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# Knowledge of mothers regarding the causes of unintentional injuries among 4-6 year children in Udaipur city, Rajasthan

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## ABSTRACT

Unintentional injuries are the leading threat to child's continued existence but still, its prevention is not a serious apprehension especially in India. Consequently, the most hopeful one to battle injury problem is starting from the bottom and that could be achieved by addressing the mother's knowledge base. Accordingly, 180 mothers of Udaipur (Rajasthan) were selected through a stratified purposive sampling technique using a self designed questionnaire to elicit response regarding the causative factors of the most prevalent unintentional injuries *i.e.* Burns, Scalds and Electrocution, Poisoning and Drowning among children of 4-6 year age. The overall mean knowledge score of all the 180 mothers in the present research embrace that respondents don't clutch good knowledge regarding the causative factors of these three unintentional injuries. Also, the study exposed to a significant gap in mothers' overall knowledge towards Unintentional injury causes as the scores ranged from 80.66 to 111.31 of 180 maximum score. The findings make known that the overall mean knowledge score was highest in Poisoning (111.31) followed by Burns, Scalds and Electrocution (80.81) and Drowning (80.66). These set of findings facilitated in formulating innovative and targeted communication strategies 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.

## INTRODUCTION

Children are courageous, inquisitive to escapade, living in surroundings designed merely for adults and knowing the outcome of hazardous trials is a learnt behaviour naturally lacking in them resulting in unintentional injuries. Globally, deaths from injury have increased by 10.7%, from 4.3 million deaths in 1990 to 4.8 million in 2013 (Naghavi *et al*., 2015). When a child departs 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 (Georgia Child Fatality Review, 2015). But important gaps exist in the empirical data for cause of death estimates for a country like India where there is no national data available for the past decade (Naghavi *et al.*, 2015). Consequently the most hopeful one to battle the injury problem is starting from the bottom and that could be achieved by addressing the mother's knowledge base, as they are powerfully

accountable to nurture child's curiosity and perk up their safety from the inimitable challenges of unintentional injuries (Nath and Naik, 2007). But, there also it is astounding to be acquainted with mothers' awareness regarding the injury dilemma, its scope and the preventability which remains inappropriately low and also the mothers don't habitually think regarding injury hazards in the course of their everyday interactions with their child. The literature about mothers' knowledge regarding unintentional injuries from different part of world like Qalubeya governorate (Eldosoky, 2012), Baghdad (Lafta *et al*., 2014), Assiut Governorate (El-Aty *et al.,* 2005 ), Tehran (Hatamabadi *et al*., 2014), China (Wang *et al*., 2012), Singapore (Thein *et al*., 2005), Nepal (Shrestha *et al*., 2014); Tripura (Debnath *et al.,* 2014), Kanyakumari (Suguna, 2015), Chennai (Hema and Dilli Babu, 2015) etc from India expose to the fact that the mothers knowledge level still range around average category with a slight inclination towards poorer category.

Therefore without the knowledge of the fundamental epidemiology of injuries, well-organized injury prevention and acute care cannot be carried out by the mothers. Urgent attention is needed to reduce child injuries and address risk factors according to local context (Kataoka *et al*., 2015). Therefore, the initiative through present research was intended to identify mothers' knowledge regarding the causative factors of unintentional injuries so that the set of findings can serve as a basis for innovative and targeted injury-specific communication programmes.

**Objective :**

To assess the knowledge of mothers regarding the causes of three unintentional injuries among children of 4-6 years of age.

## MATERIAL AND METHODS

The study was conducted purposively in Udaipur city (Rajasthan) and three non-government schools were selected fulfilling the criteria of objectives. A stratified purposive sampling technique was used. The study population was divided into two strata *i.e.* 90 mothers having children of 4-5 years of age and another 90 mothers having children of 5-6 years of age. So, a total of 180 mothers constituted the sample. Self designed questionnaire was used to elicit the response related to the causative factors of the three prevalent injuries *i.e.* Burns, Scalds and Electrocution, Poisoning and Drowning. Specifically, 180 respondents were asked to comment on thirty-three causative factors, having 6 to 16 questions per injury type. On the basis of the scores attained the level of knowledge scores of the mothers was classified as poor for 1-60, average for 61-120 and good for 121-180.

## OBSERVATIONS AND ANALYSIS

This segment of the research bring forth the Mothers' knowledge toward the Causes of Unintentional Injuries and to serve the objective unintentional injuries was divided in three categories (I - III ) *i.e.* Burns, Scalds and Electrocution, Poisoning and Drowning. From literature review and expert's opinion various causes responsible for these injuries were identified. This knowledge result was further used to prop up pioneering loom to mother-directed interventional programme that targeted specific injury type. Lafta *et al.* (2014) choose to study knowledge the risk factors of domestic injury and its prevention because understanding these factors is necessary for developing intervention to not only change behaviour, but also to educate individuals.

**Mothers' knowledge regarding the causes of burns, scalds and electrocution :**

The Fig.1 represents the entire response regarding the causes of burns, scalds and electrocution.

For electric current and equipments injury causes, 76.7 % of the sample were having correct concept regarding Pulling cord directly from plug can cause electric shock and 76.1% had a right impression for Electric current flows rapidly in human body. On the counter side 62.2% respondents don't know that Current does not flow from clothes and glass as majority of them had denied this statement for which it can be concluded that mothers were not able to distinguish between the good and bad conductors of electricity. The overall average knowledge score 114 wind up with the fact that mothers were uninformed of the fatality of electric current and equipments.

Response for the cause of injury during Cooking revealed that the concept Scald are the burns caused by hot liquids or steam was known by only 15% mothers as remaining 85% answered that Steam of hot food cause burns in children rather than scalds. But, 76.7%

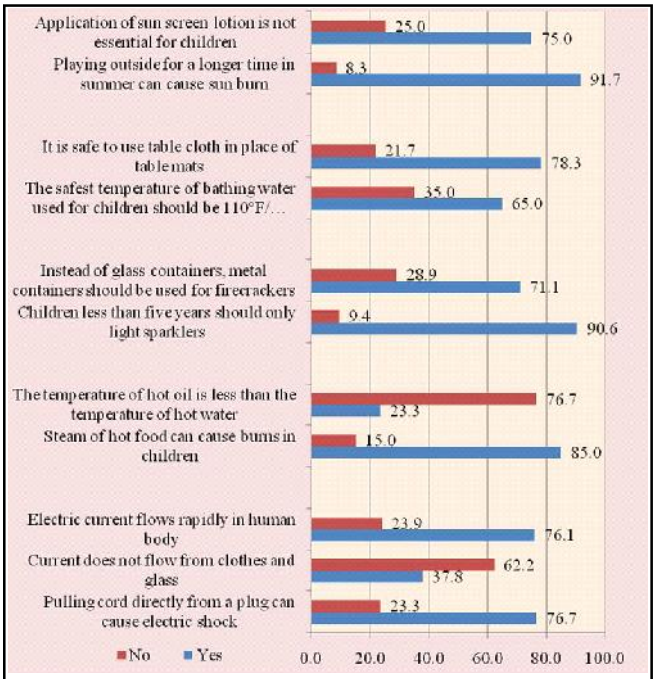


**Fig. 1 : Mothers' knowledge regarding the causes of burns, scalds and electrocution**

**Table 1: Mothers' knowledge regarding the causes of burns, scalds and electrocution**

| Sr. No. | Causes of burns, scalds and electrocution | Mean score |
|---|---|---|
| 1. | Electric current and electric equipments | 114 |
| 2. | While cooking food | 82.5 |
| 3. | Fireworks | 34.5 |
| 4. | Hot items (Liquid/solids) | 51 |
| 5. | Sun burn | 105 |

respondents were very well-known for the other cause that the temperature of hot oil is greater than the temperature of hot water.

For the causes of Firework injury maximum respondents *i.e.* 90.5% had the wrong notion that child less than five years age can light sparklers safely. Here the mothers were not known to the verity that sparklers should not be given to the children until the age of five. Furthermore, 71.1% mothers responded wrongly that Instead of glass containers, metal containers should be used for firecrackers. Maximum number of injuries (35%) was seen in the age group 5-14 years and we can minimize the number and severity of fireworks accidents by raising awareness (Puri *et al*., 2009).

The knowledge of mothers regarding the causes of burns and scalds due to Hot items discovered that Technically respondents don't know that the safest temperature for bathing young children should be 100°F/ 37.8°C as 65% of the mothers agreed for 110°F/43.3°C (slight hot) as safe bathing water and along with this 78.3% mothers were also in dilemma that whether. It was safe to use table cloth in place of table mats or not as the score for this statement was only 39.

To avoid Sunburn 91.7% respondents were not in favour of Children playing outside for a longer time in summer but surprisingly, 75% opined that Sun screen lotion is not essential for children at this age. It has been estimated that the regular use of sunscreen during childhood would reduce the lifetime incidence of certain types of skin cancer by 78% (Sheer, 1999).

On the whole, the mean scores ranged in poor and average knowledge category for Burns, Scalds and Electrocution as revealed in Table 1. For fireworks and hot items the mean score was poor (34.5 and 51) however the mean score was average for electric current and equipments (114), sunburn (105) and while cooking food (82.5). Subsequently, that can create an alarming rise in the incidences of Burns, Scalds and Electrocution injury.

## Mothers' knowledge regarding the causes of poisoning :

Unintentional use or consumption of poisoned products is also a major cause of injury. This fragment provided an insight for the knowledge of mothers regarding the causes of accidental poisoning in children whose complete analysis is presented in Fig. 2.

Sizable respondents (93.9%) elicited that some of the products which caused poisoning in children were Rat killers, insecticides, mosquito repellants reported respondents; only 70% revealed that cleaning agents like floor cleaner, glass cleaner etc may be poisonous; Small batteries can cause poison was revealed by 63.9% mothers; Lead by 79.4% mothers; Cosmetics, shampoo, mouth wash, shaving foam etc by 65.6% respondents and Camphor by 67.8% mothers. The mean knowledge score of common household products was 132.2 which disclose that nearly one third mothers did not know that the common household products can cause poisoning. A similar study also discloses that nearly 30-35% mothers didn't know that common household products are responsible for the higher incidence of poisoning (Ghaffar *et al*., 2015).

Many household have Pets and can also be a cause

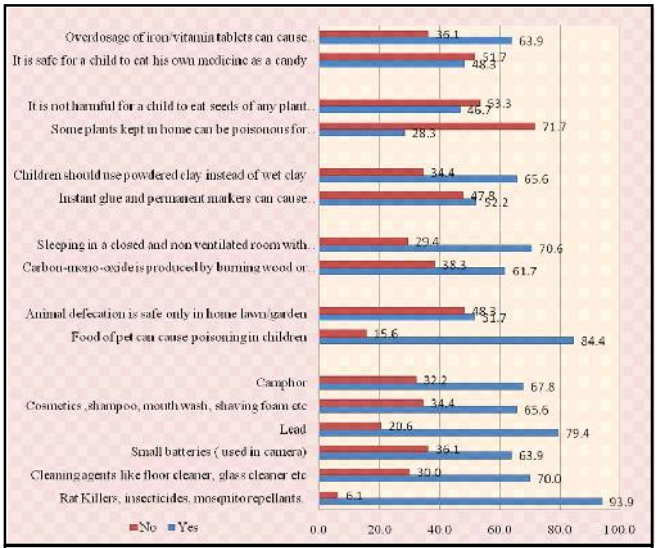


**Fig. 2 : Mothers' Knowledge regarding the causes of poisoning**

**Table 2 : Mothers' knowledge regarding the causes of poisoning**

| Sr. No. | Causes of poisoning | Mean score |
|---|---|---|
| 1. | Common house hold products | 132.2 |
| 2. | Pet animals | 119.5 |
| 3. | Poisonous gases | 119 |
| 4. | Art supplies | 78 |
| 5. | Unknown plants | 73.5 |
| 6. | Medicines | 104 |

of poison. When asked from respondents' generous number (84.4%) agreed that food of pet can cause poisoning in children but only 48.3% agreed that animal defecation was not safe in home lawn/garden.

Sizeable respondents (61.7%) were known to that Carbon mono oxide is produced by burning wood or charcoal in closed non ventilated room and 70.6% respondents were of the correct opinion that Sleeping in a closed and non ventilated room with room heater on can cause suffocation in children. Here all the scores were average and can be inferred that mothers were having average knowledge about the causes of carbon mono oxide poisoning. Preventing carbon monoxide (CO) poisoning is increasingly recognized by safety advocates as a public health priority. Yet little attention has been placed on developing and evaluating comprehensive CO programmes (McDonald *et al*., 2010).

Nearly 47.8% respondents were unfamiliar of the poisonous effect of Instant glue and permanent markers which may contain toxic solvents and 65.5% were void of the harmful effect of powdered clay, which contains silica that is easily inhaled and damage the lungs. The mean knowledge score for Art supplies was 78 which wrap up with the fact that mothers were not aware of the harm caused by these products.

For injury due to unknown plants, 71.7% respondents were not attentive with the reality that Some plants kept in home can be poisonous for children. Gorea in an editorial in (2009) divulge that ornamental plants may pose a problem and some of these may be poisonous. And also, only 53.3% mothers agreed with the argument that It was harmful for a child to eat seeds of any plant mistaking them for fruits. Preschool age group formed the largest group of poisoning victims (71.73%) and 10.86% of these victims had ingested castor seed (Sharma *et al*., 2011). In the case of poisoning due to Unknown plants in the current study, the mean score was only 73.5 which confirmed that mothers would have never assumed that lots of plants are poisonous or capable of causing highly allergic reactions.

Response regarding the causes of Medicinal injury in current study discovered that only half *i.e.* 51.7% of the respondents were of the opinion that It was not safe for a child to eat his own medicine as a candy. 63.9% affirmed that Over dosage of iron/vitamin tablets can cause immediate harm to children. Accidental poisoning in children can occur with vitamins also in home (Asghar *et al*., 2010). The mean scores for both the causes of poisoning focused the mothers' average awareness towards medicinal injury causes.

Among all the six causes of Poisoning the respondents' mean knowledge score was found to be average in the five causes as presented in the Table 2 given below. Only the respondents had good knowledge regarding the Household products and in that also near about one third of the mothers were not having substantial information regarding the harmful effects of Cleaning agents; Cosmetics, shampoo, mouthwash etc., Camphor; Lead and Small batteries. The mean average scores of mothers for all causes of poisoning warranties mothers / parents-focused program especially for unknown plant safety, art supplies and medicines.

**Mothers' knowledge regarding the causes of drowning :**

The causes of Drowning were divided into two categories; first At home and outside and second at

Swimming pool. The detailed analysis has been presented in Table 3 and Fig. 3. 70% of the mothers need to know that a small child can drown in a matter of seconds and in just few inches of water (Lowe, 2005). For the second cause Life saving jacket is essential for children while boating 92.2% respondents answered correctly. May be the reason behind was the fact that victims of drowning have a very slim chance of survival after immersion (Mohan and Varghese, 2002).

For the causes of drowning in Swimming pool greater part of respondents (68.3%) were unaware that Children should not swim below the diving board and 40% stated that Diving was safe for children which was a wrong notion. The third cause of drowning in pool again disclosed the disappointing concept by 84.4% mothers that Safety devices like arm bands / floats were reliable during swimming. When asked for the opinion on the statement that Pools should have self closing and latching gates, 60.6% of respondents showed disagreement which was again a wrong response.

Though mean scores revealed average knowledge for both the causes of swimming but the score for drowning in swimming pool was very near to poor level of knowledge among mothers. The knowledge was ominous and mothers information need to be accentuated because still they may be uninformed of the fact 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 (Xu, 2014).

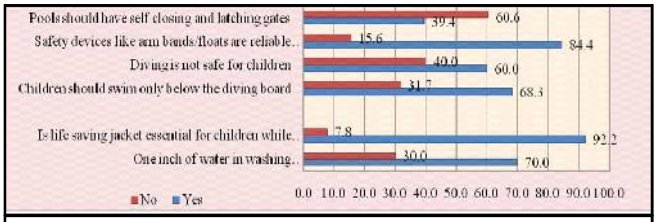


**Fig. 3 : Mothers' knowledge regarding the causes of drowning**

**Table 3 : Mothers' knowledge regarding the causes of drowning**

| Sr. No. | Causes of drowning | Mean score |
|---|---|---|
| 1. | At home and outside (River, lake, ponds etc.) | 110 |
| 2. | Swimming pool | 66 |

On the whole, the overall mean knowledge score of all the 180 mothers was average in all the injury type *i.e.* Burns, Scalds and Electrocution, Poisoning and Drowning as revealed in Table 4 but, the study exposed to a significant gap in mothers' knowledge towards Unintentional injury causes as the scores ranged from 80.66 to 111.31 of 180 maximum score. The findings of the present research make known that the mean knowledge score was highest in Poisoning (111.31) followed by Burns, Scalds and Electrocution (80.81) and Drowning (80.66) concurrently.

**Table 4 : Overall knowledge of mothers' towards the causes of unintentional injuries**

| Sr. No. | Types of unintentional injuries | Knowledge score |
|---|---|---|
| 1. | Burns, scalds and electrocution | 80.81 |
| 2. | Poisoning | 111.31 |
| 3. | Drowning | 80.66 |

## Conclusion:

From the study outcome, it can be reiterated that the mothers in the present research don't clutch good knowledge regarding the causative factors of unintentional injuries but knowing the severity of Poisoning have knowledge to some extent (average) regarding this injury. Despite the verity that, Burns, Scalds and Electrocution and Drowning were the most common cause of injury in pediatric trauma surprisingly, our results revealed that the mean knowledge score of the mothers about these two injuries was near to the poor knowledge score (60), which was an indication of a lack of satisfactory knowledge level. Slim forethought on behalf of mothers can help evade disastrous consequences of injury for the children. Therefore, the present research necessitate for improved mandatory injury education program to take a few key step forward by mothers in the conflict to trim down injury.

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