

**PARENTAL PERCEPTIONS, ATTITUDES, AND PRACTICES TOWARD  
UNINTENTIONAL INJURIES AMONG CHILDREN IN ARMENIA**

Master of Health Thesis Project Utilizing Professional Publication Framework

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## **Executive summary**

Currently, unintentional injuries are considered one of the most significant public health issues in childhood. Considerable part of children morbidity, disability and mortality is contributed by injuries. In Armenia unintentional injuries are the most common cause of death among 1-5 years old children. There are lot of factors responsible for high incidence of childhood unintentional injuries. However, for the age group 0-6 parental knowledge, perception and behavior are the most significant determinants of child safety. Objective of the current study is exploration of parental awareness of child safety issues and their attitudes towards prevention of childhood injuries.

The study included 22 in-depth interviews, 2 focus group discussions and 12 free list exercises with caregivers of children aged 0-6, and 6 key-informant interviews with district pediatricians conducted in the period of July 17– August 27, 2003 in two settings, Yerevan and Gyumri. Study population was selected using probability and non-probability sampling. Data were analyzed applying techniques of domain and taxonomy analysis.

The study revealed that in general parents were concerned with childhood injuries and perceived them as preventable. The most common approaches to childhood injuries prevention were constant control over children actions, creating safe environment for children and warning about danger. Majority of parents resorted to general measures for assuring child safety and were not aware of special safety devices. Participants felt themselves knowledgeable in child safety issues and acquired information mostly from non-reliable sources: friends, relatives. None of the caregivers reported receiving safety counseling from pediatric polyclinics. The majority of participants were keen to receive information from published materials and TV emphasizing a need for first aid advice in case of childhood injuries.

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## Introduction

Interest in childhood injuries as a significant public health issue has increased considerably during recent years. Achievements in treatment and prevention of most diseases have emphasized the significance of injuries as a cause of morbidity, mortality and disability in children [1,2]. Injuries result in death of millions children every year worldwide [2,3]. In terms of preventability it is important to distinguish between *unintentional* and *intentional* injuries. The main difference is whether there was an intention to harm [3]. The term *unintentional injuries* (UI), which more precisely describes the issue, is widely used instead of *accidents* in current medical and public health literature. Childhood UI are defined as resulting “from incidents-usually around the home- that can be prevented by informed and alert parents and caregivers” [4]. Approximately two thirds of all injury-related deaths are associated with UI [3]. Moreover, UI are responsible for long and short term morbidity in children and may affect considerably the quality of life of children and their families [3].

Nevertheless, in terms of preventive measures injuries are neglected in many countries. The main reason is that the public considers injuries as accidents, something that cannot be predicted or avoided [5]. In fact, “injuries in children are not inevitable” and cost of their prevention is much less than the cost of mortality and disability related to them [6]. Several studies demonstrate that injury costs either directly related to caring and rehabilitation of an injured child, or associated with parental earnings’ loss, are much higher than actual costs of child safety interventions [3, 7].

## **Magnitude of the problem**

According to the World Health Organization (WHO), the injury-related worldwide mortality rate in 2000 was estimated to be 80.9 per 100 000 population for the age group 0-4, and 39.9 per 100 000 population for the age group of 5-14 years [8]. Centers for Disease Control and Prevention (CDC) report that UI result in 22.9 deaths per 100 000, which is 40% of all deaths among children aged 1-5 years in the United States (US) [9]. The WHO data demonstrate that 15.0% of global disease burden and 17.9% of Years of Potential Life Lost (YPLL) worldwide are related to UI [10]. Twenty percent of all hospitalization in children in the US is associated with UI [11].

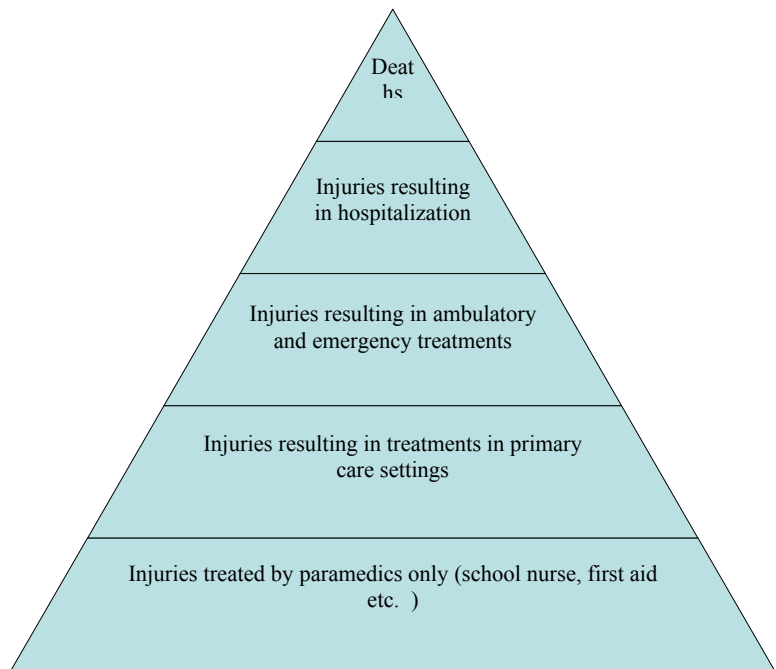
In Armenia unintentional injuries and poisonings are considered to be the most common cause of death among 1-5 years old children [12]. The WHO estimated mortality rates due to accidents in Armenia in 1993 to be 78.4 (males) and 52.8 (females) per 100 000 for infants, and 34.9 (males) and 47.8 (females) per 100 000 for children aged 1-4 years [8].

Mortality statistics are frequently used as an indicator of UI, because these data are easily obtained. However, the mortality data do not precisely reflect the magnitude of the problem. Available data on the incidence of injuries among children in Armenia refer to cases registered in ambulatory and hospital services. According to the Ministry of Health, 27.6 cases of injuries in children of 0-14 years old per 1000 population were registered in 1999 [13]. Nevertheless, information obtained from hospital and ambulatory records may significantly underestimate the incidence of UI, because in many cases parents do not refer to health facilities and get first aid or treatment at home [14]. It is estimated that the number of UI treated at home or not treated could be at least twice as much as the number of referrals to emergency services [15]. Mortality due to injury can be considered as a top of pyramid [16]. For each death from injury many more cases of hospitalization, emergency calls, referrals to

physicians, or in-home treatment should be accounted. This pattern can be illustrated through the “injury pyramid” (See Figure 1) [16].

Correlation between numbers on each level mostly depends on local socioeconomic situation and traditional factors [16].

**Figure 1. Injury pyramid**



### **Risk factors**

Children aged 0-6 years are more likely than others to experience UI that cause death and disability [17]. The home environment remains the main setting where injuries occur in this group of children, because they spend most of their time in home. There is a wide range of potential hazards in homes, and exposure to them varies as a child grows. Sometimes, it is very difficult for parents to predict what can be dangerous for a child, as even apparently safe objects or surfaces may become hazardous for children [7]. Falls, poisoning, burns, electrocutions, cuts, drowning, suffocations and choking are the most common injuries that infants, toddlers and preschoolers experience in the home [8, 18].

Several risk factors are considered to contribute to higher injury rates among children: male sex, high activity level, unsafe housing and playing yards, strained traffic, residing in urban areas, low parental education, large and one-parent families and low socioeconomic status [19, 20, 21, 22].



It is recognized that in transition countries mortality rates associated with UI are 2. 5-5 times higher than in the European Union [23]. Difficult living conditions, poorly regulated traffic, lack of safe play space and absence of child care options put children at higher risk, and low accessibility and affordability of health care, especially emergency services, lead to increased number of deaths and disabilities caused by UI [23]. The same reasons affect the safety of children from lower socioeconomic strata or residing in urban areas.

The type of a family can affect children safety also through increased exposure to stress and unstable psychological status. The study implemented in the United Kingdom found out that children in single-parent families and stepfamilies are more likely to experience UI and following hospitalization than children in full families [21].

For the age group of 0-6 years child safety is mostly determined by the parental awareness and attitude towards childhood injuries. Poor knowledge of safe child practices, overestimation of child's capability to act safely and underestimation of in-house hazards, fatalism and minimization of parents' role in injury prevention are those patterns of parental behavior that are largely contributive to childhood injuries [24]. Most in-home injuries take place when the attention of parents or caregivers becomes less strained [25]. Frequently, parents overestimate capabilities of children to act safely and avoid injuries and do have little knowledge of child safety practices. Another attitude is so-called "optimism bias," when parents even being aware of common hazards do not accept that personally their child is vulnerable to injury and, consequently, they do not apply their knowledge into everyday life [24].

## **Research goals and objectives**

Considering the fact that childhood injuries are responsible for high rates of deaths and disability, injury prevention deserves prioritization and special attention of public health structures and policy makers. Information concerning the issue of unintentional injuries in Armenia is mainly limited to quantitative data, including mortality and morbidity. However, development of effective preventive strategies requires careful investigation of both epidemiological data and underlying conditions that predispose to childhood injuries [26]. For the age group 0-6 years parental role in injury prevention is especially significant [27, 28]. Consequently, elaboration of prevention measures and program requires preliminary assessment of parental perceptions, attitudes, knowledge and practices with regard to childhood UI [29].

The general goal of this study was to identify a childhood injury prevention strategy appropriate for Armenia. For this purpose the current study conducted assessment of antecedents of UI among children of 0-6 years of age in Yerevan and Gyumri focusing on the parental awareness and behavior that makes childhood injuries likely to occur. Parents' knowledge of child safety, perception of their role in childhood injury prevention, their beliefs concerning the best strategies for minimizing risks and difficulties faced while ensuring safety for their children were evaluated. Additionally, the study aimed to explore whether the status of parental knowledge and attitudes to childhood UI is different in two different populations, which would mean different approaches to injury prevention strategies. Other objectives were identifying which kind of information and advice on child safety parents would appreciate, from which sources they would like to get the information, and exploring parents' ideas on what could be done in the scope of childhood injury prevention by them and by the community. Besides parental awareness the study intended to identify child hazards specific to Armenia.

This study tried to answer the following research questions:

- How do parents evaluate the life and health risks attributable to injuries among children aged 0-6 years?
- What is parental perception of preventability of childhood injuries?
- How do parents evaluate their role in decreasing childhood injuries?
- How do parents evaluate their knowledge of potential hazards surrounding children of 0-6 years of age?
- How are parents able to protect their children from in-home hazards threatening child health and life?
- What are parental beliefs on reasons for childhood injuries occurrence and factors either fostering or hindering them?
- What kind of additional information would parents appreciate and from which sources would they like to get the information?

## Methods and materials

The study was implemented as a qualitative investigation of parental knowledge, attitudes, beliefs and behavior with regard to childhood injuries. The study included in-depth interviews (IDI), focus group discussions (FGD) and free list exercises (FLE) with caregivers, and key-informant interviews (KI) that were conducted in the period of July 17, 2003 – August 27, 2003. (see Table 1).

**Table 1. Study methods and study population**

Method	Number of participants in Yerevan	Number of participants in Gyumri
Focus group discussions	6	6
Free listing exercise	6	6
In-depth interviews	12	10
Key informant interviews	3	3

Two focus group discussions were conducted at the initial stage of the study. This approach is suggested for exploring topics from participants' perspective and guiding construction of the following IDIs [30]. Thus, a couple of questions in the IDI field guide were paraphrased, and a few questions and probes were added after 2 FGDs.

### Study settings

The study was conducted in two settings: Yerevan and Gyumri. Yerevan was selected because most of the population of Armenia resides in the capital city. The second location, Gyumri, was identified considering two reasons. Firstly, population of Gyumri is the second largest one after Yerevan. Secondly, living and household conditions in Gyumri, as an earthquake zone, are exceptional and unlike those in Yerevan and regions. Part of Gyumri population still resides in so-called “emergency” buildings or in temporary wood/metal houses.

### Study population

The study population included principal caregivers (mothers/ grandmothers) of children aged 0-6 years because they are considered to spend much time with children. Besides, in Armenia, traditionally, women were responsible for the issues of baby care and grooming.

IDs and FGDs were conducted with caregivers who met the following criteria:

- Have at least one child aged 0-6 years;
- Mainly responsible for child care.

In order to assure objectivity of the acquired information the following exclusion criteria for study population were applied:

- working in health care;
- having a child died from an injury in the past three years;
- having a child experienced a severe injury requiring long-term hospitalization and rehabilitation within past 3 months.

Persons from the first group were expected to be better informed about childhood injuries, ways of prevention and coping with them. Parents from the second and third groups may still be suffering psychologically, which can impede discussing with them issues related to childhood injuries.

### *Recruitment for focus group discussion*

Participants of FGDs were selected through non-probability purposive sampling. Informants were referred by the friends and relatives of the investigator. None of the informants was familiar with the investigator. Twelve caregivers participated in two FGD (6 in Yerevan and 6 in Gyumri). This number of participants in FGD is considered sufficient and promotes high involvement of each participant [30].

### *Recruitment for in-depth interviews*

Recruitment of participants was done based on registries of district pediatric polyclinics. For this purpose one polyclinic in Yerevan (#19 united polyclinic) and one in Gyumri (#2 united polyclinic) were selected. The following were the main considerations while identifying polyclinics: diverse household types in the service area, including multistoried buildings, private houses and temporary houses (the latter for Gyumri), and willingness of the administration to collaborate. Another issue was raised during the preliminary investigation; all district polyclinics in Gyumri for the last 3-5 years have been working according to adopted special modules for healthy child visits that include a component of injury prevention counseling. In Yerevan these modules are adopted only in two polyclinics, including #19.

In each polyclinic two pediatric districts were randomly selected by multistage random sampling. For this purpose lists of pediatric districts were obtained, randomly reordered and the first two were selected. If both of them included the same types of households the second item was replaced by the next in the list. From each district pediatrician medical cards of children born in 1997-2003 were obtained and 40 of them were randomly selected through systematic random sampling (10 in each district). Contact information of selected families was taken and caregivers were asked to participate in the study. The IDIs were conducted mostly in respondents' households and a few of them in polyclinic's lobby.

Eight caregivers were unavailable at the time of the study and three caregivers were unwilling to participate. The total number of IDIs was 22 taking into consideration obtaining similar responses, which in qualitative research determines the sample size [30].

### *Recruitment of key informants*

Six key informants were district pediatricians identified from the same pediatric policlinics where the selection of IDI participants was done. The main criterion for their selection was at least 3 years working experience as a district pediatrician.

### Instrument

During a preparatory period of the study semi-structured field-guides for focus group discussions, in-depth and key-informant interviews were elaborated, translated into Armenian and pre-tested. While preparing IDI and FGD field guides the investigator referred to the instrument used in the study of “Parental attitudes toward unintentional childhood injuries” conducted in Canada by SAGE Research Corporation and with the researchers’ consent [24]. The questions were open-ended and most of them had complementary probes aiming to promote more detailed responses from the participants.

Interviews and discussions were held in Armenian. In order to record their flow a note-taking was applied. Field notes were expanded and translated into English as early as possible to minimize recall biases.

### *Focus-group discussions*

Each discussion consisted of 4 parts:

- Introductory;
- Discussion of issues related to preventability of childhood injuries;
- Free lists;
- Discussion of scenarios.

The first part included introducing participants and the topic of the discussion.

Discussion of injuries preventability issues was based on a preliminary elaborated field guide.

(See Appendix 1). The aim of preliminary discussion of childhood injury related issues was to trigger participants' interest to the issue before the main part, which was free lists exercise and discussion of scenarios. Another objective was identifying concerns and ideas that could be later included in the IDI field guide.

For the free lists exercise participants were distributed blank sheets of paper and asked to write down single words or word combinations that, in their opinion, were associated with potential hazards contributive to unintentional injuries in children up to 6 years old. Participants were given 15 minutes to complete this task.

For the last part of focus group discussion five scenarios describing routine situations involving children up to 6 years old and potentially fraught with getting injuries were presented to participants. Those scenarios were adopted from the above cited study in Canada [24]. Each scenario was followed by a discussion. The latter explored whether mothers were able to recognize potential risks, how they assessed presented parental behavior and what alternatives they could suggest (See Appendix 1).

The FGDs lasted approximately 2 hours. They were mediated by the investigator, and an invited person assisted the investigator in note-taking.

### *In-depth interviews*

The IDI field guide began with attributable questions on general demographic characteristics of participants. The main part consisted of questions on parental beliefs, knowledge, attitudes and practice with regard to childhood UI (See Appendix 2). The field guide was elaborated and pre-tested during preparatory stage of the study. Some of the questions were modified after conduction of FGDs.

The questions were grouped in several sets exploring parental

- Perception of injuries as a key threat to child health;



- Beliefs about preventability of UI among children;
- Knowledge of safety issues;
- Beliefs and attitudes with regard to child risky or cautious behavior;
- Safety practices;
- Readiness to cope with an injury;
- Need for information on child safety issues.

Each interview lasted approximately 20-30 minutes.

#### *Key-informant interviews*

The questions in the KI field guide were grouped in the following sets: warming up questions, transition and key questions (See Appendix 3). The aim of KI was obtaining information about district pediatricians' attitudes and experience related to childhood UI, as well as their views of parental role in UI prevention. The duration of the KI was approximately 20 minutes.

## **Ethical considerations**

The study proposal was reviewed and approved by the Institutional Review Board of the Committee on Human Research of the American University of Armenia.

### *Risk-benefit*

The study posed no physical risk on participants. Considering that the discussed issue could be especially sensitive for those mothers who recently experienced a death of a child due to an injury this group of caregivers were not included in the study. The study participants faced some inconvenience: time spent on interviews and focus group discussions. In order to diminish inconvenience and appreciate caregivers participation, everyone was gifted with a book on household safety measures published by “Pyunic” Armenian Union for Disabled.

### *Confidentiality issues*

Certain measures for ensuring confidentiality were undertaken. All participants were given ID numbers. Only the student-investigator has an access to their personal information, which is limited to their first names, age, education level, professional area and number of children.

### *Consent procedures.*

Participants of the study were provided with verbal consent, which familiarized participants with the objectives of the study, assured their confidentiality and provided with contact information.

## **Data analysis**

Data acquired during IDIs, FGDs and KIs were analyzed by reading and rereading transcripts, underlining and coding certain words, phrases and sentences, which later were used for identification of main ideas and concepts (See Appendix 4 for coding system).

The technique of domain analysis was applied in a few steps [31]:

- Selecting one semantic relationship;
- Preparing a domain analysis worksheet;
- Selecting a sample of respondent statements;
- Searching for particular cover terms and included terms that fit the semantic relationship;
- Listing all hypothesized domains.

Additionally, for organizing domains of “preventing childhood injuries by parents”, “reasons for behaving in a cautious way” and “reasons for behaving in a risky way” taxonomic analysis was applied and taxonomic diagrams were drawn (See Appendices 5, 6, 7).

Results of free list exercises were analyzed using Microsoft Excel program.

## Results

### Characteristics of the study population

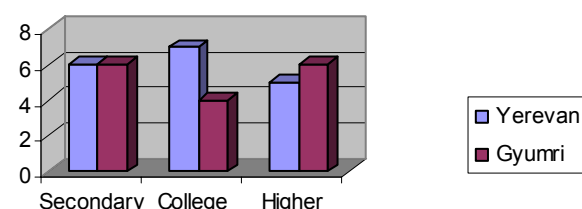
Totally 34 caregivers have participated in the study. Among them there were 32 mothers and 2 grandmothers.

Average age of participants was 28.

9 (not including grandmothers' age).

All of them were married. Most of mothers (77%) were not employed at the time of interviewing.

**Figure 2. Distribution of the study population according to the level of education**



Approximately two thirds of mothers in both settings had college or higher education. Two thirds of Yerevan participants resided in multistoried buildings, while more than half of Gyumri participants resided in

private houses. More detailed

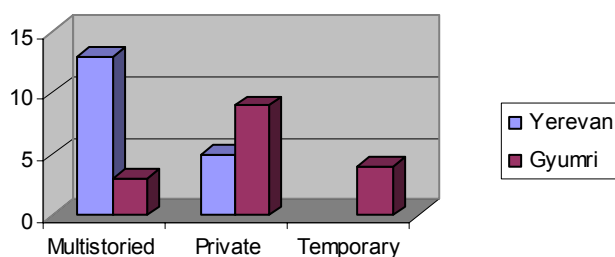
distribution of participants is

demonstrated on Figures 2, 3. The

average number of children in a

family was 2. The study embraced

**Figure 3. Distribution of the study participants according to the household type**



64 children, 51 of them were equal or under 6 years of age. Boys and girls were almost equally distributed.

## Focus group discussions

### Scenario 1.

*A mother is kneeling on the kitchen floor and cleaning the refrigerator with a spray cleaner. A 2 year-old child is sitting next to mother and playing with toys. The child rolls a ball to knock the cleaner over, and then squeals with delight when the mother stands the cleaner bottle up. The telephone rings in the next room. The mother puts the rag and cleaner down on the floor and tries to take child's hand. The child screams. The mother leaves the child playing and hurries to answer the phone in the next room.*

All participants of FGDs agreed that the situation was dangerous; especially emphasizing that child's attention was concentrated around the bottle with a chemical. There was one response that probability of getting injury depended on how long mother was absent from the kitchen. The situation was considered to result in a poisoning or burn with a chemical. The scenario was assessed as non-typical for Armenians:

*"...we are not fond of chemical, and if use them are very cautious. "*

Participants stated that the mother was aware of potential danger because she intended to take the baby with her. Among alternatives to her behavior the following was suggested:

*"...to take a child with her in spite of cry..."*

*"...to take a cleaner with her..."*

*"...not to answer the call..."*

*"...to warn the child not to move..."*

Trying to explain mother's behavior participants implied that she anticipated to be absent for a very short time, or she did not have time for persuading.

### Scenario 2.

*A mother is sewing while a 14 month-old baby is playing on the floor with toys. An older brother and his friend come in and ask if they can play with marbles. The mother agrees but tells them to play at the end of the room, away from where the baby is playing. Unknown the boys and the mother one of the marbles rolls away and reaches the baby.*

The situation was considered to be dangerous for a baby, who could put a marble into mouth, nose, or ear, swallow it or be choked. Participants highlighted that little objects were a major hazard for children up to 3 years. They stated that the situation was common in Armenian families: if the age difference in children was large they had different kind of toys, which could create dangerous situation. There was a view that even adults could leave a little object nearby a child.

There were several responses that the mother was aware of the potential danger; she warned to play far from a child and controlled the situation being present in the room. Thus, she did all the best, and the injury would be accidental. Majority stated that even realizing danger the mother was inconsistent with assuring safety for a baby. Participants suggested that mother could:

*“...restrict playing with marbles, or send them into another room. ”*

*“...explain older children the potential danger for a baby. ”*

### Scenario 3.

*A mother is sitting and drinking hot coffee. A 2 year-old child is crying to sit on mother's lap. Mother lets the child to do so and continues drinking coffee. When the child drops his toy and the mother reaches over to pick it up, the child reaches for the hot cup of coffee.*

The situation was regarded as typical. Mothers agreed that the situation might lead to a burn. A few participants reported behaving the same way. They believed that would be able to prevent the injury by keeping a cup far from a child or warning him not to touch. However, there was an opposite opinion:

*“You never can predict what a child will do in a second, so I do not have anything hot on the table when the baby is sitting at it. ”*

The participants judged mother’s behavior as superficial, not considering possible consequences. The suggestions were:

*“... not to take a baby on lap, even if he was crying. ”*

*“...to drink coffee fast and return to a baby. ”*

*“... to have coffee while baby was sleeping. ”*

#### Scenario 4.



Participants decided that there was a potential hazard. Nevertheless, a few of them suggested that if mother would be absent for a short time or the water level was low, nothing dangerous would happen. Child’s age also was taken into account:

*“For older child, for example of 4-5 years it may be safe. ”*

The situation was considered as non-typical. Only two parents reported about leaving their 2. 5 and 3 years old children in a bath for a considerable time in order they could have fun or refresh from summer hot.

As possible outcomes the following were identified: child may drown, slip and harm himself, reach hot water and have a burn, get a detergent, or cleaning liquid and have a

poisoning. Participants concluded that mother was not aware of the potential dangers. However, some responses stated that the mother wanted to calm a baby down, so did not think of anything more. Mother's behavior was judged as incorrect.

*"I do not think it is a good idea to leave a child in a bathtub. The mother should have prepared all things before starting a bath. "*

#### Scenario 5.

*A grandmother places a cake on the kitchen counter. A 2 and a half year-old child pleads to see it. The grandmother lifts the child to show the cake and lets taste the cream. The grandmother then puts the child down and leaves the kitchen to answer the doorbell. The child pulls a chair over and tries to climb onto the counter top to get the cake.*

Participants stated that situations similar to above described are common and they frequently did not realize possible consequences. A few mothers doubted whether the situation was dangerous:

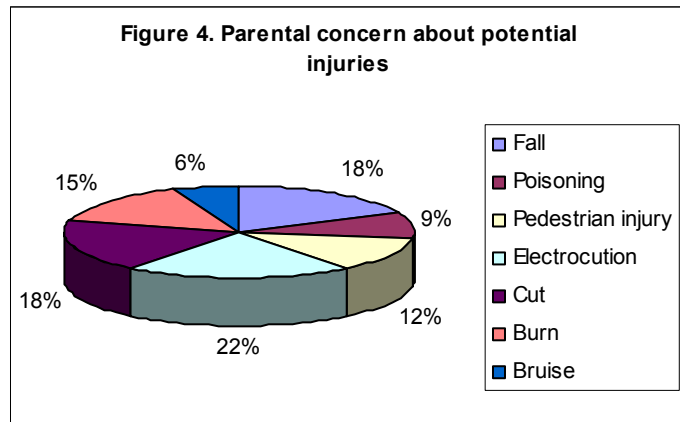
*"I don't think that granny placed a cake on the edge of the table, so there was a little possibility that the baby reached it. "*

However, they agreed that in this particular case the child might fall or turn over a cake. There was one response that if a cake was hot the child might get a burn as well. Participants considered incorrect to trigger a child's interest or desire and then not allow having a desert.



### Free lists exercises

During the free list exercise participants identified different kind of potential hazards for children within a home and in a backyard. Majority indicated outlets and electricity cords, electrical water heaters and furniture (sofa, bed, table, armchair and other) in terms of falls. Analyzing possible injuries it was found that mothers were mostly concerned with possible falls, electrocution and cuts (See Figure 4).



## In-depth interviews

### Perception of injuries as a key threat to child health

Almost all participants perceived injuries as a potential threat to child health. Eight caregivers reported that their children (nine children) had to visit a physician and even be hospitalized due to injuries. In five cases the children had burns and in four cases falls. There was one extreme case when a child got severely burned twice with hot water in one year interval and was hospitalized for a long time.

However, more than half of participants considered that their children were less prone to getting injuries in comparison with other children of the same age.

*“I do not think there is a high probability of getting injuries. They (my children) play quiet games and have quiet behavior. ”*

### Beliefs about preventability of childhood injuries

Four respondents stated that childhood injuries were not preventable. Children of three of them had experienced injuries requiring medical intervention. The mothers explained their opinion almost similarly: children’s behavior was unpredictable; consequently, there was no way to protect them from being injured.

*“How can one foresee what happens? I think injuries are a part of child growth and they cannot be avoided. ”*

Majority of interviewees believed that in most cases injuries were preventable and *“parents keep keys to this problem. ”* However, they stated that there might be inevitable cases, like falls during play or injuries due to traffic accidents.

Discussing parental role in injury prevention participants suggested different measures that could be grouped as (See Figure 2):

- Constantly controlling children \*\*\*\*;
- Creating safe in-home environment \*\*\*\*;
- Educating children on possible dangers and consequences of risky behavior \*\*\*;

- Forcing children to behave in a safe manner \*\*;
- Engaging children in interesting and safe activities \*.

(\*\*\*\* - a most frequent suggestion, \* - a least frequent suggestion).

### Knowledge of safety issues relevant to childhood injuries

Respondents felt themselves aware of potential hazards contributing to childhood injuries. While asked about the sources of their knowledge most of the participants stated that it was *"a well-known truth,"* some of them referred to their own or their relatives' experience or an *"inner voice,"* and only a few respondents stated about getting information from literature on child care.

Discussing the most common types of injuries among children 0-6 years of age, participants specified falls, burns and scratches, emphasizing that the formers are less likely to be anticipated and prevented.

Talking about particular injuries respondents demonstrated high awareness of protecting children from burns, poisoning with chemicals and choking. Most parents did not allow children up to 5 years old crossing streets without an adult. They complained that traffic is poorly regulated and consequently it was impossible to educate children on traffic rules.

Half of the respondents considered that *"It is dangerous to leave a little child on a high place without restraints. Even a child who cannot independently sit or turn over may fall."* The rest reported that they had left their children on a changing table, sofa or other unrestrained place until 3-5 months of age.

Majority of the respondents were concerned with safety issues while choosing toys, preferring to buy soft, not heavy and not fragile ones. Their main concerns were related to:

- Small details \*\*\*;
- Sharp details \*\*\*;
- Paints' toxicity \*\*;
- Special notes about appropriate child age \*.

Only two mothers were doubtful about potential hazards with regard to toys.

*“Toys are made especially for children; how they can be dangerous?”*

*Beliefs and attitudes with regard to child risky or cautious behavior* (See Appendices 6, 7).

A few mothers thought that cautious behavior ultimately depended on a child character. They supported this opinion stating that some children never got injured while others constantly got into trouble.

*“My children have inborn cautiousness that deteriorates them from risky actions. ”*

*“...it is something innate. There are children who are cautious since birth, like mine, and those who always get injured, even in older age. ”*

The majority had an opposite opinion: awareness of danger developed as a child was growing. They highlighted the importance of parental explanations, warning and even punishments. However, they felt that:

*“... restrictions may have an opposite effect and a child will be eager to do what is restricted. ”*

*“...child needs to know why he or she is allowed doing this and not allowed doing that. ”*

Discussing from which age children were able to perceive and follow parental warnings respondents expressed various opinions:

*“Since a first day a child is able to understand...”*

*“Children up to 6 years are not able to realize consequences of wrong behavior...”*

However, majority agreed that children aged 2-3 years could learn and recognize consequences of acting in a risky way. Participants identified another factor contributive to

maturation of danger awareness in children, which was previous experience of injury. They stated that a fear of having pain might discourage a child from repeating a wrong action.

*“A mother can warn about danger many-many times; but once getting injury may be more powerful than all those warnings. ”*

Participants agreed that behaving in risky ways was general for children due to their natural curiosity. Children could forget about safety while playing with others because of their intention to win or look like recognized leaders in their companies. Some interviewees added that individual characters of a child were also important factors.

Comparing boys and girls in terms of demonstrating risky behavior two thirds of the respondents considered that at the age 0-6 years likelihood of having risky behavior and, consequently, getting injured did not depend on children's gender. While the rest stated that boys usually played more agile and aggressive games, which increased their chances to get an injury.

*“In children under 6 there is no actual difference in risky behavior...”*

*“Boys usually are more active and less obedient...”*

Additionally, caregivers asserted that lack of adult control and parental work pressure also played a certain role in promoting childhood injuries. Another situation affecting parental cautiousness was considered to be the appearance of a new baby. A few mothers added that in this circumstance an older baby might intentionally or unintentionally harm the younger sibling.

### Safety practices

Discussing household safety one third of the respondents assessed it to be safe for children, while two thirds were concerned with presence of hazards: electricity cords, heaters, gas and others.

*“When we moved to the house I was very concerned about safety issues. I tried to oversee any danger. Now looking around I can state that there is little danger, but it still exists. For example windows. . . ”*

Majority of the participants had undertaken general measures to assure the household safety: keeping potentially dangerous objects (sharp objects, drugs and instruments) in unreachable places, keeping locked drawers, doors to bathroom and balcony. A few parents had not carried out anything relying mostly on their control over children's actions. Three mothers had plugged outlets, one protected within-house stairs with a special gate and the other protected windows with lattices.

#### Readiness to cope with an injury

Half of the participants felt themselves able to implement some steps of first aid in case of a minor injury. The rest would prefer to call some one for fear of harming the child. One third of the caregivers had learned first aid tips from the literature, while the rest relied on their intuition, experience and traditional measures. All respondents reported that in case of a severe injury they would seek for qualified medical care.

*“I can deal with injury by myself, but if the situation is dangerous, for example, the child lost his consciousness or has bleeding I will see a doctor. ”*

#### Need for information on child safety issues

All participants would like to receive additional information on child safety. Majority emphasized the necessity of first aid knowledge and skills. None of them was provided counseling on child safety from a district polyclinic.

*“...polyclinic does not provide with such information. Moreover, I do not think that if it were pediatricians' responsibility they would do it. It is better directly to provide parents with information. ”*

Discussing possible sources of information respondents demonstrated different preferences: books, brochures, magazines, and TV and radio programs.

*“...a book that is always on the table and I can have a look in case of need. ”*

*“... a TV program is more effective. Mothers are usually very busy, but they can combine watching TV with another work. ”*

A few mothers would appreciate information from pediatricians whom they were used to rely on.

### Key informant interviews

The key informants from both policlinics reported low number of visits due to injuries; their estimation was no more than 1-2 visits per month. In addition, they stated that there was a decreasing tendency in the frequency of childhood injuries. One of them explained this fact with general decrease in referral rates, while the others implied that adopting new modules for healthy child visits by their policlinics might have a crucial role. Discussing child mortality caused by UI in age group 1-6, all pediatricians assumed it was considerably lower in comparison with infectious diseases or malformations.

The most common type of injuries were stated to be falls, which may occur either at home or backyard. Individual character of a child and low parental attention were considered to be the most contributive factors. Majority of informants believed that maternal education might be associated with lower frequency of injuries in children.

*“... educated mothers are more eager to get information from pediatrician and other sources. ”*

Half of interviewees supposed that maternal age could influence injuries occurrence. Particularly, younger mothers were expected to be more concerned with child well-being and spend more time with their children. Discussing the importance of parity the informants indicated a current tendency to have fewer children. However, they believed that in larger families *“mothers are more strained with other problems and do not manage to assure high level care for all children, so the possibility that their children get trauma is higher. ”*

Assessing maternal interest in counseling on child safety issues respondents expressed different opinions. Half of them thought that mothers were concerned with getting information, especially from pediatricians. While the rest complained that often parents left the office before a pediatrician started talking about preventive measures.



All informants believed it was necessary to educate parents on safety issues. They suggested publishing appropriate materials and distributing them through children polyclinics, as well as creating a course of TV programs on child development, potential dangers and ways of coping with injuries.

## **Discussion**

Analysis of collected data did not find any significant differences in parental attitudes, beliefs and practices related to safety issues depending on city of residence or maternal age. Caregivers residing in multistoried dwellings were concerned with balconies and windows in addition to other hazards. Mothers with higher level of education tended to rely more on published materials in issues concerning child grooming.

The study revealed that in general parents were concerned with childhood injuries and perceived them as preventable. However, half of them demonstrated an “optimism bias” considering their children had fewer chances to be injured. This suggested that the parents did not realize the actual significance and magnitude of the problem.

Taxonomy analysis of the ways of childhood injury prevention identified by parents showed the most common approaches were constant control over children actions, creating safe environment for children and warning about danger (See Appendix 5). Those viewpoints imply an active role for parents who monitor or teach, while children are expected to be passive. A possible reason for such an attitude might be underestimation of children’s abilities to comprehend and distinguish potential hazards, and realize consequences of wrong behavior. Additionally, parents might not have enough time or be unaware how to educate children in safety issues.

Domain analysis of creating safety environment revealed that most parents relied on general safety measures. Even though outlets were most frequently indicated as a within-home danger, only one seventh of respondents applied specific measures to protect children from them. Other specific devices assuring child safety were not discussed. It could be concluded that most parents were not aware of existing safety devices.

Generally, participants felt themselves knowledgeable in child safety issues and acquired information mostly from non-reliable sources. However, majority of them were

keen to receive information from published materials and TV emphasizing a need for first aid advice in case of childhood injuries.

During discussion of scenarios participants demonstrated good knowledge of potential dangers, in most cases taking into account features of Armenian family routine. On the other hand, half of the participants demonstrated “security bias. ” They considered depicted situations not universally dangerous but influenced by:

- Parental beliefs on what a child was expected to do at a certain age (to sit, stand or turn over);
- Time-span that a child was left alone (in a bathtub or on a changing table);
- Individual character of a child (agile or quiet).

These findings demonstrated that in certain situations parents frequently improperly assessed the potential risk as well as underestimated children’s abilities in accordance with their age.

The study revealed inconsistency in information provided by district pediatricians and parents. While the former asserted providing safety counseling, no caregiver reported receiving advice on child safety from polyclinic. Moreover, only a few respondents indicated health care providers as a preferable source of information. One of possible reasons could be that pediatricians did not routinely emphasize safety issues during well-child visits.

## **Limitations**

The main limitation of a qualitative research is considered obtaining non-quantifiable results. However, the study did not set an objective to get statistical estimates, but conduct an ethnography exploration of the problem. The study was conducted only in two urban settings; thus, its results cannot be generalized to overall Armenian population.

Another limitation is related to the reliability of the collected data, particularly, findings concerning parental safety behavior were based on self-reported information. To diminish subjectivity of the data different data sources and different data collection techniques were used in the study.

One investigator carried out both data collection and analysis. Data analysis in a qualitative research has a subjective matter; consequently, it is recommended that more than one researcher conduct the analysis and compare their conclusions [32].

In addition, data collection was conducted in Armenian and then transcripts were translated into English. Translation might affect the real meaning and emphasis of culturally-related ideas.

## **Recommendations**

Childhood injury prevention strategies embrace a wide range of actions, including legislative reinforcement of safety practices, environmental engineering assuring child safety, control for product safety, and public education [7, 33, 34]. However, the first step is persuading parents and community in general that childhood injuries are a problem requiring special attention and their prevention may have significant health and economic results. Nationwide educational campaigns targeting separately caregivers, children, policy makers and health care providers may increase communities' awareness of the childhood injury related burden and their preventability.

Thorough education of parents and young children in safety issues would be effective. In the current situation providing information on childhood safety through district polyclinic staff seems to be ineffective. Thus, emphasis should be put on dissemination of information through publication and free distribution of brochures to parents, and periodical TV programs for both parents and children. Educational materials can provide succinct and simple information on potential hazards, their prevention, first aid tips and medical facilities managing injuries. For targeting children, safety messages may be addressed through picturesque brochures, cartoons and games.

Elaboration of educational interventions may require preliminary analysis of risk factors, which could be done through quantitative research methods [33]. Household, playground or child facility safety checks may be useful tool to identify certain hazards and direct intervention measures.

Considering that children should be one of the targets of educational programs a research on child perceptions of danger and risky behavior may be recommended. In order to evaluate objectively safety practices of caregivers and children a set of direct observations of their behavior may be suggested.

Childhood UI are an important public health issue in Armenia. However, its magnitude and significance are underestimated by caregivers and health care providers. Prevention of UI in children aged 0-6 is determined mostly by parents. The study revealed certain gaps in parental knowledge and awareness of safety issues and prevention of UI in children. Although the problem of childhood UI requires further investigation, education of caregivers and children can be suggested at current point.

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## **Appendix 1. Field guide for focus group discussions.**

### **I. *Introduction***

- a. Introducing the purpose of the study
- b. Describing the process and duration of a discussion
- c. Explaining risk/benefit/confidentiality issues
- d. Presenting consent form

### **II. *Personal information of participants***

- a. Education/ occupation/ working status (principal caregiver)
- b. Marital status
- c. Family composition
- d. Age (principal caregiver, child(ren))

### **III. *Discussion of issues related to preventability of childhood UI.***

- a. What do you think about possibility of preventing injuries to children?
- b. In your opinion what can a parent do to decrease the chances of a child being injured?
- c. In your opinion, what are the most common injuries in children aged 0-6 years?  
(Probe: burns, falls, choking, fractures, drowning, poisoning).
- d. In your opinion, what does make children act cautiously in situations where they could get hurt?
- e. What do you think, how do children start realizing the consequence of behaving in “risky” ways?

### **IV. *Free lists exercise.***

### **V. *Discussion of scenarios. Five different scenarios will be presented to participants.***

*Each of them will be followed with discussion including the following questions:*

- a. How typical was the parent’s behavior in the scenario?

- b. Was the parent in the scenario aware that “risk/danger” was an issue in the situation?
- c. Did the group take the child’s age into account at all evaluating the risk in the scenario?
- d. How can the group explain the parent’s behavior in the scenario?
- e. Did the group recognize the injury that could occur in the scenario?
- f. What alternative parent behaviors were identified?

## **Appendix 2. Field guide for in-depth interviews.**

### **I. *Introduction***

- a. Introducing the purpose of the study
- b. Describing the process and duration of an interview
- c. Explaining risk/benefit/confidentiality issues
- d. Presenting consent form

### **II. *Personal information***

- a. Education/ occupation/ working status (principal caregiver)
- b. Marital status
- c. Parity
- d. Age (principal caregiver, child(ren))

### **III. *Perception of injuries as a key threat to child health.***

- a. How likely is that your child may need to see a doctor because of an injury?
- b. How often has your child got injured? (Probe: more, less or as likely as other children of the same age).
- c. Has your child experienced an injury that required referral to a physician? Please, tell how it happened.

### **IV. *Beliefs about preventability of childhood injuries***

- a. What do you think about possibility of preventing injuries to children?
- b. In your opinion what can personally you do to decrease the chances of your child being injured?

### **V. *Knowledge of safety issues relevant to childhood injuries***

- a. How can you evaluate your knowledge and information on ways to prevent your child from being injured at home? (Probe: From where did you get this knowledge?)

- b. In your opinion, what are the most common injuries in children aged 0-6 years?  
(Probe: burns, falls, choking, fractures, drowning, poisoning).
- c. What is the common cause of burns in children?
- d. What do you think about major source of poisoning in children? (Probe: What do you think about possibility of a child getting poisoned with detergents, cleaners and other chemicals?)
- e. What do you think about the likelihood of very young babies to fall off a change table?
- f. What do you think about children's good sense of what is safe to put into mouth?
- g. What do you pay attention to while buying toys in terms of their safety?
- h. How do you usually cross the street with your baby?

**VI. *Beliefs and attitudes child risky or cautious behavior***

- a. In your opinion, what does make children act cautiously in situations where they could get hurt? (Probe: Is it possible to explain to children what is dangerous?  
Whether previous experience of having injury can affect children's behavior?)
- b. What do you think, how do children start realizing the consequence of behaving in "risky" ways? (Probe: Is it possible to explain to children what can happen after doing wrong things? Whether everyday actions teach children about what actions can result in injury?)
- c. Why children do things that could lead to getting hurt?
- d. Whether boys and girls are equally prone to behavior that can lead to injuries?

**VII. *Safety practices***

- a. How do you assess the safety of your household?
- b. What kind of measures have you undertaken in order to assure your household's safety?

**VIII. *Readiness to cope with an injury***

- a. Where will you call in case of accident?
- b. What medications and supplies do you keep in the first aid kit?
- c. Are you able to implement any measures in case your child has an accident (fall, choking, burn, poisoning)? Where from have you got these knowledge and skills?

**IX. *Need for information on child safety issues***

- a. Have you been provided with information on childhood safety from a regional polyclinic?
- b. What kind of information related to child safety issues would you appreciate?

From which sources would you like to get this information? (Probe: books, brochures, TV programs, or pediatrician's counseling)

### **Appendix 3. Field guide for key-informant interviews.**

#### **I. *Introduction***

- a. Introducing the purpose of the study
- b. Describing the process and duration of an interview
- c. Explaining risk/benefit/confidentiality issues
- d. Presenting consent form

#### **II. *Warming up questions***

- a. How long you have been working as a district pediatrician?
- b. How many children aged 0-6 are there in you pediatric district?
- c. How many office and in-home visits do you have per week?

#### **III. *Transition questions***

- a. Thinking about children aged 0-6, approximately how many visits do you have due to children accidents? Probe: What are the common reasons for these referrals?
- b. Could you approximately estimate the death rate in children 1-6 due to accidents? Probe: could you compare with the death rate due to infections, genetic disorders, malformations and other illnesses?
- c. In your opinion what are the contributive factors to accidents in childhood?

#### **IV. *Key questions***

- a. How much parents are aware of accidents in childhood?
- b. How much they know about preventability of accidents? Probe: How they evaluate their role in prevention of accidents?
- c. Based on your own experience, please, describe what kind of parental attitude and behavior usually make their children more prone to accidents? Probe: What other factors within family (composition, parents' age, education and business) can affect the accidents in children?

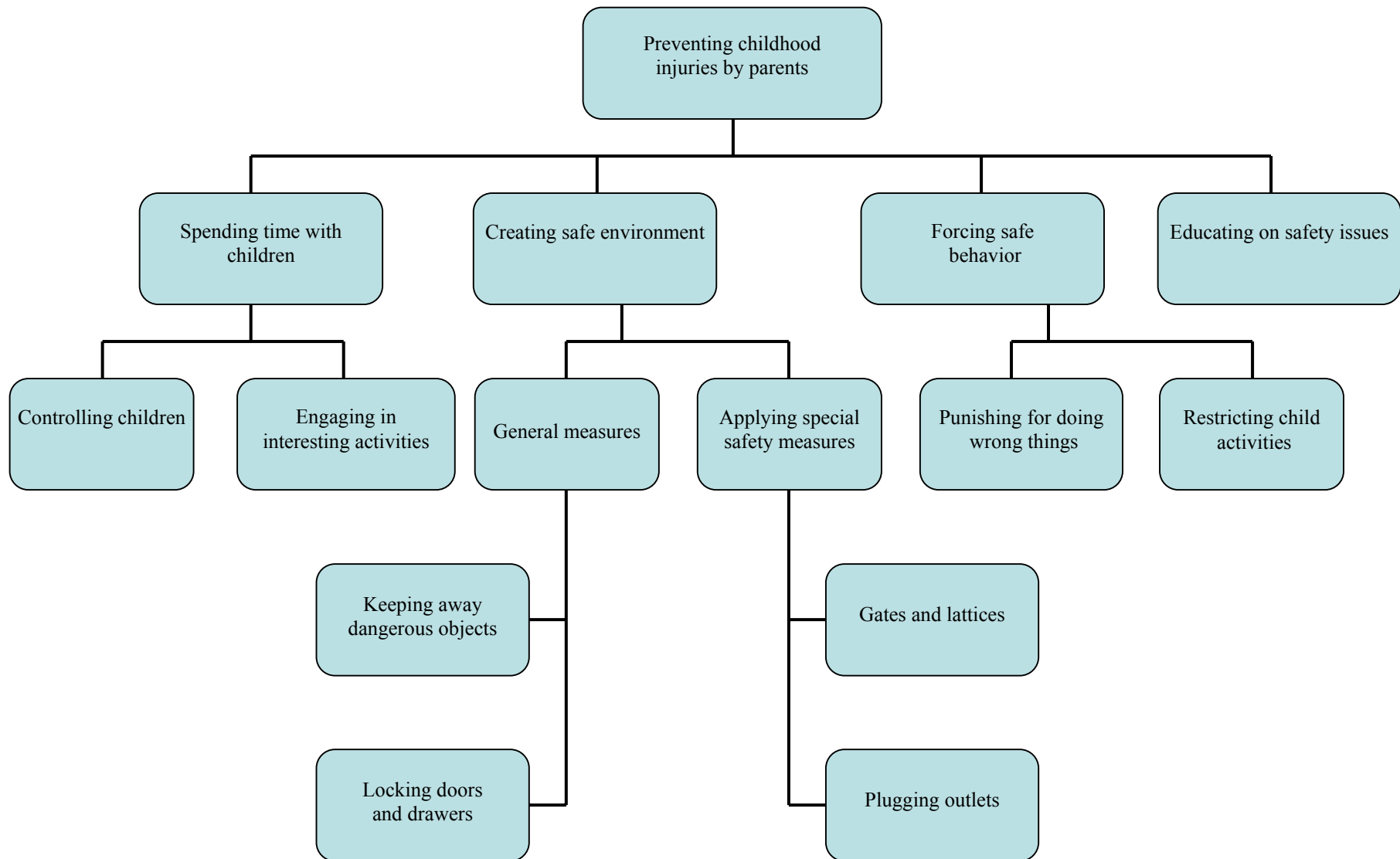
- d. Please, evaluate parental knowledge on household safety issues. Probe: Where from do they get this knowledge?
- e. How often do parents get counseling from polyclinics related to children safety issues? Probe:
- f. What kind of information and advice are they provided with?
- g. What information on childhood safety do parents need most of all? What means of information dissemination would you suggest to be the most effective?

#### Appendix 4. Coding system.

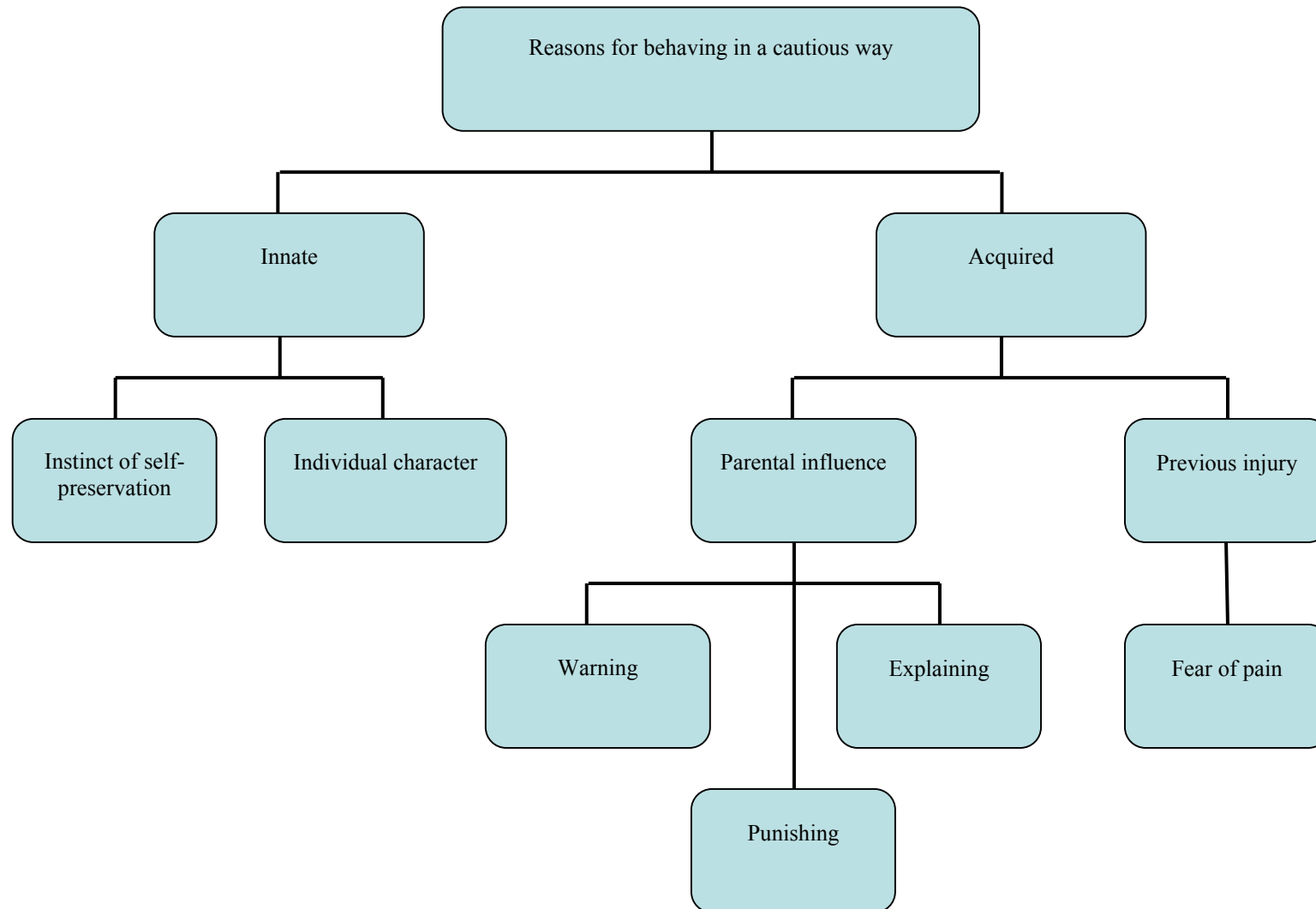
Code: long form	Code: short form	When to use
Optimism bias	OB	A parent considers that her child is unlikely to be injured
Experienced injury	EI	A child had experienced an injury requiring medical referral
Preventability of injuries	PI	A parent considers that childhood injuries are preventable
Parental role	PR	A parent is able to decrease chances of the child being injured
Common injuries	CI	Most common types of injuries
Danger awareness	DA	A parent is aware of dangers surrounding the child and threatening
Cause of burns	CB	The most common causes of burns in children
Cause of falls	CF	The most common causes of falls in children
Cause of choking	CC	The most common causes choking in children
Toys safety	TS	A parent assesses safety while buying toys
Reasons for cautious acting	RCA	Reasons fostering cautious behavior in children
Reasons for dangerous behavior	RDB	Reasons for children behave in a way leading to injuries
Household safety	HS	How parents assess the safety of their household
Sources of knowledge and skill	SKS	Sources of knowledge and skills on household safety and first aid issues
Preferred sources of information	PSI	Mostly appreciated sources of information on childhood safety



**Appendix 5. Taxonomy of preventing childhood injuries by parents.**



**Appendix 6. Taxonomy of reasons for behaving in a cautious way.**



**Appendix 7. Taxonomy of reasons for behaving in a “risky” way.**

