

PROFILE OF MAXILLOFACIAL INJURIES IN WOMEN VICTIMS OF VIOLENCE FROM THE PERSPECTIVE OF FORENSIC ODONTOLOGY IN THE CITY OF JOÃO PESSOA, PARAÍBA

PERFIL DAS LESÕES MAXILOFACIAIS EM MULHERES VÍTIMAS DE VIOLÊNCIA SOB A PERSPECTIVA DA ODONTOLOGIA LEGAL NA CIDADE DE JOÃO PESSOA, PARAÍBA

PERFIL DE LESIONES MAXILOFACIALES EN MUJERES VÍCTIMAS DE VIOLENCIA DESDE LA PERSPECTIVA DE LA ODONTOLOGÍA FORENSE



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Giselle Moreira de Carvalho¹, Joelly Pinheiro da Silva², Sabrina André Silva³, Rebeka Maria de Sousa Feitosa⁴, Rafaella Araújo Amancio de Lima Medeiros⁵, Luísa Simões de Albuquerque⁶, Wanúbia Barbosa Nunes⁷, Tainá Ribeiro Monteiro de Figueiredo⁸

ABSTRACT

Violence against women manifests itself in various forms, including psychological abuse, threats, physical assaults, and femicide, frequently associated with dental and maxillofacial trauma. This study aimed to describe the profile of domestic and community violence against women and to identify patterns of oro-maxillofacial trauma from an odontolegal perspective. To this end, data from the Legal Medicine and Dentistry Center of the metropolitan region of João Pessoa, covering the period from January to December 2019, were analyzed. Victims of physical assault who underwent forensic examination were included, excluding records unavailable due to legal issues. Data collection used a form containing sociodemographic variables, characteristics of the violence, and trauma. Descriptive and inferential statistical analysis was performed, with logistic regression using the backward Wald method and the

¹ Graduated in Dentistry. Universidade Estadual da Paraíba (UEPB). E-mail: gimoreirac@gmail.com
Orcid: <https://orcid.org/0000-0003-4788-7254> Lattes: <http://lattes.cnpq.br/3210630596394458>

² Graduated in Dentistry. Universidade Estadual da Paraíba (UEPB). E-mail: joelly.piinheiro@gmail.com
Orcid: <https://orcid.org/0009-0000-9385-5216> Lattes: <https://lattes.cnpq.br/4929460595387162>

³ Graduated in Dentistry. Universidade Estadual da Paraíba (UEPB).
E-mail: sabrina.andre@outlook.com Orcid: <https://orcid.org/0000-0001-5418-4333>
Lattes: <http://lattes.cnpq.br/5341593322936434>

⁴ Graduated in Dentistry. Universidade Estadual da Paraíba (UEPB).
E-mail: rebeka.feitosa@aluno.eupb.edu.br Orcid: <https://orcid.org/0000-0002-5207-9027>
Lattes: <http://lattes.cnpq.br/6025386609586949>

⁵ Master's degree in Dentistry. Universidade Estadual da Paraíba (UEPB).
E-mail: rafaella_amancio@hotmail.com Orcid: <https://orcid.org/0000-0001-9221-8020>
Lattes: <http://lattes.cnpq.br/7078747553600034>

⁶ Master's degree in Dentistry. Universidade Estadual da Paraíba (UEPB). E-mail: luisasimoesa@gmail.com
Orcid: <https://orcid.org/0000-0001-7448-7868> Lattes: <https://lattes.cnpq.br/9721364647222362>

⁷ Master's degree in Dentistry. Universidade Estadual da Paraíba (UEPB). E-mail: wanubia.bn@gmail.com
Orcid: <https://orcid.org/0000-0001-8866-9996> Lattes: <http://lattes.cnpq.br/6853452891541203>

⁸ Dr. in Dentistry. Universidade Estadual da Paraíba (UEPB). E-mail: taynaribeiromf@gmail.com
Orcid: <https://orcid.org/0000-0002-2111-4651> Lattes: <https://lattes.cnpq.br/9344742389589571>

Hosmer-Lemeshow test, using SPSS 22.0 software. It was observed that most victims were between 30 and 59 years old, had a partner, were salaried employees, and had low levels of education. The aggressors were predominantly men, usually partners of the victims. The assaults occurred mainly on Sundays, at night, in the home, and mostly without the use of weapons. The most frequent pattern was multiple bodily traumas, while isolated facial traumas mainly affected the orbital region. It is concluded that it was possible to outline the profile of the violence and highlight an association between unarmed assaults and a higher probability of facial trauma.

Keywords: Forensic Dentistry. Maxillofacial Trauma. Violence Against Women. Public Health.

RESUMO

A violência contra mulheres manifesta-se de diversas formas, incluindo abuso psicológico, ameaças, agressões físicas e feminicídio, frequentemente associados a traumas dentários e maxilofaciais. Objetivou-se descrever o perfil da violência doméstica e comunitária contra a mulher e identificar padrões de traumas oro-maxilo-faciais sob a perspectiva odontológica. Para tanto, procede-se à análise de dados do Núcleo de Medicina e Odontologia Legal da região metropolitana de João Pessoa, referentes ao período de janeiro a dezembro de 2019. Incluíram-se vítimas de agressão física submetidas a exame de corpo de delito, excluindo-se registros indisponíveis por questões judiciais. A coleta de dados utilizou formulário contendo variáveis sociodemográficas, características da violência e dos traumas. Realizou-se análise estatística descritiva e inferencial, com regressão logística pelo método backward Wald e teste de Hosmer-Lemeshow, utilizando o software SPSS 22.0. Observou-se que a maioria das vítimas tinha entre 30 e 59 anos, possuía companheiro, era assalariada e apresentava baixa escolaridade. Os agressores eram predominantemente homens, geralmente parceiros das vítimas. As agressões ocorreram principalmente aos domingos, à noite, na residência, e em sua maioria sem uso de armas. O padrão mais frequente foi de múltiplos traumas corporais, enquanto traumas faciais isolados afetaram sobretudo a região orbital. Conclui-se que foi possível delinear o perfil da violência e evidenciar associação entre agressões sem armas e maior probabilidade de trauma facial.

Palavras-chave: Odontologia Legal. Traumatismos Maxilofaciais. Violência contra a Mulher. Saúde Pública.

RESUMEN

La violencia contra las mujeres se manifiesta de diversas formas, incluyendo abuso psicológico, amenazas, agresiones físicas y feminicidio, frecuentemente asociado con traumatismos dentales y maxilofaciales. Este estudio tuvo como objetivo describir el perfil de la violencia doméstica y comunitaria contra las mujeres e identificar patrones de traumatismos oromaxilofaciales desde una perspectiva odontológica legal. Para ello, se analizaron datos del Centro de Medicina Legal y Odontología de la región metropolitana de João Pessoa, correspondientes al período de enero a diciembre de 2019. Se incluyeron víctimas de agresión física que se sometieron a examen forense, excluyendo los registros no disponibles por motivos legales. La recolección de datos se realizó mediante un formulario que contenía variables sociodemográficas, características de la violencia y traumatismos. Se realizó un análisis estadístico descriptivo e inferencial, con regresión logística mediante el método de Wald hacia atrás y la prueba de Hosmer-Lemeshow, utilizando el software SPSS 22.0. Se observó que la mayoría de las víctimas tenían entre 30 y 59 años, tenían pareja, eran empleadas asalariadas y presentaban bajos niveles de educación. Los agresores eran predominantemente hombres, generalmente parejas de las víctimas. Las agresiones ocurrieron principalmente los domingos, de noche, en el domicilio y, en su mayoría, sin el uso de armas. El patrón más frecuente fueron los traumatismos corporales múltiples,

mientras que los traumatismos faciales aislados afectaron principalmente la región orbital. Se concluye que fue posible perfilar la violencia y destacar una asociación entre las agresiones sin armas y una mayor probabilidad de traumatismo facial.

Palabras clave: Odontología Forense. Traumatismo Maxilofacial. Violencia Contra las Mujeres. Salud Pública.

1 INTRODUCTION

Violence against women, an alarming problem in contemporary society, takes multiple forms, from psychological abuse and threats, to physical aggression and femicide (Cavalcante *et al.*, 2020). The World Health Organization (WHO) defines violence against women as any act or conduct based on gender that may result in physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether in the social or private sphere, and its occurrence is recognized as a public health problem (Castro *et al.*, 2017; Oliveira *et al.*, 2019).

Domestic violence is the term used to designate violence that occurs in the family environment, between family members or between intimate partners, while community violence commonly occurs in places other than homes, between known or unknown individuals (Bernardino *et al.*, 2017; Castro *et al.*, 2017). Domestic violence is the most common violence against women, being closely related to gender violence, which highlights the unequal position of women in society, where the vast majority of aggressors are partners, parents, children, followed by ex-partners, acquaintances, and neighbors (Bispo *et al.*, 2022; Soares *et al.*, 2018).

Exposure to violence is often related to dental and maxillofacial trauma. The face is one of the most unique regions of the human body, cooperating with self-image and self-esteem, signifying attractiveness and beauty, especially for women (Bernardino *et al.*, 2018). Because it is located at the level of the aggressor's ascending arm, the face is easily reached, and the aggression against it aims to intimidate and disfigure the victim's identity, being considered one of the most relevant aggressions, due to the possibility of permanent functional consequences, in addition to the aesthetic and psychological damage that can negatively impact the well-being and quality of life of the victims (Cavalcante *et al.*, 2020; Rodrigues *et al.*, 2020).

Emergency hospitals receive and treat many victims of interpersonal violence, especially the most severe cases (Bernardino *et al.*, 2017). In addition, most individuals who exhibit injuries related to physical aggression are directed to undergo forensic examinations in Forensic Medicine and Dentistry Centers, where meticulous data analysis can contribute to the progress of scientific knowledge related not only to the pattern of trauma exhibited by the victims, but also to the circumstances and context in which the violence occurs (Cavalcante *et al.*, 2020).

In this sense, the objective of this study was to describe the profile of domestic and community violence against women and to determine the pattern of oro-maxillofacial traumas from a dentist-legal perspective.

2 THEORETICAL FRAMEWORK

2.1 REPRESENTATION OF VIOLENCE AGAINST WOMEN

Unquestionably, more and more, women occupy social positions that were exclusively male. However, this change did not alter the culture of female submission, which is closely linked to the situations of gender violence, suffered by the fact of being a woman, originating from the association of social, cultural, and biological factors, associated with an inequality of power based on a macho logic (Cruz, Espíndola, Trindade, 2017; Soares *et al.*, 2018; Belolli, Santos, De Bortoli, 2024). Although men and women coexist in society with similar risk factors, there are behavioral characteristics that determine a pattern of victimization by violence specific to each of them, which can be explained by biological, psychological, cultural and sociological issues. Historically, men have been pointed out as the main perpetrators, which can be attributed to the process of construction of male identity, often permeated by elements such as power, aggressiveness, and virility, facilitating participation in violent episodes (Cavalcante *et al.*, 2020).

According to the WHO, 35% of women worldwide are victims of physical and/or sexual aggression, being generated in the family environment, in most cases, from current or former partners (Barufaldi *et al.*, 2017; Nunes *et al.*, 2022). In Brazil, violence against women is considered one of the main forms of human rights violations and has increased significantly in the last three decades, leading the country to have one of the highest rates of violence recorded in the world (Bernardino *et al.*, 2018; Barbosa *et al.*, 2019). In the Northeast region, studies also point to a gradual increase in cases of domestic violence, which may be directly related to the empowerment of women to report and consequently the increase in the number of notifications (Barbosa *et al.*, 2019; Figueiredo *et al.*, 2020; Santos *et al.*, 2021).

2.2 EFFECTS OF VIOLENCE AGAINST WOMEN

One of the main reasons for violence against women to be recognized globally as a public health problem is the large body of evidence on its impacts on women's health. Exposure to violence is associated with outcomes such as anxiety, depression, emotional and mental damage, sexually transmitted diseases, post-traumatic stress disorder (PTSD), psychoactive substance abuse, and suicidal ideation (Bernardino *et al.*, 2017; Bernardino *et al.*, 2024; Stockl, Sorenson, 2024).

In the big picture, domestic violence also results in unwanted pregnancies, miscarriages, and behavioral problems in young children who witness violent behavior against their mothers, in addition to the social isolation of victims due to poor acceptance and prejudice, which makes them susceptible and with few coping strategies. In addition, there

are situations of violence that result in femicide, which are practiced by a reaction of hatred against women, such as when she has autonomy, expressing a social structure that interprets the female body as a territory of occupation and violence, culminating in non-occasional deaths (Moroskoski *et al.*, 2021; Belolli, Santos, De Bortoli, 2024).

In this way, violence against women becomes a health problem that has a great impact on individual and collective quality of life, in view of the physical, psychic and moral injuries it causes, as well as due to the demands for attention and care in medical-hospital services in view of the existing notifications (Santos *et al.*, 2021; Stockol, Sorenson, 2024).

2.3 ANALYSIS OF PHYSICAL AGGRESSION

Women who are the target of violence are more likely to face emotional, psychological, and physical challenges, including traumatic oral injuries and impact on oral health (Bernardino *et al.*, 2018). The face is one of the most unique regions of the human body, encompassing anatomical structures that are fundamental for activities such as breathing, chewing, swallowing, speaking and social interaction. Due to their greater exposure to the aggressor and the relative lack of protection, the area comprising the head and neck becomes especially susceptible to physical aggression. In addition to injuries in general, about 76% - 94% of victims suffer facial injuries, which can result in permanent functional changes (Boyes, Fan, 2020; Nunes *et al.*, 2022).

The most prevalent oral and maxillofacial traumas resulting from cases of violence are contusions, fractures and burns, usually produced by direct aggression (freehand), instrumentalized (bladed and firearms) or mixed, and should be immediately treated due to the risk of resulting in sequelae such as scars, masticatory dysfunction, tooth loss and even emotional damage that refers to the memory of the painful abuse suffered (Cavalcante *et al.*, 2020; Nunes *et al.*, 2022).

2.4 ASSISTANCE TO VICTIMS AND REMEDIAL MEASURES

Understanding the patterns of injuries that affect women victims of violence, as well as diagnosis and epidemiology, contributes to the detection of violent episodes, the formulation of public security policies and guidance on the conduct of health professionals in cases of violence against women (Batista *et al.*, 2021). The information obtained from medical and legal reports of episodes of physical aggression can contribute substantially to the decision-making process, creation of prevention strategies, and better knowledge about the forms of interaction between health sciences and law (Bernardino *et al.*, 2018).

Despite significant advances in public policies to combat violence against women, many challenges persist, such as the underreporting of cases of violence, cultural resistance that often minimizes or normalizes these situations, and the lack of adequate resources for the effective implementation of existing policies. In addition, continuous training of professionals and expanded access to support services are still insufficient in many regions, especially in the most vulnerable areas. More efforts are essential to promote broader awareness of the seriousness of the problem of violence against women, in addition to ensuring that women know their rights and the resources available (Bernardino *et al.*, 2016; Garcia, 2016; Oliveira *et al.*, 2019; Figueiredo *et al.*, 2020).

3 METHODOLOGY

This is an observational, exploratory study, with secondary data from the Center for Forensic Medicine and Dentistry (NUMOL) in the metropolitan region of João Pessoa, in the Northeast of Brazil, which has a population estimated at approximately 1,304,280 inhabitants (IBGE, 2022 Census), integrated by the municipalities of João Pessoa, Bayeux, Cabedelo, Conde, Cruz do Espírito Santo, Lucena, Rio Tinto, Santa Rita, Alhandra, Caaporã, Pedras de Fogo and Pitimbu.

All records of victims who suffered physical aggression and were submitted to a forensic examination, recorded over the course of one year (January 2019 to December 2019), were adopted as inclusion criteria. The exclusion criteria were records that were unavailable at the time of collection due to legal reasons. In addition, because the filling of the records was handwritten, manuscripts that were illegible were also excluded.

For data collection, a specific form was developed that contained variables related to the social and demographic characteristics of the victims (region of residence, age, marital status, education, occupation, skin color), characteristics of interpersonal violence (circumstance of violence, aggressor sex, aggressor subject, instrument used), characteristics of the occurrence (day of occurrence, time of occurrence, place of the event) and traumas suffered by the victims (region of the body, presence of facial trauma, type of facial trauma, facial region) (Table 1).

Table 1

Distribution of variables and categorization

Independent variables	Categorization
Region of residence	João Pessoa Metropolitan Region
Age of the victim	00 to 09 years old 10 to 19 years old

	20 to 29 years old 30 to 59 years old 60 years or older Not informed
Marital status of the victim	With partner No companion Not informed
Victim's education	Illiterate ≤ 8 years of study Between 8 and 11 years of study > 11 years of study Not informed
Victim's occupation	Stand-alone Salaried Retired Unemployed Doesn't work Student Not informed
Victim's skin color	White Black Brown Yellow Indigenous Not informed
Circumstance of violence	Family friendly Community Not informed
Sex of the aggressor	Women Male Both Not informed
Aggressor subject	Partner/Boyfriend Ex-partner/Ex-boyfriend Family friendly Known Strange More than one Not informed
Instrument used	Naked assaults Firearm Bladed weapon Other means More than one Not applicable Not informed
Day of occurrence	Monday Tuesday Wednesday Thursday Friday Saturday Sunday Not informed
Time of occurrence	00:00 to 05:59 06:00 to 11:59 12:00 to 17:59 6:00 pm to 11:59 pm Not informed
Event location	Victim's home Other Address Not informed

Affected body region	Head/Temporal/Headset Face Neck/Nape Thorax/Clavicle/Mammary Abdomen/Flank Back/Lumbar/Cervical/Back Upper limb/Scapular Lower limb/gluteal/genital More than one region affected Not informed
Facial trauma	Gift Absent
Type of facial trauma	Soft tissue(s) of the face Facial bone fracture Dentoalveolar More than one type of trauma Not applicable Not informed
Affected face region	Orbital/Peri/Infra/Eyelid/Superciliary Front Lip Nasal Zygomatic/Malar Buccinator (external) Jaw/Geniana Jaw Chin Teeth Language Gums More than one region affected Not applicable Not informed

Source: Prepared by the authors.

Descriptive statistical analysis was performed to characterize the sample and describe the main variables of the study. For inferential statistics, a logistic regression was performed, considering the characteristic of the dependent variable (dichotomous). The independent variables are categorical and were included in the block model, the first block with variables related to the victim: age, skin color, marital status, education and occupation. The second block had variables related to violence: circumstance of violence, sex of the aggressor, aggressor subject, place of the event. And finally, the last block with variables related to the weapon used in the aggression: naked assault, firearm, bladed weapon, other means and more than one method. The backward:wald method was adopted, adopting $p < 0.200$ as a criterion for the adjusted model. The Hosmer-Lemeshow test was used to evaluate the quality of the model. The analyses were performed using the SPSS software, version 22.0.

The development of this study followed the ethical principles of research involving human beings, as presupposed by Resolution 196/96. The project was registered in SISNEP (National Information System on Ethics in Research involving Human Beings) independently evaluated by a Research Ethics Committee, and was approved (CAAE:

74238823.3.0000.5187). All the rights of the victims were protected and the national and international precepts of ethics in research with human beings were followed.

4 RESULTS AND DISCUSSIONS

During the period investigated, 1,280 cases of domestic and community violence against women were registered. The distribution of victims according to sociodemographic characteristics revealed that most of them were aged between 30 and 59 years (45.4%), with a partner (52.7%), with more than 11 years of schooling (8.2%) and salaried (42.0%). Skin color was mostly brown (73.8%) (Table 2).

Table 2

Sample description: absolute and percentage values for variables related to the victims

Variables	n	%
Age group		
00 to 09 years old	23	1,8%
10 to 19 years old	171	13,4%
20 to 29 years old	447	34,9%
30 to 59 years old	581	45,4%
60 years or older	36	2,8%
Not informed	22	1,7%
Marital Status		
With partner	675	52,7%
No companion	531	41,5%
Not informed	74	5,8%
Education		
Illiterate	6	0,5%
≤ 8 years of study	23	1,8%
Between 8 and 11 years of study	58	4,5%
> 11 years of study	105	8,2%
Not informed	1088	85,0%
Occupation		
Stand-alone	91	7,1%
Salaried	537	42,0%
Retired	32	2,5%
Unemployed	31	2,4%
Doesn't work	237	18,5%
Student	173	13,5%
Not informed	179	14,0%
Skin color		
White	12	0,9%
Black	5	0,4%
Brown	945	73,8%
Yellow	1	0,1%
Indigenous	0	0,0%
Not informed	317	24,8%

Source: Prepared by the authors.

In the distribution of women for the variables related to the characteristics of violence, situations of aggression prevailed in the municipality of João Pessoa (72.7%), in which most victims sought the Women's Police Station (64.1%). Family violence (66.9%), perpetrated

mostly by a male aggressor (69.6%), usually a partner (35.6%). The records were mainly on Sundays (21.0%), in the night shift (31.4%) and at the victim's home (36.6%) (Table 3).

Table 3

Sample description: absolute and percentage values for variables related to the characteristics of violence

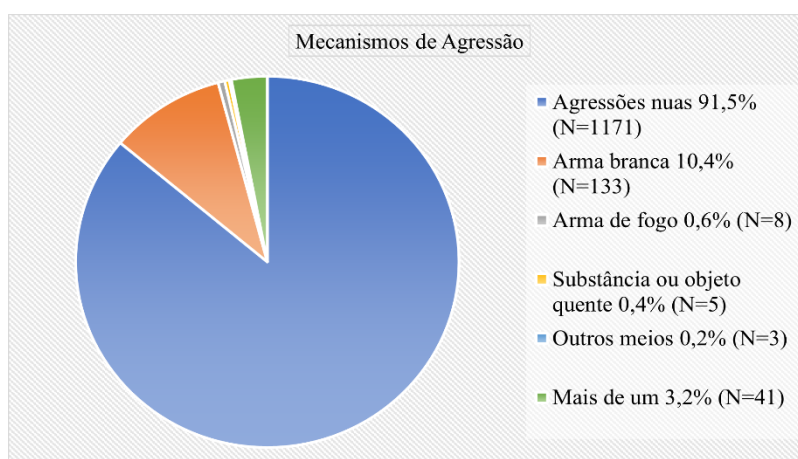
Variables	n	%
Place of dispatch		
Centralized Duty	29	2,3%
District Police Station	343	26,8%
Women's Police Station	820	64,1%
Childhood and Youth Police Station	70	5,5%
Justice	3	0,2%
Specialized Police Station for Elderly Care	12	0,9%
Homophobic Crimes Police Station	3	0,2%
Region of residence		
João Pessoa	930	72,7%
Metropolitan Region	347	27,1%
Not informed	3	0,3%
Circumstance of Violence		
Family friendly	856	66,9%
Community	381	29,8%
Not informed	43	3,4%
Sex		
Women	332	25,9%
Male	891	69,6%
Both	44	3,4%
Not informed	13	1,0%
Aggressor subject		
Partner/Boyfriend	456	35,6%
Ex-partner/Ex-boyfriend	201	15,7%
Family friendly	186	14,5%
Known	324	25,3%
Strange	56	4,4%
More than one aggressor from different categories	11	0,9%
Not informed	46	3,6%
Day of occurrence		
Monday	170	13,3%
Tuesday	135	10,5%
Wednesday	150	11,7%
Thursday	137	10,7%
Friday	151	11,8%
Saturday	209	16,3%
Sunday	269	21,0%
Not informed	59	4,6%
Time of occurrence		
00:00 to 05:59	140	10,9%
06:00 to 11:59	260	20,3%
12:00 to 17:59	291	22,7%
6:00 pm to 11:59 pm	402	31,4%
Not informed	187	14,7%
Event location		
Victim's residence	468	36,6%
Other Address	392	30,6%
Not informed	420	32,8%

Source: Prepared by the authors.

Regarding the mechanism of aggression, situations of aggression without an instrument were predominant 91.5% (N=1,171), followed by the use of a knife 10.4% (N=133), firearm 0.6% (N=8) and hot substance or object 0.4% (N=5). There was an occurrence of 3.2% (N=41) of aggressions characterized by the presence of more than one mechanism of aggression (Figure 1).

Figure 1

Sample description: absolute values and percentages for variables related to the instrument of violence



Source: Prepared by the authors.

Trauma in more than one region of the body was the most frequent pattern (55.4%), followed by isolated cases of trauma in the upper/scapular limb (64.2%) and isolated trauma in the facial region (48.7%) (Table 4).

Table 4

Sample description: absolute and percentage values for variables related to the region of the body affected by violence

Affected body region	n	%
Head/Temporal/Headset		
No	1124	87,8%
Yes	156	12,2%
Face		
No	657	51,3%
Yes	623	48,7%
Neck/Nape		
No	1181	92,3%
Yes	99	7,7%
Thorax/Clavicle/Mammary		
No	1136	88,8%
Yes	144	11,2%
Abdomen/Flank		
No	1239	96,8%
Yes	41	3,2%
Back/Lumbar/Cervical/Back		

No	1150	89,8%
Yes	130	10,2%
Upper/Scapular Limb		
No	458	35,8%
Yes	822	64,2%
Lower Limb/Gluteal/Genital		
No	889	69,5%
Yes	391	30,5%
More than one location		
No	571	44,6%
Yes	709	55,4%

Source: Prepared by the authors.

The distribution of women victims of family and community violence according to the type of facial trauma showed injuries in the soft tissues of the face (51.2%), dentoalveolar trauma (1.1%) and facial bone fracture (0.9%). The affected facial region had a decreasing pattern of lesions in the orbital/periorbital/infraorbital/eyelid/superciliary (17.5%), labial (17.0%), frontal (12.7%), zygomatic/malar (9.1%), nasal (7.0%), mandible/genial (6.5%), buccinator (4.6%), chin (2.7%), teeth (1.1%), gingiva (0.6%) and maxilla (0.1%) areas. 1.3% were more than one type of trauma and 21.4% more than one region of the face affected (Table 5).

Table 5

Sample description: absolute and percentage values for variables related to facial trauma, its type and affected region

Variables	n	%
Facial trauma		
Absent	655	51,2%
Gift	625	48,8%
Soft tissues of the face		
No	6	0,5%
Yes	619	48,4%
Not applicable	655	51,2%
Facial bone fracture		
No	614	48,0%
Yes	11	0,9%
Not applicable	655	51,2%
Dentoalveolar trauma		
No	611	47,7%
Yes	14	1,1%
Not applicable	655	51,2%
More than one type of trauma to the face		
No	609	47,6%
Yes	16	1,3%
Not applicable	655	51,2%
Orbital/peri/infra/eyelid/superciliary		
No	397	31,0%
Yes	224	17,5%
Not applicable	655	51,2%
Front		
No	461	36,0%
Yes	162	12,7%
Not applicable	655	51,2%

Lip		
No	406	31,7%
Yes	217	17,0%
Not applicable	655	51,2%
Nasal		
No	534	41,7%
Yes	89	7,0%
Not applicable	655	51,2%
Zygomatic/Malar		
No	507	39,6%
Yes	116	9,1%
Not applicable	655	51,2%
Buccinator (external)		
No	564	44,1%
Yes	59	4,6%
Not applicable	655	51,2%
Jaw/Geniana		
No	540	42,2%
Yes	83	6,5%
Not applicable	655	51,2%
Jaw		
No	622	48,6%
Yes	1	0,1%
Not applicable	655	51,2%
Chin		
No	589	46,0%
Yes	34	2,7%
Not applicable	655	51,2%
Teeth		
No	609	47,6%
Yes	14	1,1%
Not applicable	655	51,2%
Language		
No	623	48,7%
Yes	0	0,0%
Not applicable	655	51,2%
Gums		
No	615	48,0%
Yes	8	0,6%
Not applicable	655	51,2%
More than one area of the face		
No	349	27,3%
Yes	274	21,4%
Not applicable	655	51,2%

Source: Prepared by the authors.

Linear regression, the final analysis after adjusting the model, showed that women raped by naked aggression are three times more likely to present facial trauma. The variable sex of the aggressor was also significant, however, the OR value (0.998)* indicates a very low, almost insignificant protection factor (Table 6).

*If the sex is different, the chance of aggression decreases by 0.2%, so it is not considered, being practically nil, not contributing to increase or decrease the chances of trauma in a substantial way.

Table 6

Adjusted logistic regression model for the analysis of variables associated with facial trauma in women victims of violence

Variable	95% CI			p-value
	OR	Bottom	Superior	
Skin color	1,000	1,000	1,000	0,298
Sex	0,998	0,996	1,000	0,034
Event location	1,000	1,000	1,000	0,048
Naked assaults	3,159	1,981	5,038	0,000
Burns	6,089	0,752	49,307	0,091

Source: Prepared by the authors.

The most affected age group in this study was between 30 and 59 years old. In agreement, Oliveira *et al.* (2019) indicated that older women face a higher risk of suffering physical violence compared to younger women (48.1%), approaching the mean age found in Figueiredo *et al.* (2020), which was 32.0%, comprising, in general, a group of women of young adult age. This may be based on the hypothesis that older women are economically more productive and socially influential, being less tied to dependencies, tend to feel less fear and have a greater propensity to report, which favors a reduction in underreporting rates (Garcia, 2016).

However, in a study carried out in Patos-PB (Félix *et al.*, 2020) the age group between 21 and 30 years old was the most affected, followed by the group between 31 and 40 years old, approaching the average age observed in a study developed in Paraná (Belloli, Santos, De Bortoli, 2024), which was 29.5 years for victims who made complaints. Similar to a study conducted in the United Kingdom (Fan, 2020), where the average age of patients who were victims of domestic violence was 28 years old. Based on the same hypothesis that as they age, women tend to start a more productive and socially influential phase, it is possible that they will become less likely to report recent cases of violence, since, even if they have been exposed to a circumstance of violence, they may have had the opportunity to detach themselves from this scenario, and for this reason they no longer seek care (Campos *et al.*, 2016; Figueiredo *et al.*, 2020).

From the educational and occupational point of view, most of the victims had schooling > 11 years of schooling and a salaried employment relationship. In this conjunction, it agrees with recent studies in which schooling can be understood as a factor in the reduction of underreporting, due to the fact that most of the notifications are of victims with schooling > 8 years of schooling, which can be associated with a higher level of education and knowledge of their rights (Oliveira *et al.*, 2019; Belloli, Santos, De Bortoli, 2024). Regarding occupation, the findings were consistent with studies in the literature that show the victims having an employment relationship and a monthly income of up to two minimum wages (Soares *et al.*,

2018; Contreras, Portillo, Rodríguez, 2019). However, other studies have linked situations of violence to victims who have not completed elementary school and do not work (Barbosa *et al.*, 2019; Figueiredo *et al.*, 2020). The absence of information related to monthly income in the records represents a significant limitation of this study, since it prevents the accurate representation of real income.

This relationship can be explained by the fact that women who do not perform gratified services tend to develop jobs that do not require technical training, domestic activities or manual work at home and consequently have more contact with aggressors (Félix *et al.*, 2020; Batista *et al.*, 2021). In a complementary way, articles have listed low wages or unemployment as a detrimental factor to access to consumer goods or services, with a consequent impact on quality of life, well-being and emotional state, contributing to a scenario of financial dependence that makes it difficult for the victim to sever ties with the aggressor (Oliveira *et al.*, 2019; Bernardino *et al.*, 2024).

With regard to marital status, this study revealed that 52.7% of the forensic victims have a partner, characterizing a condition of family violence (66.9%). Similar to the findings in Félix *et al.* (2020) and Santos *et al.* (2021), where most cases of women in situations of gender violence were those who have an affective bond with the aggressor. The data differs from a study carried out in the state of Ceará that proved that although most aggressors are partners or ex-partners, more than 60% of the victims are single or divorced/separated women (Oliveira *et al.*, 2019). As well as in the study carried out with men in criminal proceedings resulting from violence against women, who reported being separated maritally (Lírio *et al.*, 2019). In addition, other studies have observed that women were also assaulted by known individuals, which may be a neighbor or even a brother, pointing to the greater vulnerability of women in conflicts with regard to affective relationships or blood ties (Bernardino *et al.*, 2017; Contreras, Portillo, Rodríguez, 2019; Cavalcante *et al.*, 2020).

Violence against women perpetrated by partners or ex-partners is an alarming manifestation of gender inequalities resulting from a structural machismo rooted in society (Félix, *et al.* 2020). The dynamics of dependence, both emotional and economic, perpetuate a vicious cycle of submission and control, where women are reduced to a condition of extreme vulnerability. The prevalence of gender-based violence, which disproportionately affects women, reflects a culture that has historically minimized their rights and dignity, with devastating repercussions not only on the physical and mental health of victims, but also on quality of life and self-esteem (Cruz, Espíndola, Trindade, 2017; Soares *et al.*, 2018).

Regarding the characteristics of the occurrence, records prevailed on Sundays (21.0%), at night (31.4%), at the victim's home (36.6%). As well as Oliveira *et al.* (2019)

observed that the first two working days of the week were the days with the highest number of complaints, showing a higher incidence of aggression on the weekend, as did Castro *et al.* (2017). Similar to Figueiredo *et al.* (2020), a study in which records on Sundays and the night shift prevailed.

As for the mechanisms of aggression, naked aggressions stood out, followed by the use of bladed weapons and firearms. Consistent with previous findings in studies that mainly confirmed the use of physical force, mainly fist and foot blows, as a means to practice violence (Bernardino *et al.*, 2017; Cavalcante *et al.* 2020; Batista *et al.*, 2021). As well as Santos *et al.* (2021) observed that the instrument of aggression is generally blunt, followed in descending order by sharp objects, firearms, and hot object/fluid, in addition to the predominance of physical violence followed by psychological/moral and sexual violence. One hypothesis that can elucidate the high incidence of naked aggression is that this type of violence represents a strategy of the aggressor to exert control and humiliation over the victim in a direct and ostensive way, this approach accentuates the victim's vulnerability and reinforces the dynamics of domination that permeates the abusive relationship (Cruz, Espíndola, Trindade, 2017).

Among the main injuries that occurred after the aggressions, the most frequent pattern is trauma in more than one region of the body (upper limbs and face), as in Castro *et al.* (2017) and Figueiredo *et al.* (2020). Considering the cases of isolated traumas in the head region, abrasions, hematoma, ecchymosis and edema in soft tissues, in the orbital and labial regions, predominated, according to Batista *et al.* (2021) cites ecchymosis and hematomas as the most common lesions, and both the orbits and lips as the most affected structures, as they are regions formed by loose subcutaneous tissue, favoring the appearance of these lesions. These findings were in agreement with other studies (Garcez *et al.*, 2019; Rodrigues *et al.*, 2020; Sá *et al.*, 2020; Nunes *et al.*, 2022) who also observed milder traumas in soft tissue regions, in addition to more severe traumas such as fractures of facial bones, especially in the frontal, orbital, zygomatic, and mandibular regions. Oliveira *et al.* (2019) also points out that, even in cases where the dental tissue is affected, they are determined to be mild in nature, especially in situations of: sensitivity, mobility and fracture of enamel alone without involvement of the dental organ.

Linear regression, the final analysis after adjusting the model, showed that women who are victims of naked aggression are three times more likely to suffer facial trauma, which may be associated with the positioning of the face at the height of the aggressor's raised arm, favoring the face region to be affected. Such a scenario generates great personal and social impact, since the face is one of the most unique areas of the human body, related to female

identity and aesthetics and interpersonal communication (Boyes, Fan, 2020; Nunes *et al.*, 2022). The upper limbs are also among the most affected regions of the body, as they could be used for self-defense, protection, and to mitigate injuries resulting from conflicts (Cavalcante *et al.*, 2020; Rodrigues *et al.*, 2020).

5 CONCLUSION

The profile of violence against women was formed by young-adult victims, with partners, salaried workers, occurrences on Sundays, during the night shift and aggressions affecting more than one region of the body. The pattern of maxillofacial lesions included soft tissue lesions, hematoma-type, ecchymosis, abrasions, and edema, followed by dentoalveolar trauma and fractures of the facial bones. The place most affected by violence in the craniofacial region was the upper third, especially the orbit.

Most of the injuries were caused by naked aggression, by the aggressor's own hands, who, in most cases, was the victim's own partner, including cases of domestic violence. It was found that there is a significant association between women raped by naked aggression and a three-fold greater chance of facial trauma.

REFERENCES

- Barbosa, K., et al. (2019). Epidemiological and spatial characteristics of interpersonal physical violence in a Brazilian city: A comparative study of violent injury hotspots in familial versus non-familial settings, 2012–2014. *PLOS ONE*, 14(1), 1–19.
- Barufaldi, L., et al. (2017). Violência de gênero: Comparação da mortalidade por agressão em mulheres com e sem notificação prévia de violência. *Ciência & Saúde Coletiva*, 22(9), 2929–2938.
- Batista, A., et al. (2021). Lesões orofaciais em mulheres vítimas de violência não fatal: Uma revisão integrativa. *Revista Brasileira de Odontologia Legal*, 8(2), 59–72.
- Belloli, M., Santos, V., & De Bortoli, C. (2024). Estudo retrospectivo do perfil dos casos de violência contra a mulher. *Journal of Nursing and Health*, 14(2), e1426804.
- Bernardino, Í., et al. (2018). Intimate partner violence against women, circumstances of aggressions and oral-maxillofacial traumas: A medical-legal and forensic approach. *Legal Medicine*, 31, 1–6.
- Bernardino, Í., et al. (2024). Spatial–temporal distribution of maxillofacial injuries resulting from intimate partner violence against women. *Dental Traumatology*, 40(2), 82–90.
- Bernardino, Í., et al. (2017). Violência interpessoal, circunstâncias das agressões e padrões dos traumas maxilofaciais na região metropolitana de Campina Grande, Paraíba, Brasil (2008–2011). *Ciência & Saúde Coletiva*, 22(9), 3033–3044.

- Bernardino, Í., et al. (2016). Violência contra mulheres em diferentes estágios do ciclo de vida no Brasil: Um estudo exploratório. *Revista Brasileira de Epidemiologia*, 19(4), 740–752.
- Bispo, J., et al. (2022). Violência contra a mulher: Educação em saúde em uma unidade básica de saúde em Maceió. *Extensão em Foco*, 26, 249–258.
- Boyes, H., & Fan, K. (2020). Maxillofacial injuries associated with domestic violence: Experience at a major trauma centre. *British Journal of Oral and Maxillofacial Surgery*, 58(2), 185–189.
- Campos, M., et al. (2016). Análise de lesões orofaciais registradas no Instituto Médico-Legal de São Luís (MA), no período de 2011–2013. *Revista Brasileira de Odontologia Legal*, 21–31.
- Castro, R., Cerellino, L., & Rivera, R. (2017). Risk factors of violence against women in Peru. *Journal of Family Violence*, 32(8), 807–815.
- Castro, T., et al. (2017). Violence against women: Characteristics of head and neck injuries. *RGO – Revista Gaúcha de Odontologia*, 65(2), 100–108.
- Cavalcante, G., et al. (2020). Facial injuries and the gender issue: Expressions of violence in a metropolitan region of northeastern Brazil. *Brazilian Dental Journal*, 31(5), 548–556.
- Contreras, I., Vilardy, E., & Rodríguez, M. (2019). Prevalence of maxillofacial injuries in women who have experienced physical violence reported at a House of Justice in the metropolitan area of Bucaramanga (Colombia). *Revista Facultad de Odontología*, 31(1–2), 102–111.
- Cruz, S., Espíndula, D., & Trindade, Z. (2017). Violência de gênero e seus autores: Representações dos profissionais de saúde. *Psico-USF*, 22(3), 555–567.
- Felix, R., et al. (2020). Perfil das lesões maxilofaciais em mulheres vítimas de violência periciadas em uma cidade do estado da Paraíba. *Revista Brasileira de Odontologia Legal*, 7(3), 12–22.
- Figueiredo, T., et al. (2020). Violência intrafamiliar e comunitária contra mulheres: Um problema de saúde pública. *Revista Interdisciplinar em Saúde*, 7(1), 1215–1229.
- Garcez, R., et al. (2019). Caracterização de lesões bucomaxilofaciais decorrentes de agressão física: Diferenças entre gênero. *Ciência & Saúde Coletiva*, 24(3), 1143–1152.
- Garcia, L. (2016). A magnitude invisível da violência contra a mulher. *Epidemiologia e Serviços de Saúde*, 25(3), 451–454.
- Lírio, J., et al. (2019). Elements which precipitate conjugal violence: The discourse of men in criminal prosecution. *Revista da Escola de Enfermagem da USP*, 53, 28–36.
- Moroskoski, M., et al. (2021). Aumento da violência física contra a mulher perpetrada pelo parceiro íntimo: Uma análise de tendência. *Ciência & Saúde Coletiva*, 26(3), 4993–5002.

- Nunes, J., et al. (2023). Lesões bucomaxilofaciais decorrentes de violência doméstica contra mulheres: Uma revisão integrativa. *Revista Brasileira de Odontologia Legal*, 9(3), 105–114.
- Oliveira, M., et al. (2019). Análise temporal das agressões físicas contra a mulher sob a perspectiva da odontologia legal na cidade de Fortaleza, Ceará. *Revista Brasileira de Odontologia Legal*, 2–14.
- Rodrigues, L., et al. (2019). Trends of maxillofacial injuries resulting from physical violence in Brazil. *Dental Traumatology*, 36(1), 69–75.
- Sá, C., et al. (2020). Maxillofacial and dental-related injuries from a Brazilian forensic science institute: Victims and perpetrators characteristics and associated risk factors. *Journal of Clinical and Experimental Dentistry*, 736–744.
- Santos, V., et al. (2021). Violência doméstica no Nordeste: Uma análise dos dados do sistema de informação de agravos e notificação (SINAN) entre 2009 e 2018. *Research, Society and Development*, 10(13), 5–13.
- Soares, E., et al. (2018). Análise pericial das lesões situadas em cabeça e pescoço de mulheres vítimas de violência doméstica atendidas em um instituto médico legal de Maceió – AL. *Revista Brasileira de Odontologia Legal*, 12–22.
- Stöckl, H., & Sorenson, S. (2024). Violence against women as a global public health issue. *Annual Review of Public Health*, 45(1), 277–294.