Facial trauma as physical violence markers against elderly Brazilians: A comparative analysis between genders

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ABSTRACT

The aim of this study was to characterize the profile of elderly Brazilians with injuries resulting from physical violence and identify victimization differences. A descriptive and exploratory study was conducted involving the analysis of medico-legal and social records of 259 elderly victims of physical violence treated at an Institute of Forensic Medicine and Dentistry over four years (from January 2008 to December 2011). The forensic service database was evaluated by researchers properly trained and calibrated to perform this function between January and March 2013. Socio-demographic variables of victims, aggression characteristics, aggressor's profile and types of lesions were evaluated. Descriptive and multivariate statistics using Multiple Correspondence Analysis (MCA) were performed. The prevalence of facial trauma was 42.9%. Based on the MCA results, two groups with different victimization profiles were identified: married men aged 70–79 years, victims of community violence at night, suffering facial injuries; and single, widowed or separated women aged 60–69 years, victims of domestic violence during the day, suffering trauma in other areas of the body. The results suggest that there is a high prevalence of facial injuries among elderly Brazilians victims of physical violence and there are important differences related to victimization characteristics according to gender.

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1. Introduction

1.1. Background

Violence is a social and universal phenomenon that affects people of all classes, religions, and cultures, with differences by gender, age and ethnicity (Businger, Krebs, Schaller, Zimmermann, & Exadaktylos, 2012; Tobiasz-Adamczyk, Brzyski, & Brzyska, 2014; Guedes et al., 2015) and can be divided into two subcategories: (1) family and intimate partner violence – practiced among family members or intimate partners, which usually occurs in homes; (2) violence in the community – occurs among individuals with no personal relationship that may or may not know each other (Dahlberg & Krug 2007; Lee, Reese-Weber, & Kahn, 2014; Ferreira et al., 2015).

The proportion of elderly people in the world is undergoing changes and bringing new political, social and economic concerns (Carvalho Filho et al., 2015). It is estimated that between years 2000–2050, the number of people over 60 years will increase from 600 million to two billion worldwide (World Health Organization, 2002).

Unlike developed countries, the Brazilian population has aged very fast without comprehensive socio-economic change, challenging the country to face a new population with an epidemiological profile characterized by chronic, degenerative and disabling diseases (Carvalho Filho et al., 2015; Lima & Campos, 2011). Among the disabling diseases, trauma has been a growing concern, since they can generate impact on functional capacity and quality of life (ATLS Subcommittee, American College of Surgeons' Committee on Trauma, & International ATLS working group, 2013).

In the context of physical violence, it has been reported that traumas in the face region represent a fairly common event (Mascarenhas et al., 2015). Using this characteristic type of lesion as a marker of physical violence may reveal an insidious form of violence, which usually occurs silently and can be the starting point for a fatal outcome (Silva et al., 2015). Therefore, it is essential

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to determine the prevalence of facial injuries resulting from physical violence against elderly people, understand the circumstances of aggressions, as well as the characteristics of offenders.

1.2. Importance

Brazilian emergency hospitals have received and treated many elderly people with trauma resulting from physical violence, particularly more severe cases (Carvalho Filho et al., 2015). However, not all individuals who suffer injuries related to physical aggression are treated in hospitals. In Brazil, many victims of physical violence are referred to carry out forensic examinations at Institutes of Medicine and Forensic Dentistry.

After a critical literature review, it was found that there are few studies aimed to characterize the profile of elderly patients in forensic services, and such studies may provide useful information not only related to trauma, but also on the characteristics of aggression and perpetrators, thus contributing to the advancement of knowledge in this field.

1.3. Goals of this investigation

The aim of this study was to characterize the profile of elderly Brazilians with injuries resulting from physical violence and identify victimization differences, following a medico-legal and forensic perspective.

2. Material and methods

2.1. Study design and setting

This is a descriptive and exploratory study carried out from the analysis of medico-legal and social records of cases of physical violence treated at an Institute of Forensic Medicine and Dentistry. This institution is a reference to 23 municipalities of a metropolitan area of northeastern Brazil and receives victims of violence living in urban, suburban and rural areas, covering a population of approximately 680,000 inhabitants. The study region presents social, economic and cultural inequalities and high rates of injuries resulting from physical violence and traffic accidents. Individuals who are victims of physical violence and report the abuse to the police are referred to Institutes of Forensic Medicine and Dentistry to conduct forensic examinations, which have the main objective to assess the extent and severity of trauma.

After conducting a retrospective analysis of the forensic service database, 7132 cases of physical violence against individuals of different age groups were reported during the period from January 2008 to December 2011. Of this total, 259 (3.6%) cases were related to physical violence against elderly people (aged 60 years or older) and, therefore, were investigated.

The medico-legal and social records were filled by the institution's employees, who perform the function of legal experts in medicine or dentistry. Since the institution does not have a digital information system, each record has been read and the information consistent with the study objectives was transcribed by researchers properly trained and calibrated to perform this function, during the period from January to March 2013.

2.2. Methods of measurement

Socio-demographic variables of victims, aggression characteristics, aggressor's profile and types of lesions were evaluated. A pilot study was performed prior to the final research study to validate the efficacy of the methodology, with the objective of correcting eventual flaws and developing an effective method of interpreting results. The inter-examiner and intra-examiner

reliability were evaluated using the Kappa statistic; both resulted in K = 0.85–0.90, which is considered very good.

The variables were categorized as follows: victim's age group (60–69 years/70–79 years/≥80 years), victim's gender (male/female), victim's marital status (single, widowed or separated/married), victim's schooling (≤8 years of study/>8 years of study), offender's gender (female/male), relationship with the offender (known people, such as caregivers and family/unknown people), and circumstance of aggression (residence/community)

The mechanism of violence was categorized as aggression using physical force (such as slapping, punching, shoving, and kicking), aggression using firearm (such as shotguns and pistols), aggression using melee weapon, aggression using other instruments (such as bottles, sticks/pieces of wood, and iron pipes), and mixed aggression. The day that the violence occurred was categorized as a weekday (Monday–Friday) or weekend (Saturday and Sunday), respectively; the time of day was categorized as daytime (between 6:00 AM and 5:59 PM) and nighttime (between 6:00 PM and 5:59 AM).

Finally, the variables related to the injuries were categorized as follows: type of trauma (facial injuries/other), region of face affected (upper third/middle third/lower third/more than one region), type of facial trauma (soft tissue injuries/bone fractures), and region of body affected (head/neck/upper limb/lower limb/thorax/abdomen/more than one region).

2.3. Data analysis

Descriptive statistical analysis was initially performed, which corresponded to the calculation of absolute and relative frequencies for categorical variables and the calculation of central tendency and dispersion measures for continuous variables. Then, joint relationships between variables and groups of male and female subjects were explored through the Multiple Correspondence Analysis (MCA). This is a multivariate technique of interdependence used for dimensional reduction and perceptual mapping, suitable for situations in which one wants to analyze categorical data with a large number of variables and propose categories of responses in the same system of axes or dimensions (Hair, Black, Babin, Anderson, & Tatham, 2009).

This analysis is also useful to study the risk factors that may be associated with certain characteristics that one wants to observe and allows identifying groups of individuals having common risk factors and may subsequently be targeted for preventive interventions and health promotion (Mota, Vasconcelos, & Assis, 2008; d'Avila et al., 2015; Bonfim, Mattos, Ferreira e Ferreira, Campos, & Vargas, 2013).

Through the graph generated, the coordinates of the categories of each variable in the multidimensional space can be interpreted as associations. The importance of each variable in the construction of the axes/dimensions assessed by means of discriminant measures help to interpret the results and contribute to characterize axes from the conceptual point of view. The analysis also calculates inertia and eigenvalue for each dimension, showing how much of the total variability of data is being explained (Hair et al., 2009). In this study, a solution of two dimensions was considered the most appropriate. All statistical analyses were performed using IBM SPSS software version 20.0.

2.4. Ethical considerations

This study was carried out in compliance with international norms (Declaration of Helsinki) and national legislation (CNS Resolution No. 196/96 and 466/12) governing ethics in studies involving human subjects and was evaluated by an independent ethics committee (Process No. 0652.0.133.203-11). Furthermore,