

Domestic Accidents in Children Under 15 Years of Age in Kinshasa: About 80 Cases at the Pediatric Hospital of Kalembe-Lembe between 2019 and 2020

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Abstract

Context: Children are vulnerable people who in most cases are exposed to domestic accidents. These accidents occur most frequently in children under 15 years of age. **Purpose:** The purpose of this study was to describe the characteristics of domestic accidents in children under 15 years of age hospitalized in Kinshasa. **Methods:** A retrospective descriptive study was conducted in Kinshasa among 80 children who were victims of domestic accidents between 2019 and 2020. A document analysis tool was used to collect data. **Results:** These domestic accidents affected more children under 5 years of age (median = 3.5) with a sex ratio of 1.3. They are mainly burning (38.8%) with boiling water as the origin (64.5%) as well as trauma (37.5%) following a fall (86.6%). They occurred more during the day (56.3%), in the playground (47.5%), or in the kitchen (32.5%). These accidents affected the head (35%) and the limbs. Wounds (42.5%) were the dominant type of injury, followed by fractures (32.5%). 81.2% of accidents were managed by health personnel and 40% left lameness consequently. **Conclusion:** Domestic accidents are common in Kinshasa. Raising the awareness of mothers and those in charge of their care would contribute effectively to their reduction or better prevention. These results constitute a basis for the development of a policy aimed at reducing these accidents.

Keywords: Domestic accident; children; Kalembe-Lembe; Kinshasa.

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INTRODUCTION

Accidents of everyday life in general and domestic accidents, constitute a major problem worldwide [1-4]. Statistics show that they are responsible for more than 200 deaths of children under 15 years of age each year [5, 6], although these accidents can be avoided by prevention [7]. The frequency of these accidents varies essentially according to age [8]. Drowning falls and poisoning, burns, foreign objects, and poisoning account for 60% of fatal injuries in children aged 0-15 years [9-12].

Domestic accidents seem to be little known in developing countries where they are likely to have different characteristics and to be equally serious and frequent [2, 13]. In 1990, developing countries bore nearly 90% of the global burden of disease, but received only 10% of global health care funding [14]. Childhood head injury has a high mortality and morbidity rate

worldwide. There is a dearth of reports from developing countries with large pediatric populations on trauma [15]. The use of cultural strategies has been recommended for effective interventions [16].

Children under 5 years of age are more vulnerable to injury at home. More than half of all accidents occur in the home. Intervention programs are effective ways to reduce the risk of injury. High-frequency accidents bring more attention to the protection of our home environment. World Health Organization (WHO) reported that home deaths were among the top 20 causes of death in the 0-14 age group worldwide in 2012 [17]. Most injuries in developing countries occur in urban areas [18]. In Nigeria, childhood accidents result in high morbidity with common admissions to major hospitals. Causes are similar; domestic accidents include falls, cuts, foreign

object insertions, burns, poisonings, and nail punctures [19].

In the Democratic Republic of Congo, the domestic accident prevention campaign conducted by the National Institute for Prevention and Health Education between 2000 and 2005 revealed that 97% of parents of children under 6 years of age believe that many domestic accidents could be avoided. 26% of parents report that one of their children has been or almost been the victim of a serious domestic accident. Nearly 74% of parents say they are "very concerned" about accidents in the home involving their children [20].

Thus, the problem of domestic accidents remains evident throughout the country and in the City Province of Kinshasa in particular. Therefore, this study was initiated to describe the characteristics of domestic accidents in children under 15 years of age hospitalized in Kinshasa.

MATERIAL AND METHOD

Design: This is a quantitative and descriptive study conducted to explore the specific features of domestic accidents in the hospital environment in Kinshasa.

Population: 80 children under 15 years of age admitted to the pediatric hospital of Kalembe-Lembe over a period from 01/01/2019 to 31/12/2020.

Sampling: We used a non-probability sampling, the accidental type. The subjects selected were those with a complete file. The following inclusion criteria were used; (1) be at least 15 years old, (2) be a victim of a domestic accident between 2019 - 2020, (3) be hospitalized at the pediatric hospital of Kalembe-Lembe. A total of 80 cases were deemed valid after quality control.

RESULTS

Table-I: Distribution of sample according to socio-demographic characteristics

Characteristics	Number (n = 80)	%
Age (in year)		
0 – 2	35	
3 – 5	30	
6 – 8	10	
9 – 11	3	
12 – 14	2	
Median (IQR)	3,5 (3.3)	
Sexes		
Female	35	
Male	45	

Method, technique, and instrument: We used a retrospective survey, based on the documentary analysis technique, supported by a grille of documentary analysis as a data collection tool.

Study variables: the data analyzed in the study were grouped into three categories: socio-demographic characteristics (age, sex); characteristics of the domestic accidents (type of accident and origin, time of occurrence, place, affected part, types of injuries), and then the evolution of the victims (care of the victims and after-effects left by the accident).

Operational definitions

For this study, accidents are unintended incidents that have harmful effects on children. They are unexpected events that are not consistent with what could reasonably be expected.

Home means the environment in which the child lives and spends his or her day permanently. It is the home of these parents, their habitat.

A child is a person with a childhood character. A boy or girl before adolescence, at least 15 years old.

DATA ANALYSIS

Data were entered into Microsoft Office Excel 2013 and then exported to Jamovi version 1.6.23 for statistical analyses. Frequencies were used to describe different characteristics of domestic accidents.

Ethical considerations

Participation in the study was conducted with the anonymity and confidentiality of the respondents. The study was approved by the research ethics committee of the Higher Institute of Medical Techniques of Kinshasa and by the authorities of the Kalembe-Lembe pediatric hospital.

The age of the subjects ranged from 0 to 14 years, with a median of 3.5 (3.3) years. More than half, 56.0% were male.

Table-II: Distribution of samples by type and origin of domestic accidents

		Type of domestic accidents (n = 80)			
		Burns 31(38,8%)	Trauma 30 (37,5 %)	Foreign objects 17 (21,2 %)	Scratching 2 (2,5 %)
Origins Frequency (%)	Warm solid body 7 (22,6 %)	Chute 26 (86,6 %)	Peanut seed 12 (70,6 %)	Dog 1 (50 %)	
	Boiling water 20 (64,5 %)	Sharp object 2 (6,7 %)	Metal debris 5 (29,4 %)	Cat 1 (50 %)	
	Flame 4 (12,9 %)	Pointed object 2 (6,7 %)			

It shows that 38.8% of accidents were burns caused mainly by boiling water (64.5%); 37.5% were traumas that occurred mainly because of falls (86.6%);

21.2% of foreign objects such as peanut seeds (70.6%) and 2.5% of scratches from dogs (50%) or cats (50%).

Table-III: Modalities of occurrence of accidents and types of injuries

Characteristics	Number (n = 80)	%
Moment		
Daytime	45	56,3
Night	35	43,7
Place of accident		
Kitchen	26	32,5
Courtyard	38	47,5
Stairs	12	15
Garage	2	2,5
Bedroom	2	2,5
Affected parts		
Head	26	35
Upper limbs	20	25
Lower limbs	23	28,6
Trunk	11	13,6
Type of injury		
Wound	34	42,5
Fracture	26	32,5
Sprain	20	25,0

More than half of the domestic accidents occurred during the day (56.3%); in the courtyard or in the kitchen (80%). The main parts of the body affected were the head (35%), the lower limbs (25%) and the

upper limbs (28.6%). The wound (42.5%) was the dominant type of injury, followed by fracture (32.5%) and sprain (25%).

Table-IV: Management and sequels of domestic accidents

Management and sequels	Number (n = 80)	%
Initial management		
Medical	65	81,2
Traditional	15	18,8
Sequels		
Scar	50	62,5
Limping	30	37,5

81.2% of domestic accidents were managed by health personnel against 18.8% of cases treated traditionally. 37.5% of cases led to lameness as a sequel and 62.5% left a Scar.

DISCUSSION

This study was conducted to describe the characteristics of domestic accidents in children aged 0-14 years hospitalized in surgery at the Kalembe-Lembe pediatric hospital. In the present study, more than half

of the children injured were male. This finding corroborates the studies of Muhammad Asena *et al.* [21] and Franco Sarto *et al.* [22], according to which boys were the victims of domestic accidents. The avoidability of accidents due to adult behavior should be considered. Our results show that most accidents (81.2%) occurred in children aged 0 to 5 years with a sex ratio of 1.3 boys to girls. These results agree with those obtained by Niyondiko in Burundi, Moulaye in Mali, and Robab Mehdi Zadeh Esfanjani *et al.* in Iran [2, 8, 23, 24, 25]. Male overrepresentation for life-threatening accidents is observed in different regions of the world [26, 27]. This could be justified by the fact that boy stake more risks than girls by being more active and impulsive, or it could be that parents "socialize" boys and girls differently, giving more space and freedom of action to boys by allowing them to play alone [28]. In many families, boys are given more opportunities to explore the world around the mand engage in more physical activities than girls. Girls necessarily experience a more restrictive world. This behavior on the part of parents serves to model and reinforce stereotypical behaviors in children [29]. As in the study by Hanine Keita *et al.* in Mali [30], domestic accidents among children under 15 years of age in Kalembe-Lembe are essentially burns caused by boiling water and trauma from falls. From the study carried out by Laure Julé [31], it emerged that more than 67% of domestic accidents are traumas due to shocks and falls, intoxication, burns, bites, and suffocation. In India, P Stalin *et al.* [32] found in their series that 500 domestic accidents, falls (54.4%) were the most frequent type of domestic accidents. Our results show that 38.8% of children had burns and 37.5% had trauma. These findings are like several studies [24, 33, 34, 35, 36], although, with different proportions, we note that children under 15 years of age remain at risk of all forms of accidents in their lives. Trauma and burns are the most common accidents encountered in Africa. This finding in favor of burns in our study, which corroborates that of Mostafa Rafai [37], would be due to the mode of cooking in our context. Indeed, the staple food in Kinshasa is cassava flour mixed with maize flour known as "fufu" or "national ball" for most fans. Its preparation consists of boiling water into which the flour is poured and then kneading (...). Very often, this water, less supervised by some mothers, ends up on the child who is exposed to any touch without realizing the danger it presents. The absence of water heaters in some households would also contribute to these accidents. However, skin burns occupy a special place because of the seriousness of the after-effects [38]. In this study, accidents occurred more during the day, in the yard, or on the stairs. These trends have been observed in Benin, Senegal, and Niger [39, 40, 41]. Generally, with age, accidents inside the home decrease, and those outside increase as children seek autonomy and tend to prove what they can do without the help of a third party. By seeking to be useful, the young child is exposed to movements back and forth,

up and down the stairs. If these movements are intensified, the child is exposed to the risk of falling, which could lead to trauma with damage to the head or limbs, including visible wounds and/or fractures [23, 39, 42]. Our results show that more than 80% of domestic accidents were managed by health personnel. These results corroborate those obtained by Tekou K., in 2007 in a similar study [39]. This medical management would have allowed 3 out of 5 accidents to leave no serious after-effects other than scarring. The domestic accidents initially treated at home seem to have led the victims to limp. As in the study by Lofandjola J [43], at least 19% of the victims were treated by traditional medicine. In the Democratic Republic of Congo (DRC), 21% of the population consult and are treated by traditional medicine when faced with an episode of illness. Unfortunately, this means that patients arrive late at hospital facilities and especially at advanced stages of their illnesses (often with complications such as lameness, or after-effects in the case of fractures).

Limitations and strengths of the study

This study had some limitations. The first is the small sample size. The second is the fact that the study was conducted in a single hospital, which may limit the extrapolation of the results to all hospitals in Kinshasa and the DRC. Despite this, our record-based results are significant to the study of these accidents.

The interest of this study lies in the implications and applications that could be derived in terms of information to parents and health professionals to ensure good awareness of preventive measures with benefits to reduce these accidents.

On the organizational perspective, an education program for parents should focus on domestic accidents, thereby reducing them. This will enable children to avoid these domestic accidents.

CONCLUSION

This study shows that most domestic accidents experienced by children under 15 years of age received at the pediatric hospital of Kalembe-Lembe in Kinshasa seems to be related to the exploration of the child's immediate environment such as burns (38.8%), trauma (37.5%), and foreign objects (21.2%). These are indicators of the impact of the environment in the health of the child and the poor protection of the child in its physical and social environment. Hence the place of parents, guardians and custodians of children becomes critical in the prevention of domestic accidents.

Therefore, it seems necessary to develop a policy aimed at reducing these accidents. In addition, educational interventions and cultural strategies must be taken into consideration to prevent these accidents. Appropriate supervision of children and promotion of safety barriers seem important to prevent such

accidents. Sensitization of mothers and caregivers and monitoring of these children are priorities.

The urban context of Kinshasa is lagging behind in raising awareness on this issue. Health professionals should be involved in reducing these accidents through their participation in health promotion campaigns in schools and public spaces in the city and province of Kinshasa.

However, prospective studies, more elaborate at the national level and selecting large samples with precision are necessary for a generalization of the results in the country and specially to develop more appropriate preventive strategies to reduce domestic accidents.

Confidentiality of data

The authors declare that the article does not contain any personal data that could identify the victim of the domestic accident or the subject.

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Author Contributions and Responsibility

All the authors contributed to the conduct of this research study and to the writing of the manuscript. They have all read and approved the final version.

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Declaration of conflict of interest

The authors declare that they have no conflict of interest.

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