International Medical Society
http://imedicalsociety.org

International Archives of Medicine
Section: Nursing
ISSN: 1755-7682

2016
Vol. 9 No. 120
doi: 10.3823/1991

Risk Factors for Occurrence of Domestic Accidents Involving Children under the Age of Five: Implications for Nursing Care

ORIGINAL

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Abstract

Introduction: Accidents in chilhood are an important theme for Public Health due to what they represent and also to the repercussions for the childrens Health and their community. In this perspective, nursing, particularly in Latin America, has developed few initiatives focused on prevention strategies against domestic accidents; therefore, diagnostic studies are needed to identify this reality especially at home environment.

Objective: To investigate the association between risk factors and occurrence of domestic accidents involving children under the age of five in a municipality in the countryside of northeastern Brazil.

Method: Analytical, cross-sectional study, conducted with 330 caregivers by using a form for environmental observation as well as a socio-demographic questionnaire.

Results: Accidents occurred at home in 97% of cases, with falls being the most common (88.2%). The logistic regression model showed that if there are more than four residents in the household, the probability of accidents increases by 2.9 times; the presence of stairs/steps with no handrail increases the chance by 14.9 times; exits and passageways that are blocked with toys, or other obstructive items, increase the risk by 11.3 times; cleaning products/insecticides stored in low places increases the number of accident by almost 16 times.

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Conclusion: The study strongly suggests that nurses should rethink their actions and prioritize the prevention of domestic accidents in the care of children's health, while valuing the dynamics of the family context.

Keywords
Domestic Accidents; Childrens Health; Pediatric Nursing.

Introduction

The risk of injury during childhood is high in developing countries, such as Brazil, whose existing average mortality rates are 50.5 per 100,000 for male children and 43.5 per 100,000 for female children [1]. The explanation is that populations are larger and younger demographically, adding to the fact that typical characteristics of growth and development from 0 to 5 years favor an increase in the occurrence of accidents.

The overview of domestic accidents encompasses a burden on health services worldwide. A study conducted in hospitals in Africa showed that 47% of the 556 registered infant patients were children under the age of five, and that the household environment accounted for 54.8% of the places with the highest occurrence of unintentional injuries during childhood [2]. In the United Kingdom [3] an average of 750,000 children aged 0 to 15 years were attended to in hospital annually and had injuries resulting from accidents in the household. In Dakar, among 555 children attended to at the pediatric emergency, it was observed that domestic accidents constituted 28.8% of all visits and 16% of the admissions in the emergency department. Falling was the major type of accident (62.5%) [4].

In Latin America, this reality is not different, as shown by a study in Peru in the period 2004-2011 on the characteristics of traumatic brain injury (TBI): for the 316 children affected, 59.2% of the accidents occurred in the household and the most of the children suffered epidural hematoma, especially those under the age of five [5].

In this perspective, nursing, particularly in Latin America, has developed few initiatives focused on prevention strategies against domestic accidents; therefore, diagnostic studies are needed to identify this reality. Nurses must therefore work in line with members of the health team and within the scope of the Family Health Strategy (Primary Health Care), in order to expand the access to actions around education and health promotion, as the home environment is an important scenario in the occurrence of accidents. Therefore, identifying such situations will contribute to the improvement in early childhood care, a review of practices and the implementation of more appropriate nursing practices.

Given this context, and the high number of families experiencing domestic accidents, the study contributes to Nurses Work Process for, in order to promote the reflection of caregivers before the decision-making on perspectives about behaviorial change in a way to take care and avoid accidents in this age group. Therefore, the objective of the study is to investigate the association between risk factors and the occurrence of domestic accidents involving children under the age of five in a city in the countryside of northeastern Brazil.

Method

This is an analytical study with a cross-sectional design in a city in the countryside of Piauí, in northeastern Brazil. According to the Primary Care Information System or SIAB in portuguese language, in August 2013, the population of children under five years of age in the urban area of this city stood

at 2,243 children [6]. Thus, adopting a significance level of 95% and a sampling error of 5%, the study sample consisted of 330 children.

Inclusion criteria were: homes with children under the age of five; belonging to an area linked to one of the 17 Basic Health Units that make up the urban area of the municipality, with caregivers present in the household at the time of the visit. Residences were excluded where caregivers were not present in three consecutive visits; or those in which children had some sort of neurological disorder, because in those cases the child was totally dependent on the caregiver.

Initial contact was made with the units of the Basic Health Units and a meeting was scheduled with the Community Health Agents, who were able to map the residences that had the profile for the follow-up home visits. For randomization of the sample, households were identified and numbered according to a table of random numbers, which were then randomly selected. The number of children in the household did not affect the percentage of households that were visited; in other words, even if more than one child lived in a particular house, it was considered as only one visit. In 45.2% of the residences, there was only one child and in these cases, selection parameters were adopted to select the youngest one within the criteria described above.

Home visits were carried out and the researcher applied the instruments during the period between october and november 2014. For data collection, a form was used containing socioeconomic and demographic information about the caregivers, characteristics of the home environment, and information about the occurance of domestic accidents involving children as well as the type of accident. A pre-test was conducted at the same time to identify the feasibility of the form, which did not require changes. For the identification of risk, an observation of the environment was conducted and a checklist was completed [7], with the consent of the caregiver. The variables were investigated as three large blocks relative to domestic risk factors: 1) socioeconomic and demographic profile of caregivers and characteristics of the accident; 2) Risk factors relative to infrastructure / household environment; 3) Risk factors relative to the arrangement of objects and furniture in the household.

Data were plotted using the Statistical Package for the Social Sciences, version 20.0. A bivariate and multivariate analytical statistics was used on the intersection of the different variables, with the statistical tests as a variable type.

In the bivariate analysis, the tests Pearson's chi-square and likelihood ratio for categorical variables were performed. To estimate the strength of association of risk factors for the occurrence of accidents, the OddsRatio (OR) was calculated with a 95% confidence interval. In the multivariate analysis, the statistical procedure for setting the potential effects of confusion was the hierarchical logistic regression model (8). For the hierarchical model, $p \leq 0,20$ was considered, as obtained for the bivariate analysis. For the remaining variables in the hierarchical model, the outcome of the Wald test was adopted with a statistical significance of $p \leq 0.05$. The study was approved by the Ethics Committee of the Federal University of Piauí (Expert Opinion No. 817 183).

Results

Socioeconomic and demographic profile of caregivers and characteristics of accidents

Considering the sex of participants/caregivers, it was found that most caregivers were females (98.5%). Their ages ranged between 20-29 years (49.1%) with a mean of 27.8 years (SD ± 7.03). Approximately 57.0% of the participants had completed high school, as can be seen in the **Table 1**.

The association between risk factors relative to infrastructure / home environment and domestic accidents showed that three variables were statistically

Table 1. Profile of caregivers of children under the age of five and characteristics of the accident, Floriano-Piauí. 2014 (n = 330)

Variables	f	%	Min	Max	Average	Dp
Caregiver's sex						
Male	5	1.5				
Female	325	98.5				
Caregiver's age						
< 20 years	42	12.7	15	59	27.8	±7.03
20 to 29 years	162	49.1				
30 to 39 years	108	32.7				
40 to 49 years	15	4.5				
> 50 years	3	0.9				
Education						
Not educated	5	1.5				
Elementary School	88	26.7				
High School	188	57.0				
Higher Education	49	14.8				
Income						
Up to 2 MW	260	78.8				
More than 2 MW	70	21.2				
Marital Status						
With a life partner	222	67.3				
Without a life partner	108	32.7				
Employment Status						
Domestic Services	224	67.9				
Education	30	9.1				
Commerce	22	6.7				
Professional activities	14	4.2				
Other service activities	40	12.1				
N° of residents in the household						
< 4 people	78	23.6	2	13	4.81	±2.08
4 a 5 people	173	52.4				
6 a 7 people	44	13.3				
> 7 people	35	10.6				
N° of children in the household						
One	149	45.2	1	7	1.82	±1.04
Two	128	38.8				
> Three	53	16.1				
Leaves the child alone at home						
Yes	28	8.5	1	7	1.82	±1.04
No	302	91.5				
Who looks after the child						
Grandparents	146	44.2				
Siblings	28	8.5				
Uncle/aunt of another relative	97	29.4				
Neighbor or employed caregiver	31	9.4				
Brings the child along	28	8.5				
Age of the person who looks after the child (n=302)*						
< 20 years	50	15.2	9	84	39.64	±17.38
20 to 29 years	50	15.2				
30 to 39 years	43	13.0				
40 to 49 years	63	19.1				
50 to 59 years	52	15.8				
>60 years	44	13.3				

*: Corresponds to the total number of caregivers that leave the child with someone

significant: the presence of stairs or steps without handrails (OR = 24.882, p = 0.000); the presence of thorns, nails, broken glass and other in the area where the child plays (OR = 5.014; p = 0.023) and presence of plants/garden or yard (OR = 8.246; p = 0.011), as shown in **Table 2**.

The association between risk factors relative to the arrangement of objects and furniture in the household and the occurrence of accidents involving children under the age of five, revealed that six variables were statistically significant (p <0.05): the presence of high-voltage network (OR = 0.167; p = 0.015), exits and passageways blocked by toys, furniture, boxes or other items that may be obstructive (RO = 8.075; p = 0.003), connected fans within reach of children (OR = 11.719, p = 0.002), cleaning Products, insecticides stored in low places (OR = 5.798; p = 0.017), Cleaning products, pesticides are properly stored (OR = 11.000, p = 0.006) and household has curtains or mosquito nets (OR = 5.559; p = 0.009), as shown in **Table 3**.

Table 2. Association between risk factors relative to infrastructure/home environment and domestic accidents involving children under the age of five. Floriano-PI 2014.

Variables	Accidents		Total	p*	OR (IC 95%)
	Yes	No			
Presence of stairs or steps without handrails					
Yes	235 (99.6%)	1 (0.4%)	236	0.000	24.882 (3.106-199.334)
No	85 (90.4)	9 (9.6)	94		1
Presence of window with bars					
Yes	176 (97.8%)	4 (2.2%)	180	0.349	1.833 (0.508-6.621)
No	144 (96.0%)	6 (4.0%)	150		1
Presence of power tools and electric gates within children's reach					
Yes	47 (97.9%)	1 (2.1%)	48	0.664	1.549 (0.192-12.515)
No	273 (96.8%)	9 (3.2%)	282		1
Plugs are protected or located higher up					
Yes	160 (97.0%)	5 (3.0%)	165	1.000	1.000 (0.284-3.521)
No					1
Presence of thorns, nails, broken glass and other items in the area where the child plays					
Yes	178 (98.9)	2 (1.1)	180	0.023*	5.014 (048-23.983)
No	142 (94.7)	8 (5.3)	150		1
Presence of bare or broken wires					
Yes	33 (100.0)	0 (0.0)	33	-	-
No	287 (96.6)	10 (3.4)	297		
Presence of plants/garden or yard					
Yes	153 (99.4)	1 (0.6)	154	0.011*	8.246 (1.033-65.842)
No	167 (94.9)	9 (5.1)	176		1
Presence of a well in the garden					
Yes	9 (100.0)	0 (0.0)	9	-	-
No	311 (96.9)	10 (3.1)	321		
Presence of tanks or low water boxes at home					
Yes	100 (100.0)	0 (0.0)	100	-	-
No	220 (95.7)	10 (4.3)	166		
The child has access to these wells and tanks or water boxes (there are barriers that prevent contact)					
Yes	14 (100.0)	0 (0.0)	14	-	-
No	306 (96.8)	10 (3.2)	316		

Source: Direct research, 2014.

Table 3. Association between risk factors relative to arrangement of objects and furniture in the household and the occurrence of accidents involving children under the age of five. Floriano-PI 2014.

Variables	Accidents		Total	p*	OR (IC 95%)
	Yes	No			
Slippery carpets					
Yes	45 (97.8%)	1 (2.2%)	46	0.703	1.473 (0.182-11.906)
No	275 (96.8%)	9 (3.2%)	284		1
High-voltage network					
Yes	32 (88.9%)	4 (11.1%)	36	0.015	0.167 (0.045-0.622)
No	288 (98.0%)	6 (2.0%)	294		1
Safe crib (with high railings and proximity to the ground)					
Yes	48 (98.0%)	1 (2.0%)	49	0.645	1.588 (0.197-12.823)
No	272 (96.8%)	9 (3.2%)	281		1
Presence of lamps, cables, glass framed pictures are within children's reach					
Yes	65 (98.5%)	1 7(1.5%)	66	0.385	2.294 (0.286-18.434)
No	255 (96.6%)	9 (3.4%)	264		1
Exits and passageways blocked with toys, furniture, boxes or other items that may be obstructive					
Yes	214 (99.1%)	2 (0.9%)	216	0.003	8.075 (1.685-38.695)
No	106 (93.0%)	8 (7.0%)	114		1

Variables	Accidents		Total	p*	OR (IC 95%)
	Yes	No			
Sharp objects, pins, razor blades, knives, scissors are stored in secure locations					
Yes	178 (98.9%)	2 (1.1%)	180	0.057	5.014 (1.048-23.983)
No	142 (94.7%)	8 (5.3%)	150		1
Connected fans are within children's reach					
Yes	181 (99.5%)	1 (0.5%)	182	0.002	11.719 (1.467-93.599)
No	139 (93.9%)	9 (6.1%)	148		1
Buttons, pins, coins, food grains are within children's reach					
Yes	106 (98.1%)	2 (1.9%)	108	0.364	1.981 (0.413-9.494)
No	214 (96.4%)	8 (3.6%)	222		1
Cleaning products are pesticides are stored in places					
Yes	287 (98.0%)	6 (2.0%)	293	0.017	5.798 (1.556-21.606)
No	33 (89.2%)	4 (10.8%)	37		1
Cleaning products and insecticides are properly closed					
Yes	308 (97.8%)	7 (2.2%)	315	0.006	11.000 (2.528-47.857)
No	12 (80.0%)	3 (20.0%)	15		1
Cigcigarettes and alcoholic beverages are within children's reach					
Yes	76 (100.0%)	0 (0.0%)	76		
No	244 (96.1%)	10 (3.9%)	254		
Household has curtains and mosquito nets					
Yes	68 (91.9%)	6 (8.1%)	74	0.009	5.559 (1.525-20.259)
No	252 (98.4%)	4 (1.6%)	256		
Distance between the bars of the cradle does not allow the child's head to pass through					
Yes	42 (95.5%)	2 (4.5%)	44	0.552	0.604 (0.124-2.943)
No	278 (97.2%)	8 (2.8%)	286		1
Buckets and bathtubs are kept full and within children's reach					
Yes	116 (99.1%)	1 (0.9%)	117	0.060	5.118 (0.640-40.903)
No	204 (95.8%)	9 (4.2%)	213		1

Source: Direct research, 2014.

In the hierarchical blocking, it was observed that the variables 'number of residents in the household', 'presence of stairs or steps without handrails', 'cleaning products, insecticides stored in low places',' home has curtains or mosquito nets' and 'buckets and bath are kept full and and within children's reach' all fulfilled the criteria of $p < 0.05$, which brought them to the final logistic regression model. The final model was thus calculated. After the calculations, the variable 'buckets and bath are kept full and the child has access' was excluded, because it did not remain statistically significant. Accordingly, **Table 4** shows the results of the final logistic regression model.

Table 4. Multivariate analysis for hierarchical blocks of predictors of domestic accidents involving child under the age of four. Floriano, PI, 2014.

Hierarchical Blocks		P	Adjusted Odds Ratio (IC 95%)
1	N° of children in the household	0.084	0.526 (0.254-1.089)
	N° of residents in the household	0.006*	(1.400-7.491)
2	Presence of stairs or steps without handrail	0.010*	20.340 (2.059-200.921)
	Presence of thorns, nails, broken glass and other in the area where the child plays	0.853	1.183 (0.200-7.002)
	Presence of plants/garden or yard	0.299	3.261 (0.351-30.315)
3	High-voltage network	0.530	0.474 (0.046-4.861)
	Exits and passageways kept with toys. boxes or other items that may be obstructive	0.025*	11.073 (1.358-90.273)
	Sharp objects, pins, razor blades, knives, scissors are stored in secure locations	0.995	46503734.077 (0.000)
	Cleaning products. pesticides stored in low places	0.026*	35.410 (1.523-823.287)
	Cleaning products. insecticides are properly closed	0.176	11.131 (0.341-363.723)
	Home has curtains or musquito nets	0.039*	14.113 (1.143-174.225)
	Buckets. bath are kept full and within children's reach	0.034*	132.391 (1.450-12086.465)

*: Variables that were taken for testing in a final regression model.

Table 5. Final model of logistic regression of predictors of domestic accidents involving children under the age of 4. Floriano-Pi-Brazil, in 2014.

Variables	B (EP)	P	Exp(B) (I.C. 95%)
N° of people living in the household	1.083 (0.430)	0.012	2.954 (1.271-6.863)
Presence of stairs or steps without handrail	2.705 (1.108)	0.015	14.960 (1.704-131.318)
Exits and passageways kept with toys, boxes or other items that may be obstructive	2.429 (1.043)	0.020	11.350 (1.468-87.728)
Cleaning products, pesticides are stored in low places	2.767 (1.001)	0.006	15.910 (2.238-113.112)
Home has curtains or musquito nets	1.753 (0.860)	0.042	5.773 (1.069-31.176)
Constant	-13.310 (2.738)	0.000	0.000

SE=Standerd Error; Note: 0.118 (R^2 Cox & Snell); 0.494 (R^2 Nagelkerke); Hosmer and Lemeshow Test: X^2 of the model=1.509, p=0.982.

Table 5 shows that the final model consists of the variables 'number of people living in the household', presence of stairs or steps without handrails', 'cleaning products, insecticides are stored in low places', 'home has curtains or mosquito nets' and 'exits and passageways kept with toys, boxes or other items that may be obstructive', which accounted for 49.4% of the occurrence of domestic accidents (R^2 Nagelkerke). According to Snell & Cox R^2, the model only explained 11.8%.

The Hosmer and Lemeshow measure presented a chi-square of 1.509 (p = 0.982) indicating a good fit of the regression model [8].

Discussion

Women prevailed among caregivers of children under the age of five, and over the generations, it is observed that the way to prevent accidents possibly comes from the gender relations involved in the act of raising a family [9]. Wome have always been responsible for the care of either the house or the children [10] and are in charge, more than other caregivers, of children's safety within and outside the household [11].

The age of these caregivers ranged between 20-39 years old. They had a high school education level and a family income of up to two minimum wages, and they provided domestic services, a similar reality for thousands of Brazilians from the northeastern region of the country. A survey conducted on the subject in this region also found that the predominant maternal age ranged between 18 and 35 years (89.2%) [12]. This reality highlights the importance of education and living conditions on the care of children, where the best conditions ensure more appropriate care and hence the reduction of accidents.

Regarding the number of children living in the family, 45.2% of respondents reported having only one child, and the number of people living in the household ranged from four to five. This situation in relation to the occurrence of accidents may be analyzed using a logistic regression analysis of the data, since it was observed that the amount of individuals in the same environment provides an increased incidence of accidents. Perhaps what happens is that the responsibility for care is not well defined, thus increasing the number of accidents. Moreover, the presence of an adult did not prevent accidents, as adults often do not know how to prevent them or how to carry out other activities at the expense of direct supervision of children.

This reality, plus the fact that 91.5% of participants said they do not leave the child at home alone, shows that family members find it difficult to provide care. One study [13], warns that the presence of parents in the household does not ensure that children are protected from accidents, since in 79.21% of cases, the mother was present and in only 2.57% of the times the children were alone at home at the time of the accident.

The present study showed that in the absence of the mother, the responsibility for the care of children under the age of five was most often taken by the grandmother, with similar results found in other studies with 260 families (14), which strengthens the presence of women as the main caregiver.

There was a total of 97.0% of accidents, which can be explained by the lack of knowledge about hazardous situations and/or neglect by adults. A literature review about domestic accidents showed that they are one of the main causes of infant mortality. It is the fifth leading cause of mortality worldwide, and ranks as second or third in almost all other countries [14]. The high percentage of accidents can be explained by ignorance about risk situations and/or neglect by adults.

Accidents usually occurred in the morning. According to the caregivers, the children were away from home in the afternoon, mostly at school. Moreover, it can be inferred that it is also in the morning that caregivers do housework, therefore reducing supervision of the child, and increasing the risk of accident.

As to the place of the occurrence of accidents, the survey revealed that the outside area was the place of the home where most accidents happened, followed by the living room and the bedroom. However, studies have shown [15] that the kitchen was the main location for the occurrence of domestic accidents, and fire and hot liquids are the main aggressors.

Regarding the association between children's age and accidents, statistical significance found that falls, cuts and drowning, happen mainly for children between the ages of zero and two years old. Corroborating with these findings, a study [16] whose aim was to characterize falls by children and adolescents found that 12.4% of the 3,144 cases of emergency care for external causes in a Brazilian region were falls, and another test showed that this rate can reach up to 63.5% of all accidents in the age group of 0 to 12 years [17] With regard to falls elsewhere in the world, for example, in Tunisia, a recent study estimated the incidence of the types of domestic accidents with children up to three years. It showed that falls occurred in 78.2% of the 435 cases in the study sample [18]

In the case of the association between risk factors relative to infrastructure/home environment and domestic accidents, it was revealed that three out of the ten variables were statistically significant ($p < 0.05$), and represented risk factors for the occurrence of domestic accidents: presence of stairs or steps without handrail; presence of thorns, nails, broken glass and other items in the area where the child plays; presence of plants and garden or yard.

This reality shows that accident prevention in childhood goes beyond the emotional care of children, and must encompass economic determinants, which provide a safer environment [19]. A favorable setting for children to play should be away from stairs, great heights and slabs and there should be bars or nets on the windows. These structures are often not found in households of low-income families, as is the case of the present research. Thus, income transfer programs such as *Bolsa Familia* (Brazilian Family Welfare Program) and employment opportunities for these families, especially those most in need, can make a difference in these situations.

The presence of certain plants in the backyards coincides with the findings of a study in a pediatric clinic, where 48.3% of the interviewed parents had toxic plants at home. Poisoning by plants accounts for 2% of all cases of poisoning and the cause is the lack of knowledge about dangerous species [20]. This highlights the need for guidance from the nurse during the consultation on the toxicological characteristics of plants that may be common in the home, including widely used ornamental species.

The association between risk factors relative to the arrangment of objects and furniture in the household, like the presence of high-voltage network, which is very common in the northeast of Brazil; exits and passageways blocked with toys or other

items that may be obstructive; connected fans wihtin the reach of children; cleaning products, pesticides stored in low places; cleaning products, insecticides that are properly closed and the presence of curtains or mosquito nets, may be factors that promote the occurrence of dangerous situations in the family.

A study conducted with children from low-income communities in northeastern Brazil showed that cutting and drilling materials were easily accessible in 87 (23.7%) of the surveyed households. In addition, 47 (12.8%) of them had fans with exposed propellers and in 28 cases (7.6%) the TV antenna had had improvised installation [11]. Furthermore, the presence of loose wires and unprotected wall sockets pose a risk of electric shocks [21].

These and other situations should be valued during the visits to the family, in which the nurse should raise awareness amongst caregivers to adopt maintenance measures and appliance repairs, as well as introduce covers for wall sockets in order to reduce damage to children's health, while taking into account the cultural and social context of those involved.

It should be noted that it is not surprising that most of the accidents occur at home, given the long period that young children remain there. This requires that people looking after children should be aware of environmental risks and take action to avoid them, because, while the household may trigger the occurrence of accidents, it can also function as a facilitator for preventive and educational actions, neutralizing the existence of such risks. Nurses are required to provide the household with guidelines to promote health and prevent diseases/health problems [22].

Nurses, during a routine visit, and even during prenatal care, or home visits to the family, should address these issues with parents. Despite the concern for children's healthy growth and development, some typical situations of each locality, e.g. the use of hammocks, as observed in the present study, can be a common practice in family life. However, if not enough attention is given, these situations can increase the risk of accidents. In this study, the use of bars in apartment windows was not addressed, for example, because all households had only one floor. Nevertheless, these situations should be addressed at the time of child care, as they can make a difference for the occurance of acccidents.

Conclusions

It can be concluded that domestic accidents involving children under the age of five are influenced by hierarchical risk factors relative to the arrangement of objects and furniture in the household, followed by factors relative to infrastructure/environment and, as a result, to sociodemographic characteristics.

The features found in the occurrence of accidents can make families and healthcare professionals become more aware of the fact that domestic accidents are a reality that must not be neglected and that can lead to morbidity and mortality in children, depending on the severity of the occurrence. For this reason, the implementation of activities aimed at preventing this practice and promoting children's health is necessary, in order for society to reflect further on the need to adopt a preventive behavior to minimize such cases.

The present research highlights the importance of the participation of health care professionals as well as other professionals that directly or indirectly deal with children, for design and and work in prevention programs, advising parents, guardians and children themselves about surrounding environmental hazards so that they can have enough information in order to avoid them.

References

1. Hockernberry MJ, Wilson D. Wong's Essentials of Pediatric Nursing. 8th ed. Rio de Janeiro: Elsevier; 2011.
2. Muttom LS, Nansamba C, Ovuga E, Svanstrom, L. Unintentional childhood injury patterns, odds, and outcomes in Kampala City: an analysis of surveillance data from the National Pediatric Emergency Unit. J Inj Violence Res. 2011 3(1): 13-18.
3. Smithson J, Garside R. Pearson M. Barriers to and facilitators of, the prevention of unintentional injury in children in the home: a systematic review and synthesis of qualitative research. Inj Prev. 2011 17 (2): 119-126.
4. Mohamed AS, Omid A, Faye Fall AL, Mbaye PA, Seck NF, Ndour O, et al. Les accidents domestiques chez l'enfant à Dakar : à propos de 555 cas. Journal de pédiatrie et de puériculture. 2015 28 (5): 217-222.
5. Guillén-Pinto D, Zea-Vera A, Guilén-Mendoza D, Situ-Kcomt M, Reynoso-Osnayo C, Miya-Vera LM, et al. Traumatismo encefalocraneano en niños atendidos en un hospital nacional de Lima, Perú 2004-2011. Rev Peru Med Exp Salud Publica. 2013 30(4):630-4.
6. Piauí-Brazil. Municipal Secretariat of Health Information System for Primary Care Brazil. 2013.
7. Moreira TMM, Santiago JCS, Alencar GP. Self-perceived health and clinical characteristics in young adult students from the brazilian northeast. Rev Esc Enferm USP. 2014 48 (5): 794-803.
8. Hair JJF, Anderson RE, Tatham RL, Black WC. Multivariate Data Analysis 5th ed. Porto Alegre; Bookman; 2005.
9. Fonseca NR, Penna AFG. Profile of the family caregiver caring for patients with sequels of cerebral vascular accident. Ciênc. saúde coletiva. 2008 13 (4): 1175-80.
10. Governmental organization No Child Safe Accident prevention with children. Sao Paulo. 2012. [cited: 2013 jul 07] Available from: http://www.projetolegal.org.br/index.php/noticias/papo-legal/143-coordenadora-da-ong-crianca-segura-fala-sobre-prevencao-de-acidentes-com-criancas.
11. De Lima RP, Ximenes LB, Joventino ES, Vieira LJE, Oriá MOB. Accidents in childhood: place of occurrence and behavior of family members in the home environment. Enferm. Glob. 2009 (15): 1-13.
12. Dantas DV, Alves KYA, Salvador PTCO, Dantas RAN. Nursing activities in the prevention of accidents in child. Rev. enferm. UFPE online. 2010 4 (n.esp): 1315-322.
13. Lafta RK, Al-Shatari SA, Abass S. Mothers' knowledge of domestic accident prevention involving children in Baghdad City. Qatar Med J. 2013 23 (2): 50-6.
14. Vieira LJES, Pordeus AMJ, Lira SVG, Moreira DP, Pereira AS, Barbosa IL. Associated factors for the occurrence of unintentional injuries in children from a low-income community in northeastern Brazil. Acta Scientiarum. Health Sciences. 2012 34 (2): 127-135.
15. Paschoal SRG, Pereira DM, Nascimento EN. Efect of an educative action on relatives' knowledge about childhood burns at home. Rev Latino-am Enfermagem. 2009 17(3): 341-346.
16. Poll MA, Heck TW, Engel RH, Borges TAP, Rios AO, Carpes VAC. Falls of childrens and teens: preventing injuries through health education. Rev Enferm UFSM. 2013 3(n.esp): 589- 598.
17. Hamida-Nouaili EB, Said BA, Ouzini F, Bezzine A, Ben Hamida A, Marrakchi Z. Epidemiology of domestic accidents of young children in Tunisia: impact of the training of health professional son data collection quality. Tunis Med. 2011 89 (10): 766-8.
18. Gomes LMX, Rocha RM, Andrade-Barbosa TL, Oliveira e Silva CS. Description of domestic accidents during childhood. O Mundo da Saúde. 2013 37 (4): 394-400.
19. Pereira SFA, Garcia CA. Domestic accident prevention in childhood. Rev. Enferm UNISA. 2009 10(2): 172-7.
20. Martins CBG, Mello-Jorge MHP. Circumstances and factors associated with accidental deaths among children, adolescents and young adults in Cuiaba, Brazil. São Paulo Med. J. 2013 131 (4): 228-37.
21. Miranda CN, Alves NC, Paes MSL. Risk of childhood accidents in a community kindergaretn of Ipatinga/ MG. Revista Enfermagem Integrada. 2010 3 (1): 381-394.
22. Aguiar ASC, Mariano MR, Almeida LS, Cardoso MVLML, Pagliuca LMF, Rebouças CBA. The nurses' perceptions regarding health promotion in the Intensive Care Unit. Rev Esc Enferm USP. 2012 46 (2):428-35.