Original Article

Domestic accidents with elderly assisted in an urgency hospital

Ana Maria Ribeiro dos Santos[1], Dáfne Beatriz Dias Pereira[2], Lays Carollinne Soares de Carvalho[3], Maria Zélia de Araújo Madeira[4], Elaine Maria Leite Rangel Andrade[5]

[1] Nurse, Ph.D in Nursing. Adjunct Professor at Universidade Federal do Piauí. Teresina, PI, Brazil. E-mail: ana.mrsantos@gmail.com.

[2] Nurse. Teresina, PI, Brazil. E-mail: dafnebeatrizdias@gmail.com.

[3] Nurse. Teresina, PI, Brazil. E-mail: layscarollinne@hotmail.com.

[4] Nurse. Ph.D in Medical Sciences. Adjunct Professor at Universidade Federal do Piauí. Teresina, PI, Brazil. E-mail: zeliamadeira15@yahoo.com.br.

[5] Nurse, Ph.D in Nursing. Adjunct Professor at Universidade Federal do Piauí. Teresina, PI, Brazil. E-mail: elairgel@gmail.com.

Received: 07/04/2015.

Accepted: 03/11/2016.

Published: 06/30/2016.

Suggested citation:

Santos AMR, Pereira DBD, Carvalho LCS, Madeira MZA, Andrade EMLR. Domestic accidents with elderly assisted in an urgency hospital. Rev. Eletr. Enf. [Internet]. 2016 [cited __/__/__];18:e1169. Available from: http://dx.doi.org/10.5216/ree.v18.36569.

ABSTRACT

A cross-sectional study conducted in a reference urgency hospital constituted by a convenience sample, which data were collected from June to July of 2014. The aim was to analyze domestic accidents with elderly assisted in a public urgency hospital. From all 83 interviewed, 77.1% were women, aged 80 to 89 years (32.5%), illiterate (32.5%), widowed (44.6%), living with a partner and other family members (73.5%), retired (84.4%), who received one to two minimal wages (88%). The prevalence of domestic accidents was 6.4%, with predominance of falls (84.4%), from their own height (55.6%). The lack of care observing the environment was self-reported as the main cause (45.8%) of accidents. Lack of association between the occurrence of falls, the existence of chronic diseases, continuous medication use and, to be performing an activity at the moment of accident was an important finding. We recommend multi-professional care with broad functional assessment identifying elderly deficiencies and environmental limitations, aiming at community guidance and planning of integrated interventions.

Descriptors: Accidents, Home; Aged; Wounds and Injuries; Geriatric Nursing.

INTRODUCTION

Human longevity is a common phenomenon in most countries and it is associated with demographic transition, characterized by a sequence of occurrences resulting in low mortality and fecundity rates, which reflects population aging. Such fact caused a change in the global epidemiological profile due to the

improvement in quality of life, which conducted to growth of non-communicable chronic diseases over infectious diseases[1].

In Brazil, during the period of 2011 to 2036, the estimated decrease rate for fecundity will allow the country to go through a youth phase, with up to 7% of the population older than 60 years or more, to an older stage, that will account for more than 14% of elderly. In 2050, 38 million of Brazilians will be old and the most senior group, those with 80 years or more, will be the one growing more[1].

Thus, the World Health Organization alerts that although only Japan has a proportion of elderly over 30% at the moment, many countries will have a similar proportion at the second half of this century. In Brazil, the elderly population corresponds to 10 to 19% of the total population. But, in 2050, it will represent something as 25 to 29%. The Brazilian adaptation with this situation should be faster in comparison with other countries[2].

However, most Brazilian seniors (85%) is active and autonomous. They contribute with the country's socioeconomic, political and cultural development. About 87% of elderly men are the head of their families and more than half are providers at their household[3].

The increased longevity associated with social and cultural changes influence elderly to search for lifestyles based on leisure activities, in broad environments, which many of them do not have the adequate accessibility. Consequently, they become more vulnerable to accidents[4].

Although aging is a natural, gradual e unavoidable process for all living beings, for us, humans, changes in physiological characteristics of elderly associated or not with secondary factors, can contribute to the occurrence of determined episodes that can affect older population's health. Thus, situations considered external causes need to be discussed to avoid losses on these individuals' wellbeing.

External causes for morbidity and mortality comprehend lesions caused by accidents and violence, and they represent a challenge to public health authorities nowadays because they are associated with significant mortality and morbidity, in addition to large financial and social losses[5].

In Brazil, since 1980, these causes represent the third cause of mortality and sixth cause of hospitalizations, having a significant demand in urgency and emergency services[6].

Due to a group of factors following the aging process, elderly find themselves exposed to higher risk of domiciliary accidents and, within these accidents, falls are more frequent. Thus, homes that should be safe places become a risk environment in many times [7].

Many of those elderly present low visual and hearing acuity, as well as delay in reflexes and reduction of muscle strength. Some live alone, although they are care dependents, allowing higher risk of domiciliary accidents[8].

A North-American study about prevention of non-intentional lesions in home environments that used a pyramid of health impact, affirms that these lesions result from a conjunct of behavioral, physical, structural, environmental and social factors, and it highlighted that prevention of these events is challenging[9].

An observational study of temporal series aimed to describe the evolution of hospitalizations due to external causes in Brazil during 2002 to 2011, showed that in relation to the coefficient of hospitalization by falls, there was an increase for both genders, and the highest value was seen among elderly reaching 6.3 hospitalizations/100 thousand inhabitants/year[10].

However, despite of the incidence increase of these aggravations for elderly population, the scientific production that tries to identify risk factors, as well as complications and mortality caused by these causes in this age group, still is incipient. Hence, the nursing role as a social actor that works to ameliorate these questions is relevant, especially regarding prevention of occurrences, considering that this is a susceptible population[11].

Considering the aspects mentioned, domestic accidents in elderly was defined as study objective and, the following question was asked: which types of domestic accidents are more frequent among elderly and what is the cause for its occurrence among injured elderly?

There are remaining gaps in the scientific production specifically addressing domestic accidents with elderly in the country. It requires more detailed analysis of the characteristics and implications of these home accidents, considering that most studies on this theme presents generality of external causes, although it is acknowledged that falls are one of the most prevalent domestic accident for this age group.

The results of our investigation will contribute with reflections about the need of more attention to the injured elderly, to recognize specific characteristics of these people, as well as the risks surrounding them, allowing the development of an effective and efficacious care.

In this context, the objective was to analyze domestic accidents in elderly attended in a public urgency hospital.

METHODS

We conducted a descriptive cross-sectional study in a reference urgency hospital. The convenience sample was composed by 83 elderly. We used interviews by a questionnaire as technique for data collection. The defined variables were: gender, age, marital status, education, who they live with, monthly income and source of income, type of domestic accident, presence of a chronic disease, type of chronic disease, number of medications in use, daily medications, cause of accident, whether an activity was being performed at the moment of accident and, the type of activity being performed. We collected data from June to July of 2014. The inclusion criteria were to have 60 years or more, elderly of both genders, to have been attended at the study location as result of a domestic accident and, to live in the state where the study was carried.

We coded the obtained information in spreadsheets on Microsoft Excel adopting a double entering system with posterior correction. After, we exported and analyzed data using the software Statistical Package for Social Sciences (SPSS). We examined statistical associations using Fisher's exact test because it produces lower error in small samples. We carried analysis on the program StatXact-3, and the association hypothesis was accepted when the p found was lower and equal to 0.05.

Participants expressed their agreement by signing the Free and Informed Consent Term, or in case of illiterate participants, by printing their digitals on the document. The study obeyed the guidelines from the Brazilian norms of research with human beings. The project was approved under the process nº 09/14 of the Committee of Ethics in Research from the Urgency Hospital, process nº 675.125 of the Committee of Ethics in Research from Universidade Federal do Piauí, and CAAE nº 31174514.0.0000.5214.

RESULTS

The prevalence of domestic accidents during data collection was 6.4%. About the sociodemographic profile of injured elderly, Table 1 shows a predominance of older women, widowed, illiterate, living with their families and receiving one to two minimum wages.

Table 1: Distribution of elderly involved in domestic accidents attended in a reference urgency hospital, according to sociodemographic aspects. Teresina, PI, Brazil, 2014.

Variables	Mean (Standard Deviation)	Median	Observed variation	Distribution in categories	n (%)
Age group (years)	76.7 (9.8)	78	[60; 96]	60 – 69	22 (26.6)
				70 – 79	26 (31.3)
				80 – 89	27 (32.5)
				90 – 96	8 (9.6)
Gender				Female	64 (77.1)
				Male	19 (22.9)
Marital status				Single	10 (12.0)
				Married	32 (38.6)
				Divorced	4 (4.8)
				Widowed	37 (44.6)
Education				Illiterate	50 (60.2)
				Middle school	27 (32.6)
				High school	5 (6.0)
				College	1 (1.2)
Who do you live with				Spouse and other family members	61 (73.5)
				With the spouse	12 (14.5)
				Alone	7 (8.4)
				Long permanence institutions	1 (1.2)
				Other	2 (2.4)
Monthly income				Less than 1MW	7 (8.4)
				1 to 2 MW	73 (88.0)
				3 to 5 MW	2 (2.4)
				Ignored	1 (1.2)
Source of monthly income				Retirement	70 (84.4)
				Pension	5 (6.0)
				More from source	4 (4.8)
				Donation	1 (1.2)
				Ignored	1 (1.2)
				Other	2 (2.4)
Total					**83 (100)**

Table 2 demonstrates that most participants were hospitalized due to falls at home, corresponding to

84.4%. In addition, the most referred cause was lack of care observing the environment, with 38 positive answers (45.8%), followed by similar values between deficiency in mobility and other causes, both with 15.7% of interviewed, respectively; and the last ones includes postural hypotension, dizziness and fainting.

Table 2: Distribution of elderly involved in domestic accidents according to the self-reported type of accident. Teresina, PI, Brasil, 2014.

Variables	Fall		Injury		Burn		Intoxication		Total	
	n	%	n	%	n	%	n	%	n	%
Lack of care observing the environment	33	39.8	4	4.8	-	-	1	1.2	**38**	**45.8**
Poor mobility	12	14.5	1	1.2	-	-	-	-	**13**	**15.7**
Lack of care performing an activity	7	8.4	3	3.6	1	1.2	-	-	**11**	**13.2**
Misplaced objects	4	4.8	-	-	-	-	-	-	**4**	**4.8**
Poor vision	4	4.8	-	-	-	-	-	-	**4**	**4.8**
Other	10	12.1	-	-	2	2.4	1	1.2	**13**	**15.7**
Total	**70**	**84.4**	**8**	**9.6**	**3**	**3.6**	**2**	**2.4**	**83**	**100**

It is seen on Table 3 that in relation to type of accident and gender, there is a female predominance in falls, represented by 56 women (67.6%), and most part referred to have fallen from their own height (47.2%). Injuries were on second position, although there was an accentuated difference comparing to the first place, totalizing 8 elderly men (9.6%).

Table 3: Distribution of elderly involved in domestic accidents according with gender, by type of accident. Teresina, PI, Brazil, 2014.

Variables	Gender				Total	
	Female		Male			
	n	%	n	%	n	%
Fall						
Own height	39	47.2	7	8.4	46	55.6
Chair/Armchair	3	3.6	3	3.6	6	7.2
Bed	5	6.0	-	-	5	6.0
Shower chair/Toilet	1	1.2	1	1.2	2	2.4
Stairs	1	1.2	-	-	1	1.2
Other	7	8.4	3	3.6	10	12.0
Total	**56**	**67.6**	**14**	**16.8**	**70**	**84.4**
Burn						
Hot liquid	-	-	2	2.4	2	2.4
Chemical product	1	1.2	-	-	1	1.2
Total	**1**	**1.2**	**2**	**2.4**	**3**	**3.6**
Intoxication						
Food	1	1.2	-	-	1	1.2
Petrol derived	1	1.2	-	-	1	1.2
Total	**2**	**2.4**	**-**	**-**	**2**	**2.4**
Injury						
Iron	1	1.2	-	-	1	1.2
Stylus	-	-	1	1.2	1	1.2
Other	4	4.8	2	2.4	6	7.2
Total	**5**	**6.0**	**3**	**3.6**	**8**	**9.6**
General total	**64**	**77.2**	**19**	**22.8**	**83**	**100**

When analyzing Table 4, we found an absence of association between fall occurrences, existence of

chronic disease, continuous use of medications and to perform activities at the moment of accident (domestic or hygiene), considering values of $p > 0.05$.

Table 4: Relationship between the occurrence of falls in elderly and the existence of chronic disease, use of continuous use medication and performance of domestic and hygiene activities. Teresina, PI, Brazil, 2014.

Variables	Falls		Fisher	*p-value*
Chronic disease	Yes	No		
Yes	53	10	0.008	1.00
No	17	03		
Total		**83**		
Medication				
Yes	53	10	0.014	1.00
No	17	03		
Total		**83**		
Domestic activity				
Yes	08	03	1.294	0.3663
No	62	10		
Total		**83**		
Hygiene activity				
Yes	04	02	1.525	0.2358
No	66	11		
Total		**83**		

DISCUSSION

When considering findings of sociodemographic data, there is a predominance of women, characterizing feminization at old age, resulted from the higher level of male mortality by violent causes as well as by the low search for health services. Many times, this happen due to cultural questions, as many men still perceive the search for care as an exclusively female practice[12].

A study conducted in Paraná with 324 elderly injured by external causes found a similar result, it was seen that 55.2% of elderly were women at the age group of 60 to 65 years (26.2%), followed by 80 years or more (24.6%). Most occurrences happened at home (52.7%), and falls at the same level were the most frequent causes (57.1%%)[13]. A study conducted on the north of Sweden to investigate the epidemiology of non-intentional lesions in a population of 21.000 elderly, found an higher accident rate between women aged 75 years or more, demonstrating that falls in long permanence institutions caused the most severe lesions[14].

An investigation that identified causes and consequences of falls in elderly at home found a need of studies with deeper analysis about gender matter and occurrence of falls and daily activities, so that prevention programs can consider this variable to guide the elderly about safe housing[7].

Other relevant information is the high rate of illiterate elderly, despite of the implementation of governmental programs to fight illiteracy, as *"Brasil Alfabetizado"* (Literate Brazil). Investigations with elderly in the southeast and south regions of Brazil, aimed to estimate the prevalence of falls and to verify factors associated to recurrent fear of falling, found different results from the present investigation; they found that most participants had between one to four years of education[15-16]. We believe that this fact is the result

from an existing educational situation at the northeast region of Brazil, and nowadays, it still is fundamental to keep literacy programs for adults.

Socioeconomic factors as low education levels, poverty and some type of privation can increase the exposition to environmental risks, as well as, to also influence exposition to specific risks of accidents; as insecure housing, inadequate access to preventive health care, lack of access to safety devices, within others[9].

Our results showed that most injured lived with their spouse and/or a family member, they were females and received between one and two minimum wages. According to the data from last census conducted by the Brazilian Institute of Geography and Statistics, elderly with this profile are generally responsible for their houses, financially as well as in the home organization. These numbers also show that many family leaders only live with their children, grandchildren or other family member[17], characterizing a widowhood framework.

A study conducted in a public hospital in Paranamirim to build an attention profile for external causes, even with a non-specified age group, demonstrated that falls occupied the first position, with 29% of cases, domestic accidents occupied the fourth position, with 16.5%, and burns (3.24%) and exogenous intoxications (0.15%) with the smallest percentages[6]. Even if the two last causes did not occurred at home, there is a similarity with the present study, where burns constituted 3.6%, and intoxications 2.4%.

The prevalence of falls within domestic accidents found in the present study is similar to a study conducted in an emergency room located at Rio Grande do Sul, about the external causes involving elderly. In that study, falls represented 48% of cases, and it was possible to verify on the same investigation that cuts constituted 4.1% of total, corroborating with the difference found in our study, even if the place where the accident occurred was not specified in the cited study[18].

Although there was a significant difference between fall and other domestic accidents, they are relevant in what concerns the elderly health conservation. If not well treated, injuries can evolve to infections and to more severe conditions, especially in diabetic seniors, propitiating a prolonged hospitalization. The same occurs with burns, as depending on the level and extension, burns can influence the patient's quality of life, at the measure that it represents a clinical framework that easily creates complications. On the other hand, intoxications can also impair the elderly' wellbeing, especially when caused by the polypharmacy, which is a common phenomenon in this group.

A North American study observed 603 houses to describe the prevalence of preventive safety measures in houses with elderly and, to describe the knowledge of safety themes of these individuals. They concluded that efforts are needed to improve their knowledge and to promote safety benefits as measures against injuries, so that older populations can be adequately protected. In addition, it was recommended for professionals and researchers to keep developing and evaluating programs for risk reduction of injuries at home for seniors, so they can age safely[19].

Professional care strategies to prevent elderly falls are fundamental. They include care guidance

through awareness of elderly and family members involving information about risks, lifestyle and environmental changes. This requires training of health professionals for prevention and management of falls[13]. The lack of care observing the environment is noted as the main reason mentioned by interviewed in our study, demonstrating how relevant should be the attention given to the physical environment where they live.

In this direction, a literature review conducted in the United States affirms that there are multiple causes of elderly falls and they include factors as: physical and/or visual impairments, decline in the cognitive function, reduction of the proprioceptive function and delay in reaction time, which are already known to affect balance, gait, posture and movement. Medications also can influence the occurrence of this event due to secondary effects, as dizziness and/or humor changes. Equally, poor lighting also contributes with it. All these factors invariably affect elderly's performance and occupational function[20].

When considering different causes of falls, another factor that can also contribute with the occurrence of this type of accident is the decrease of female hormones resulted from menopause, they become more physically fragile and more likely to develop diseases as osteoporosis and arthrosis[12,17-18].

Another aspect to consider is the fact that females retire earlier than males. Consequently, women spend more time at home conducting domestic tasks[7,13].

But regardless of the cause, accidents still brings economic consequences to elderly and their families because in many cases, injuries resulting from an accident require posterior rehabilitation.

A cross-sectional study developed with 389 elderly to identify the causes and consequences of falls in elderly at home, alerts about the number of fractures resulted from falls and the diverse possibilities for this event to occur. The need for more studies about the theme is emphasized, to investigate the link with daily activities[7].

A large number of interviewers fell from their own height, an information corroborated with a cross-sectional study conducted in João Pessoa, where 90.5% of elderly had the same type of fall[17]. This data is worrying because most of them did not mention to be not performing an activity at the moment of accident. It is inferred that this fact is caused by body changes in elderly people, as with the decrease in walking, the individual loses muscle mass and strength, becoming more fragile and more likely to fall[17-18].

A systematic review about the involvement of environmental factors in falls in elderly living at the community concluded that the place where people fall has influence from intrinsic factors, because it was seen that physically active elderly tend to fall at external environments, and those who are functionally compromised fall in their homes[21].

An investigation conducted in eight European cities in the context of a project from the World Health Organization, analyzed living conditions and health state of 8.519 people. It was seen that inadequate living conditions, that is, those not meeting the resident's conditions, represented a direct risk factor of accidents and injuries; and falling was a serious problem to elderly, highly incident at the ages of 60 to 79 years, and two times higher between those older than 80 years[22].

A study with 108 elderly in Campinas, where 77.8% and 67.7% of elderly, respectively, had diseases and made continuous use of medication, observed that within those who fell, there was a predominance of elderly with chronic diseases and they used continuous medication[23].

The lack of association between occurrence of falls and presence of chronic diseases was similar to a study with non-institutionalized elderly of 80 years of more from a region of the Family Health Strategy at Bahia, where fall occurrence was not associated with the presence of chronic diseases[24]. Such data can be explained by the fact that all elderly were taking the appropriate medication for their clinical condition, avoiding undesirable manifestations.

On the other hand, continuous medication use can cause adverse effects that influence how falls occur. According to a bibliographic study to analyze fall risk factors in elderly, it was seen a considerable quantity of studies associating this characteristic with the possibility of accidents[25].

Despite of the lack of publications agreeing with our findings, such data presents conformity with other results found, once physiological factors constituted the least responsible circumstance for the occurrence of falls. Besides, aspects as classes and quantity of medications should be considered.

The non-association between fall occurrence and performance of activities at the moment of the accident can relates to the fact that most interviewed individuals had advanced age, that is, more dependence, needing more support to perform their tasks, which is a fact also corroborated by the predominance of elderly living with family members, thus, being theoretically more assisted.

CONCLUSION

The results from the studied sample showed a 6.4% prevalence of domestic accidents, and falls from one's own height was the most frequent domestic accident among elderly, who mentioned lack of care when observing the environment as the main cause of occurrences.

But, certain peculiarities were observed; the absence of association between the occurrence of falls, presence of chronic disease, continuous use medication and, performance of activities at the moment of accident.

Such framework demonstrates that the environment where elderly are, should be adequate to their needs as much as possible, according to families' financial situation. The family presence is also important to help; especially those who are more dependent for daily and health activities.

The high representation of these accidents on the morbidity and mortality levels among elderly require more vigilance and detailed investigation by health professionals, inside hospitals using complete anamnesis, as well as, in basic health units through monthly consultations and home visits; to make a difference in the notification of these occurrences and, to trace an epidemiological profile characteristic of the affected elderly population. Thus, allowing guidance about prevention and control of those undesirable events.

The study results showed a need to invest in specific strategies to prevent and control domestic accidents involving elderly, once they believe that occurrences could have been preventable when affirming

that the accident occurred due to lack of care when observing the environment.

Thus, it is important for professionals to recognize the need of permanent training about prevention of accidents involving elderly, to develop a multi-professional care with functional evaluation of these individuals to identify earlier deficiencies presented by them, as well as, the environmental limitations around them. It is also important to guide family members and caregivers, and to allow each professional to act in their specificities collaborating with the planning of integrated interventions, guaranteeing attention for needed care and availability of necessary technologies to assist and to overcome identified dependencies.

Although this study brings the reality of a local situation, its findings shows that development of investigations in the primary care context could better map morbidity information caused by domestic accidents and, it would allow improvement of the care planing in the community.

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