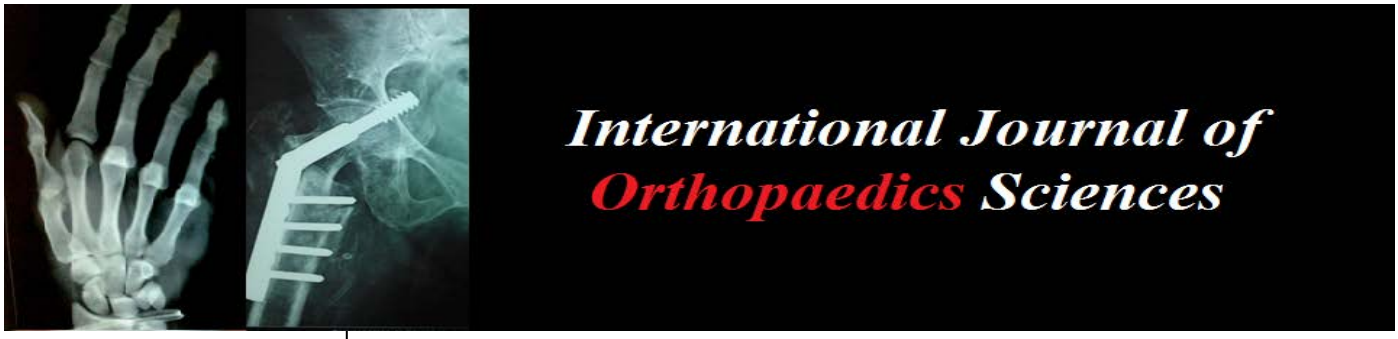

E-ISSN: 2395-1958
P-ISSN: 2706-6630
IJOS 2023; 9(4): 31-34

https://www.orthopaper.com
Received: 06-09-2023
Accepted: 09-10-2023

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Injuries to the musculoskeletal system due to domestic accidents: Socio-demographic, lesional and therapeutic aspects

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DOI: https://doi.org/10.22271/ortho.2023.v9.i4a.3467

Abstract
Introduction: Injuries due to domestic accidents have become a real public health problem that is often neglected in countries south of the Sahara. The objectives were to describe the characteristics of the accidents, the socio-demographic and lesion profile of the victims, and to evaluate the therapeutic management.
Material and Methods: We conducted a retrospective and descriptive study over a period from January to December 2018, including all patients with domestic accidents received at the Orthopedics-Traumatology Department of Aristide Le Dantec Hospital in Dakar.
Results: We collected 890 cases over one year, i.e., 24.47% of admissions with a sex ratio of 0.64. The mean age of our patients was 44.6 years with extremes of 9 and 95 years. The patients lived in Dakar-City in 61% of cases. Between 6 am and 6 pm, the time slot was 32.58% and 39.55% between 12 and 6 pm. Patients were admitted on weekdays (15.55%) and weekends (9.32%). Falls accounted for 39.7% of the accidents recorded. Fractures were found in 39.77%. The injuries were located in the pelvic limbs in 57%, the thoracic limbs in 33.26%, the trunk in 7.19%, and the head in 2.55% of cases. Of the patients who were received beyond the first 24 hours after the trauma in 44.27%. Most were brought to the emergency room by taxi 57% and only 1.07% by ambulance. The treatment was orthopedic in 38.2%, medical alone in 36.63%, and surgical in 25.16%. The patients were treated and followed in an ambulatory in 73.03%.
Conclusion: Domestic accidents are important in admissions to Orthopedic and Traumatology emergencies. Measures must be undertaken for both diagnostic and therapeutic management.

Keywords: Injury, domestic accident, fracture, musculoskeletal system

Introduction
Domestic accident injuries have become a real public health problem in Africa with high mortality and morbidity [1]. However, they are most often neglected in these regions due to the priority of health oriented towards communicable diseases. In addition, the literature on domestic accidents is poor compared to road accidents [2]. This is why we considered it useful to study domestic accidents with the aim of describing the characteristics of accidents, the socio-demographic and injury profile of the victims of a domestic accident and evaluating the therapeutic management.

Materials and Methods
We conducted a retrospective and descriptive study over a period from January to December 2018, including all patients who were victims of a domestic accident. We did not include patients who were free of the disease or those whose records were incomplete. The parameters studied were those related to the accident (Time of occurrence, mechanism and nature, day of the week and month of the year), the victim (Age group, sex, address, type of injury and site of injury) and management (Time of admission, method of evacuation, type of treatment received, hospital referrals and hospitalization). Data were entered into Microsoft Word and Excel and analyzed on the R studio software.

Results

The number of patients was 890 admitted for domestic accidents out of a total of 3636 cases received in the ward i.e., 24.47% during a period of 6 months. The mean age was 44.6 years with extremes of 9 years and 95 years. For females, it was 49.57 years with extremes of 12 years and 95 years. In men, it was 39.63 years with extremes of 9 years and 95 years.

The age range between 60 and 90 years was 24.27%. The sex ratio was 0.64. The patients lived in Dakar-Ville in 61% of cases. The time slot between 6 a.m. and 6 p.m. was 32.58% and 39.55% between 12 a.m. and 6 p.m. Patients were admitted on weekdays in 15.55% of cases compared to 9.32% on weekends. We observed little difference in frequency compared to the month of the first half of the year. We noticed a slight spike at the end of each quarter (March and June). In terms of mechanisms of occurrence, falls accounted for 39.7% of recorded accidents. Fractures were found in 39.77%. The lesions were in the pelvic limbs (57%), thoracic limbs (33.26%), trunk (7.19%) and head (2.55%) (Figure 1). The distribution of lesions by type is shown in the table below. (Table 1). Patients were seen beyond the first 24 hours after trauma in 44.27%, between the second and 7th day in 35.95% and beyond the 7th day in 14.6%. Patients were evacuated to the emergency room by taxi in 57%, private vehicle in 24.7%, bus in 6.1%, on foot in 1.45% and by ambulance in 1.07%.

Treatment was orthopaedic (38.2%), medical alone (36.63%) and surgical (25.16%). Orthopaedic treatment is mainly applied to minor fractures and sprains. Surgical treatment included wound trimming, burns and osteosynthesis of fractures.

Of our patients, 7.2% were seen second-hand. These were patients received from other hospital structures in Dakar or in the interior of the country or even in the sub-region.

Of all cases, 73.03% of patients were treated and monitored on an outpatient basis.

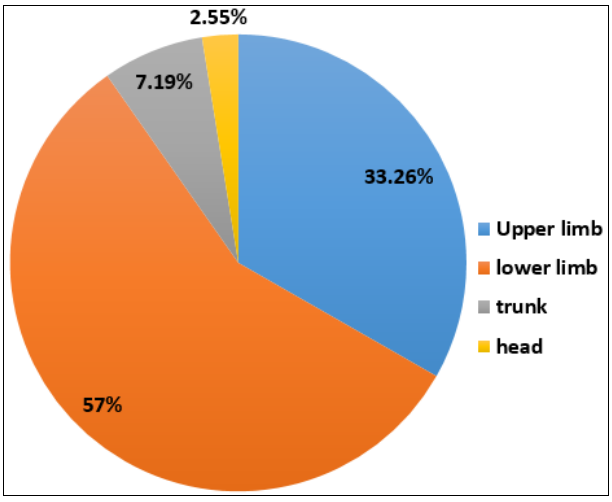

Fig 1: Distribution of lesions by site

Table 1: Distribution of lesions by type

Type	Numbers	Percentage (%)
Burns	56	6.30
Fractures	354	39.77
Contusions	154	17.33
Dislocations	50	5.61
Sprains	104	11.68
Wounds	62	6.96
Other	110	12.35

Discussion

According to the WHO, domestic accidents are part of everyday accidents [3]. They are responsible for a significant number of lesions alongside other etiologies.

In developed countries, these accidents have been relegated to the background for several years in the face of the spectacular side of road traumatology.

The recognition of domestic accidents as a priority health problem has been delayed than that of road accidents [4].

In some European countries, they have higher mortality and morbidity than road traffic victims [3]. In African countries, documentation of domestic accidents is poor [5]. The percentage of admissions following domestic accidents found in our study (24.4%) does not reflect the whole reality. Indeed, the study period was quite short, spread over 6 months. The gender distribution of our patients shows a clear female predominance with 60.9%, i.e., a sex ratio of 0.64. The CNAMTS survey carried out in France [6] found that the highest frequencies of domestic accidents are recorded among women and young children. Women are the most vulnerable to accidents inside the home. They take care of most of the household chores: domestic maintenance, meal preparation, supervision and education of the children. All of these activities expose women to domestic accidents.

From an age point of view, the groups between 30 – 60 years old and 0 – 30 years old were the most represented in our study with 42.02% and 31.46% respectively. In the study carried out by FESUM on domestic accidents, it was reported that the two age groups that are particularly affected are children between 1 and 4 years old and adults between 25 and 44 years old [7]. The work carried out by EHLASS between 1987 and 1997 showed that most (35.3%) of accidents in patients between the ages of 25 and 44 took place inside homes [8]. It is a young and active population, which explains the frequency of accidents among these age groups. But the proportion of elderly people is not to be neglected with 24.27% plus 0.89%. In developed countries, the elderly population is highly vulnerable to domestic accidents [9]. As a result of the ageing of the population in these countries, there has been an increase in the number of admissions of the elderly to hospitals.

Africa will not be left behind as it is currently going through a period of demographic transition. However, domestic accidents are still the prerogative of children and adolescents [10].

In terms of place of residence, we found that 61% of patients lived in Dakar (city), 34% in the suburbs and 5% in other regions of the country. This situation can be explained by the fact that urban areas present much more risks, the location of the hospital in the far west of Dakar in the Plateau, the presence of other trauma centers closer to the suburbs and more accessible. Regarding the timing of accidents, we found a predominance during the day. The 6-12 p.m. (32.58%) and 12-6 p.m. (39.55%) time slots were the most affected, compared to 7.64% and 18.43% respectively for the 00-6:00 a.m. and 6-00 p.m. time slots. This observation can be explained by the fact that the vast majority of activities at home are done during the day (household chores, adjustment of the living environment, etc.). During the night, activities are at rest, this is the time for sleep and recovery. In France, a study conducted over a 2-year period (1999 and 2001) found that the majority of domestic accidents occurred between 7 a.m. and 10 p.m. [11]. Compared to the days of admission, it appears that patients are admitted more often on weekdays than on weekends with 77.75% of admissions compared to

22.25%. This higher number during the week could be explained by a certain mentality. Indeed, the population avoids consulting on weekends. She believes that hospital services are not adequately provided during this period. The analysis of the frequency in relation to the month of the year seems difficult to us because the study took place during the first half of the year.

This is one of the limitations of our work. We didn't notice a big difference in frequency depending on the month. All figures were between 23 and 26 percent. We noticed a slight spike at the end of each quarter (March and June) that we can't explain. In terms of occurrence mechanisms, falls were at the forefront with 39.7% of accidents recorded. This same finding is observed in most of the work done on domestic accidents around the world [12, 13].

This decline is most often linked to the inadequacy of the current housing and modern conveniences. On the other hand, a predominance of accidents involving the handling of sharp or sharp objects has been noted in Kenya [14].

There is a polymorphism in the mechanisms of occurrence. These mechanisms depend mainly on the rural or urban environment, the environment and the socio-economic level.

Of the lesions we observed, fractures predominated (39.7%). Burns accounted for a significant 6.3% of the accidents recorded. The occurrence of burns from domestic accidents is linked to several factors, including the location and type of settlement, seasonal variations and the socio-economic level of the country [15].

From the point of view of the site of the lesions caused during these traumas, we had 57% localization at the level of the pelvic limbs, 33.26% at the thoracic limbs, 7.19% at the trunk, 2.55% at the level of the head. However, the EHLASS survey conducted in 2009 showed that trauma to the thoracic limbs was the most common. It would be very difficult to make an analysis between our results and those of this survey. In fact, our study involved only one hospital. The majority of patients were seen beyond the 24th hour after the trauma. In France 2007 and 2009, all victims of domestic accidents presented to the emergency room within the first 24 hours [16, 17]. This difference with our results is mainly explained by self-medication, the use of traditional practitioners and the low socio-economic level in our countries. In addition, medical coverage concerns only a minority of the population. The mode of evacuation is part of the pre-hospital time in the care of trauma patients. In countries south of the Sahara, the transport of trauma victims is mostly unmedicalized [18-20]. In our study, only 1.07% of victims were taken by ambulance to the hospital. The majority of patients used public transit vehicles or private vehicles.

The recent creation of a Samu in Dakar and the strengthening of the operational capacities of the fire brigade should make it possible to correct this situation. The evacuation of patients by public transport vehicles is very dangerous.

Regarding the type of treatment undertaken, it was orthopaedic in 38.2%. Medical treatment alone was instituted in 36.63%. Surgical treatment was achieved in 25.16% of patients. Orthopaedic treatment is mainly applied to minor fractures and sprains. Surgical treatment included the trimming of wounds and burns, and the osteosynthesis of fractures. The patients received second-hand (7.2%) came from other hospitals in Dakar, the interior of the country or even the sub-region.

Their presence was much more explained by the lack of space in the primary reception structure. Hospitalization was necessary for patients whose lesions required surgical treatment (26.97%).

The majority of patients in our series were treated and followed on an outpatient basis. In France, a study conducted over a period of 2 years found that 44% of patients were hospitalized.

This much higher percentage can be explained by the mono-hospital nature of our study, a more efficient reception capacity and technical platform in France and an almost total health coverage of the populations

Conclusion

Nowadays, although long neglected, domestic accident injuries have become a real public health problem.

They have become part of everyone's daily lives.

Beyond the lack of preventive measures, this phenomenon is largely the result of the low level of education of the population and the low socio-economic level of our countries.

This is a burden that continues to increase year after year due to a lack of studies and programmes conducted to this effect.

Most of these accidents could be prevented by simple measures

Acknowledgments: None

Funding: The authors declare that they have not received any funding for the preparation of this document

Conflict of interest: No conflict of interest

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How to Cite This Article
Diop B, Sarr SCSM, Dembélé B, Diouf AB, Sow M, Sarr L. Injuries to the musculoskeletal system due to domestic accidents: Socio-demographic, lesional and therapeutic aspects. International Journal of Orthopaedics Sciences. 2023;9(4):31-34.