



## Associated factors for the occurrence of unintentional injuries in children from a low-income community in northeastern Brazil

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**ABSTRACT.** Unintentional injuries reach high levels within the scope of morbidity and mortality worldwide, and have an impact on the quality of life of children and family members. This study depicts the socio-demographic profile of families in a community and identifies the factors associated with unintentional injuries in children. This is a cross-sectional study, developed with 362 families from a community in Fortaleza (Ceará State), by applying a questionnaire to the responsible adult in the family; the data were subjected to descriptive statistics by applying Pearson's chi-square ( $\chi^2$ ) test, with  $p \leq 0.05$ . From the results, 78% resided in the business area of the community, 71% survived with income up to the minimum wage, 62.7% were part of a nuclear family, and most residences showed risk factors for unintentional injuries. The data corroborate the literature by reaffirming the relationship between the socio-demographic and economic profile of families living in areas of socio-environmental vulnerability with the occurrence of unintentional injuries at home.

**Keywords:** accidents, home accidents, child, risk factors.

## Fatores associados para a ocorrência de injúrias não-intencionais com crianças em comunidade de baixa renda no nordeste do Brasil

**RESUMO.** As injúrias não-intencionais registram índices elevados no quadro da morbidade e mortalidade mundial e repercutem na qualidade de vida da criança e de seus familiares. O estudo retrata o perfil sociodemográfico de famílias moradoras de uma comunidade e identifica os fatores associados para a ocorrência de injúria não-intencional em criança. Trata-se de um estudo transversal, desenvolvido com 362 famílias residentes em uma comunidade de Fortaleza, Estado do Ceará, mediante aplicação de questionário ao responsável pela família; os dados foram submetidos à estatística descritiva com realização de teste qui-quadrado de Pearson ( $\chi^2$ ) com valor de  $p \leq 0,05$ . Dentre os resultados, 78% residiam na área comercial da comunidade, 71% sobreviviam com até um salário mínimo, 62,7% tinham família nuclear e a maioria dos domicílios apresentou fatores de risco para injúrias não-intencionais. Os dados corroboram a literatura na medida em que reafirma a relação entre o perfil sociodemográfico e econômico de famílias residentes em áreas de vulnerabilidade socioambiental, com a ocorrência de injúrias não-intencionais em crianças nos domicílios.

**Palavras-chave:** acidentes, acidentes domésticos, criança, fatores de risco.

### Introduction

Unintentional injuries in children reach high levels within the scope of morbidity and mortality worldwide (BRASIL, 2005; ÇINAR; GÖRAK, 2007; PEARSON, STONE, 2010). They also affect the quality of life of children and family members, potentiate the costs of health systems and create immeasurable situations (FUJIWARA et al., 2010; JIANG et al., 2010; MARTINS; ANDRADE, 2005). It is important to notice that injuries have significant association with potential years of life lost (MARTINS; ANDRADE, 2005).

Public policies to deal with this problem expanded its scope, but the health actions, still focusing a preventive model at the expense of a health promotion model, had no impact on reducing these events (ÇINAR; GÖRAK, 2007; MARTINS; ANDRADE, 2005).

In countries like Canada, the unintentional injuries cause a cost over 8.7 billion per year, of which about 4,200 million dollars are spent on health, and the remaining 4,500 millions in productivity losses, represented as disability and early death. In United States, in 2000, the injuries to children up to ten years resulted in an estimated US

\$5.7 billion in direct medical expenses, with a total cost over US \$12,700 per child. Moreover, in children aging < 14 years, the falls represent the largest share of unintentional injuries of costs related with 31%, followed by injuries of vehicle occupants, poisoning, burns and wounds (ALAGHEHBANDON et al., 2010).

According to the International Classification of Diseases (ICD-10) the intentional or unintentional injuries are included in this classification as external causes (BRASIL, 2011). In Brazil, the external causes accounted for 832,858 hospitalizations in 2007, and in 96,321 of them, people were up to nine years (DATASUS, 2007). In 2006, 20,589 children and adolescents died from external causes in Brazil (DATASUS, 2006a). In Ceará State, in 2006, 5,268 deaths from these causes were recorded, in the municipality of Fortaleza, 1,689, affecting more the young people (DATASUS, 2006b).

About 2,270 children die every day as a result of an unintentional injury. The trauma and violence account for deaths in children and adolescents worldwide, with a record of approximately 950,000 deaths. Of these, around 830,000 are classified as unintentional. In addition to these deaths, millions of children require hospital care every year due to unintentional injuries, causing limiting conditions lifelong (WHO, 2008).

The National Policy for Reduction of Morbidity and Mortality from Accidents and Violence (BRASIL, 2005) argues that the accident is an unintentional and preventable event, cause of physical and emotional injuries. This policy adopts the term “accident” (also known as unintentional injury), but removes the fortuitous and casual connotation of these events, reasserting that they are predictable and preventable through family counseling, physical alterations of residential spaces, elaboration and complying specific laws (BRASIL, 2005).

Although the term ‘accident’ is usually used in literature, this study chose the term ‘unintentional injury’, corroborating studies that advocate this position (BLANK, 2005; VIEIRA et al., 2007), since the situations mentioned as accidents are preventable; and these in fact cause serious damages, severe injuries, and deaths among children.

The most common unintentional injuries – falls, burns, fractures, bruises, perforation, and cut injuries – are known by the family members as normal incidents in routine childhood. However these injuries are frequently associated with phases of growth and development of children and with factors considered as modifiable (AMARAL;

PAIXÃO, 2007; FUJIWARA et al., 2010; JIANG et al., 2010).

Still the caregivers in this age group are unaware the consequences of these injuries, and do not reflect on the ‘fact’ and not mention the co-responsibility of the adult in this type of occurrence (VIEIRA et al., 2007).

The monitoring of factors associated with the occurrence of these events at home is relevant to devise strategies, educational, preventive and health-promoting, without underestimating the vulnerability that low-income communities are exposed in their daily life (ALAGHEHBANDON et al., 2010; VIEIRA et al., 2009).

In this way, the study (i) depicts the socio-demographic profile of families living in a low-income community, and (ii) identifies the associated factors for the occurrence of unintentional injuries in children, at home.

## Material and methods

This is a cross-sectional study, developed with a low-income community, in the municipality of Fortaleza, Ceará State, in 2006. With approximately 10,000 inhabitants (SALES; LEITE, 2005), at the time of this study was initiated the territorialization in the logic of the Family Health Strategy (BRASIL, 2006). This community was previously mapped into nine microareas, and for over three decades it is addressed with educational and health-promoting actions through a university extension installed in their vicinity. For the study the authors redefine the adjacent microareas, synthesizing the three areas most representative of the community: Baixada, Comércio and Chico Mendes.

At the time of the study (2006) there was 2,652 families enrolled (NAMI/Unifor). Through an intentional study (JEKEL et al., 2005), 362 families were interviewed, which met the criteria of the research: with children (0-10 years) at home, and the presence of a woman responsible for them at the collection time, since this study was linked to another that addressed violence against women (VIEIRA et al., 2008). Approximately 30 visits to the community were made (average of five interviews/collector/visit), in order to select the participating families.

Of this sample, 282 (78.0%) families lived in the in the area of Comércio, 46 (12.7%) in the area of Baixada and 34 (9.3%) in Chico Mendes. This portion corresponded to 13.5% of families enrolled at NAMI.

It was analyzed the variables socio-demographic, the family income (in minimum wage - MW), the number of children living in the residence and enrolled in school, the responsible for child care, the family type and religion. Regarding the risk factors for the occurrence of unintentional injuries it was considered those related to the home environment, residential structure, organization and use of household items, the access to substances potentially causing exogenous intoxication. For the bivariate analysis, in relation to unintentional injuries, we have ascribed the areas (Comércio, Baixada and Chico Mendes) as dependent variable.

The data were organized, encoded, tabulated and subjected to descriptive statistics and the calculations of the significance measures were made by the Pearson's chi-square test ( $\chi^2$ ) with value of  $p \leq 0.05$ , and utilization of the Statistical Package Social Science - SPSS, version 13.0 for Windows (SPSS Inc., Chicago, USA).

The study was approved by the Ethics Committee of the Fortaleza University, under Opinion 307/2004 and record number 4-280, from July 7<sup>th</sup>, 2004.

## Results

### Socio-demographic, economic, and cultural characteristics of the families

Of the 362 families studied, 282 (78.0%) lived in the area of Comércio, 46 (12.7%) in Baixada and 34 (9.3%) in Chico Mendes. According to the family type (PEREIRA et al., 2010), 227 (62.7%) were nuclear (father, mother and children), 109 (30.1%) were extended (father, mother, children, grandparents, aunts, uncles, etc) and 26 (7.2%) single parent (father or mother). On demographic density per residence, 158 (43.6%) families had two to four people; 152 (42.0%), from five to seven, and 52 (14.4%), more than eight people.

Considering the family income, 257 (71.0%) survived with up to one MW, 79 (21.8%), between one and two, and 23 (6.4%) with more than two MW. In 287 (79.3%) families, at least one person was employed against 75 (20.7%) where everyone had a job. In the unemployed families, at least one member received government benefits; 39 (10.7%) received retirement or pension, and 22 (6.0%), assistance from other family members. In 164 (45.3%) families, women were considered 'chief', in 135 (37.3%) men were the providers, and in 63 (17.4%), both bore the costs.

In 100% of the families, there were children with average age of two years; in 177 (48.9%) only one

child; 117 (32.3%), two, and in 68 (18.8%), three to seven children. Regarding the responsible for children care, the mother was cited in 260 (71.8%) families, the grandmother in 58 (16.2%), the siblings in 24 (6.6%), and the aunt in 15 (4.1%) families.

In 315 (87.0%) families, the mothers were interviewed, followed by grandmothers in 31 families (8.6%). The predominant religion was catholic with 251 (69.3%), followed by protestants with 83 families (22.9%).

### Risk factors for unintentional injuries in children at their homes

Some risk factors were identified: exposed electrical wiring in 218/367 (59.4%), uncovered cisterns in 13/367 (3.5%), open pits in 24/367 (6.5%), fence of wood and/or wire in 85/367 (23.2%) (Table 1).

**Table 1.** Characteristics of the home environment of children and its relationship with the areas of the Dendê Community, Fortaleza, Ceará State, 2006.

| Home environment                       | Comércio |      | Baixada |      | C. Mendes |      | p*      |
|----------------------------------------|----------|------|---------|------|-----------|------|---------|
|                                        | n        | %    | n       | %    | n         | %    |         |
| Exposed electrical wiring              |          |      |         |      |           |      |         |
| Yes                                    | 145      | 51.4 | 43      | 93.4 | 28        | 82.3 | < 0.001 |
| No                                     | 137      | 48.6 | 3       | 6.5  | 6         | 17.6 |         |
| Uncovered cisterns                     |          |      |         |      |           |      |         |
| Yes                                    | 3        | 1.1  | 10      | 21.7 | -         | -    | < 0.001 |
| No                                     | 266      | 94.3 | 36      | 78.3 | 34        | 100  |         |
| Does not have                          | 13       | 4.6  | -       | -    | -         | -    |         |
| Open pit                               |          |      |         |      |           |      |         |
| Yes                                    | 6        | 2.1  | 17      | 7.0  | -         | -    | < 0.001 |
| No                                     | 273      | 96.8 | 29      | 63.0 | 34        | 100  |         |
| Does not have                          | 3        | 1.1  | -       | -    | -         | -    |         |
| Fence of wood and wire in the backyard |          |      |         |      |           |      |         |
| Yes                                    | 27       | 9.6  | 38      | 82.6 | 18        | 52.9 | < 0.001 |
| No                                     | 255      | 90.4 | 08      | 17.4 | 16        | 47.1 |         |

\*p < 0.05.

Other elements relative to the residential structure were also taken into account as risk factors to unintentional injuries: wood stove (or single cooker) found in 56 (15.3%) residences; trees in the backyard in 89 (24.3%); debris in 87 (23.7%) and waste in 89 (24.3%) of the examined houses. Of the 367 residences visited, in 113 (30.8%) there was a hammock with about 1.0 m to 1.5 m height; in 220 (59.9%) there were steps, and in 208 (56.7%) the floor was uneven or slippery (Table 2).

According to the organization/conservation of the utensils in the kitchen, the presence of stove in unventilated room (risk for intoxication and fire) was evidenced in 142 (38.7%) houses; in 105 (28.6%) the pots on the stove had the handles out; in 105 (28.6%) the lids of the pots did not fit and,

in 49 (13.4%), the stove knobs were on, but this appliance was not being used (Table 3).

The perforating-cutting material were easily accessible in 87 (23.7%) residences. In 47 (12.8%), the fans had propellers exposed; in 28 (7.6%), the TV antenna also worked as an improvisation of ground wire (Table 3).

In relation to the easy access to substances potentially causing exogenous intoxication, the perfume in a place accessible to children was evidenced in 133 (36.2%) houses. In 118 (32.1%), the disinfectant and/or alcohol were under the sink or near the stove, in 109 (30%) the edible oil, in 57 (15.6%), the drugs could also be easily achieved by children.

**Table 2.** Characteristics of the residential structure of children's homes of the three areas of the Dendê Community, Fortaleza, Ceará State, 2006.

| Residential structure       | Comércio |      | Baixada |      | C. Mendes |      | p*      |
|-----------------------------|----------|------|---------|------|-----------|------|---------|
|                             | n        | %    | n       | %    | n         | %    |         |
| Wood stove or single cooker |          |      |         |      |           |      |         |
| Yes                         | 34       | 12.1 | 15      | 2.6  | 06        | 17.6 | 0.001   |
| No                          | 248      | 87.9 | 31      | 67.4 | 28        | 82.4 |         |
| Trees in the backyard       |          |      |         |      |           |      |         |
| Yes                         | 59       | 20.9 | 25      | 54.3 | 03        | 8.8  | < 0.001 |
| No                          | 223      | 79.1 | 21      | 45.7 | 31        | 91.2 |         |
| Debris                      |          |      |         |      |           |      |         |
| Yes                         | 54       | 19.1 | 27      | 58.7 | 04        | 11.8 | < 0.001 |
| No                          | 228      | 80.9 | 19      | 41.3 | 30        | 88.2 |         |
| Household waste             |          |      |         |      |           |      |         |
| Yes                         | 57       | 20.2 | 25      | 54.3 | 06        | 17.6 | < 0.001 |
| No                          | 225      | 79.8 | 21      | 45.7 | 28        | 82.4 |         |
| Steps                       |          |      |         |      |           |      |         |
| Yes                         | 175      | 62.1 | 31      | 67.4 | 11        | 32.4 | 0.002   |
| No                          | 107      | 37.9 | 15      | 32.6 | 23        | 67.6 |         |
| Uneven floor                |          |      |         |      |           |      |         |
| Yes                         | 158      | 56.0 | 28      | 60.9 | 18        | 52.9 | 0.758   |
| No                          | 124      | 44.0 | 18      | 39.1 | 16        | 47.1 |         |
| Hammock                     |          |      |         |      |           |      |         |
| Yes                         | 72       | 25.5 | 23      | 50.0 | 15        | 44.1 | 0.001   |
| No                          | 210      | 74.5 | 23      | 50.0 | 19        | 55.9 |         |

\*p < 0.05.

**Table 3.** Characteristics of the organization/utilization of household utensils of children's residences of the three areas of the Dendê Community, Fortaleza, Ceará State, 2006.

| Organization/Utilization of the utensils | Comércio |      | Baixada |      | C. Mendes |      | p*      |
|------------------------------------------|----------|------|---------|------|-----------|------|---------|
|                                          | n        | %    | n       | %    | n         | %    |         |
| Stove (unventilated room)                |          |      |         |      |           |      |         |
| Yes                                      | 107      | 37.9 | 15      | 32.6 | 16        | 47.1 | 0.575   |
| No                                       | 172      | 61.0 | 30      | 65.2 | 17        | 50.0 |         |
| Does not have                            | 03       | 1.1  | 01      | 2.2  | 01        | 2.9  |         |
| Pots on the stove with handles out       |          |      |         |      |           |      |         |
| Yes                                      | 73       | 25.9 | 22      | 47.8 | 08        | 23.5 | < 0.001 |
| No                                       | 209      | 74.1 | 21      | 45.7 | 25        | 73.5 |         |
| Does not have                            | -        | -    | 03      | 6.5  | 01        | 2.9  |         |
| Stove knobs on                           |          |      |         |      |           |      |         |
| Yes                                      | 38       | 13.5 | 05      | 10.9 | 04        | 11.8 | 0.023   |
| No                                       | 244      | 86.5 | 39      | 84.8 | 29        | 85.3 |         |
| Does not have                            | -        | -    | 02      | 4.3  | 01        | 2.9  |         |
| Loose lid                                |          |      |         |      |           |      |         |
| Yes                                      | 69       | 24.5 | 22      | 47.8 | 13        | 38.2 | 0.001   |
| No                                       | 213      | 75.5 | 23      | 50.0 | 21        | 61.8 |         |
| Does not have                            | -        | -    | 01      | 2.2  | -         | -    |         |
| Fan propeller exposed                    |          |      |         |      |           |      |         |
| Yes                                      | 27       | 9.6  | 09      | 19.6 | 09        | 26.5 | 0.007   |
| No                                       | 226      | 80.1 | 29      | 63.0 | 20        | 58.8 |         |
| Does not have                            | 29       | 10.3 | 08      | 17.4 | 05        | 14.7 |         |
| Refrigerator with peeling paint          |          |      |         |      |           |      |         |
| Yes                                      | 110      | 39.0 | 17      | 37.0 | 10        | 29.4 | 0.008   |
| No                                       | 161      | 57.1 | 23      | 50.0 | 18        | 52.9 |         |
| Does not have                            | 11       | 3.9  | 06      | 13.0 | 06        | 17.6 |         |
| TV antenna/improvisation ground wire     |          |      |         |      |           |      |         |
| Yes                                      | 19       | 6.7  | 08      | 17.4 | 01        | 2.9  | < 0.001 |
| No                                       | 261      | 92.6 | 34      | 73.9 | 30        | 88.2 |         |
| Does not have                            | 02       | 0.7  | 04      | 8.7  | 03        | 8.8  |         |
| Material PC** within easy Access         |          |      |         |      |           |      |         |
| Yes                                      | 61       | 21.6 | 12      | 26.1 | 12        | 35.3 | 0.464   |
| No                                       | 220      | 78.0 | 34      | 73.9 | 22        | 64.7 |         |
| Does not have                            | 01       | 0.4  | -       | -    | -         | -    |         |

\*p < 0.05. \*\*PC = Perforating-cutting.

The rat poison “chumbinho” (Aldicarb-Carbamate), was put in food warehouses in 12 (3.4%) residences (Table 4).

**Table 4.** Easy access to substances potentially causing exogenous intoxication in children of the areas of the Dendê Community, Fortaleza, Ceará State, 2006.

| Generating substances of intoxication   | Comércio |      | Baixada |      | C. Mendes |      | p*    |
|-----------------------------------------|----------|------|---------|------|-----------|------|-------|
|                                         | n        | %    | n       | %    | n         | %    |       |
| Perfume in a low place                  |          |      |         |      |           |      |       |
| Yes                                     | 93       | 33.0 | 20      | 43.5 | 17        | 50.0 | 0.077 |
| No                                      | 189      | 67.0 | 26      | 56.5 | 17        | 50.0 |       |
| Disinfectant and alcohol under the sink | 90       | 31.9 | 12      | 26.1 | 13        | 38.2 |       |
| Yes                                     | 192      | 68.1 | 34      | 73.9 | 21        | 61.8 | 0.511 |
| No                                      |          |      |         |      |           |      |       |
| Carbamate placed in food warehouse      |          |      |         |      |           |      |       |
| Yes                                     | 8        | 2.8  | 2       | 4.3  | 1         | 2.9  | 0.857 |
| No                                      | 274      | 97.2 | 44      | 95.7 | 33        | 97.1 |       |
| Easily accessible oil                   |          |      |         |      |           |      |       |
| Yes                                     | 71       | 25.2 | 19      | 41.3 | 15        | 44.1 | 0.010 |
| No                                      | 211      | 74.8 | 27      | 58.7 | 19        | 55.9 |       |
| Easily accessible drugs                 |          |      |         |      |           |      |       |
| Yes                                     | 33       | 11.7 | 15      | 32.6 | 6         | 17.6 | 0.001 |
| No                                      | 249      | 88.3 | 31      | 67.4 | 28        | 82.4 |       |

\*p < 0.05.

In 184 families (50.1%) it was reported that the parents delegated responsibilities to their children. Among these, in 137 (37.3%) families, the children were responsible for housework, in 39 (10.6%), they went shopping, in seven (1.9%), they took care on younger children, and in one family (0.3%), the child helped the father at work.

## Discussion

Addressing the prevention of unintentional injuries in a background of social inequalities may sound contradictory, at the same time that it is a theoretical and operational challenge. Faced with so many contrary indicators for health promotion, behold the challenge of reducing these occurrences, in view of through the joint responsibility of the individuals, we invest in education everyday (GOMES; PEREIRA, 2005; LOPES; MALFITANO, 2006), and identify opportunities for successful experiences.

Researchers state that the growth of Brazilian cities accompanies the growth of low-income informal settlements. Regarding the insufficient public housing policies, the working class occupied the fragile lands, creating informal areas that need and should be recovered. This occupation causes impacts to the environment and originates serious consequences for public health (NEFFA et al., 2011).

The community of this study is not different from many others that fall into the concept of socio-environmental vulnerability (ZANIOLO et al., 2007).

Similarly to the low-income communities of Brazil, the people face problems of security, sanitation, transport, lack of recreational areas, child care, decent housing, job opportunities, quality education among other requirements (ONU, 2010).

Furthermore, it is evidenced the idleness among its residents, the scarcity of opportunities for income generation, the lack of a housing policy that reconciles the environmental preservation with better living conditions of its residents and a range of structural impediments to the implementation of ‘healthy and health promoting’ policies, which make them vulnerable to health problems (ALAGHEHBANDON et al., 2010; LIRA et al., 2009; PRESRAVE et al., 2008; VIEIRA et al., 2007, 2009).

Minimizing unintentional injuries in children in this scenario requires broad understanding of health need by the professionals (NAKAMURA et al., 2009) and the collective itself. The literature shows that individuals, under situation of social vulnerability, have greater probability of being victims of ‘accidents’ (ALAGHEHBANDON et al., 2010; VIEIRA et al., 2008).

Other point to consider is the low education level among the surveyed interviewees, weakening the apprehension of knowledge preventive and health promoter. The education degree of the woman is important, since she is responsible to family health care, from hygiene to specific preventive care like children vaccination. If this woman does not have an education that facilitates the uptake of guidelines, understanding the importance of care is compromised (CASTILHO; BERCINI, 2005).

In the three areas (Comércio, Baixada and Chico Mendes) investigated, the participants survive with up to a minimum wage (at that period R\$ 350.00). The poverty situation and social inequality has grown in almost all countries, changing the social structure and producing processes of exclusion by dividing the social classes (LEGUIZAMÓN, 2007; SNYDER et al., 2011). Meantime, the poverty can not be defined uniquely, but it is evidenced when part of the population is not able to generate enough income to have sustainable access to basic resources that ensure a decent quality of life (GOMES; PEREIRA, 2005). These resources include water, health, education, food, housing, income and citizenship.

This study also demonstrates the presence of the woman as the keeper of the home, according to the last data from the National Household Sample Survey (IPEA, 2007), whose ratio of families headed by women increased from 24.9%, in 1997, to 33%,

in 2007, which represents a total of 19.5 million Brazilian families that identified the woman as the main responsible (IPEA, 2007).

In the residences there was high incidence of rodents (67.3%), cats (29.2%) and dogs (29.1%), domestic or not, which could be associated with the accumulation of waste, debris, and poor hygiene in the houses. Many of the waste generated in homes are despised in improper places, favoring the proliferation of vectors and the morbidity in children and adults (SIQUEIRA; MORAES, 2009).

Among the potential causes of unintentional injuries in children stand out structural and cultural elements that favor the occurrence of falls, such as the hammock with about 1.0 m to 1.5 m height (30.8%); the presence of steps (59.9%) and uneven or slippery floor (56.7%).

A study carried out in a large hospital in Salvador city identified the fall as the most common cause for traumatic brain injury in children and adolescents. In children younger than five years, these falls occurred from the mother's lap, cradle, bed or stairs; among children between the ages six to ten years, prevailing the falls from stairs, slabs and bed (MELO et al., 2006).

The falls are one of the most frequent accidents in childhood. The falls are the type of accident that most occur in children younger than a year, and between one and three years, and can be prevented (MARTINS; ANDRADE, 2005; MELO et al., 2006). The literature highlights the need to inform parents and children to perceive the risks beforehand, and take the necessary further actions to prevent them (MARTINS; ANDRADE, 2005; AMARAL, PAIXÃO, 2007).

The organization of kitchen utensils verified herein, for instance, the stove in an unventilated room, pots with handles out containing hot foods, the stove knobs turned on without being used, and the presence of single cooker or wood stove in the residence are high-risk factors for burns.

Among the rooms of the residence, the kitchen is the place with higher indices of burns. A study performed in the municipality of Londrina registered that 82.4% of the cases admitted in a hospital, the children were exposed to hot substances or heat source, among these 44.0% were caused by hot liquids (MARTINS; ANDRADE, 2007).

Researchers that characterized and identified the profile of children burned by heated liquids, attended in a reference unit in Fortaleza city – Ceará State, have concluded that the prevalence of thermal trauma was higher in the age group between one and two years, with 30 (48.4%) hospitalizations. The

male gender represented 34 (54.8%) cases. The main causative agent of these burns was hot water, with 23 (37.1%) occurrences. The mother was present in 51 (82.3%) occurrences. Considering the attitude held by the caregiver, prevailed the immediate referral to the hospital, with 36 (59.6%) cases, and regarding the acquirement of any preventive-educational orientation, 48 (77.4%) of the parents denied to have obtained it (ROCHA et al., 2007).

The perforating-cutting materials are objects that can seriously injure children when they reach them. The accidents with these materials occur frequently with children by the inadequate handling of kitchen utensils and work tools (MARTINS; ANDRADE, 2005, 2007). Thus, it is important to keep these objects away from the reach of them, if possible by replacing glass containers by plastic ones, and even older children should be oriented concerning the use and danger of such objects.

In this study, it was verified the presence of substances that favor exogenous intoxication at the children's houses. Studies indicated the intoxications as the main cause of unintentional injuries in the home environment (LIRA et al., 2009; SENGÖELGE et al., 2010). Among the intoxications, the drug poisoning focuses significantly on children from zero to nine years (MARTINS et al., 2006), as well as pesticides (BUCARETCHI; BARACAT, 2005), since these substances are accessible to children. Among the pesticides, one of the major agents is the rodenticide (LIRA et al., 2009).

The injuries derived from intoxications demand high cost treatments, due to prolonged hospitalization and the possibility of irreversible consequences. It is imperative to intensify preventive and educational measures that reduce the frequency and severity of those injuries (LOURENÇO et al., 2008).

It is essential to create a safety environment for children development; it is indispensable to approve in our country legislation on the safety of packaging, since one can freely buy caustic soda in supermarkets, stored in simple plastic bags (BRASIL, 2003).

From an early age, the children from families under vulnerable situations learn to do housework and take care of younger siblings, frequently because the parents do not have any support that comes to their aid. In this way, since they can not afford to hire someone to perform these tasks, they delegate these responsibilities to their children (SOARES et al., 2009).

The oldest child (caregiver of the youngest) should be oriented on how to protect the child against possible injuries (SOARES et al., 2009),

aiming to minimize the risk factors. It is believed that when the older child is responsible for housework chores and to take care of younger child, who possibly demands a special attention from their parents or responsible person (older child) for the care, this child is therefore more likely to suffer accidents at home.

By reviewing the literature on unintentional injuries in children, Blank (2005) summarizes some risk factors, attributing them to: (i) family and culture - home overcrowding, moving, poverty, young parents, illiterate and unemployed; (ii) neighborhood - material deprivation and traffic; (iii) cultural factors: illiteracy, unsafe products, lack of mass transportation, handguns, workplaces without safety rules, faulty community organization, lack of communication between social sectors, inadequate legislation, low priority of safety among the government's actions, lack of economic resources and low academic commitment to the security (BLANK, 2005).

The unintentional injuries are recognized as a serious public health problem and represent a considerable reason for treatment, hospitalization and death in health services. It is necessary to educate parents and responsible about the risk factors at home, since it is not enough to adopt security measures but mostly a continuous supervision (MARTINS; ANDRADE, 2007). We understand these practices as a citizenship form, because it is in the Statute of Children and Adolescent (BRASIL, 1990) that legislates on the protection and safety of this group.

## Conclusion

The data of the study corroborate with the literature about the subject, as it reaffirms the direct relationship between the profile socio-demographic and economic of families living in areas of socio-environmental vulnerability, with occurrence of unintentional injuries in children at home.

Considering the findings and in accordance with researchers, it is required that the State, as a mentor and responsible for the common good, expands its social inclusion policies, enables decent housing, provides and monitors the teaching quality in public schools, and fosters a process of work in health sensitive and decisive to reduce the external injuries to children health, in this study represented by unintentional injuries that mostly occur inside their homes.

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