

# Caregiver's Perspective on Preventing Unintentional Childhood Injuries in South Karnataka, India – A Qualitative Study

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## ABSTRACT

**Background:** Childhood unintentional injuries are the leading cause of death and disability among young children. Interventions to prevent unintentional injuries are multidimensional, and identifying key areas would facilitate a better understanding and implementation of preventive measures. The present research was conducted to explore and understand caregivers' perspectives on unintentional injuries, which might further contribute to developing injury prevention strategies.

**Methods:** The study adopted a qualitative approach. In-depth, open-ended, semi-structured, and individual interviews were conducted with caregivers of children between two and five-year-old age groups.

**Results:** The codes generated from the study are grouped under three major themes: 'Child behaviour and development', 'Caregivers' knowledge and practices', and 'Safe environment'. The reasons for unintentional injuries and strategies to prevent them were reflected in the findings. Caregivers demonstrated awareness in a few of the areas by identifying the risk of injuries. Environmental determinants such as a lack of space or inadequate storage facilities were reported as barriers to injury prevention.

**Conclusion:** Understanding caregivers' perspectives on injury prevention will enable them to change the behavior among caregivers. However, the barriers and facilitators to prevent injuries can be addressed during the development and implementation of the intervention package.

**Keywords:** Wellbeing, Public Health, Education, Poverty, Environment, Child Health, Prevention

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## INTRODUCTION

Unintentional injuries among children are a major public health concern and result in significant childhood morbidity and mortality.<sup>1</sup> According to the Global Burden of Disease (GBD) research of 2010, unintentional injuries accounted for 627,741 (18%) of the 3.5 million fatalities among the 1-19 age group.<sup>2</sup> Furthermore, the World Health Organization (WHO) estimates an injury-specific mortality rate of 73 per 100,000 people under the age of five.<sup>3</sup> According to the Million Death Study (MDS), injuries are responsible for 3.2% and 16% of fatalities among children under 4 and 5-14 years old, respectively, in India.<sup>4</sup> Unintentional injuries among children are prevalent in both urban and rural Indian settings.<sup>5,6</sup>

Globally, unintentional injuries are the top cause of injuries for death and disability-adjusted life years (DALYs) among children and adolescents aged 0-19 years. Furthermore, falls, exposure to mechanical forces, foreign bodies, and animal contact ranked as the top five causes of age-standardized rate incidence (ASRI) of injuries in 2019.<sup>7</sup>

According to the National Strategy for Prevention of Unintentional Injuries in India, 32,021 deaths among children (aged 18 or below) were reported in 2022 due to unintentional injuries. The most common causes identified were drowning, road traffic accidents, poisoning, burns and falls.<sup>8</sup>

A community-based cross-sectional study conducted in an urban area of Dakshina Kannada district of Karnataka showed a period prevalence of unintentional injuries of 18.6%. The most common cause of injury among children was falls. The study also reported that children were at risk of road traffic injuries, burns, sharp injuries, and falls.<sup>9</sup>

Children's physical and cognitive capacities develop rapidly between birth and five years of age, increasing their risk of unintentional injury.<sup>10</sup> Children are prone to unintended accidents because of their natural desire to experiment with and explore their environment, combined with their inability to recognize hazards.<sup>11,12</sup>

Most unintentional injuries to children under five years of age occur in and around the home, as this is where they spend most of their time.<sup>13,14</sup> Children's dependency on caregivers and their vulnerability makes them prone to an increased incidence of home injuries.<sup>15</sup> Multiple factors contribute to the occurrence of injury among children under five years of age, of which a lack of appropriate supervision by caregivers is a significant contributing factor.<sup>16</sup> Preventing injuries requires understanding and addressing parenting experiences and attitudes that impact child supervision behaviours.<sup>17</sup> Parental perceptions play a crucial role in preventing injuries by determining whether an environment is unsafe or safe. Parents' lack of understanding regarding unintended childhood injuries is a significant barrier to

adopting safe behaviors.<sup>18-21</sup>

Childhood unintentional injuries are the combined product of complex interactions between parents and children, the environment in which they live and various sociodemographic factors. All these factors are interrelated and influence each other.<sup>22,23</sup> Studies have suggested that preventing unintentional injuries in a home setting requires attention to the individual parent's status and the whole system, including the physical and social environment surrounding them.<sup>24,25</sup> Qualitative research from a low-income setting in South Africa revealed that parents attributed injuries to the environment and lacked knowledge of individual preventative techniques such as parental supervision.<sup>26</sup>

The available literature on qualitative studies reports the dimensions and meaning of child supervision;<sup>16</sup> the preventability of injuries at home;<sup>27</sup> parents' knowledge, attitudes and beliefs related to child injuries;<sup>28</sup> and the knowledge and beliefs of young mothers.<sup>29</sup> These studies have examined various facts related to child injury and prevention. However, the literature related to injury prevention in low- and middle-income countries, especially India, is limited. Additionally, in India, there is no systematic monitoring system for unintentional injuries in a home setting. Therefore, there is a need to explore the perspectives of primary caregivers on preventing unintentional injuries at home.

Qualitative research helps in context-specific data analysis of social practices in different cultural settings to address the community's diverse needs. It also provides preliminary data supporting the efficacy of a new intervention or refinement of new or existing interventions. Caregivers play a significant role in raising and supervising young children in a home setting. As children spend most of their time in the home, the caregivers must be vigilant and extra cautious in preventing injuries. During this time, they use various tactics and prevention strategies to keep their young ones safe and free from injuries. The research related to the prevention of childhood unintentional injuries at home is limited. This qualitative study is conceptualized to figure out how caregivers perceived unintentional injuries and their prevention to gain understanding based on their experience. Hence, in-depth, individual interviews with the caregivers were conducted to understand their perspectives on unintentional injuries. This study aimed to explore caregivers' perspectives on the prevention of unintentional injuries among children between two and five years of age.

## METHODOLOGY

This qualitative study followed an interpretive ontological approach<sup>30</sup> to collect data about caregivers' perspectives on preventing unintentional injuries. It is a qualitative research methodology based on the assumptions of constructivism, which holds that

knowledge is constructed by individuals based on their experience and interactions with the world. The study adopted a generic qualitative approach,<sup>31,32</sup> it is highly inductive with open codes, categories and thematic analysis to address the selected problem and understand the perspectives of the people involved.

**Participants and recruitment:** A purposive sampling strategy was used to recruit the caregivers of children between the ages of two and five years with the help of an Anganwadi teacher who was familiar with the Badagubettu locality of Udupi taluk and the people residing there. The following criteria guided the recruitment of participants, had a house consisting of at least one child who was two to five years old, had a mother or primary caregiver who significantly contributed to the care of the children at least six to eight hours a day and who could communicate in a local language or English. Caregivers of children who are abled differently and maids who care for children at home were excluded. There was no a priori sample size estimation, so it was decided to recruit the caregivers until data saturation.<sup>33</sup> Data saturation was achieved for the 10<sup>th</sup> eligible caregiver.

**Data collection procedure:** The study was approved by the Institutional Research Committee and Institutional Ethics Committee. Information regarding the study was provided to all the participants through participant information sheets and written informed consent was obtained by ensuring the confidentiality of the data provided. The interviews were conducted at the respondents' homes. In-depth, open-ended, individual and face-to-face interviews were conducted to enable a detailed exploration of caregivers' perspectives on the prevention of unintentional injuries among children. An open-ended lead question, '*Describe the common injuries encountered by your child at home,*' was posed to elicit broad responses by communicating caregivers' own experiences, practices, and perspectives of unintentional injuries. Based on their responses to the lead question, a set of seven subsequent questions regarding causes and types of injuries, environmental factors contributing to the occurrence of injury, barriers and facilitating factors to prevent injuries, and home safety practices adopted were also posed to obtain in-depth information. The interviews lasted for 25-30 minutes each, and the data were audiotaped. The questions were asked flexibly to ease the participants' answer and contribute to the study. To enhance the caregivers' understanding of their perspectives and to explore further, verbal probes were used during the interview. Depending on the characteristics of the participants (young/old; educated/less educated, household routines), the researcher had to change the gestures, place of interviewing (inside or outside the home) and complexity of body language. Some caregivers quickly grasped the question whereas others needed repeated clues and probes.

**Analysis:** The interviews were transcribed and translated into English. Descriptive statistics were used to summarize the demographic findings. Qualitative data were read and reread to search for meanings and concepts to obtain ideas on measures related to the prevention of unintentional injuries.

An iterative process of going back and forth from transcript to codes and vice-versa was followed to ensure that the developed codes corroborated the transcripts. Based on the similar narrations identified across the dataset, themes were derived. Themes were refined by reflecting on their completeness and accuracy of meaning and concepts in the dataset. Qualitative thematic content analysis was subsequently conducted by Creswell & Poth (2018)<sup>34</sup> to enable the identification, inductively and flexibly, of patterns within the interview data and to generate themes that would indicate areas for future action. The reporting of the study findings adheres to the COREQ checklist. The 32-item checklist enabled the researchers to write the article, as well as the study team's characteristics and the study's context.<sup>35</sup> After the transcripts were read, the blocks of texts that implicitly or explicitly addressed the study's objectives were coded, and key themes were developed. Direct quotes from the participants are reported under each theme. The themes derived were verified by the coauthors, and disagreements were resolved in discussion. The final version of the themes derived were submitted to two experts external to the research team. The validators read the transcribed and translated transcripts and made minor edits.

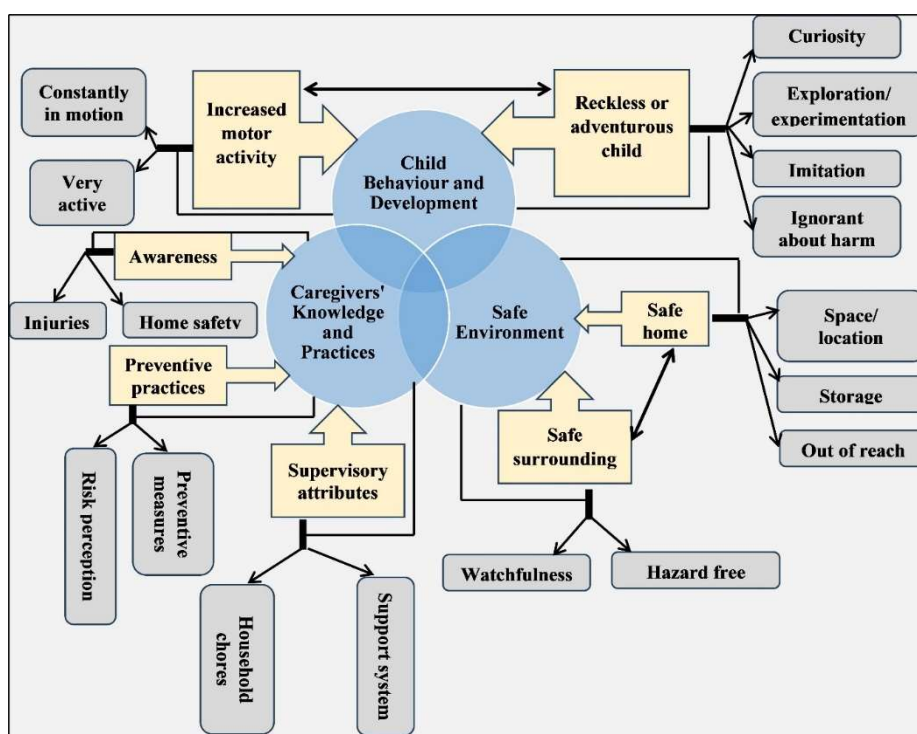
## RESULTS

**Demographic characteristics:** Ninety per cent of caregivers were biological mothers, and their mean age and standard deviation were 32±9.66 years, ranging between 20 and 40 years. The children were four to five years old, with a mean age and standard deviation of 3.85±0.85 years. The majority (70%) of the children were males and were firstborn. Six children belonged to a nuclear family, and only two children had elder siblings. With regard to educational status, 40% of caregivers were upper primary, and 30% had a higher secondary level, whereas 50% of the heads of the family had education at the level of middle school certificates. Most (40%) were semi-skilled workers, and 70% belonged to upper lower socioeconomic status.

**Themes:** The caregivers' perceptions were divided into three major themes: 'child behavior and development', 'caregivers' knowledge and practices', and 'safe environment'. Subthemes were also identified within the themes. The related codes and the relevant themes and subthemes are described in Table 1 and the conceptual model on caregivers' perspectives on unintentional injuries at home is depicted in Figure 1.

**Table 1: Themes, subthemes and codes described in the study**

Themes	Subthemes	Codes
Child behavior and development	Reckless or adventurous child	Curiosity Exploration/experimentation Imitation Ignorant about harm
	Increased motor activity	Constantly in motion Very active
Caregivers' knowledge and practices	Supervisory attributes	Household chores Support system
	Awareness	Awareness about injuries Awareness about home safety
	Preventive practices	Risk perception Preventive measures
Safe environment	Safe home	Space/location Storage Out of reach
	Safe surroundings	Watchfulness Hazard free yard



**Figure 1: Conceptual model on caregivers' perspectives on unintentional injuries at home**

**Theme 1: Child behavior and development**

The first main theme that emerged was child development and behavior, which the caregivers identified as one of the common and most important causes of injuries among children. Children's natural curiosity to look for new things and adventurous behavior always put them in risky circumstances, leading to injuries.

*"When children are playing outside, everything looks nice to them. They want to see and touch everything. If they find seeds or fruit-like things, they will also put inside the mouth". (P #4)*

*"This boy always thinks of doing something. He will bring one strand of coconut leaves or broomsticks to burn and perform a pooja. When we are not there with them, they might get hurt" (P #9).*

Imitation is a significant part of children's development, and children learn to copy many things from parents and others. The imitation of dangerous things may cause harm to children.

*"Near firewood, he will go. Previously, he used to sit and watch what we used to do. Now, he tries to put something inside the fire as we do" (P #2).*

*"They will be observing our actions, and later, they try to do that. As soon as he sees the scissors or knife; he always wants to try out something with it. He takes it in hand and starts cutting something". (P #10).*

Children between 2 and 5 years of age are very active and move quickly from one activity to another. They also have lots of energy and do not like to sit in one place. When they are left alone, they tend to become bored and hence engage themselves in various activities. Boys receive more directives and communications about performing tasks, which makes them prone to engage in more risk-taking and experience more injuries than girls.

*"He is so active and wants to do something or the other every time. That day also, he wanted to see what it was in the glass and pulled it, and that's it, hot tea fell on him. I quickly held the glass, so he was not much hurt" (P #1).*

The caregivers had mixed expressions of feelings about their children such that they were so young that they were unable to judge the activities as good or bad and harmful or harmless. On the other hand, few caregivers believe that children want to be independent and explore the world around them. Nevertheless, they have a limited perception of the environment (safe or hazardous) and are also ignorant about dangerous or harmful things because of their lack of experience or immaturity.

*"While cutting the paper, she had kept her other hand below alongside the paper. Suddenly, she was injured by the scissors. As she had pain, she quickly stopped cutting and started looking at her finger, which was hurt" (P #3).*

## **Theme 2: Caregivers' knowledge and practices**

Caregivers play a significant role in child-rearing practices. The second theme focused on the knowledge of caregivers about injuries and the preventive measures they practiced to keep their children safe. Parents expressed that supervision plays an essential role in keeping their children safe and free from injuries. Supervision by a single parent had a higher risk of unintentional injuries than those in the care of two parents. A series of events emerged under this subtheme, including household chores, busy schedules, lone supervision/parenting and multitasking.

*"Morning time will be a problem; we will be busy cooking, serving, preparing the lunch boxes, cleaning and what not. I am alone doing the household work and need to take care of her also. As you know, it is very difficult to balance both. Therefore, at that time, she may do something and get injured" (P #2).*

*"When work is more, that time, I cannot give her full attention. Therefore, in between, I keep calling her to ensure that she is fine and playing" (P #8).*

The nuclear family lacks adequate support for parents in taking care of their children. Some parents expressed their difficulties in balancing household work and supervising children, emphasizing the need for a support system. In joint families, the caregiver receives assistance not only in household chores but also shares the responsibility of supervising the children which can reduce the frequency and intensity of injuries.

*"If there was someone, to either help me in my kitchen work or take care of the child, it would be of real help. When my mother is here, she helps me with kitchen work and cleaning. That time, I will be with my child". (P #4).*

Caregivers' knowledge and understanding of various aspects of childhood injuries, including causes, risk factors and preventive measures, contribute significantly to reducing the incidence of injuries and thereby the morbidity and mortality related to those injuries. During the interviews, parents agreed that awareness of injuries and preventive measures are important to keep children safe at home.

*"Because children are small, they will not know the reason for falls, burns and so on. Parents should be aware of all those things so that we can prevent most of the injuries. Additionally, we should know what to do in cases of minor wounds, or cuts and burn injuries". (P #2).*

A lack of parental knowledge, decreased supervision and a less attentive nature can increase the risk of injuries among children, leading to varying degrees of morbidity and disability.

*"We all were having tea and talking to each other. He was playing with pearls. We thought he was playing. He had a cold, so he was rubbing his nose holding a pearl in his hand. Accidentally, the pearl went inside his nose. However, we saw it quickly removed it by making him blow his nose. We all were frightened at that moment". (P #4).*

Such incidents call for the need to develop and implement an intervention or educational program to create awareness and sensitize caregivers to have a safe home, safe environment and safe childhood for their children.

Caregivers' preventive practices encompass two significant events, i.e., risk perception for the occurrence of injuries and various preventive measures to combat the injuries. Parental anticipation of injury risk is a significant contributor to injury prevention.

*"When children are small, how much ever you keep things proper, there is no use. They will again remove and scatter it. However, if children are very naughty, then our two eyes are not enough to observe them. That time, we must be careful" (P #8).*



*“He climbs on that table or chair (pointing toward it) and tries to jump from it, climbs on the window or portico and jumps again. We ensure that chairs and stools are not kept near the windows to prevent him from falling”. (P #3).*

Parental anticipation of the risk of injury and appropriate preventive action are influenced by various factors, such as maternal fatigue and multiple demands of care by other family members. Hence, it may incapacitate caregivers to always be mindful and attentive to prevent injuries.

*“I brought water to give it to him to drink. As it was hot, I kept it on the table, and went inside to bring snacks to an elder son. By the time I returned, he was trying to reach the glass” (P #7).*

The implementation of timely and appropriate preventive measures reduces the risk and incidence of unintentional injuries in children. Caregivers often find scaling down specific preventive measures difficult, as various components, such as the type and causes of injuries, age of the child, and home environment, are multifactorial.

*“Syrup, medicine, and all.... I keep it in the hall cupboard. He cannot reach it like that, but if he pulls the chair to the cupboard, he can get it. Therefore, we keep the chairs a little far from the cupboard” (P #10).*

Parents need to use a combination of preventive strategies based on the developmental age and temperament of their children, such as a risk-free environment, teaching older children and sensitizing them to the severity of injuries.

### **Theme 3: Safe environment**

The third theme focused on creating a safe environment through a safe home and safe surroundings. Home and the surrounding environment are considered important for children to grow. Inadequate space for the storage of useful items as well as harmful/hazardous substances and a lack of sufficient space for children to play inside and outside the house increase the risk of injury among children.

*“The previous day, he was repairing and removing parts of his car while playing. After play, the toys were placed in the cardboard box kept for placing the play items. However, one sharp piece of the car might have been left on the floor, which we did not noticed, and he got injured with that” (P #4).*

Small living places and older houses impose a greater risk of injuries due to improper storage, unsafe locations or cabinets to place hazardous substances and sharps equipment. The most common places where injuries occur are in the living room and kitchen. The living room in small homes consists of all the items including furniture, a cupboard with medicines, and play materials shattered on the floor. In such situations, parents tend to keep medicines,

cleaning solutions, cosmetics, pesticides and various other harmful substances wherever the place is available. The most common cooking mode in rural areas is with the help of firewood, which will be placed at the ground level, and children can easily access it. All these attract children’s attention and curiosity to try out something new and bring them close to injury risk.

*“What to do, our house is small. There is not much place to keep things away from children. Sometimes we keep the things wherever a place is available. We know that children can get it easily but what to do. Every time we cannot keep it far away or hide it as they (knife, scissor) are used frequently” (P #3).*

Safe surroundings and a safe home should go hand in hand, as children spend significant amount of time inside and outside the house. As children grow, their motor development demands more places to run around, jump and hop, and climb up. They also enjoy exploring the environment outside their homes. Unsafe surroundings (presence of water bodies, wells, staircases, uneven play yards) and the presence of harmful substances (nonedible or poisonous plants, flowers, seeds) require more supervision and watchfulness by caregivers.

*“Construction work was going on next to our house. These children were all running and playing. While running, he stumped on the nail, his right foot was injured, and blood was present. We took him to the hospital, and a bandage was applied” (P #7).*

Caregivers expressed that they need to be extra vigilant and careful, make use of all tactics and devices and ensure that the play area is hazard-free to prevent major injuries when children are allowed to play outdoors.

*“We always keep one eye on them and keep calling and warning them.....like do not go there, don’t touch that, don’t put in the mouth, walk or run slowly and so on. However, still, small falls and minor cuts will be there, what to do? They are children right; they just want to play”. (P #3).*

An amalgamation and better understanding of factors such as awareness of injury-related risks and preventive strategies, learning about children’s behavior and temperament, and environmental safety would significantly contribute to reducing and preventing unintentional injuries among children at home.

## **DISCUSSION**

This qualitative study was undertaken to understand the perceptions of caregivers regarding the prevention of unintentional injuries among young children at home. In total, caregivers were able to identify the risk factors for unintentional injuries in children.

Mothers or primary caregivers play a vital role in the prevention of unintentional injuries in children by providing a safe and effective home environment. Under the child behavior and development theme, caregivers identified their children as reckless or adventurous, curious about knowing and learning new things with increased motor activity. As a result, the children were injured and prone to injuries. According to Piaget's theory, children at this age incorporate new experiences through their interaction with the environment via sensorimotor activity and curiosity as part of their intellectual development.<sup>36</sup> Children also possess egocentric thoughts, where they do not take the viewpoints of others and try out new things through imagination.<sup>37</sup> The respondents in the study felt that some unintentional injuries would result in a more severe impact on children. A study on community perception in which a group of mothers were interviewed provided examples of fatal or more noticeable incidents.<sup>38</sup> The caregivers reported that children imitate the behavior of parents or elders to learn new things, which is true based on Bandura's Social Learning theory,<sup>39</sup> wherein children learn through observation, imitation and modelling. Hence, caregivers have a significant role in modelling positive behavior in their children to keep them safe and free from injuries.

The second theme was the caregivers' knowledge and practices, subthemes such as supervisory attributes, awareness about injuries, home safety, and preventive practices. A few of the factors reported by the caregivers were a lack of a support system due to the nuclear family, dual responsibilities of the mother as a homemaker and primary caregiver, lack of awareness of risk factors causing injuries, and less time available for child supervision owing to routine household chores. Strategies to prevent unintentional injuries at home require attention to caregiver factors such as their knowledge about injuries and level of supervision and child-related factors such as their temperament, ignorance and understanding level.<sup>25</sup> Inadequate and lack of close supervision by caregivers is one of the improper practices identified by mothers that can increase the risk for injuries in young children. These findings are supported by many studies indicating that decreased attention and supervision by caregivers can lead to unintentional injuries at home.<sup>27,39</sup> However, some mothers expressed that effective childcare and constant watchfulness at home can decrease the incidence of unintentional injuries in children.

The present study revealed that environmental components such as home and surroundings with a lack of adequate living space and inappropriate storage of harmful items play a significant role in the occurrence of injuries in children. Similar findings were reported in a study in which risk factors for unintentional injuries, such as unsafe environments and unsafe play practices by children, were identified.<sup>26,40</sup> The most common place of injury was in the living room compared to outside the home, which was sim-

ilar to other studies conducted in Low or Middle-Income countries (LMICs),<sup>41</sup> and Asian country<sup>42</sup> as children spend most of their time at home.

The study reported that some mothers consider injuries to be an inevitable part of children's growth and play activity. This perception of mothers that unintentional injuries are an inevitable part of children's lives is a significant hindrance to caregivers' involvement in various injury-preventive intervention programs.<sup>43</sup> Hence, intervention models such as educational materials, environmental modifications and safe home models aimed at changing the behavior and perceptions of caregivers toward the prevention of unintentional injuries among children are needed.

## STRENGTHS AND LIMITATIONS

The present study offers valuable information through an in-depth exploration of caregivers' perspectives on unintentional injuries based on their experience and interaction with their children. The information is considered to be more reliable and realistic as it is obtained from the primary caregivers or mothers who are directly involved in the care of their children and also can be adopted to plan and implement community-based interventions to prevent unintentional injuries at home settings. On the other hand, a small sample size from one rural setting limits the generalizability of findings to a larger population. Recruiting participants from more than one setting or including participants from urban settings can strengthen the study's findings and ease the dissemination of findings to a larger population.

## CONCLUSION

Understanding caregivers' perspectives on unintentional injuries and preventive strategies is essential for reducing the frequency and intensity of unintentional childhood injuries. As caregivers are responsible for childcare and safety, the study's findings emphasize key issues such as caregiver knowledge, the importance of supervision and a safe environment, which requires immediate focus on planning and developing preventive strategies to reduce unintentional injuries. The insights obtained from the caregivers can be used to plan and implement injury prevention strategies in similar socio-cultural contexts worldwide and also contribute towards policy change for the wider group of populations.

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### Authors' contributions

SS, BSN, and AG designed and conceptualised the study, interpreted and derived themes, and wrote

the manuscript. SS collected the data. MSP, SH & JN verified the themes derived and revised the manuscript. All the authors read and approved the final manuscript.

### Availability of Data

Considering the confidentiality of the data, it will not be made available.

No use of generative AI tools.

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