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ORIGINAL ARTICLE

Self-Declared Oral Health Conditions and Oral Health-Related Quality of Life of the Brazilian Homeless Population: A Cross-Sectional Study

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ABSTRACT

Objective: To associate the impact of oral health-related quality of life with socio-demographic determinants, self-perception, oral health conditions and access to dental treatment among homeless adults. **Material and Methods:** A cross-sectional study was carried out in a medium-sized Brazilian city in Minas Gerais. Socio-demographic data on the use of dental services and access to hygiene supplies for oral health were collected. Clinical aspects were collected by clinical observation using the Community Oral Health Indicator and oral health-related quality of life using the Oral Health Impact Profile (OHIP-14). Medians and interquartile distance were compared using the Mann-Whitney and Kruskal-Wallis tests. Multiple linear regression included significant variables ($p<0.05$) of the bivariate analysis according to each OHIP-14 domain. **Results:** Women had the lowest scores for the physical and social disability domains. Oral health conditions were associated with physical and psychological limitations and disability. The presence of more teeth was associated with a negative impact on the functional and physical domains, and inflamed gums, lack of need for dental prosthesis, and use of private services were associated with a greater psychological disability. **Conclusion:** Oral health-related quality of life of the homeless population is affected, especially in the physical and psychological aspects. Equitable and inclusive health actions aimed at this population should include oral health.

Keywords: Homeless Persons; Quality of Life; Oral Health.

Introduction

It is estimated that the number of people living on the streets in Brazil is at least 101,854 people [1]. Composed of a heterogeneous population group, they share peculiar characteristics such as extreme poverty, interruption of family ties, and lack of regular conventional housing. Consequently, the homeless population (HP) uses overnight shelter units, public places, and degraded areas as housing and subsistence spaces, temporarily or permanently [2-4].

The international literature presents few studies assessing the oral health of the homeless population. However, a few Brazilian studies have highlighted the high prevalence of self-reported morbidity and its negative impact [5,6].

The Handbook on Health Care for the Homeless Population is a political mechanism created to implement actions and guide health professionals to expand the access of HP to health services. In the handbook, the Brazilian Ministry of Health emphasizes that oral health is among the health priorities of this population [7]. However, organizational barriers in the Brazilian health system show the lack of social guarantees for this segment of the population [5].

This population group, whether for social or political reasons, has grown worldwide; however, studies on health, particularly oral health, are infrequent, especially in Brazil. Their health conditions should be of interest not only to researchers but also to managers, aiming to organize services to achieve these demands.

This study aimed to associate the oral health-related quality of life with socio-demographic characteristics, self-perception, oral health conditions, and access to dental treatment for the HP living in Juiz de Fora, state of Minas Gerais.

Material and Methods

Design and Setting

This cross-sectional study was carried out in four municipal public institutions that temporarily shelter homeless people in the municipality of Juiz de Fora, state of Minas Gerais, a city located in the Southeastern region of Brazil, which is the region of the greatest economic development. The estimated population of the city for the year 2019 is 568,873 inhabitants. In 2010, the city registered a Municipal Human Development Index (MHDI) of 0.778. The population covered by Primary Care (PC) teams was 70%, and Oral Health (OH) teams covered 23.15% of the population in 2015 [8]. The survey carried out in 2010 by the local Secretariat of Social Assistance (SSA) recorded 708 homeless people [9]. The present study was carried out by census from September to December 2019.

Participants

All users of the services offered by the four public institutions in the city were contacted. Inclusion criteria considered adults aged 18-65 years living on the streets in the municipality of Juiz de Fora (MG), assisted by public services intended for this population, who expressed interest in participating in the research by signing the Free and Informed Consent Form (FICF). Individuals described by health and social service professionals of these institutions as not having cognitive and psychological conditions to answer the proposed questionnaires were excluded.

Variables and Bias Control

Data were collected at institutions by the principal author (KCP) and characterized participants regarding socio-demographic factors: self-reported skin color (according to the classification proposed by the Brazilian Institute of Geography and Statistics - IBGE), age (full years), employment situation (according to Borin [10]), and schooling (complete years). Self-perceived oral health was assessed using the question: "With respect to your teeth and mouth, you are ...?", with five answer options in the Likert scale. Access to dental services was analyzed by a visit to the dentist at least once in life, frequency of visits, type of service, and reason for the last appointment. Clinical aspects were recorded based on the Community Oral Health Indicator (COHI) validated for Brazil [11].

The dependent variable of the study, the short version of Oral Health Impact Profile (OHIP-14), measured the impact of oral health-related quality of life, which was validated for the Brazilian context [12]. The descriptive analysis of OHIP-14, for each dimension, had its answers dichotomized: with impact for answers "often" and "always" and no impact for answers "sometimes", "rarely", and "never".

Statistical Analysis

Data description used measures of frequency and central tendency. OHIP-14 domains were analyzed for normality using the Kolmogorov-Smirnov test, and their non-parametric distribution was verified. In order to associate socio-demographic and oral health conditions (self-perception, COHI, and access to dental service) with the impact of oral health on HP quality of life, medians and interquartile distance were compared using Mann-Whitney and Kruskal-Wallis tests. Multiple linear regression obtained significant variables ($p<0.05$) from the bivariate analysis of OHIP-14 domains. The multicollinearity between the variables was evaluated by the Variance Inflation Factor (VIF) and the independence of the stochastic perturbation term by the Durbin-Watson test. The parameter β was estimated using the Ordinary Least Squares Method and it expresses the change in the expected value of the dependent variable with the change in the status of the independent variable. The coefficient of determination (r^2) was also estimated. This measure estimates the proportion of variability in the dependent variable that is explained by the independent variables of the regression model. The database was created using the Excel software, and Analyses were conducted using the SPSS 14.0 software. The statistical significance level considered in the study was 5%.

Ethical Considerations

The study was approved by the local Ethics Committee according to protocol No. 3416530.

Results

Table 1 shows that the mean age of the 251 homeless people evaluated was 43.7 years (± 12 years), and 51% were born in Juiz de Fora.

Table 1. Socio-demographic characteristics, homeless population.

Variables	N	%
Sex		
Male	201	80.1
Female	50	19.9
Age		
≤ 43 Years	128	51.0
> 43 Years	123	49.0
Sexual Orientation		

Heterosexual	235	93.6
Homosexual	7	2.8
Bisexual	8	3.2
Asexual	1	0.4
Race		
White	49	19.5
Black	93	37.1
Brown	108	43.0
Indigenous	1	0.4
Occupation		
Unemployed	147	58.6
Retired	18	7.2
Employed, without Labor Law Rights	78	31.1
Employed, with Labor Law Rights	8	3.2
Education		
Illiterate (No Schooling)	26	10.4
Incomplete Elementary School (up to 4 years)	141	56.2
Completed Elementary School (up to 8 years)	25	10.0
Incomplete High School (up to 10 years)	31	12.4
Complete High School (up to 13 years)	21	8.4
Incomplete College Education	4	1.6
Completed College Education	3	1.2
Living on the street		
Occasionally	59	23.5
Permanently	192	76.5
Children		
Yes	159	63.3
No	92	36.7
Birthplace		
Juiz de Fora	128	51.0
Another City in Minas Gerais	65	25.9
Another State in Brazil	57	22.7
Another Country	1	0.4

Table 2 shows the oral health characteristics. Access to the dentist predominantly occurs through public service. The most impacted OHIP-14 dimensions were psychological discomfort (90.6) and physical disability (74.5). In the bivariate analysis, some socio-demographic variables were associated with a greater impact on the OHIP-14 domains. Older individuals had more impact in the functional limitation and physical disability domains. Women presented more impact in physical and social disability domains. In the physical pain domain, retirees and those with some form of formal employment had a positive impact, as well as shorter time living on the streets on the physical disability domain. Regarding variables related to oral health, having more teeth and consequently not needing dental prosthesis was associated with a negative impact on functional limitation and physical disability domains. Physical disability was also influenced by more carious lesions and the presence of tartar. Having poor self-oral health perception and not having a toothbrush influenced the social disability domain.

Table 2. Characteristics related to oral health, homeless population.

Variables	N	%
Self-Perceived Oral Health		
Very Satisfied	2	0.8
Satisfied	14	5.6
Neither Satisfied nor Dissatisfied	13	5.2

Dissatisfied	169	67.3
Very Dissatisfied	53	21.1
Number of Teeth		
0	32	12.7
1-9	26	10.4
10-19	56	22.3
20-26	45	17.9
27-32	92	36.7
Carious Lesions[1]		
Absent	51	23.3
1-2	73	33.3
≥ 3	95	43.4
Dental Calculus		
Yes	165	65.7
No	86	34.3
Residual Root		
Yes	135	53.8
No	116	46.2
Inflamed Gums		
Yes	177	70.5
No	74	29.5
Soft Tissue Damage		
Yes	15	6.0
No	236	94.0
Has Prosthesis		
No	223	88.8
Dentures	16	6.4
Partial Prosthesis	12	4.8
Needs Prosthesis		
No	74	29.5
Dentures	42	16.7
Partial Prosthesis	114	45.4
Has Toothbrush		
Yes	164	65.3
No	87	34.7
Uses Toothpaste		
Yes	162	64.5
No	89	35.5
Has Seen a Dentist at Least Once in Their Life		
Yes	246	98.0
No	5	2.0
Reason for Last Visit[2]		
Emergency	110	44.7
Other	136	55.3
Type of Service Used[2]		
Public	168	68.3
Private	41	16.7
Philanthropic	37	15.0

[1]Toothless excluded; [2]Respondents never went to the dentist.

Regression analysis (Table 3) presents the domains that were associated with any of the explanatory variables analyzed. It maintained the worst impact in the final model for physical disability and social disability domains, being female, and for the latter domain, also the worst oral health self-perception. The presence of more teeth was associated with physical limitation and physical disability domains, and the presence of inflamed gums and lack of need for a dental prosthesis with the worst perception of the psychological disability domain. The use of private services was associated with a negative impact on the psychological discomfort domain, as well as being female.

Table 3. Multiple linear regression model: predictors of the Oral Health Impact Profile of the homeless population.

Variables	Functional Limitation (1)			Psychological Discomfort (3)			Physical Disability (4)			Psychological Disability (5)			Social Disability (6)		
Adjusted r^2	0.35			0.20			0.10			0.32			0.31		
	β	95% CI	p-value	β	95% CI	p-value	β	95% CI	p-value	β	95% CI	p-value	β	95% CI	p-value
Sex (Female)							-0.188	-0.321; 0.050	0.008				-0.21	-0.335; -0.078	
Self-perceived oral health (dissatisfied)													-0.11	-0.180; 0.043	0.002
Number of teeth (<teeth)	0.06	0.023; 0.104	0.002				0.06	0.007; 0.105	0.025						
Presence of dental calculus							-0.14	-0.254; -0.100	0.022						
Inflamed gums (absence)										0.15	0.013; 0.298	0.033			
Needs prosthesis (absence)										-0.05	-0.070; -0.025	<0.001			
Type of service used (public)				0.05	0.003; 0.101	0.038									

Discussion

The sample of this study was mostly composed of young adults, coinciding with data from the national census carried out by the Ministry of Health [13] and with previous studies carried out in Goiás [5] and in Australia [14], which assessed the oral health of homeless people. In addition, the female gender variable influenced the impact of physical and social disability domains. For example, the growing presence of women living on the streets strengthens discussions about the concept of oral health related to gender, showing that women are concerned with caring for hygiene, self-esteem, and appearance [15].

The result obtained in our sample of 43.4% of individuals with more than three cavities reveals untreated oral conditions and is consistent with the time living on the streets. In this situation, survival issues have a higher priority in relation to oral health [14,15]. This situation is coincident with the time since the last dental appointment. Despite the implementation of a free, universal oral health service, it proves to be limited, given the HP complexities [16]. The dynamics of the lives of these people with fragmented social relationships require the government's efforts to overcome this reality of the Unified Health System (SUS) [17].

The national policy for the care of HP proposed the creation of Homeless Health Clinic (HHC) teams that would propose actions built from the particularities of each subject and thereby capture the health needs of the population interconnected in a care network. However, unprepared professionals generate a risk of traumatic, dominating and disjointed actions by the subjects, with consequences in the low access to care for this group [18].

The way they perceive health, according to the resolution of their immediate needs, without bureaucratic barriers, expresses their desire for health care, taking into account their singularities and offering social support [19]. This constitutes a challenge for the public health field that, when considering homeless people as the subject, bringing them to the center of care, giving them opportunities to be heard and not as passive agents, points to the construction of health practices aimed at alleviating the needs of socially vulnerable groups [17].

Shelter institutions have been an important public social apparatus to reduce the trauma of experiences that these people have lived in relation to their reception by health professionals [20]. Shelters become important tools in relation to care since they supply their basic needs for safety, food, and hygiene [19].

Borysow et al. [21] highlight intersectoriality and the need for continuing education of professionals regarding the specificities of this group, which has also been observed in other studies [22-25]. Research has been carried out to assess the impacts of oral health on the well-being of people living on the streets. Studies carried out in Canada, Australia, the USA, and Hong Kong suggests strong evidence that oral disorders have marked effects on the daily lives of these people, with reflections in the psychological, functional, and social fields [14,26-28]. This corroborates our results, in which 36.7% of participants had 27-32 teeth but high rates of periodontal lesions (dental calculus) and need for partial dentures, factors that generate physical disability and pain.

The fact that the sample had a higher prevalence of present teeth was significant but differed from the study by Figueiredo et al. [28], in Canada, and Lawder et al. [5], in Goiás, Brazil, in which tooth loss and lack of prosthetic rehabilitation compromised appearance and quality of life. However, this study obtained results similar to research carried out by Ford et al. [14] with HP in Australia, where the presence of teeth was more prevalent and there were greater impacts of oral lesions on people's daily lives, and by Luo and McGrath [29], in Hong Kong, who observed high prevalence of periodontal diseases (96%).

There are many obstacles for this population to achieve satisfactory oral health, including the way in which professionals perceive their needs, relating them exclusively to external determinants, while, in fact, there are social and historical processes associated with this group [19,30]. In addition to this reality, the stigmatization of the characteristics presented by some subjects living in the streets, such as dirt and bad smell, make the service unfriendly and unhumanized [24]. Such professional conduct triggers a series of difficulties in access to care and self-care, resulting in psychological discomfort.

Reflections in the psychological field predominate in women who, according to Silveira and Stanke [15], in a previous study, describe female inhibition in relation to their precarious oral condition and expect the dentist to pay attention and not make them feel worse than they already are. There was remarkable anxiety about having a tooth unnecessarily extracted, further damaging appearance. This explanation takes us back to the assistance model, for this group of individuals, still focused on a mutilation-based model [15]. This study revealed that psychological discomfort is present not only in the figure of the professional but also in fear of the drill.

The fact that they live on the streets does not diminish the value placed on aesthetics in the social sphere, with anterior teeth being important for smiling and for human dignity [15]. The reality revealed by the group is that it finds it difficult to maintain self-care and exposes the consequences of lack of hygiene, despite what has been described about access to toothbrushes and oral hygiene supplies. It is suggested that despite access to preventive supplies, this group has no motivation to exercise self-care [31], and the oral health network does not take responsibility for the care of this group [22]. Previous studies that sought to describe the conditions and representations of oral health among homeless people pointed out limitations regarding hygiene, such as access to supplies, indicating the need for brushing assisted by a dentist [15].

The inclusion of the oral health team in the HHC team is one of the strategies described by the Ministry of Health to expand access to oral health [7]. Such inclusion, in addition to adding qualified listening to the team, would articulate access to health promotion actions, with supervised tooth brushing, which would contribute to the implementation of comprehensive care for HP and to the recovery of their self-esteem and self-care [22].

A limiting factor of this study is the fact that it was carried out only with people assisted by shelter institutions. These institutions can, eventually, promote better health conditions to them, providing less

serious health situation than those who cannot even manage access to these units. Another limitation was not including clinical examination, but, on the other hand, the option to use COHI shows the potential of this instrument for data collection in adverse situations.

Conclusion

The socially vulnerable people living on the streets have many oral problems linked to lack of hygiene, which has an oral health-related quality of life, especially in the social disability, psychological discomfort, and psychological disability dimensions. Clinical aspects referring to poor functionality were associated with repercussions in the physical and psychological domains. The inclusion of oral health professionals in the care of this population will help minimize the damage caused by social exclusion.

Authors' Contributions

KCP	https://orcid.org/0000-0001-9339-064X	Conceptualization, Methodology, Formal Analysis, Investigation, Writing - Original Draft and Writing - Review and Editing.
LSL	https://orcid.org/0000-0002-7744-9426	Formal Analysis, Data Curation and Writing - Review and Editing.
ICGL	https://orcid.org/0000-0003-1258-7331	Conceptualization, Methodology, Formal Analysis, Investigation, Data Curation, Writing - Original Draft, Writing - Review and Editing, Supervision and Project Administration.

All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.

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None.

Conflict of Interest

The authors declare no conflicts of interest.

Data Availability

The data used to support the findings of this study can be made available upon request to the corresponding author.

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