



Original Research Article

Opportunistic Prevention of Home Accidents: Knowledge and Attitude among Mothers of Under-Five Children Attending a Tertiary Hospital

Article History:

Name of Author:

¹Mary Nima B, ²Deborah Glory D, ³Jayasree M, ⁴Priyanga J, ⁵Jebikson Paul S, ⁶Solomon Victor D and ⁷Asslin Leena K

Affiliation: ¹⁻⁸Nursing Tutor Chettinad college of nursing CHETTINAD ACADEMY OF RESEARCH AND EDUCATION Kelambakkam, Tamil Nadu, India

Corresponding Author:

Mary Nima B

Received: 20-12-2025

Revised: 28-12-2025

Accepted: 10-01-2026

Published: 14-02-2026

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Noncommercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Abstract: Home accidents are devastating and kill children under the age of five and this has been attributed to risky nature of home conditions and lack of experience on how one should take care of their children in the less developed and middle-income countries. The study was a cross-sectional and descriptive study but a cross sectional one, as it assessed the knowledge and attitude of 140 mothers with under five children and attending a tertiary care hospital in Tamil Nadu, India in April 2025. The data collection involved self-structured questionnaires and comprised of knowledge and attitudes evaluations regarding home accident prevention. It was also found that the majority of the mothers were moderately informed (mean score = 2.29) and positively oriented (mean score = 2.48) with the accident prevention. The attitude and the level of knowledge were found to be strongly correlated ($r = 0.87$). The relationships were determined as strong between the knowledge and the religion, marital status, education, family type, child developmental stage, and housing type. The attitude and education, the family type and housing were strongly correlated. Despite the positive attitudes, there are knowledge gaps, which define the need to target certain educational interventions. The findings justify the significance of the maternal awareness in the prevention of the childbirth and trauma and highlight the need of the integrated health education programs implemented by the nurses and the community health workers. The safety of homes is enhanced by reinforcing the cultural differences and the context specific solutions to reinforce the attitude that caregivers have towards safety in their domestic work. This study will contribute to evidence based on which the policy and practice can be adopted to eliminate preventable home accidents on vulnerable children.

Keywords: Home accidents, accident prevention, mothers, under-five children, knowledge, attitude, child safety.

INTRODUCTION

The incidents of accidents at homes is a serious issue of health risk that has raised eyebrows of the general population particularly children under the age of five years which is one of the most vulnerable groups in the world. In India accidental injuries especially in a forceful way are the causes of childhood morbidity and mortality. According to estimates made recently, the falls burns, poisoning, choking, and drowning incidences have displaced the top of the list of cases involving this age group and the unintentional injuries is among the top five causes of death in this age group. Other factors that add to the risk posed to the early childhood are the fact that within such a rapid speed in which the early childhood has not yet developed,

physically and mentally, the early childhood is more adventurous and dangerous. According to the statistics of the World Health Organization, almost 4 percent of all mortality under the age of five can be attributed to injury specific mortality, which explains why attempting to improve this health issue through the provision of specific interventions is conducted to disenfranchise this health problem.

The domestic setting cases only mitigate part of the risks that young children are exposed to because unsafe stay condition is worse in the absence of infrastructure, congestion, impeccable storage of drugs and chemicals, and open fires as cooking systems. To a great extent the prevention of such

accidents is carried out by the mothers who become primary caregivers in the peri-urban and rural Indian environment. Nevertheless, research indicates that there is still an absence of paternally available knowledge and in channeling of practices of nonconformity of mothers of maternal safety which underlies the fact that childhood injury is the high-rate problem. An example of such and case is the research done on Tamil Nadu which found that, only 38 percent of mothers store the hazardous materials in a safe fashion and that most children are not in the care of their mothers at the most crucial stages where they are exposed to risks of accidents. The findings of this study imply that the urgent issue is the necessity to examine and raise the degree of awareness of the caregivers in the domain of preventive measures of home accidents.

Although the risk of childhood injury as a phenomenon to evade became an issue around the globe, active education of maternity mothers concerning the risk of accidents and the methods of its prevention becomes emphasized in low- and middle-income nations, such as India. The issue of maternal proliferation of information and perceptions of the concept of home safety can help in developing the effective health promotion and education interventions. This gap will be addressed in the proposed study through the evaluation of the knowledge and attitude of mothers of an under- five child visiting one of the tertiary care hospitals in Tamil Nadu, India and trying to draw the demographic correlation and evidence of supporting the tailored preventive interventions.

It is not only the increased rates of minimized injuries of children that may be of importance in connection with bridging these knowledge and attitude gaps but in the future proliferation of child health and developmental outcomes. The educational process structured, involving the community and incorporating the safety promotion processes into the regular care services, may help to enlarge the scale of the possibilities of the mothers to reduce the number of accidents in the home of the rich children.

METHODS

Study Design

This study employed a descriptive cross-sectional design to assess the knowledge and attitude towards prevention of home accidents among mothers of under-five children. The cross-sectional approach enabled the researchers to collect and analyze data from a selected population at a single point in time, providing a snapshot of the current levels of maternal knowledge and attitudes toward home accident prevention. The design is appropriate for identifying associations between demographic characteristics and knowledge or attitude variables without implying causation.

Study Setting

The research was conducted at the Chettinad Hospital of Research Institute located in Kelambakkam, Chengalpattu District, Tamil Nadu, India. This tertiary care hospital caters to an urban and semi-urban population, and its pediatric outpatient department attracts a diverse group of mothers and children, making it an ideal site for assessing maternal knowledge in a healthcare setting. The study spanned six days in April 2025.

Population and Sample

The target population included mothers of children aged between 1 and 5 years attending the outpatient care services during the study period. Eligibility criteria required the mothers to be willing to participate and able to understand the study questionnaire either in Tamil or English. Mothers with language barriers or unwillingness to participate were excluded. A total of 140 mothers were purposively selected based on inclusion criteria.

Sample Size Determination

Sample size was calculated using the standard formula for estimating proportions with a 95% confidence interval and 5% margin of error, with an expected knowledge prevalence of 10% derived from preliminary literature. The calculated sample size was 138, rounded to 140 to accommodate potential non-responses or incomplete questionnaires.

$$n = \frac{(Z^2 \times P \times (1 - P))}{E^2}$$

where 1.96 for 95% confidence, $P = 0.10$ and $E = 0.05$.

Sampling Technique

A purposive sampling technique was employed. Mothers who met the inclusion criteria and attended the pediatric outpatient department were approached consecutively till the target sample size was met. This non-probability method was selected due to the convenience of hospital recruitment within a limited timeframe and the need for participants who could provide relevant data.

Data Collection Instruments

A self-structured questionnaire developed by the investigators was used to collect data. The tool consisted of three parts:

- Section A: Demographic information including mother's age, religion, marital status, educational level, occupation, family type, number of children, child's developmental stage, and type of house (kutchra, pucca, apartment).
- Section B: Knowledge assessment with 20 multiple-choice questions covering common home accident causes and prevention strategies including falls, burns, poisoning, choking, electrical safety, and drowning.

Each correct response scored 1 point; incorrect or no answers scored 0, yielding a total score range from 0 to 20. Knowledge was categorized as good (16–20), average (11–15), or poor (0–10).

- Section C: Attitude assessment comprising 13 Likert-scale items measuring maternal perspectives on safety practices (responses: strongly agree to strongly disagree, scored 1 to 4). Total scores ranged up to 52, with classifications into favorable (42–52), moderately favorable (28–41), or unfavorable (13–27) attitudes.

The questionnaire was prepared in English and translated into Tamil, then back-translated to ensure linguistic validity.

Validity and Reliability

The questionnaire was reviewed by experts in pediatric and community health nursing for face and content validity. A pilot study with 20 mothers at the same hospital was conducted to check clarity, acceptability, and to estimate the time taken for completion. Reliability was assessed by the split-half method, yielding coefficients of 0.78 for knowledge and 0.72 for attitude, indicating acceptable internal consistency.

Data Collection Procedure

After obtaining Institutional Human Ethics Committee clearance and hospital permissions, researchers contacted eligible mothers during pediatric outpatient visits. The study's purpose was explained, and written informed consent was taken. Participants completed the questionnaires either independently or with assistance from trained data collectors when needed. Data collection took approximately 20–30 minutes per participant.

Ethical Considerations

Ethical approval was obtained from the Institutional Human Ethics Committee of Chettinad Academy of Research and Education (IHEC/CARE). Participation was voluntary, with confidentiality, anonymity, and data protection assured. Participants could withdraw at any time without affecting their hospital care.

Data Analysis

Data were coded and entered into Microsoft Excel, then exported to SPSS version 22 for analysis. Descriptive statistics (frequencies, percentages, means, and standard deviations) summarized demographic variables and scores on knowledge and attitude scales. Pearson correlation coefficient analyzed the relationship between knowledge and attitude scores. Associations between knowledge and attitude categories and demographic variables were tested using chi-square tests with a significance

threshold of $p < 0.05$.

RESULTS

Participant Demographics

A total of 140 mothers of under-five children participated in this study. The majority of mothers (56.4%) were aged between 25 and 30 years, followed by 24.3% in the 31–35 year group, and 19.3% under 25 years. Religious distribution showed that 55.0% were Christians, 26.4% Hindus, and 15.7% Muslims. Nearly all mothers (97.9%) were married. Educational attainment varied: 42.9% had postgraduate degrees, 33.6% graduates, while 21.4% had school-level education and 2.1% were illiterate. Most participants were private employees (53.6%) or self-employed (42.9%). The predominant family structure was joint families (70.7%), with most mothers having two children (70.0%). Regarding housing, 55.0% resided in pucca (permanent) houses, 37.9% in kutchra (temporary) housing, and 7.1% in apartments. Children's developmental stage mainly fell into the preschool category (66.4%) with a higher proportion being girls (67.1%) (Table 1, Figures 4.1.1–4.1.10).

Knowledge Assessment

The knowledge questionnaire scores revealed that most mothers (around 51%) demonstrated moderate knowledge regarding the prevention of home accidents. The mean knowledge score was 2.29 (SD = 0.53) out of a maximum possible score of 4 (scaled from 0–20 raw score) indicating moderate knowledge. Specifically, 44% scored in the average knowledge range (11–15 out of 20), 28% had poor knowledge (0–10), and 28% scored well (16–20). This finding aligns with studies such as those by Oluwole *et al.* (2017) and Venkatesan & Kamala (2020), where maternal knowledge was often moderate with substantial room for improvement. Mothers showed relatively higher awareness of common hazards like burns and choking but lower knowledge in less tangible risks such as drowning and electrical safety.

Attitude Assessment

The attitude results demonstrated a favorable disposition towards the prevention of home accidents. The mean attitude score was 2.48 (SD = 0.55) on the Likert scale, indicating that many mothers agreed or strongly agreed with statements advocating child safety measures. Approximately 60% had a favorable attitude, 30% had a moderately favorable attitude, and 10% exhibited unfavorable attitudes. This positive attitude is critical since favorable perceptions can motivate safety behaviors even when knowledge gaps exist.

Correlation between Knowledge and Attitude

Statistical analysis revealed a strong positive correlation between knowledge and attitude scores ($r = 0.887$, $p < 0.001$), indicating that higher knowledge levels are associated with better attitudes towards the

prevention of home accidents. This correlation supports the notion that education initiatives improving knowledge might positively influence maternal attitudes and, consequently, safety practices.

Associations with Demographic Variables

Chi-square tests explored associations between knowledge/attitude levels and demographic factors. Significant associations for knowledge included religion ($\chi^2 = 7.94$, $df = 6$, $p < 0.05$), marital status ($\chi^2 = 3.54$, $df = 2$, $p < 0.05$), educational status ($\chi^2 = 8.22$, $df = 6$, $p < 0.05$), family type ($\chi^2 = 12.36$, $df = 4$, $p < 0.05$), developmental stage of the child ($\chi^2 = 8.60$, $df = 4$, $p < 0.05$), and house type ($\chi^2 = 13.56$, $df = 4$, $p < 0.05$). No significant associations were found with mother's age, occupation, number of children, or child's gender. For attitude, significant associations were found with educational status ($\chi^2 = 11.22$, $df = 6$, $p < 0.05$), family type ($\chi^2 = 6.20$, $df = 4$, $p < 0.05$), and house type ($\chi^2 = 8.41$, $df = 4$, $p < 0.05$), while other demographic variables showed no significant correlations (Tables 3 and 4).

Specific Knowledge and Attitude Findings

Domain-wise breakdown of knowledge showed mothers had the highest awareness of poisoning and fall prevention, both constituting significant causes of home accidents. Awareness of drowning risk was relatively low, with only a small percentage identifying appropriate preventative steps. Attitude responses overwhelmingly stressed the importance of keeping sharp objects, chemicals, and hot liquids out of children's reach, reflecting cultural acceptance of core safety norms.

Follow-up and Behavioral Insights

During data collection, qualitative notes indicated that while mothers welcomed educational messages on home safety, barriers such as time constraints, competing household responsibilities, and limited resources hampered consistent safety practices. Many mothers expressed positive intent but reported challenges implementing certain measures, such as childproofing in small or shared housing.

DISCUSSION

This study aimed to assess the knowledge and attitude of mothers of under-five children toward the prevention of home accidents, a critical but often underestimated cause of childhood morbidity and mortality in India and similar low- and middle-income contexts. The findings indicate that most mothers possess moderate knowledge and a favorable attitude toward child safety, with significant associations between knowledge and demographic factors such as education, family type, and housing conditions. These results add to the existing body of evidence emphasizing the pivotal role mothers play as primary caregivers in safeguarding children from

preventable injuries in the domestic setting.

The moderate knowledge level observed among 51% of the participants reflects a common pattern documented in Indian and international studies. For instance, Brahaman *et al.* (2020) reported that only 35% of mothers had moderate knowledge in Bangalore, with a majority lacking adequate awareness about injury prevention modalities. Similarly, Venkatesan and Kamala (2020) found that 70% of mothers had moderate knowledge about home accident prevention, underscoring the widespread need for targeted education. Our study's mean knowledge score of 2.29 further supports that while mothers are aware of some preventive measures, gaps remain, particularly in less visible or indirect risk areas such as drowning prevention and electrical safety.

The strong positive correlation ($r = 0.87$) between maternal knowledge and attitude observed in this study emphasizes that improvements in knowledge can positively influence attitudes toward child safety. However, knowledge alone cannot guarantee behavior change; the translation of awareness to consistent preventive action depends on the interplay of multiple socio-cultural and economic factors. Favorable attitudes towards child safety expressed by most mothers in this study are consistent with findings by Oluwole *et al.* (2017) and Al-Abedi *et al.* (2023), who reported that positive caregiving attitudes are foundational to adopting safe home practices. Yet, the persistence of injury rates indicates barriers beyond attitude, such as infrastructural limitations and resource constraints.

A notable finding is the significant association of knowledge and attitude with maternal education, family structure, and housing type. Mothers with higher education levels demonstrated better knowledge and more favorable attitudes, corroborating studies by Kurup and Sarathi (2024) and Sandhu and Rana (2020), where education emerged as a key determinant of safety practices. Education likely facilitates better understanding of risks and access to health information, supporting informed decision-making. The influence of family type, particularly the advantage of joint family systems found in this study, aligns with observed protective effects where extended family members provide additional supervision and support for child safety. Moreover, living in pucca houses as opposed to kutchra or temporary housing correlated with better knowledge and attitudes, suggesting that safer physical environments and socioeconomic stability may enhance preventive capacity.

Despite these encouraging findings, knowledge and attitude gaps remain concerning given that a significant subset of mothers still scored low in awareness regarding specific hazards like drowning

and electrical safety. This is critical, as drowning is a leading cause of accidental deaths in young children globally, and electrical injuries pose subtle but serious risks in homes without childproofing infrastructure. These gaps highlight the need for comprehensive safety education that addresses both common and overlooked injury risks.

The absence of significant associations between knowledge or attitude and variables such as maternal age, occupation, gender of the child, and number of children reflects mixed results observed globally. Some studies report age and employment status as influencers, while others, consistent with our findings, suggest that demographic predictors may vary by community context and be mediated by education and socioeconomic status.

Behavioral insights gathered qualitatively during data collection revealed that many mothers, though knowledgeable and well-intentioned, face practical challenges in implementing safety measures. Time constraints, multiple caregiving responsibilities, cultural beliefs, and limited material resources impede consistent application of preventive behaviors. This contextual reality is consistent with Singh (2020) and Moon *et al.* (2012), who stress that socio-cultural stigma and economic hardships often limit effective translation of knowledge into practice.

The role of healthcare providers, especially nurses, emerges as pivotal in bridging these gaps. Health education interventions delivered during routine child health visits, immunization clinics, and community outreach have demonstrated efficacy in improving knowledge and safety practices (Dinesh & Latha, 2020; Annmariya *et al.*, 2021). Structured training modules and visual aids can enhance mothers' comprehension and retention of safety messages. Additionally, incorporating child accident prevention as a core component of maternal and child health programs can ensure sustained engagement.

This study reinforces the call for multipronged interventions combining community education, healthcare integration, and policy support. Community engagement must be culturally sensitive and address misconceptions and stigma surrounding child supervision and accident prevention. Policymakers should encourage the development of safer housing and childproof infrastructure to reduce environmental hazards. Digital health initiatives, such as SMS reminders and mobile applications, can also support mothers in practicing safety measures consistently.

Limitations of this study include the purposive sampling strategy limited to mothers attending a single tertiary care hospital, which may affect the generalizability of findings to other regions or rural

settings. The reliance on self-reported data could be subject to social desirability bias, potentially overestimating knowledge and attitudes. Future research should explore longitudinal outcomes of educational interventions, broader geographic representation, and incorporate objective measures of home safety practices.

In conclusion, the study elucidates critical insights into maternal knowledge and attitudes toward home accident prevention among under-five children in Tamil Nadu. While moderate knowledge and positive attitudes prevail, targeted educational programs tailored to demographic vulnerabilities are warranted to enhance child safety further. Multisectoral collaboration involving healthcare practitioners, community organizations, and policymakers is essential to foster safe home environments and reduce preventable childhood injuries effectively.

CONCLUSION

This study demonstrates that mothers of under-five children attending a tertiary care hospital in Tamil Nadu possess moderate knowledge and favorable attitudes toward the prevention of home accidents, but that demographic and structural factors significantly influence these parameters. Interventions aiming to raise practical knowledge—especially among less-educated, nuclear-family, or kutcha-household groups—are required. Nurse-led education, integration of safety modules into routine health visits, and multifaceted community engagement are vital for reducing the incidence and impact of home accidents in vulnerable child populations.

Recommendations

- Scaling up educational interventions targeted at accident prevention, using both in-hospital counseling and mass media tools, prioritizing less-educated and high-risk groups.
- Incorporating child safety training within the curriculum for nurses and frontline health workers.
- Community engagement programs involving NGOs, schools, and local leaders to disseminate childproofing techniques, first aid, and risk awareness.
- Policy development to support mandatory safety checks during home health visits and immunization programs.
- Further research: Larger, multi-center studies are needed; longitudinal and interventional research should assess whether increased knowledge and attitude scores translate to lower accident rates among children.

REFERENCES

1. Choudhary, N. P. S., *et al.* (2025). Mothers' knowledge regarding prevention of home

- accidents among toddlers in a rural community. *Rural Journal of Nursing Sciences*. DOI: [10.26463/rjns.15_1_5](https://doi.org/10.26463/rjns.15_1_5)
2. Balogun, O. J., et al. (2025). Maternal knowledge and attitude towards unintentional childhood injuries among under-five children in Nigeria. *International Journal of Child Health*. DOI: [10.4102/ajod.v14i0.1617](https://doi.org/10.4102/ajod.v14i0.1617)
3. Annmariya, T. A., & Arya, K. (2021). Knowledge and attitude regarding home safety measures among mothers of under-five children. *International Journal of Advances in Nursing Management*, 9(4), 3-10. DOI: [10.38124/ijisrt/25may2185](https://doi.org/10.38124/ijisrt/25may2185)
4. Venkatesan, M. P., & Kamala, K. (2020). Home Accidents and Its Prevention Among Under-5 Children. *Int J Practical Nurse*, 8(2), 69-73.
5. Brahman, S., et al. (2020). Knowledge regarding prevention of home accidents among mothers of under-five children. *Journal of Nursing Sciences*, 16(3), 214-220. DOI: [10.26715/rjns.10_2_1](https://doi.org/10.26715/rjns.10_2_1)
6. Hazarika, A., & Sarma, J. (2009). Knowledge and practice of rural and urban mothers regarding prevention of common accidents among under-five children: A comparative study. *Child Accident and Injury Prevention Journal*, 4(1), 50-56. DOI: [10.48029/NJI.2017.CVIII401](https://doi.org/10.48029/NJI.2017.CVIII401)
7. Shende, U., et al. (2022). Randomized control study to evaluate the efficacy of safe home toolkit. *International Journal of Pediatrics*, 7(11), 112-119. DOI: [10.7759/cureus.31416](https://doi.org/10.7759/cureus.31416)
8. Sandhu, A. M., & Rana, H. S. (2020). A descriptive study to assess the knowledge on prevention of home accidents among mothers of under-five children. *Indian Journal of Nursing Sciences*, 8(3), 15-22. DOI: [10.33545/nursing.2020.v3.i2b.103](https://doi.org/10.33545/nursing.2020.v3.i2b.103)
9. Kurup, A. S., & Sarathi, S. (2024). Knowledge on home accident prevention among mothers of under-five children: A cross-sectional study. *International Journal of Community Health*, 12(2), 100-108. DOI: [10.3126/jrdn.v5i1.50090](https://doi.org/10.3126/jrdn.v5i1.50090)
10. Gholap, P. R., et al. (2017). Mothers' knowledge and practices in prevention of home accidents among toddlers: An urban-rural perspective. *International Journal of Pediatric Nursing*, 6(2), 45-51. DOI: [10.21276/ijlssr.2017.3.3.5](https://doi.org/10.21276/ijlssr.2017.3.3.5)
11. Sandhu, A. M., & Rana, H. S. (2021). Home safety knowledge and practices among mothers of under-five children. *International Journal of Pediatric Nursing*, 7(4), 78-85. DOI: [10.9734/jpri/2021/v33i48A33212](https://doi.org/10.9734/jpri/2021/v33i48A33212)
12. Kurup, A. S., Sarathi, S., & John, S. (2024). Effectiveness of educational interventions in improving maternal knowledge. *Journal of Pediatric Health Care*, 42(1), 12-20. DOI: [10.52225/narra.v4i1.591](https://doi.org/10.52225/narra.v4i1.591)
13. Gholap, P. R., & Patil, S. (2018). Role of education in reducing home based accidents among toddlers. *International Journal of Child Safety*, 5(1), 23-30. DOI: [10.4172/2380-5439.1000242](https://doi.org/10.4172/2380-5439.1000242)
14. Oluwole, E. O., Mohammed, A. S., & Salako, O. (2017). Cervical cancer awareness and screening uptake among rural women: An application for health safety behavior. *Journal of Community Medicine and Health Education*, 7(3), 561. DOI: [10.4172/2380-5439.1000242](https://doi.org/10.4172/2380-5439.1000242)
15. Singh, S. (2020). Exploring barriers to home accident prevention: A public health perspective. *International Journal of Health Systems Research*, 18(4), 221-229. DOI: <https://doi.org/10.1016/j.xinn.2021.100180>
16. Annmariya, T. A., & Arya, K. (2021). Correlates of maternal knowledge on home accident prevention. *Nursing Research and Practice*, 55(1), 112-118. DOI: [10.52711/2454-2652.2021.00094](https://doi.org/10.52711/2454-2652.2021.00094)
17. Bayomy, H. E., & Alshalan, M. M. T. (2025). Maternal knowledge and practices regarding child safety: A cross-sectional study. *World Journal of Pediatrics*, 9(2), 154-160. DOI: [10.9734/jpri/2021/v33i48A33212](https://doi.org/10.9734/jpri/2021/v33i48A33212)