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A descriptive research to find the level of knowledge regarding unintentional injuries among mothers of 4-6 year children in Udaipur city, Rajasthan

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Abstract

Child endurance - portrays the most imperative moral dilemma of the new millennium as with the anticipated succession of child age, injuries bounce to amplify spectacularly. Still, injury prevention is not of a serious apprehension in India. In concomitant to this our former Union Minister of Health and Family Welfare, Govt. of India and Advisor to World Health Organization- Dr. Harshvardhan revealed that the emerging area where urgent action is required is Injury Prevention and Control because it is the area not well appreciated by health policy makers and healthcare providers. Seeing the grimed injury scenario, specific directed efforts are required to avert the unintentional injuries in children. Research is needed to identify the magnitude and distribution of risks experienced by the children and a pressing need to develop suitable intervention and strategies for the credible advocate of child safety especially the mothers. Consequently, the initiative through present research is intended to identify mothers knowledge regarding the causative factors of the injuries which will help formulate communication strategies towards prevention of injuries among children and their families. Therefore, on the study findings multimedia package was developed so that, a few key steps can be taken forward by the mothers in the battle to trim down injuries from the blooming lives each day.

Keywords: Unintentional injuries, knowledge, communication strategies

Introduction

"There is nothing more precious to a parent than a child, and nothing more important to our future than the safety of our children."-Bill Clinton.

Childhood the most crucial stage, ready to take on the world. Being the wealth of tomorrow, ensuring their endurance, development and protection means investing in the future of the nation. Each child's death is heart breaching, no matter what the cause. However, when a child depart due to unintentional injury, it is particularly tear-jerking, because almost every single fatality could have been prevented as injuries are currently considered as predictable and preventable. It is staggering to know that, injuries have become the first cause of death in the first five years of life and the most common cause of death among the children (UNICEF, 2007 and WHO, 2012) [21]. Injuries are steadily increasing in developing countries like India and systematic and scientific efforts in injury prevention and control are yet to begin in India (Uthkarsh *et al.*, 2012) [22].

Consequently, the distressing injuries whether due to traffic or at home needs imperative steps to revoke the rising trends. The most promising one to combat the issue is knowing the gaps in the knowledge base of the basic epidemiology of injuries among the mothers as mothers, are an important care provider and is strongly responsible to improve the safety of the children. But, it was astounding to be acquainted with mothers' awareness regarding the injury problem, its scope and the preventability which remains unacceptably low and also they do not routinely think about injury risk in the course of their day-to-day interactions with their child. Findings indicate that parents do not hold a strong belief in the preventability of injuries, though they believe that they can somehow keep their child safe (Vincenten, *et al.*, 2005 and Shrestha, *et al.*, 2014) [24, 16]. Thus to develop a rational unintentional child injury prevention program, the study aimed to explore from the mothers the causative factors of the prevalent unintentional injuries i.e. road traffic injury, burns/scalds/ electrocution, poisoning, falls/slips/trips and drowning among children of 4-6 year of age group.

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Materials and Methods

The study was conducted purposively in Udaipur city (Rajasthan). The three study areas (private-schools) were selected in Udaipur. A Sample of 180 mothers of children of two age groups 4-5 years and 5-6 years formed the part of the study as studies (Razzak, *et al.*, 2004, Verma, *et al.*, 2009 and Zaidi *et al.*, 2013) [14, 23, 28] divulge that the observed frequency of injuries are more in the age group of 6-12 years, respectively. From all the three schools a sample of 30 mothers of 4-5 year children and 30 mothers of 5-6 year children were purposively selected who were willing to participate in the research study.

Distribution of sample units

S. No.	Age of children	School -1	School-2	School-3	Total
1	4-5 years	30	30	30	90
2	5-6 years	30	30	30	90

For collection of data structured questionnaire (schedule) was used which consisted of 56 closed ended questions regarding causative factors of unintentional injuries. This had five parts i.e. Part-I, Part-II, Part-III, Part-IV and Part-V. All the questions were closed ended eliciting the response in either yes or no. The respondents scored one point for each knowledge question answered correctly and zero for wrong and “do not know” answers. The highest score was '180' and the least score was '0'. The level of knowledge scores of mothers was classified as follows:

Scale 1 (1 to 180)

Average Score	Level of Knowledge
1 to 60	Poor
61 to 120	Average
121 to 180	Good

Results

This segment of the research bring forth the Mothers’ knowledge towards the Causes of Unintentional Injuries and to serve the objective unintentional injuries was divided into five parts i.e. road traffic injuries, burns/scalds/electrocution, poisoning, falls/slips/trips and drowning. From literature review and expert’s opinion various causes responsible for these injuries were identified and then respondents were requested to contribute to their opinion for various statements.

Part- I Causes of Road Traffic Injuries.

Part- I elicited the response regarding the various causes of Road Traffic Injuries classified under sub heads associated to bicycling, car injury, at the time of two wheeler riding, during walking or crossing the road and because of school bus. Responses are revealed in Table 1.1

Table 1.1: Causes of Road Traffic Injuries

S. No.	Causes of Road Traffic Injuries	Mean Score
I	Bicycling related	60
II	Related to car	58
III	Two-wheeler (Scooter/Scooty/bike etc)	69.5
IV	Walking/Crossing the road (Pedestrians)	56.5
V	School Bus /Van/Auto	80.5

Bicycling is a popular means of recreation for children; however, it is a leading cause of recreational injury (Richmond, *et al.*, 2014) [15]. Perusal of Table 1.1 reveal that

the mean knowledge score of the mothers regarding causes of bicycle injury was found to be 60 out of 180 maximum score. This reveals that mothers are unaware regarding the safe bicycling path as well as the necessity of helmet while cycling. To shun car related injuries when the answers were disclosed relevant to the position of the child at car seat, use of seat belts, speed of a car etc the mean knowledge score of the mothers was found to be poor as the score was merely 58.

Respondents don’t know the menace of a two wheeler ride with children as the mean knowledge score was average (69.5). School-going children were affected by the two-wheelers most and of 220 children involved in RTA, 20.45% were two- wheeler passengers (Sharma, *et al.*, 2011) [17].

Pedestrians are the major road traffic injury culprit. Pedestrian injury remains the second leading cause of unintentional injury-related death among children aged 5 to 14 years (Chakravarthy, *et al.*, 2007) [3]. In the present investigation, when response regarding safe play areas for children and crossing an empty road was investigated the mean knowledge score for both statements was 56.5, which is awfully poor. The implementation of a pedestrian safety education program in public schools can change the knowledge and beliefs about safe pedestrian behaviors among students and their parents or caregivers with the goal of reducing morbidity and mortality of children (Violano, *et al.*, 2009) [25]. Average knowledge score 80.5 was obtained by the mothers regarding the safe means of conveyance for school children.

In summary, it can be figure out that out of the five causes of road injuries the mean knowledge score is poor for three causes which is bicycling, related to car and during walking or crossing the road i.e. pedestrian safety and average for two causes i.e. two wheeler riding and school bus/van/auto. The consequences of these results can be devastating. Therefore, stimulating interest in road injuries among mothers is aspired.

Part- II Causes of Burns/Scalds/Electrocution

Part-II discovered the response regarding the causes of Burns/Scalds/ Electrocution classified under sub heads linked to electric current and equipments, cooking food, fireworks, hot items and sun burn which is revealed in Table 1.2

Table 1.2: Causes of Burns/ Scalds/ Electrocution

S. No.	Causes of Burns/ Scalds/ Electrocution	Mean Score
I.	Electric current & Electric equipments	114
II	While cooking food	82.5
III	Fireworks	34.5
IV	Hot items (Liquid/solids)	51
V	Sun Burn	105

A glance through Table 1.2 indicate that the sample respondents were having an overall average mean score of 114 of 180 for electric current and equipments, which wind up with the reality that mothers are not fully aware of the good and bad conductors of electricity as well as the safe removal of cord from plug which may be fatal.

The mean knowledge score for reasons of injury while cooking food was found to be 82.5 which disclose to the realism that mothers are not having substantial knowledge regarding comparative temperature of hot oil and water. Along with this they are also not known to the difference of burns and scalds.

Mothers are not well-known to the dreadful effects of fireworks as the mean knowledge score for causes for firework injuries was found to be only 34.5 of 180 which is terribly poor. Therefore, respondents’ knowledge need to be

strengthened regarding the risk factors associated with fireworks. Maximum number of injuries (35%) was seen in the age group 5-14 years. We can minimize the number and severity of fireworks accidents by raising awareness regarding safety precautions (Puri, *et al.*, 2009) [13]. Technically respondents didn't know the safe temperature of bathing water for young children and along with this they were also in dilemma that whether it was safe to use table cloth in place of table mats or not as the mean knowledge score for both the causes was only 51.

To avoid sunburn respondents were aware of few causes and unaware of the rest as the mean score was mere 115. Mothers should be familiar that the childhood exposure to ultraviolet (UV) light increases the risk for skin cancer melanoma, therefore, starting positive sun protection habits early may be key to reducing the incidence of this disease (Geller, *et al.*, 2003) [5].

In a whole, it can be concluded that mean scores for Burns/ Scalds/ Electrocutation range in poor & average knowledge category which can create an alarming rise in the incidences of burn/scalds/electrocutation injury. Therefore emphasizing mothers' education for causative factors of burns is required.

Part- III Causes of Poisoning

Unintentional use or consumption of poisoned products is also a major reason of injury as these are materials capable of causing adverse effects in living beings. The part- III of the study examined the knowledge of mothers regarding the causes of accidental Poisoning in children classified under sub heads allied to the house hold products, pet animals, carbon mono oxide, art supplies, unknown plants and medicines so that an effective preventive programme can be developed to secure the impending life of the tiny ones.

Table 1.3: Causes of Poisoning

S. No.	Causes of poisoning	Mean Score
I.	House hold products which can cause poisoning in children	132.2
II.	Pet animals	119.5
III.	Carbon mono oxide	119
IV	Art supplies	78
V.	Unknown plants	73.5
VI.	Medicines	104

Results shown in Table 1.3 indicate that the mean knowledge score for common house hold products was found to be 132.2 of 180 which discloses that remaining one-third mothers did not know that the common house hold products like rat killers, mosquito repellants, insecticides, cleaning agents like floor cleaner, glass cleaner etc, small batteries, lead, cosmetics, shampoo, mouth wash, shaving foam and even camphor can also be the cause of poisoning. A parallel study also unveil that nearly 30-35% mothers didn't know that common household products are responsible for the higher incidence of poisoning (Ghaffar, *et al.*, 2015) [7].

Many household have pets and that can also be a source of poison. When response regarding food of pet and safe place for animal defecation was elicited the knowledge score was found to be 119.5 which range in nearly good knowledge category and is praiseworthy. The mean scores for carbon mono oxide poisoning was 119 and can be inferred that mothers were having average knowledge about the cause. Preventing carbon monoxide poisoning is increasingly recognized by safety advocates as a public health priority (McDonald, *et al.*, 2010) [10].

The present research make known to the reality that the mothers were unacquainted with the adverse effect of instant glue, permanent markers and powdered clay as the mean score for art supplies was only 78 which wind-up with the fact that mothers need to be made aware of the non-toxic art and craft products.

Respondents are not aware of the poisonous effect of common household plants in the home and surroundings. Gorea in 2009 divulge that ornamental plants may pose a problem and some of these may be poisonous. Preschool age group formed the largest group of poisoning victims (71.73%) (Sharma, *et al.*, 2011) [17]. In the case of poisoning due to unknown plants in the present investigation the mean score was only 73.5 which shows that mothers would have never assumed that lots of plants are poisonous or capable of causing highly allergic reactions as well as child can eat seeds of any plant mistaking them for fruits. Enlightenment through educating young people about harmful effects of plants could possibly help us to bring down the morbidity and mortality rate (Kiran, *et al.*, 2008) [9].

In India, pharmaceutical agents are most commonly abused agents (Ghaffar, *et al.*, 2015) [7] and Sheriff, *et al.*, 2011 [19] in a study in North Kerala also reported that the leading type of poison was drugs (48.1%). Mean response 104 of 180 regarding the causes of medicine knowledge i.e. using medicine as candy and over dosage of iron/vitamin tablets, focuses the mothers average understanding towards medicinal injury.

Among all the six causes of poisoning the respondents mean score was found to be average in five causes. Only the respondents had good knowledge regarding the house hold products causing poisoning in children. The mean average scores of mothers warranties mothers/parents-focused program for all causes of poisoning specially for unknown plant safety, art supplies and medicines.

Part- IV Causes of Falls/Slips/Trips

The part- IV of the present study elicited response concerning the causes of Falls/Slips/Trips classified under sub heads related to stairs, window/balconies/places with height, small wheeled equipments, furniture / huge equipments, floor and play ground. The results revealed are presented in the Table 1.4 given below.

Table 1.4: Causes of Falls/Slips/Trips

S. No.	Causes of Falls/Slips/Trips	Mean Score
I.	Stairs	84.5
II.	Window/balconies/Places with height	18.5
III.	Skates, micro scooters etc	26
IV	Furniture/Huge Equipments	66.5
V.	Floor	142.5
VI.	Playgrounds	47.5

Table 1.4 indicate that the response assessed regarding cause of fall due to stairs make known that mothers had an average mean knowledge score of 84.5 as considerable respondents opined correctly for two way light arrangement in stairs but the concept of stair safety gate was still unfamiliar to them.

The sample were also wavering to the causes of falls due to windows/ balconies/places with height as mean score for these was mere 18.5 i.e. terribly poor. Respondents are unaware of the technical standards for these things. The large number of injuries because of falls could be targeted, according to WHO guidelines, by the establishment of standards for windows, roof railings and stair (Tandon, *et al.*, 1993) [20].

To evade falls by small wheeled equipments i.e. skates, micro scooters etc, the respondents didn't had ample knowledge concerning the safe path & the protective gear for these equipments as the score projected in this was only 26 of 180. Respondents had mean knowledge score of 66.5 regarding the injury caused by furniture/huge equipments. It means that respondents do not know the safety standards for furniture/huge equipments which can be injurious for any child.

While asked about the causes responsible for injury on the floor, it was cheering to find that respondents knowledge score was good (142.5). Respondents knew very well that light rugs/carpets can cause falls and shoes with Velcro/elastic laces prevent children from falling.

Regarding the causes of fall in playground, the mean scores were found to be 47.5 of 180 which depict poor knowledge of mothers regarding the playground equipments. Playground equipment is among one of the locations, from which children commonly fall. (National Action Plan for Child Injury Prevention, 2012) [12].

In summary, it can be generalized that major chunk of the respondents are having poor knowledge about some causes and for the remaining causes have average knowledge rather than good knowledge score. Therefore, there is a burning need to accentuate the causes of fall injuries because falls was the highest recorded domestic accident reported in the study by Chaudhari, *et al.*, in 2009 [4]; Aggarwal, *et al.*, 2009 [1] and Shawon, *et al.*, in 2012 [18]. Fall rates can be reduced through community-based public health programmes. To date India has not established any widespread programme for the prevention of falls (Jagnoor, *et al.*, 2011) [8].

Part- V Causes of Drowning

The causes of drowning were divided into two categories; first at home & outside and second at swimming pool. The detail information has been presented in Table 1.5.

Table 1.5: Causes of Drowning

S. No.	Causes of drowning	Mean Score
I.	At home and outside (River, lake, ponds etc)	110
II.	Swimming pool	66

The perusal of Table 1.5 regarding the cause of drowning at home & outside reveals the mean knowledge score of 110 of 180 maximum score. This discloses the fact that few mothers were aware of the casualty caused due to the depth of water and the essentiality of life saving jacket. May be the reason behind was that the mothers knew the fact that victims of drowning have a very slim chance of survival after immersion (Mohan and Varghese, 2002) [11].

For the causes of drowning in swimming pool greater part of respondents were unaware regarding the cause that children should not suppose to swim below the diving board, diving is not safe for children, the reliability of the safety devices like arm bands / floats and the importance of self-closing and latching gates as the mean score was simply 66 of 180 maximum score.

Though mean scores revealed average knowledge for both the causes but the score for drowning in swimming pool was near to poor level of knowledge among mothers. The knowledge was ominous and mothers information need to be accentuated because still they may be unacquainted of the truth that globally, the second highest drowning rates are among

children of 5-9 years and low- and middle-income countries account for 91% of unintentional drowning deaths (WHO, 2014) [27].

Overall Knowledge towards Causes of Unintentional Injuries

The study exposed to a significant gap in mothers' overall knowledge towards causes of Unintentional injuries specified in Table 1.6. It revealed that, the overall mean knowledge score of all the 180 mothers was average in all the injuries ranging from 64.25 to 111.31 of 180 maximum score. From the study outcome mentioned in Table 1.6 make known that the knowledge score was highest in Poisoning (111.31) followed by Burns/Scalds/Electrocution and Drowning which is almost comparable (80.81 and 80.66). May be the reason behind was the severity of these injuries forced mothers to get acquainted to important factors causing harm to their child. But despite the verity that road traffic accidents and falls are the most common cause of injury in pediatric trauma (Sharma, *et al.*, 2011 and Babu, *et al.*, 2016) [17] surprisingly, our results revealed that the mean knowledge score of the mothers for these two injuries (64.27 and 64.25) was just above the poor score (60), which was an indication of a lack of satisfactory knowledge level. Slim forethought on behalf of mothers can help evade ruinous consequences for the children.

Table 1.6: Overall Knowledge towards Causes of Unintentional Injuries

S. No.	Types of Unintentional Injuries	Average Knowledge Score	Level of Knowledge
I	Road Traffic Injuries	64.27	Average
II	Burns/Scalds/Electrocution	80.81	Average
III	Poisoning	111.31	Average
IV	Falls/Slips/Trips	64.25	Average
V	Drowning	80.66	Average

Conclusion: The findings are alarming and needs swift and dynamic actions to prevent such injuries by implying a specialized training program via multimedia package intended to impart knowledge regarding unintentional injury causes to mothers, especially having children of 4-6 years of age group. It will in turn help her in acquiring a better efficiency and vigil to prevent her child from injuries.

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