

PREVALENCE AND SELF-AWARENESS OF INFLAMMATION INDICATORS SUGGESTIVE OF PERIODONTAL DISEASE IN MILITARY PERSONNEL

PREVALÊNCIA E AUTOCONHECIMENTO DE INDICADORES DE INFLAMAÇÃO SUGESTIVOS DE DOENÇA PERIODONTAL EM MILITARES

Ana Paula Porto Amorim Machado^{1,2}, André Ricardo Araújo da Silva³, Licínio Esmeraldo da Silva³

ABSTRACT

The objective of this study was to identify the prevalence and self-recognition for indicators of inflammation suggestive of periodontal disease in military personnel of both genders. The military personnel was recruited to conduct a dental census for the entire population of the Admiral Wandenkolk Training Center of the Brazilian Navy, totaling 409 volunteers. Two groups were formed for further analysis: Group 1- containing exclusively women and Group 2- containing exclusively men. A total of 409 clinical examinations were performed and the questionnaires were analyzed. The results showed that, regarding the military participants, 40.1% were female and 59.9% were male; 87% used dental floss, of which 56% used it daily; 77% brushed three times a day or more; 74.3% reported that they visited the dentist regularly, and the proportion of women who regularly visited the dentist significantly exceeded the proportion of men who did (C.I. 95%; $p < 0.001$); 61.6% said they knew about periodontal disease. The professional evaluation verified the presence of inflammation indicators suggestive of periodontal disease in 45.2% of the participants, of which 37% were female and 63% were male, with no statistical difference between genders (95% CI, $p = 0.2248$). The prevalence of inflammation indicators suggestive of periodontal disease was 45.2%; the self-knowledge of the military about the periodontal disease was low, only 19%; thus a statistical difference was found between the knowledge of females and males; and it was observed that most participants were within the correct frequency for return visits to the dentist.

Keywords: Periodontal disease. Patient Screening. Periodicity. Oral Hygiene. Military Health.

RESUMO

O objetivo deste estudo foi identificar a prevalência e o autoconhecimento para indicadores de inflamação sugestivos de doença periodontal em militares de ambos os sexos. Os militares foram recrutados para realização de um censo odontológico para toda a população do Centro de Instrução Almirante Wandenkolk (CIAW) da Marinha do Brasil, totalizando 409 voluntários. Foram formados dois grupos para posterior análise: Grupo 1- contendo exclusivamente mulheres e Grupo 2- contendo exclusivamente homens. Foram realizados 409 exames clínicos e analisados 409 questionários. Os resultados demonstraram que, quanto aos participantes militares, 40,1% foram do sexo feminino e 59,9%, do sexo masculino; 87% faziam uso do fio dental, desses 56% usavam diariamente; 77% apresentaram frequência de escovação de três vezes ao dia ou mais; 74,3% relataram que visitam regularmente o dentista, e a proporção de mulheres que frequenta regularmente o dentista superou significativamente a proporção de homens que o fizeram (I.C. 95%; $p < 0,001$); 61,6% afirmaram conhecer a doença periodontal. A avaliação profissional verificou a presença de indicadores de inflamação sugestivos de doença periodontal em 45,2% participantes, desses 37% eram do gênero feminino e 63%, do gênero masculino, não sendo observada diferença estatística entre os gêneros (I.C. 95%; $p = 0,2248$). Concluiu-se que a prevalência de indicadores de inflamação sugestivos de doença periodontal encontrada foi de 45,2%; o autoconhecimento dos militares sobre doença periodontal foi baixo, apenas 19%; dessa forma foi verificada diferença estatística entre o conhecimento das mulheres e dos homens; e observou-se que a maioria dos participantes estava dentro da frequência correta para consulta de retorno ao dentista.

Palavras-chave: Doença Periodontal. Triagem de Pacientes. Periodicidade. Higiene Bucal. Saúde Militar.

¹Dental surgeon, Master's student in Maternal and Child Health, Federal Fluminense University, Niterói, Brazil.

²Head of the Dentistry Division, Health Department, Centro de Instrução Almirante Wandenkolk, Brazilian Navy, Rio de Janeiro, Brazil.

³Associate Professor, Maternal and Child Department, School of Medicine, Federal Fluminense University, Niterói, Brazil.

How to cite this article: Machado APPA, Silva ARA, Silva LE. Prevalence and self-knowledge of indicators of inflammation suggestive of periodontal disease in military personnel. *Nav Dent J.* 2023; 50(1): 3-8.

Received: 28/01/2023

Accepted: 10/03/2023

INTRODUCTION

Epidemiological surveys are fundamental for establishing the diagnosis of certain diseases in a population, also important for verifying treatment needs in groups of individuals (1,2).

One of the main objectives of epidemiological research in periodontics is to provide data on the prevalence of periodontal disease in different populations, establishing the frequency of its occurrence and the severity of such conditions, elucidating aspects related to etiology and the determinants of development, and documenting the effectiveness of preventive and therapeutic measures (3).

Periodontal disease (PD), a major cause of tooth loss, is the sixth most prevalent human disease (4). PD is one of the two most important diseases affecting the oral cavity and contributes to the global burden of chronic conditions (5) affecting the population worldwide, with high prevalence rates, thus representing a public health problem (6).

The most prevalent PD are gingivitis and periodontitis, which affect the health of the lining and supporting tissues of the teeth (7-9). Although gingivitis and periodontitis are considered progressions of the same inflammatory process, it should be noted that many gingivitis lesions do not progress to periodontitis (7,8). The aim of this study was to identify the prevalence and self-knowledge of military personnel on inflammation indicators suggestive of periodontal disease, since the early detection and diagnosis of PD, as well as participation in a health maintenance program, after periodontal therapy, are essential in maintaining the oral health of affected individuals (10).

METHODS

Study design

This was a cross-sectional observational descriptive study involving a population of 409 participants including active duty militaries and veterans recruited by convenience through a dental census at the Division of Dentistry, Department of Health, Admiral Wandenkolk Training Center of the Brazilian Navy (CIAW), between November 2021 and March 2022.

Data Collection

For the aforementioned audience, there was an explanation of the present work, and only after signing the consent form the standardized questionnaire was handed out and filled out. Participants were interviewed using the questionnaire

and examined for the presence or absence of clinical indicators of periodontal inflammation/disease (dental plaque, calculus, gingival edema) in the CIAW dental office. The professional evaluation (clinical examination) was by observing whether or not the gums were swollen, pink, or reddish, and whether or not there was apparent dental plaque, both soft plaque and calculus. In addition, the participant was asked if his teeth bleed when brushing or flossing.

The inclusion criteria were CIAW crewmembers and the exclusion criteria were CIAW crewmembers being treated for periodontal disease during the study period.

The variables collected were age, gender, time in the military force, flossing frequency, daily brushing frequency, regularity of visits to the dentist and date of last visit, self-awareness about signs/symptoms of periodontal disease (personal perception or self-perception) of the quality of their teeth and gums, and professional assessment of the presence or absence of clinical indicators of inflammation suggesting periodontal disease.

This work was approved under protocol number 5.071.494 on October 29th, 2021, under CAEE: 47037821.9.0000.5243, by the Ethics Committee of the Fluminense Federal University (UFF), and is in accordance with the ethical principles of the Declaration of Helsinki.

Statistical Analysis

The data collected were compiled and then an analysis of the variables collected was performed. Three groups of answers were analyzed: a) answers related to demographic data; b) answers related to possible risk factors for acquiring periodontal disease; c) answers related to self-knowledge of periodontal disease. The presence or absence of clinical indicators of inflammation suggesting periodontal disease according to gender was related to the answers found in the interview phase and by clinical examination.

Continuous variables with non-normal distribution were expressed as mean and standard deviation and those with normal distribution were expressed as median and minimum and maximum values. Categorical variables were expressed as absolute values and percentages and analyzed using Fisher's exact test or Chi-square, and continuous variables were analyzed using the Mann-Whitney test. Comparison of two proportions was possible by the Z test. The Kolmogorov-Smirnov test was used to evaluate the degree of normality of the variables. Values of $p < 0.05$ were considered significant. The statistical analyses were performed with the help of the IBM SPSS software version 18.0.

RESULTS

A total of 409 military personnel participated in the survey, 164 (40.1%) female and 245 (59.9%) male, interviewed and examined between the months of November 2021 to April 2022. The age of the participants ranged from 19 to 71 years, with the average age of males being 28.7 and of females being 32 years. [The time was up to two years of military service for 300 participants.

The dental hygiene habits of the participants were analyzed and showed that 87% use dental floss, 56% use it daily; 77% answered that they brush their teeth 3x or more a day; 74.3% stated that go to the dentist regularly; and 265 participants reported that the last visit to the dentist was up to six months earlier.

Regarding to the regularity of going to the dentist, considering gender, 155 men go regularly and 90, do not go regularly, while 149 women visit and only 15 women do not go regularly.

Assuming randomness in the formation of the sample, the estimate of men attending the Division of Dentistry of the Health Department is 59.9% (95% C.I.: [55.1%;64.7%]) and the sex ratio of those attending is $245/164 \cong 1.5$ (a ratio of 3:2 men to women).

The proportion of women who regularly attend the dentist significantly exceeds the proportion of men who do so (chi-square test: $\chi^2 = 39.185$; g.l. = 1; $p < 0.001$).

Of the 409 participants, 11.5% (47 patients) believe they have gum disease, 61.6% (252 participants) think they know what gum disease is, and 21.5% (88 participants) reported that their teeth and/or gums bleed, of these only 39 (44.3%) stated that they think they have gum disease. Regarding the knowledge of what periodontal disease is, most of the interviewees reported knowing (252/409 - 61.6%).

The participants were asked about their self-perception of the quality of their teeth and gums. 22.7% responded excellent, 73.4% good, and 3.9% poor.

Based on the results, the overall prevalence of clinical indicators suggestive of inflammation/periodontal disease in the studied population was 45.2%.

Thus, we observed that among the 185 participants who presented the presence of clinical indicators of inflammation suggesting periodontal disease, 37% were female and 63% were male. No statistical difference was observed between genders, with a $p = 0.2248$.

The data for the absence of self-perception of periodontal disease and proved absence of the disease, verified by a dentist and categorized by sex, were 209 and 128 in men, respectively, versus 153 and 96 in women. A statistically significant difference, $p < 0.0001$, was observed between participants' self-

knowledge stating that they do not have PD and actual absence of PD.

DISCUSSION

Most participants were young people under 32 years old, who theoretically should have a better health condition, since, according to the Ministry of Health, oral health problems increase with age. The most severe forms of PD appear most significantly in adults aged 35 - 44 years, with a prevalence of 19.4% (11).

From the point of view of gender, the majority of participants were male, about 60% of the sample size. This finding is due to the predominance in the Armed Forces of males over females. However, female participation in the military forces has been increasing. According to data from the Ministry of Defense in 2012, in the Navy women corresponded to 10% of the force, in the Air Force to 13.8% and in the Army, they represented only 3.2% of the personnel of the military force (12). Currently, the Brazilian Navy has more than 12.7%, the Air Force with 19.7% and the Army with 6.4% on March 8, 2022, counting with more than 35 thousand of military women (13).

With regard to the gender of the patients, there is still no predisposition between men and women for the development of periodontal diseases (14).

Military personnel with a short career period (up to 2 years) represented the majority of the participants, which perhaps could be a data point in favor of the higher number of participants with periodontal disease present.

It is known that the Unified Health System (SUS) is a universal health system that provides access to oral health care for all age groups, from early childhood to old age, at no direct cost to the population. The quality of public dental care has improved considerably since oral health was incorporated into SUS in 2004, through the "Smiling Brazil" project. However, it is still very precarious, and the levels of caries and periodontal disease are increasing and continue to be a major problem for public health in Brazil (15).

On the other hand, the overall percentage of inflammation indicators suggestive of PD was lower than that found in the Brazilian population as a whole, because the Brazilian Navy has its own Health System, called the Navy Health System, defined as the organized set of human, material, financial, technological, and information resources intended to provide health activities in the Brazilian Navy. Hospital Medical Care is provided to users of the health system in a regional, hierarchical, integrated manner, with objective actions for disease prevention, recovery, and health maintenance (16).

It is worth remembering that the primary care team initiates educational discussions with the patient, identifies his/her risks, provides preventive care, and then, in necessary cases, refers the patient to specialized treatment (17).

The control of PD through active patient participation is a crucial feature of treatment success. Therefore, professionals expect them to promote a daily routine of biofilm control through adequate oral hygiene (18).

Considering the habit of flossing, 356 participants answered that they use dental floss, and 229 use it daily, 87% and 56% of the studied population, respectively. This situation is completely opposite to the reality of oral health in Brazil, and perhaps even in the world. In the literature, it was stated that the use of dental floss is performed daily by only 10% of the population (19). The same author reports that while daily tooth brushing is well accepted, few individuals use dental floss. This high percentage of regular flossing can be attributed both to the level of education and hygiene awareness of the military due to the model of oral health care in the Nvy Health System, when compared to the Brazilian society in general since this system emphasizes actions of promotion and prevention of the patient's integral health (19).

A preventive approach requires early diagnosis, health education, and motivation of the patient to change his or her behavior, as well as greater responsibility of the patient for his or her own health under the guidance and support of professional staff (20).

Regarding the frequency of tooth brushing, 77% of the participants reported that they brush their teeth three or more times a day, which can be considered an excellent level of oral hygiene. The literature shows discrepant results according to the area included in the study. In the city of Porto Alegre, South of Brazil, the frequency of daily brushing in 471 patients was also high, with about 68.1% of the interviewees reporting a frequency higher than three times a day (21). When compared with the brushing pattern of European countries or the United States, the pattern described in the Brazilian study is higher. Studies conducted in Europe and the United States show that the most common daily brushing pattern is once to twice a day (22). In contrast, another study found that only 20.9% of patients brushed their teeth three times a day, and only 6.5% of patients brushed more than three times a day (23).

In the literature, a statistically significant association was observed between the frequency of brushing, flossing, and gender. This finding corroborates data from a previous epidemiological study, which also found that women have better

hygiene habits than men. This suggests that women have a better standard of oral hygiene, which may be one of the factors associated with the higher prevalence of periodontal disease associated with males, identified in previous studies. Moreover, the greater perception of women regarding the symptoms and physical signs of disease, the knowledge acquired in the performance of the role of the family caregiver, as well as the performance of more diagnostic tests by this group, may contribute to this higher prevalence (23).

The regularity of visits to the dentist was observed in both men and women, with a statistically significant difference in relation to the female gender, proving that, in this study, women were more concerned about oral health than men. There is ample evidence in the current literature showing that preventive habits are more common in women than in men (21). It is known that women use dental services more often than men (24).

There is still no consensus among the authors, nor a scientific basis for stating that the ideal interval for returning to the dentist is six months. Hence, there is a tendency to recommend the individual assessment of each patient, observing several criteria (25).

The perception of PD by the study population was low and calculated to be 11.5%, while the actual PD was 45.2%, and a statistically significant difference was found. Because of this difference in the PD's self-knowledge, it is clear that the subject needs to be worked on in the daily life of the military unit.

The self-assessment of the oral condition apparently contrasts with the clinical condition, as the individual had a positive view ("good" condition was the most considered answer), even with unsatisfactory clinical findings. This difference may be related to the fact that patients evaluate their oral condition with different criteria from the professional demonstrating the lack of more accurate knowledge that should be incorporated into the knowledge of these individuals. Chou, *et al.*, 2011 reported that self-assessment provides a rich contribution to identifying people or groups in vulnerable situations that need specific interventions, both clinical and informational (26). Similar results were observed in a study on patients' conceptions of quality of life, periodontal condition, tooth loss, and whether or not to use dentures (27).

The distorted perception that the population has about the oral condition by not easily identifying the disease can be explained, perhaps, by the fact that it is asymptomatic and chronic in nature because it is known that painful symptoms are the most recognized dental needs (28). Braga, *et al.*, (2020) also stated that most of the time, the reason for people not seeking dental care is the lack of perception regarding their needs.

Dental professionals should encourage patient attitudes toward achieving periodontal health. In addition, the patient should understand that adequate oral hygiene measures, such as dietary care, moderation of alcohol and smoking, along with stress control, can prevent disease progression. It is worth emphasizing the shared patient/professional responsibility for treatment should be assumed by the patient when establishing their self-care routine (29).

The presence of clinical indicators of inflammation suggesting periodontal disease was evaluated by the researcher, analyzing whether PD was present or absent. The results found were as expected, with a higher number of absences than the presence of the disease. The prevalence found of PD was lower than that reported in the literature in general (16).

The prevalence of “moderate to severe” periodontal disease in adult Brazilians was 15.3% and 5.8% for the “severe” condition, with considerable variation among municipalities (11). And the number of individuals with periodontal health progressively decreased among age groups with increasing age, showing a prevalence of periodontitis ranging from 57.1% to 75.4%, respectively, in individuals aged 34 years or less and 45 years or older (30).

A fundamental issue is to invest in oral health promotion programs, through an integrated approach, directed at the community, promoting well-being and minimizing the costly consequences to the public budget.

Finally, we recognize that there were limitations in our study. Although we interviewed the entire population, some aspects can be considered, such as the memory bias of the studied population regarding the visit to the dentist in the last six months and lack of knowledge regarding the presence of possible risk factors known for the acquisition of the periodontal disease. The study was limited to verifying the presence or not of clinical indicators of periodontal disease, not being possible to verify the indexes of visible plaque, gingival bleeding, and bleeding on probing or the community periodontal index in each participant; probing each dental site, in order to verify the clinical probing depth, gingival recession, and clinical insertion level; and to count the number of sites with relevant periodontal pockets, which could determine the severity or not of the present PD. We suggest further studies should evaluate these indices in this population, calibrating a team of evaluators.

CONCLUSION

Although the prevalence of 45.2% of clinical indicators of inflammation suggestive of periodontal disease was high in the studied population, these

results suggest that the Brazilian Navy personnel has better oral health conditions than the total Brazilian population. The military personnel’s self-knowledge about PD was low. When comparing the military’s knowledge of PD according to gender, we could observe that there is a statistical difference between the knowledge of women and men. Also, most of the participants were within the frequency of return visits to the dentist. Moreover, the proportion of women who regularly attend the dentist significantly exceeded the proportion of men who did.

ACKNOWLEDGMENTS

The authors are grateful to the participants who contributed so much to the advancement of scientific research.

The authors declare that there is no conflict of interest or the clear disclosure of any economic interests or nature that could cause embarrassment if known after the publication of the article.

Corresponding author:

Ana Paula Porto Amorim Machado
Address: Admiral Wandenkolk Training Center, Ilha das Enxadas, S/N, Baía de Guanabara, Rio de Janeiro- RJ, Brazil.
Post Code: 24744-330.
Email: ana.porto@marinha.mil.br

REFERENCES

1. Grimes DA, Schulz KF. An overview of clinical research: the lay of the land. *Lancet*. 2002A;359(9300):57-61.
2. Jenkins WM, Papapanou PN. Epidemiology of periodontal disease in children and adolescents. *Periodontol* 2000. 2001;26:16-32.
3. Lindhe J, Karring T, Lang NP. *Clinical periodontology and Implants Dentistry*. 3.ed. Copenhagen: Munksgaard, 1998.
4. Kassebaum NJ, Smith AGC, Bernabé E, Fleming TD, Reynolds AE, Vos T, *et al*. Oral Health Collaborators. Global, Regional, and National Prevalence, Incidence, and Disability-Adjusted Life Years for Oral Conditions for 195 Countries, 1990-2015: A Systematic Analysis for the Global Burden of Diseases, Injuries, and Risk Factors. *J Dent Res*. 2017;96(4):380-7.
5. Petersen PE, Ogawa H. The global burden of periodontal disease: Towards integration with chronic disease prevention and control. *Periodontol* 2000. 2012;60(1):15-39.
6. Petersen PE, Baehni PC. Periodontal health and global public health. *Periodontol* 2000 2012;60(1): 7-14.
7. Botero JE, Rösing CK, Duque A, Jaramillo A. Periodontal disease in children and adolescents of Latin America. *Periodontol* 2000. 2015;67(1):34-57.
8. Gamonal J, Mendoza C, Espinoza I, Muñoz A, Urzúa I, Aranda W, *et al*. Clinical attachment loss in Chilean adult population: First Chilean National Dental Examination Survey. *J Periodontol*. 2010;81(10):1403-10.

9. Cortelli JR, Cortelli SC, Jordan S, Haraszthy VI, Zambon JJ. Prevalence of periodontal pathogens in Brazilians with aggressive or chronic periodontitis. *J Clin Periodontol*. 2005;32(8):860-6.
10. Lima TR, Costa LS, Cruz Neto ES, Mesquita NB, Brito LF, Silveira VRS. Perda dentária e doença periodontal associada ou não a condições sistêmicas- revisão de literatura. *Bras J Periodontol*. 2019;29(2):31-42.
11. Vettore MV, Marques RAA, Peres MA. Desigualdades sociais e doença periodontal no estudo SBBrazil 2010: abordagem multinível. *Rev Saúde Pública*. 2013;47(Supl 3):29-39.
12. American Academy of Periodontology: Epidemiology of Periodontal diseases. *J Periodontol*, 1996; 67:935-945.
13. Nóbrega I, Sampaio B. A força delas: a crescente participação feminina no Exército Brasileiro. Disponível em: <<https://www.defesanet.com.br/terrestre/noticia/43818/A-Forca-delas--a-crescente-participacao-feminina-no-Exercito-Brasileiro-/>>. Acesso em: 15 nov. 2022.
14. Susin C, Vecchia CFD, Oppermann RV, Haugejorden O, Albandar J. Periodontal Attachment Loss in an Urban Population of Brazilian Adults: Effect of Demographic, Behavioral, and Environmental Risk Indicators. *J Periodontol*. 2004;75(7):1033-1041.
15. Brasil. Ministério da Saúde. Projeto SB Brasil 2003: condições de saúde bucal da População Brasileira 2002 -2003. Resultados principais. Brasília: Ministério da Saúde; 2005. Disponível em: < http://dtr2001.saude.gov.br/editora/produtos/livros/pdf/05_0053_M.pdf>. Acesso em 8 ago 2022.
16. DGPM. Diretoria-Geral do Pessoal da Marinha Normas para Assistência Médico Hospitalar. 2012. Disponível em: < https://www.marinha.mil.br/sites/www.marinha.mil.br/dsm/files/DGPM-401_0.pdf>. Acesso em: 01 out 2022.
17. Penoni DC. O cenário atual da ciência no ambiente militar. *Rev Nav Odontol*. 2018;45(1):6-7.
18. Lindhe J, Karring T, Lang NP. Tratado de Periodontia Clínica e Implantodontia Oral. 6.ed. Rio de Janeiro: Guanabara Koogan; 2018.
19. Rimondini L, Zolfanelli B, Bernardi F, Bez C. Self-preventive oral behavior in Italia university student population. *J Clin Periodontol*. 2001; 28:207-11.
20. Tonetti MS, Chapple ILC, Jepsen S, Sanz M. Prevenção primária e secundária de doenças periodontais e peri-implantares- Introdução e objetivos da 11ª Conferência Europeia de Consenso em Periodontologia. *J Clin Periodontol* 2015; 42:1-4.
21. Abegg C. Hábitos de higiene bucal de adultos porto-alegrenses. *Rev Saúde Pública*. 1997; 31(6):586-93.
22. Gift HC. Current utilization patterns of oral hygiene practices: state-of-the-science review. In: Løe H, Kleinman DV. Dental plaque control measures and oral hygiene practices. Oxford, IRL, 1986. p.39-71.
23. Sousa JNL, Nóbrega DRM, Araki AT. Perfil e percepção de diabéticos sobre a relação entre diabetes e doença periodontal. *Rev Odontol*. 2014;43(4):265-72.
24. Barbato PR, Nagano HCM, Zanchet FN, Boing AF. Perdas dentárias e fatores sociais, demográficos e de serviços associados em adultos brasileiros: uma análise dos dados do Estudo Epidemiológico Nacional (Projeto SB Brasil 2002-2003). *Cad Saude Publica*. 2007 Aug;23(8):1803-14.
25. Fúccio F, Ricci SS, Auad SM, Martins LHPM, Paiva SM. Existe um intervalo ideal de visitas de retorno ao dentista? *J Bras Odontopediatr Odontol Bebê*. 2002; 5(23):47-53.
26. Chou TTA, Ferreira NS, Kubo CH, Silva EG, Huhtala MFRL, Gonçalves SEP, Gomes APM. Avaliação do conhecimento e comportamento dos pacientes em tratamento odontológico em relação à cárie, doença periodontal e higiene bucal. *RPG Rev Pós Grad*. 2011;18(3):140-7.
27. Abbood HM, Hinz J, Cherukara G, Macfarlane TV. Validity of Self-Reported Periodontal Disease: Systematic Review and Meta-Analysis. *J Periodontol*. 2016;87(12):1474-83.
28. Braga AN, Pereira AFV. Autopercepção da condição periodontal e sua importância na qualidade de vida. *Ver Pesq Saúde*. 2020;21(3):91-5.
29. Couto JL, Duarte CA. Comunicação e motivação em periodontia: bases para o tratamento odontológico. São Paulo: Editora Santos; 2006.
30. Caúla AL, Pierro VSS, Santos MPA, Bundzman ER, Branco Júnior JS, Tavares LHS. Situação odontológica dos bombeiros do estado do Rio de Janeiro e comparação com inquéritos brasileiras de saúde bucal. *Pesqui Bras Odontopediatria Clín Integr*. 2021; 21:e0038.