



# Knowledge and Practice of Mothers Regarding Child Safety at Home among Under Five Children and Its Correlation with Sociodemographic Details

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## Authors' contributions

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## ABSTRACT

**Background:** Young children are prone for accidental injuries in the home environment and these injuries can be easily prevented by better supervision and improving safety in the home.

**Objectives:** The aim of the study is to assess the knowledge and practice of mothers regarding child safety in under five children at home and its correlation with sociodemographic details.

**Materials and Methods:** A cross sectional study conducted in a tertiary care teaching hospital at Kancheepuram. The duration of the study was 2 months. Mothers with at least one child under 5 years of age who visited the pediatrics outpatient department during the study period were included in the study. The sample size was 160. After obtaining approval from the institutional review board (approval no SMC/IEC/2021/03/046) a self designed and validated questionnaire was administered to the participants after obtaining consent. The data was entered into an excel sheet and analysed using SPSS 24.

**Results:** A total of 160 mothers of under five children who visited the outpatient department of pediatrics during the study period were included in the study. The mean age of mothers was 25 years. 73.12% of mothers who participated in the study had adequate knowledge about child safety at home and 53.12% mothers had adequate practice. The association of knowledge towards child

safety at home and mothers' education was statistically significant ( $P = 0.006$ ). Graduate mothers were found to have more knowledge regarding child safety at home among under five children than mothers educated upto middle school and high school. The association of practice towards child safety and type of family was found to be statistically significant ( $P = 0.016$ ). Mothers belonging to joint families were found to have better practices towards child safety than mothers belonging to nuclear and three generation families. 65% of the mothers stated that their child has suffered from home injuries earlier including minor and major injuries. 41.8% of mothers said that they have a first aid kit at home.

**Conclusion:** Although most of the mothers had adequate knowledge towards child safety at home among under five children, half of the mothers lacked adequate practice towards child safety. Hence it is essential to counsel and educate mothers to improve practices at home that would be beneficial in improving child safety.

*Keywords: Child safety; home; unintentional injuries.*

## 1. INTRODUCTION

An environment in which the child grows up is important since the under five children end up spending more time in their home where numerous mishaps can happen, hence child safety at home becomes important. Young children are particularly prone to accidents because of their desire to explore their world and the inability to perceive the dangers of their actions [1]. As children learn through experience, minor injuries cannot be avoided, but providing a safe environment and close supervision can reduce the risks of injuries. It is important that the parents maintain a balance between overprotecting the child and giving the child its freedom in the process of learning [2]. Home is a place where a lot of accidental injuries can occur which can lead to morbidity and mortality. Home injuries are less reported and are not given importance as that of road traffic injuries [3]. Since there is a gradual decline of communicable and nutritional diseases, injuries will be a leading cause of mortality, morbidity and disabilities among children [4]. An epidemiological study in South Delhi reported that the prevalence of home injury was 39.7% in a year, significantly higher in the age group 1-3 years (54.3%) followed by 5-10 years (45.1%) [3]. A study in 14 European countries said that injury is the most common cause of death in children 0 - 19 years of age in Europe, children of the age 0-4 years require the most protection in this age group, with 2.5 injury-related deaths per 10000 children in Europe annually [5]. A study in Iraq found that one of the leading causes of death among under five children was domestic accidents [6]. There is a general belief considering home as a safe place but around one-third of the child's injuries like falls, burns, cuts, electric shock and many more occur at home [7]. Around 4 million preschool-aged children are injured every year, mostly due

to falls, poisonings, and burns [8] with the greatest risk of injury occurring in their homes [9,10]. The safety and health of the under five children mostly depends on their mother hence mother should have adequate knowledge and practice towards child safety at home [11]. The objective of this study is to assess the level of mother's knowledge and practice regarding child safety at home among under five children and to determine its association with sociodemographic details.

## 2. METHODOLOGY

This is a cross sectional study conducted in a tertiary care teaching hospital at Kancheepuram. The duration of the study was 2 months from July till August 2021. The mothers with at least one child under 5 years of age who visited the pediatrics outpatient department during the study period were included in the study. Mothers who did not give consent and mothers of under five children accompanied by other family members were not included in the study. The sample size was 160. A self-designed and validated questionnaire was administered to the participants after obtaining approval (approval no SMC/IEC/2021/03/046) from the Institutional Review Board Committee. After preparing the questionnaire it was given to pediatricians in the department and content validation was done and corrected accordingly. After obtaining consent from the mothers, the questionnaires were administered to them. The questionnaire includes sociodemographic details and yes or no type questions related to knowledge and practice regarding child safety in under five children at home. The first part of the questionnaire includes the sociodemographic details, the second part includes questions related to knowledge of mothers of under five children regarding child safety at home it includes 6 questions and each

correct answer were given a score of 1 (Total score 6) The mothers who scored above and equal to median were considered to have adequate knowledge towards child safety at home and score below the median were considered as not satisfactory knowledge towards child safety at home. The third part of the questionnaire includes 16 questions related to practice of mothers of under five children towards child safety at home and each correct answer were given a score of 1 (Total score 16) The mothers who scored above and equal to median were considered to have good practice towards child safety at home and score below the median were considered to have not satisfactory practice towards child safety at home. The data was entered into excel sheet and analyzed using SPSS 24.

### 3. RESULTS

A total of 160 mothers of under five children who visited the outpatient department of pediatrics

during the study period were included in the study. The mean age of mothers was 25 years .Table 1 shows the socio demographic details of the mothers of under five children included in the study.

The association of knowledge towards child safety with age of the mother, education of the mother, socioeconomic class and type of family were assessed (Table 2).

P value <0.05 was considered significant. The association of knowledge towards child safety at home among under five children and mothers education was statistically significant (P = 0.006) Graduate mothers were found to have more knowledge regarding child safety at home among under five children than mothers educated upto middle school and high school. Other factors like age of the mother, socioeconomic class and type of family were not statistically significant.

**Table 1. Sociodemographic details**

(N = 160)		
	Number	Percentage (%)
<b>Age Of the mother</b>		
18 - 25 years	85	53.1
26 - 32 years	60	37.5
33 - 40 years	15	9.4
<b>Age of the child</b>		
Less than 1 year	14	8.8
1 - 2 years	49	30.6
2 - 3 years	52	32.5
3 - 4 years	28	17.5
4 - 5 years	17	10.6
<b>Number of children under five years</b>		
1	105	65.6
2	54	33.8
3	1	0.6
<b>Education of the mother</b>		
middle school	36	22.5
high school	91	56.9
graduate	33	20.6
<b>Occupation of mother</b>		
Unemployed	121	75.6
Employed	39	24.4
<b>Socioeconomic class</b>		
Upper middle	27	16.87
Lower middle	94	58.75
Lower	39	24.37

**Table 2. Comparison of sociodemographic variables with knowledge score**

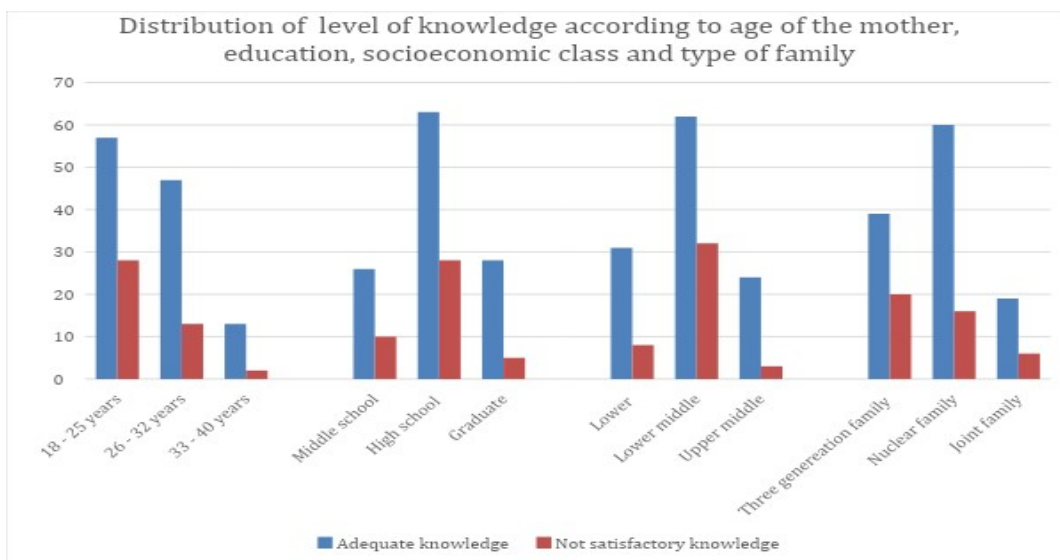
Kruskal-Wallis One way Analysis of Variance on ranks

Group	N	Median of knowledge score	Percentile (25 - 75)	Statistical Analysis
<b>Age</b>				
33 - 40 years	15	5	4 - 5	H = 3.149
26 - 32 years	60	4	4 - 5	P = 0.207
18 - 25 years	85	4	3 - 5	dof = 2
<b>Education</b>				
Middle school	36	4	3 - 5	H = 10.11
High school	91	4	3 - 5	P = 0.006
Graduate	33	5	5 - 5	dof = 2
Statistically significant				
<b>Socioeconomic class</b>				
Lower	39	4	4 - 5	H = 5.328
Lower middle	94	4	3 - 5	P = 0.070
Upper middle	27	5	4 - 5	dof = 2
<b>Type of family</b>				
Three generation family	59	4	3 - 5	H = 2.418
Nuclear family	76	4	4 - 5	P = 0.299
Joint family	25	4	3 - 5	dof = 2

dof - Degree of freedom

The association of practice towards child safety at home among five children with age of the mother, education of the mother, socioeconomic class and type of family was assessed (Table 3). P value <0.05 was considered significant. The association of practice towards child safety at home among under five children and type of family was found

to be statistically significant ( P = 0.016) Mothers belonging to joint families were found to have better practices towards child safety than mothers belonging to nuclear and three generation families . Other factors like age of the mother, education of the mother and socioeconomic class were not statistically significant.



**Fig. 1.**

**Table 3. Comparison of socio demographic variables with practice score**  
Kruskal-Wallis One way Analysis of Variance on ranks

Group	N	Median of practice score	Percentile (25 - 75)	Statistical Analysis
<b>Age</b>				
33 - 40 years	15	12	9 - 12	H = 1.067
26 - 32 years	60	10.5	9 - 12	P = 0.587
18 - 25 years	85	11	9 - 13	dof = 2
<b>Education</b>				
Middle school	36	11.5	9 - 13	H = 5.545
High school	91	10	9 - 12	P = 0.062
Graduate	33	11	10 - 13	dof = 2
<b>Socioeconomic class</b>				
Lower	39	11	9 - 13	H = 1.217
Lower middle	94	11	9 - 12	P = 0.544
Upper middle	27	11	10 - 12	dof = 2
<b>Type of family</b>				
Three generation family	59	10	8 - 12	H = 8.306
Nuclear family	76	11	10 - 12.75	P = 0.016
Joint family	25	12	9.5 - 13	dof = 2
				Statistically significant

dof - Degree of freedom

The median value is 4. Those who scored above and equal to median were considered to have adequate knowledge towards child safety at home while those who scored below the median were considered to have not satisfactory knowledge.

73.12% of the total mothers who participated in the study had adequate knowledge. 26.88% of the total mothers who participated in the study did not have satisfactory knowledge. Fig. 1 shows the distribution of level of knowledge according to age of the mother, Education, socioeconomic class and type of family.

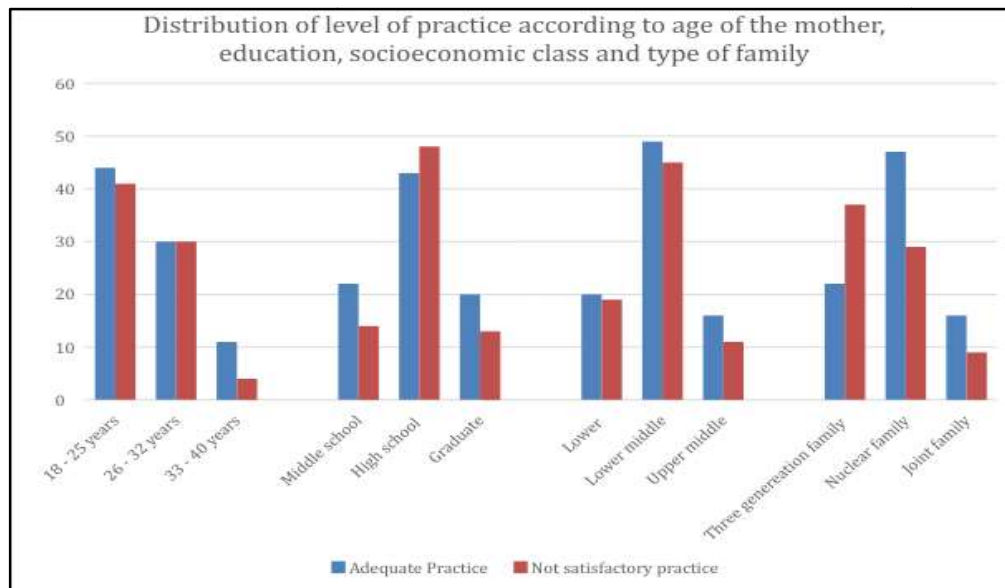


Fig. 2.

The median value is 11, Those who scored above and equal to median were considered to have adequate practice towards child safety at home Those who scored below the median were considered to have not satisfactory practice .53.12% of the total mothers who participated in the study had adequate practice while 46.88% of the total mothers did not have satisfactory practice Fig. 2 shows the distribution of level of practice according to age of the mother, Education, socioeconomic class and type of family.

65% of the mothers stated that their child has suffered from home injuries earlier including minor and major injuries. 26% of children belonging to the age group 1- 2 years had suffered from unintentional injuries at home. 36.5% of children belonging to the age group of 2 - 3 years had suffered from unintentional injuries at home. 12% of the mothers reported that their child had consumed toxic substances kept at home. 41.8% of mothers said that they have a first aid kit at home. 17.5% of mothers said that they keep a gas stove and other hot items on the floor and places which the child can reach.

#### 4. DISCUSSION

Childhood Injuries are a global public health problem accounting for about 5 million deaths per year, among these unintentional injury accounts for nearly 80% of the injury deaths (3.9 million deaths) [4]. According to an epidemiological study conducted in south Delhi, child injuries are neglected and are largely absent from survival initiatives in the world wide agenda [3]. Childhood injuries occurring at home are often underreported and are not given importance compared to road traffic injuries [3]. Mahalakshmy et al reported that 68.2% injuries occurred in home environment and most of them were accidental [12].

Most of the childhood accidents that occur in and around the home can be largely preventable by increased awareness, better supervision and improvement in the home environment [13]. Assessing the knowledge and practices of mothers of under five children towards child safety at home and understanding these factors would help in intervention and prevention of unintentional injuries occurring at home.

In the present study with a total of 160 mothers, mean maternal age was 25 years. 67% of the mothers who belonged to the age group 18-25

years had adequate knowledge whereas 86.6% of the mothers in the age group between 33-40 years had adequate knowledge regarding child safety at home among under five children although not statistically significant ( $P = 0.207$ ). A study by Lafta et al said that older mothers were statistically found to have a better level of knowledge than younger mothers regarding domestic accident prevention involving children [14]. This could probably be explained by mothers gaining more experience with age and when having more children [14].

73.12% of the total mothers who participated in the study had adequate knowledge regarding child safety at home among under five children. Similarly a study in Iran found that 75% of the mothers had good knowledge towards prevention of home injuries [15]. On the contrary other studies have reported that maternal knowledge was unsatisfactory towards prevention of injuries [14,16]. Lafta et al enrolled 1032 mothers out of which more than 90% of the mothers were found to have poor knowledge regarding domestic accident prevention involving children [14]. Wang et al conducted a study to analyse the knowledge-attitude-practice (KAP) and their associated factors on injury prevention and safety promotion among children's parents within the city area and reported that parental KAP about injury prevention and safety promotion was unsatisfactory [16].

22.5% of the mothers completed middle school, 56.9% of the mothers had completed high school and 20.6% of the mothers were graduates. While comparing the level of mothers' knowledge regarding child safety at home among under five children and mothers' education it was found to be statistically highly significant ( $P = 0.006$ ). Similarly a study by Sabley et al quoted that mothers with higher educational levels have higher knowledge regarding the ways in preventing in-home injuries than mothers with lower education [17].

Kamel et al reported a significant association between mothers' education and better home injury performance [18]. On the contrary, a study published by Lafta et al, reported that higher educated mothers' were statistically associated with a lower level of knowledge in domestic accident prevention [14] and this was explained by the fact that highly educated mothers are usually employed and becomes less enthusiastic or too busy to learn about prevention methods regarding domestic accidents.

In the present study 16.87% of the mothers belonged to the upper middle, 58.75% of the mothers belonged to the lower middle and 24.37% of the mothers belonged to lower socioeconomic class. 79.4% of the mothers who belonged to lower socioeconomic class had adequate knowledge, 66% of the mothers who belonged to lower middle socioeconomic class had adequate knowledge and 89% of the mothers who belonged to upper middle socioeconomic class had adequate knowledge regarding child safety at home. While comparing the level of mothers' knowledge and socioeconomic class it was found to be statistically not significant ( $P = 0.070$ ).

53.12% of the total mothers who participated in the study had adequate practice towards child safety at home among under five children. Although the knowledge regarding child safety at home was high, the practice was found to be lower which could be explained by the reasons that either the mother is full time employed or the home environment was not safe due to some hazards. Some mothers stated that they stored water in tanks and buckets and switch boards and electrical appliances were at easy access to the child. 17.5% of the mothers said that they keep gas stove and other hot items either on the floor or at lower level which was easily reachable by the child. Generally it is expected that if the mother has good knowledge regarding child safety at home then the practice towards child safety at home will also be good but this is not always true. In this study even though most of the mothers 73.12% were found to have adequate knowledge only 53.12% of mothers had adequate practice. Mohammad et al conducted a study to investigate mothers' home-injury prevention attitude and performance and its contributing factors and concluded that most of the mothers had an appropriate level of home-injury prevention attitude but a low level of performance [11]. Another study by Hatamabadi et al reported that high injury prevention knowledge leads to the high level of attitude however the high level of their knowledge and attitude would not result in better performance in the prevention of the injuries [15].

In this study 37.28% of the mothers who belonged to the three-generation family had adequate practice, 61.84% of the mothers who belonged to the nuclear family had adequate practice and 64% of the mothers who belonged to joint family had adequate practice. While comparing the level of mothers' practice towards

child safety at home and the type of family it was found to be statistically significant ( $P = 0.016$ ). Mothers living in joint families were found to have better practice towards child safety at home among under five children. This could be because the mother gets to learn from other family members and other family members like grandparents are also involved in taking care of the child.

Majority of the mothers said that they store detergents, cleaning supplies, kerosene, mosquito repellent, medicines at a place where the child cannot reach however 12% of mothers told that their child has consumed toxic substances previously. This could have been easily avoided. Similar results were obtained in a study conducted in the Middle East [19]. Lafta et al reported that mothers' knowledge to keep chemicals and detergents out of children's reach was very poor which might result in poisoning or other serious accidents that may result in death [14]. A study conducted in Singapore said that primary caregivers have good knowledge of road safety but had limited knowledge of home injuries and first aid management of choking, scalds and burns [20].

In this study 65% of the children had suffered from injuries that occurred in and around home they include both minor injuries and major injuries. A study done in a peri urban area reported the magnitude of childhood injuries was 64.4% [21]. An epidemiological study in South Delhi reported that the magnitude of injuries in children was 40% [3]. A study in rural area reported the magnitude of childhood injuries was 13% [22]. This shows varying prevalence in different parts of the country may be due to differences in the measurement of magnitude in different studies. 62.5% of the children who suffered from injuries in and around home belonged to the age group of 1 - 3 years. Similar results were obtained in other studies [3,22,23]. This could be because the child learns to walk and run at this age and is too young to anticipate the dangers. Usage of child safety measures like child safety gate, child safe locks for cupboards and non slippery flooring, child resistant packaging of medicines can help prevent injuries occurring at home. In this study 75.6% of the mothers were unemployed. Eldosoky and Abd El-Aty et al in their study mentioned that the majority of mothers were housewives and the home accidents' rate was high among their children [24,25].

The study of various sociodemographic variables like age, education status and socioeconomic class helps to generate public health policies aiming at patient centred care. The topic is important one from the social angle as it concerns with accidental injuries in children which can be prevented by increasing public knowledge and awareness on the topic. Public health policies in this regard would lead to significant improvement in child health. Health education, creating a better public awareness on this issue, health policies to improve safety at home and anticipatory guidance to all parents concerning child safety at home are important.

## 5. CONCLUSION

The study concluded that although most of the mothers had adequate knowledge towards child safety at home among under five children, half of the mothers lacked adequate practice. The unintentional injuries that can occur due to lack of awareness can be avoided if proper intervention is taken. Counselling regarding child safety should be actively done by all health professionals whenever the child visits health care facility.

## CONSENT AND ETHICAL APPROVAL

After obtaining Ethical approval from the institutional review board (approval no SMC/IEC/2021/03/046) a self designed and validated questionnaire was administered to the participants after obtaining consent. The data was entered into an excel sheet and analysed using SPSS 24.

## DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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