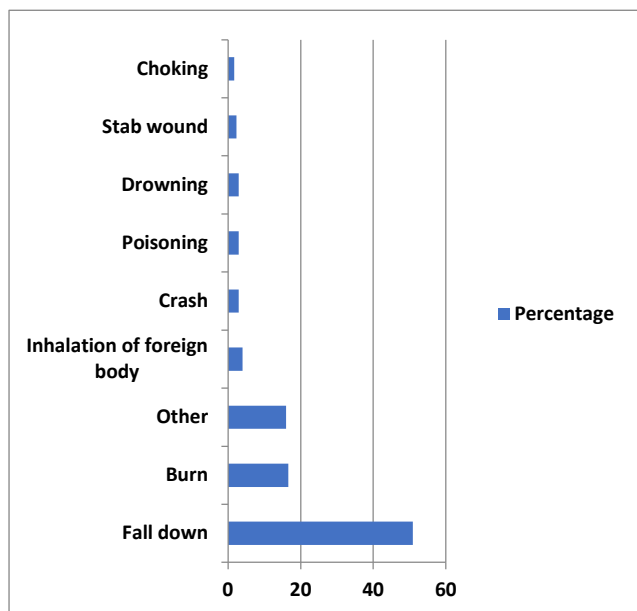


Figure 1: Percentage of children injuries reported by the parents. N=122 Injured child.

The parents were also asked to provide further information regarding any accidents not deliberately caused and that their children had sustained during

the past twelve months. They were asked to describe three separate injuries that had occurred and state the type of injury sustained, the location of the injury, the consequences of the injury, and the type of care required post-injury. Multiple response categories were used in order to analyze the three incident types. Figure 1 above provides a graphic description of the type and percentage of occurrence of various different injuries. The most common type of injury was falling down, (50.9%), whilst burn injuries (16.6%) came second.

Table 3: Table (3) Locations of child injuries reported by parents. N=122.

	Number	Percentage of cases
Home	116	66.7
Road\street	17	9.8
School	17	9.8
Other areas	15	8.6
Play area	7	4.0
Sport facility/Field	2	1.1

Regarding the locations of these Unintentional Injuries, (Table 3) represent 122 parents reported the locations that happen to their children either its single or multiple injuries and allowed to choose more than location if happen to the child more than Unintentional Injuries, Multiple Response categories was used to analyze. The majority of them happened at home (66.7%), but other accidents were reported to be in the street or at school. Incidentally, the percentage of cases for each of these two categories was 9.8%, respectively. Even fewer childhood accidents were reported to have taken place in other areas, (8.6% according to the table above) or the play area (4%). Significantly, only a very few injuries were reported to have occurred in sports fields (1.1%).

Table 4: Consequences of Children's Injuries according to 122 parents.

	N	Percentage
Contusion\abrasion	50	28.7
Cut	39	22.5
Other-suffocation.?	26	14.9
Burn	23	13.3
None	18	10.3
Fracture	18	10.3
	174	100.0

In general, 122 parents were asked to provide information on the consequences of the Unintentional injuries that their children had endured (Table 4). Multiple Response categories was used to analyze and showed 174 Consequences of Children's Injuries, most children (28.7%) endured a contusion/abrasion, followed by those who had suffered a cut resulting in a wound (22.5%). The next category were those who had suffered some other consequence such as suffocation (14.9%), or a burn injury (13.3%). The category following this were those who had experienced no ill-consequence on account of their injury (10.3%) and, finally, an equal amount were reported to have sustained a fracture which most likely as a result of falling down (10.3%).

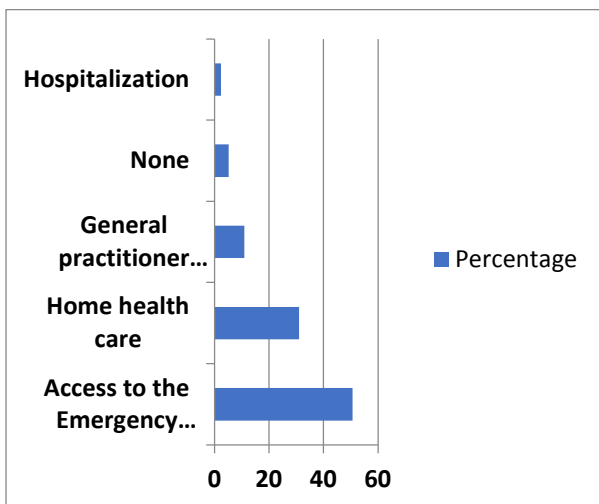


Figure 2: Types of medical care required for the injured children according to parents. N=122.

When parents were asked to provide information on what type of care was required for their child after the injury had taken place, (n=88, 50.6%) of parents responded that the child had required access to the Emergency Department, regardless of the injury type. Another proportion responded that the child was effectively treated at home (i.e. 31%). Moreover, a few of the parents surveyed (10.9%) answered that their children had needed to visit a general practitioner, whilst an even smaller proportion (5.2%) responded that the child had not required any medical care at all. Finally, only 2.3% of parents stated that their child had required hospitalization.

DISCUSSION

Childhood unintentional injuries have become a highly controversial topic and a major concern for governments worldwide. In this regard, governments have developed several protocols and

measures to address this issue. A vast number of studies have reported and discussed unintentional injuries amongst children from different age groups; however, there is variability in the spectrum of reported unintentional injury types and their rates. This may be due to the alterations in data collection methods between different studies, and in socio demographic parameters related to a specific population sample as well as culture and lifestyle characteristic differences between nations ^[8].

As for this study's aim, which was to identify common types of childhood unintentional injuries, and places where they are most likely to happen and their consequences on families, a citywide survey was conducted. The reported prevalence of childhood unintentional injuries for this study (32%) highlighted the seriousness of the topic. The reason being that when compared to other studies, this figure is almost double or even triple the number recorded in this study ^[9-11].

After analyzing the main causes of these reported unintentional injuries, a staggering percentage of them were reported as 'fall down injuries' followed by burn injuries. These figures did not come as a great surprise, as most of the reported injuries in the literature stated these types of injuries as being the most likely to occur ^[9, 12-16]. Also, these figures were consistent with a previous study published by the World Health Organization which reported that approximately 60% of the childhood unintentional injuries are most likely to occur through falling ^[8].

Regarding the locations of these injuries, home, another dominant category, was ranked as being the prime location in which falls occurs with more than half the reported unintentional injuries occurring in this domain. This was followed by less significant locations such as in the street and in the school. Home injuries are considered to be a serious issue, according to the Center of Disease Control and Prevention USA. In 2009, more than 9,000 youths aged between 0-19 died from unintentional injuries in the United States. Millions more children suffer injuries requiring treatment in the emergency department. Leading causes of child injury include motor vehicle crashes, suffocation, drowning, poisoning, fires, and falls. Falls are by far the most common causes of accidents at home; they account for 44% of all childhood accidents ^[17-19]. However, the most serious consequences result from falls between two levels, such as falling out of a pram or highchair or falling from a bed. The worst injuries are sustained

when a child falls from a great height or lands on something hard, sharp, or hot object. According to The Royal Society for the Prevention of Accidents, those most at risk from a home accident are the 0-4 years' age group. Falls account for the majority of non-fatal accidents because children are often absorbed in their own immediate interests causing them to be oblivious to their surroundings. They only have a limited perception of the environment because of their lack of experience and development. They are not aware of the consequences of the many new situations that they encounter daily. Most of these accidents are preventable through increased awareness, improvements in the home environment and greater product safety. Moreover, similar results were reported in several studies that were conducted in both Italy and India ^[6,9]. On the other hand, in western societies, streets and schools were the most common location in which children were most likely to get injured. As most parents allowed their young ones to cross residential streets and walk to school unaccompanied.

Furthermore, this study has shown that approximately half the children who experienced unintentional injuries in subsequently required access to the Emergency Department. This same finding was reported in a previous study that was carried out in Saudi Arabia where one third of the children who featured in the study required hospital admission after suffering a head injury on account of a home based unintentional accident. In another study in the United Arab Emirates, the number of pediatric trauma cases that were reported represented one third of all patients attending the Hospital Emergency Room ^[20].

Preschoolers and elementary school students were mostly affected ^[21]. Another American study reported that 38.7% of injurers had to endure at least one day of bed rest or be absent from school for a day, whilst others required hospitalization, or surgery ^[22]. Moreover, in the same study, 122 (89.2%) of the injured children had to be seen by a health professional.

Furthermore, according to the World Health Organization Report on Child Injury Prevention, an injury survey in China reported that for every child death resulting from a fall, 4 cases of permanent disability were incurred, 13 cases required hospitalization for 10 or more days, 24 cases required hospitalization for 1-9 days, and 690 cases sought medical care or missed at least one day of work or school. According to the same source, falls are the most common type of childhood injury

presenting at Emergency Departments, roughly accounting for between 20-25% of such visits ^[23].

CONCLUSION

Parents visiting the Childhood Safety Campaign in Riyadh reported that different types of unintentional injuries still occurring frequently amongst children in Saudi Arabia. However, child falls were the most frequently reported type of injury. Hence, the Childhood Safety Campaign needs to focus on raising awareness of the dangers of child falls as well as their prevention. Educating parents regarding primary wound care is also highly recommended.

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