

Frequency of symptoms of temporomandibular dysfunction in homeless people: cross-sectional study

Frequência de sintomas de disfunção temporomandibular em pessoas em situação de rua: estudo transversal

Thiago Bezerra Leite¹, Lidia Audrey Rocha Valadas², Luciane Franco Lacerda Rocha Rodrigues¹, Antônio Sérgio Guimarães¹

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ABSTRACT

BACKGROUND AND OBJECTIVES: Homeless people live a reality of social vulnerability, poverty and exclusion and are considerably more affected by long-term pain (chronic pain) than the general population. The objective of this study was to evaluate the presence of symptoms of temporomandibular disorder (TMD) in homeless people who attended a reception center for this population (POP Center) in the city of Juazeiro do Norte-CE.

METHODS: This is an observational, cross-sectional, descriptive-exploratory study, with a quantitative approach and a convenience sample. For this, the TMD-Pain Screener was applied to measure TMD frequency in 100 individuals who were divided into two groups, group 1 (G1, n=50) composed of residents who were assisted by the center and group 2 (G2, n=50) individuals who worked in the center. The TMD Pain Screener instrument was used and the data were paired according to gender and age group. The Qui-square test was applied to verify associations between the variables, considering a level of significance of 5% ($p \leq 0.05$).

RESULTS: It was observed that homeless people had fewer TMD symptoms than the control group and this difference was

statistically significant ($p=0,045$). The symptom of pain in the lateral region of the head was the most commonly found, being reported by 20% of the homeless population and by 48% of the control group 48% ($p=0.03$).

CONCLUSION: The homeless population presented TMD symptoms, which should be taken into account by the health authorities, however, in a smaller proportion than the control group, requiring further studies to identify these differences.

Keywords: Facial pain, Homeless persons, Temporomandibular joint disorders.

RESUMO

JUSTIFICATIVA E OBJETIVOS: As pessoas em situação de rua vivem uma realidade de vulnerabilidade social, pobreza e exclusão e são consideravelmente mais afetadas pela dor de longa duração (dor crônica) do que a população em geral. O objetivo deste estudo foi avaliar a presença de sintomas de disfunção temporomandibular (DTM) em moradores de rua que frequentam o centro especializado de assistência à população de rua (Centro POP) da cidade de Juazeiro do Norte-CE.

MÉTODOS: Este é um estudo observacional do tipo transversal, descritivo-exploratório, com abordagem quantitativa e amostra por conveniência. Para isso, foi aplicado o *TMD-Pain Screener* para medir a frequência de DTM em 100 indivíduos que foram divididos em dois grupos, grupo 1 (G1, n=50) composto de residentes que foram assistidos pelo centro e grupo 2 (G2, n=50) indivíduos que trabalhavam no mesmo local. O instrumento *TMD Pain Screener* foi utilizado e os dados foram emparelhados de acordo com o sexo e a faixa etária. O teste Qui-quadrado foi aplicado para verificar associações entre as variáveis, considerando um nível de significância de 5% ($p \leq 0.05$).

RESULTADOS: Foi observado que as pessoas em situação de rua apresentaram menos sintomas de DTM do que o grupo controle ($p=0,045$). O sintoma de dor na região lateral da cabeça foi o mais relatado, sendo reportado por 20% da população em situação de rua e por 48% dos indivíduos do grupo controle 48% ($p=0,03$).

CONCLUSÃO: A população em situação de rua apresenta sintomas de DTM, o que deve ser levado em consideração pelas autoridades sanitárias, contudo, em menor proporção do que a população em geral, sendo necessários mais estudos para a elucidação dessa desproporcionalidade.

Descritores: Dor facial, Pessoas em situação de rua, Síndrome da disfunção temporomandibular.

Lidia Audrey Rocha Valadas – <https://orcid.org/0000-0002-3568-3089>;
Luciane Franco Lacerda Rocha Rodrigues – <https://orcid.org/0000-0001-5913-0713>;
Thiago Bezerra Leite – <https://orcid.org/0000-0002-1915-1410>;
Antônio Sérgio Guimarães – <https://orcid.org/0000-0003-1756-8957>.

1. São Leopoldo Mandic College, Laboratory of Neuroimmune Interface of Pain, Campinas, SP, Brazil.

2. University of Buenos Aires, Department of Preventive and Community Dentistry, Buenos Aires, Argentina.

HIGHLIGHTS

- Homeless report fewer symptoms of TMD.
- Pain in the temples was the most reported symptom.

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Correspondence to:

Lidia Audrey Rocha Valadas

E-mail: lidiavaladas@gmail.com

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INTRODUCTION

Homeless people live a reality of social vulnerability, poverty and exclusion, resulting from various political, economic, social and cultural factors. The problems that lead to homelessness are multidimensional and complex, thus their health is directly conditioned to social determinants^{1,2}.

This population commonly present extensive health problems, mainly due to the extreme conditions generated by living in precarious situations²⁻⁷.

Despite the scarcity of studies, it is reported that homeless people are considerably more affected by long-term pain (chronic pain) than the general population^{1,5}. Several diseases are found in this population, regardless of age, the main ones being arterial hypertension, arthritis, musculoskeletal disorders and chronic respiratory diseases. In this population, the seniors have a higher prevalence of chronic pain^{3,6,7}.

In the context of orofacial pain, temporomandibular disorder (TMD) is a complex condition resulting from an interaction of multiple causes that may be influenced by genetic and environmental factors. Over the years, it has a direct influence on symptoms and, linked to this, risk factors that exert influence before TMD manifests itself, providing a fluctuating characteristic as the condition develops. Moreover, it develops at a disproportionately high rate in people with other associated health problems, whether comorbidities, another pain condition, smoking, or poor sleep quality^{8,9}.

It is known that global psychological symptoms, somatic symptoms, stress and affective distress emerge as risk factors that present consistent evidence of their relevance to the incidence of TMD. However, further studies should be carried out to check whether these factors interact with other variables to increase the risk of onset and persistence of TMD¹⁰.

Studies related to the health of people living on the streets are scarce, especially to the theme proposed by this study; this reflects the lack of assistance services and data to enable the development of care policies. These people live in a constant risk situation and studies such as this one can lead to the identification of possible health aggravations that demand attention from the health authorities. Thus, the objective of this study was to evaluate the presence of symptoms related to temporomandibular disorders in homeless people in order to contribute to the production of more epidemiological data about this population.

METHODS

This research is an observational, quantitative, descriptive-exploratory, cross-sectional study, with a quantitative approach and a convenience sample, which has followed Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) recommendations. The sample included: homeless people registered at the POP Center, sleeping on the street or in shelters, who signed the Free and Informed Consent Term (FICT) and were over 18 years of age. People with cognitive problems or not being able to answer the questions were excluded.

Data collection from homeless people (G1) was performed at the Specialized Center for Homeless People (*Centro de Referência Especializado para População em Situação de Rua - POP Center*), located in the city of Juazeiro do Norte, Ceará, Brazil. Data collection from the control group (G2), representative of the general population, took place with people who work at the place of collection.

Ethical aspects

This study was carried out following ethical aspects, respecting the principles of beneficence, non-maleficence, autonomy, and justice. It was approved by the Ethics and Research Committee (*Comitê de Ética e Pesquisa - CEP*) of the São Leopoldo Mandic College (*Faculdade São Leopoldo Mandic*) under Opinion number: 4.600.688. Questionnaires were applied in a reserved environment, aiming to guarantee the preservation of the identity and the information provided. Participants had ample autonomy to withdraw at any time during the collection.

Research and data collection instrument

The authorization request was delivered in duplicate to the POP Center, in Juazeiro do Norte, together with a copy of the research project. The application of the questionnaire for people living on the streets was on the premises of the POP Center, at the times authorized by the responsible body and conditioned to the signature of the informed consent or fingerprint by the participants. The questionnaire was applied verbally in an objective way by the researcher and the answers also were recorded by the researcher. Questionnaires applied were Demographic Data and TMD Pain Screener to verify TMD symptoms present in Axis I of the Research Diagnosis for Temporomandibular Disorders (DC/TMD)¹¹ and the data collected as health information.

Participants who answered the questionnaire and who had TMD symptoms received a referral to be assisted at the dental specialty center of the municipal public network.

Statistical analysis

From the collected data, a database was created in the JAMOVI software, from which descriptive statistics were performed, presenting the results in the form of a table and Chi-square test was performed to verify associations between the variables, considering a level of significance of 5% ($p < 0.05$).

RESULTS

The sample consisted of 100 participants, 50 homeless people and 50 people from the general population. Of these, 42 were male (84%) and 8 (16%) were female in both groups, respecting age, gender and number pairing (Table 1).

Regarding the TMD symptoms reported by the sample, the results presented in table 2 show that 44.0% of the homeless women have already felt at least one TMD symptom, and in the control group 56.0% reported symptoms, presenting a statistically significant result ($p = 0.045$).

In table 3, when comparing each symptom between the groups, only the symptom of pain on the side of the head, corresponding

to the fifth part of the questionnaire (Q5), showed a statistically significant difference (p=0,03), indicating that homeless people reported less symptom of pain on the side of the head (20%) that the control group (48%).

The symptoms most reported by homeless people were pain in the jaw (mouth), temple, in the ear or in front of the ear on both sides (Q1), with 28%; and joint noise during mouth movement

in the last 30 days (Q8), with 28%. The least reported symptom was open mouth locking (Q13), with no report. In the control group, the most frequent symptom was headache including the temple region (Q5), with 48%; and the least reported was also open mouth locking (Q13), with 1% (Table 3).

There was no statistical difference between homeless people and control group by age, as shown in table 4. Symptoms in both

Table 1. Profile of the study sample.

Variable	Category	Homeless people		Control group	
		n	%	n	%
Gender	Male	42	84.0	42	84.0
	Female	8	16.0	8	16.0

Table 2. Total number and percentage of symptoms in the homeless and control group.

	Homeless people		Control group		Total	x ²	p-value	
	n	%	n	%				
No symptoms	28	56.0	18	36.0	46	46.0	4.026	0.045
At least one symptom	22	44.0	32	64.0	54	54.0		

Data in absolute values (n) and percentage (%); Chi-square test. Statistically significant p≤0.05.

Table 3. Number and percentage of responses per question.

Questions	R	Homeless people		Control group		Total		X ²	p-value
		n	%	n	%	n	%		
Q1- have you ever felt pain in your jaw (mouth), temple, ear or front of heard on either side?	Yes	14	28	19	38	33	33.0	1.131	0.288
	No	36	72.0	31	62.0	67	67.0		
Q5- in the past 30 days, have you had any headaches that included the areas of temples of your head?	Yes	10	20,0	24	48,0	34	34.0	8.734	0.003
	No	40	80,0	26	52.0	66	66.0		
Q8- In the past 30 days, have you heard any sounds or noises in your joint when moving or using your jaw (mouth)?	Yes	14	28.0	11	22.0	25	35.0	0.48	0.488
	No	36	72.0	39	78.0	75	75.0		
Q9- has your jaw (mouth) ever locked or hesitated, even for a moment? So you couldn't open ALL the way.	Yes	9	18.0	6	12.0	15	15.0	0.706	0.4021
	No	41	82.0	44	88.0	85	85.0		
Q13- in the last 30 days, when you opened your mouth a lot, did it freeze or hesitated even for a moment, so that you couldn't close it from this wide open position?	Yes	0	0.0	1	2.0	1	1.0	1.01	.315*
	No	50	100.0	49	98.0	99	99.0		

Q = DC/TMD questions; R = the answer to DC/TMD questions; Data in absolute values (n) and percentages (%); Chi-square Test; *Fisher's Exact test. Statistically significant p≤0.05.

Table 4. Symptoms by age in both homeless and control groups.

Groups	Age (years)	No symptoms		At least 1 symptom	
		n	%	n	%
Homeless people	20	0	0.0	1	4.5
	30	9	32.1	9	40.9
	40	14	50.0	12	54.5
	50	4	14.3	0	0.0
	60	1	3.6	0	0.0
Control group	20	0	0.0	1	3.1
	30	6	33.3	12	37.5
	40	8	44.4	18	56.3
	50	3	16.7	1	3.1
	60	1	5.6	0	0.0
Total	20	0	0.0	2	3.7
	30	15	32.6	21	38.9
	40	22	47.8	30	55.6
	50	7	15.2	1	1.9
	60	2	4.3	0	0.0

Data expressed in absolute values (n) and percentages (%).

Table 5. Symptoms compared by gender in the groups homeless and control.

Groups	Gender	No symptoms		At least 1 symptom		x ²	p-value
		n	%	n	%		
Homeless people	Male	26	92.9	16	72.7	3.714*	0.054
	Female	2	7.1	6	27.3		
Control group	Male	17	94.4	25	78.1	2.283*	0.131
	Female	1	5.6	7	21.9		
Total	Male	43	93.5	41	75.9	-	-
	Female	3	6.5	13	24.1		

Data expressed in absolute values (n) and percentages (%); Chi-square test; *Fisher's exact test. Statistically significant p≤0.05.

groups were concentrated in the age group from 30 (38%) to 40 years-old (55.6%). In the group of homeless people, the age group of 40 years-old had the highest number of symptoms (50%), as well as in the control group (44.4%).

Table 5 shows that there was no significant difference when the participants' gender within the homeless group (p=0.054) as well as in the control group (p=0.131) were compared.

DISCUSSION

This study evaluated the presence of TMD symptoms in homeless people and compared them with the general population. The scarcity of studies related to the topic draws attention to how the homeless population experiences invisibility in the eyes of society and the importance of public health services reaching the most vulnerable populations, in addition to discussing the risk factors for people's illness and emphasizing the importance of further studies.

In Brazil, there is just one study in dentistry involving homeless people, pointing out that poor oral health conditions are frequent¹², however orofacial pain related to TMD has not been included in the research. As far as it is known, studies on the prevalence of TMD in homeless people are non-existent and the general health situation of this population is poorly studied, especially in Brazil. However, in the available literature on pain, it is reported that they have more chronic pain than the general population and attribute this to the risk factors that this population presents, such as: poor sleep quality, use of drugs, alcohol, medication without prescription and compromised general health^{1,13-15}.

An important correlation between TMD and general health can be noted, showing that people who have global symptoms of pain, compromised general health, poor sleep quality, poorer quality of life or other pain conditions are more likely to develop TMD^{9,16-19}.

The present study observed that homeless people have fewer TMD symptoms than the general population, although some studies^{1,13,14} report more chronic pain in the homeless population, and that, according to some researches^{9,16-21}, the presence of a painful condition is a comorbidity frequently associated with TMD.

A single study reported that 29% of homeless people experience a headache¹³, although this comparison is premature due to the difference in methodology, in the present study, 20% of home-

less people reported pain in the region of temples in the last 30 days, this being the only symptom that promoted a significant difference (p=0.03) with the control group (48%).

As for gender, a study can be cited²² in which 90,7% of homeless people was men. This proportion was also equivalent in the present study, in which 84% of respondents were men. Although in the general population the number of TMD symptoms is higher in women than in men^{9,10,16}, this can be justified because the majority of homeless people belong to the male gender.

It is a fact that TMD is a decreasing health problem based on age, as the vast majority of people affected are concentrated in the age group of 20 to 40-year old²¹⁻²⁴. In the present study, symptoms in homeless people showed a higher prevalence in the age group of 40-years old, coinciding with the control group, which indicates that there was no statistical difference between the groups.

The need to implement public policies that include dental care for homeless people is pointed out and emphasized in studies^{7,25,26}. In this context, as the present study observed the report of TMD symptoms in this population (44%), it is possible to reinforce the need to include the TMD and Orofacial Pain specialty in the procedures offered to this population.

Psychological problems and depression are cited as possible risk factors for the emergence of TMD^{8,10,27}, and these health problems are more frequent in the homeless population²⁵. Although the present study did not assess the factors mentioned, it was expected that the number of symptoms would accompany the group at greater risk, which did not happen.

The adaptive capacity to painful conditions is reported as an influencing factor in the remission of symptoms and overcoming the painful condition of TMD²⁸. This resilience is reported in the homeless population and related to the general health condition, reporting that the higher the degree of resilience, the better the quality of life of these people²⁹⁻³¹. Pain catastrophizing, that is, how people think negatively about the problems present in their lives, influences the perception of symptoms and the evolution of the painful condition^{33,34}. Although there are no studies in the literature, to date, evaluating catastrophizing and TMD in homeless people, this is another point to be explored.

Further conclusions are contained in the limitations of this work, which is a preliminary analysis of a sample. As it is a cross-sectional study, it does not allow the assessment of cause and effect, but it allows inferring that there was a relationship between the groups studied regarding the presence of TMD symptoms, suggesting that further studies are needed.

CONCLUSION

Homeless people in the present study presented TMD symptoms, in which the most frequent symptom was pain in the temporal region in the last 30 days. Symptoms were less frequent in homeless people than in the general population, with no difference between gender and age group.

AUTHORS' CONTRIBUTIONS

Thiago Bezerra Leite

Data Collection, Conceptualization, Research, Writing - Preparation of the Original

Lidia Audrey Rocha Valadas

Conceptualization, Writing - Review and Editing, Validation

Luciane Rodrigues

Writing - Review and Editing, Validation

Antônio Sérgio Guimarães

Writing - Review and Editing, Visualization

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