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Impact of probable bruxism on the oral health-related quality of life among police officers and their relatives

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Abstract

Background: Bruxism is a global oral disorder that can negatively affect oral health-related quality of life (OHR-QoL). Nonetheless, there are few studies regarding police officers. The aim of this study was to determine the impact of probable bruxism on quality of life among police officers and their relatives.

Materials and methods: This cross-sectional study included 243 police officers, and their relatives aged 18-70 years who attended the dental service of a Peruvian National Police Hospital. They were evaluated through a questionnaire of probable bruxism, including a clinical oral examination. The Oral Health Impact Profile (OHIP-14) questionnaire was also used to determine the impact of OHRQoL. Univariate and bivariate statistical analyses were performed. In addition, multivariate analysis was performed via the statistical program STATA version 18.

Results: The mean OHIP-14 score was 13.4 ± 8.0 , and 48.6% of the participants had probable bruxism. Statistically significant differences were found in questionnaire domains such as physical pain ($p=0.001$), psychological distress ($p=0.012$), social disability ($p=0.002$) and handicap ($p=0.007$). Multivariate analysis, adjusted for age in years, sex, type of insurance, level of education and degree of dental wear showed the mean OHIP-14 total score was 2.38 points higher in patients with probable bruxism (95% CI; 0.75, 4.71).

Conclusions: Probable bruxism had a negative impact on the oral health-related quality of life of police officers and their relatives.

Key words: *Bruxism, quality of life, adults.*

Introduction

Bruxism is a tooth grinding habit that occurs both day and night, causing changes in tooth structure, permanent lesions and discomfort, such as jaw pain and headaches (1). Also, bruxism has been defined as a constant mo-

vement of the muscles at the level of the jaw in which a clenching of the teeth and/or jaw can be identified (2). The classification of bruxism is divided into three evidence-based categories: ‘possible’ bruxism with patient self-reports through questionnaires and anamnesis; ‘pro-

bable' bruxism with visible clinical signs and self-reports; and 'definite' bruxism with self-reports, clinical examinations and polysomnographic recordings, preferably with audio-visual recordings (2,3).

It has been reported that bruxism affects 6% to 91% of the population worldwide (4). Its prevalence varies widely, with waking bruxism affecting 22% to 30% of the adult population, whereas sleep bruxism affects 1% to 15% of the population (1,5). Diverse studies indicate that sleep bruxism could be associated with dental wear and poor oral health-related quality of life (6) or negatively affects quality of life and quality of sleep (7).

It is known that oral problems are responsible for decreasing the quality of life of individuals due to prolonged pain and functional, aesthetic, nutritional, and psychological issues (8). The impact of oral health on quality of life can be measured by an instrument that assesses 'functional limitation, physical pain, psychological distress, psychological discomfort, handicap, and physical, psychological and social disability (10,11). Moreover, the self-perception of the individual could achieve improvements in treatments for the benefit of their health (12).

According to several studies, bruxism is present in different populations and can cause unfavorable consequences on individuals' oral and general health and affect negatively the OHRQoL (11). Thus, sleep, daytime, and mixed bruxism were positively correlated with lower OHRQoL (12). Other studies have shown that bruxers had a lower OHRQoL than nonbruxers (13), and medical students with bruxism had negatively affected their OHRQoL (16). Also, Thetakala *et al.* reported that active sleep bruxism had a negative impact on OHRQoL among the inmates of a penal institution (15).

Despite the above mentioned, a systematic review concluded that there is not yet enough scientific evidence to support or refute the association between a type of bruxism and quality of life (16). Besides, police officers are vulnerable individuals due to their work demands which could affect their families. Therefore, the present study aimed to determine the impact of probable bruxism on the oral health related quality of life of police officers and their relatives attended at a Peruvian National Police Hospital.

Material and Methods

This study was approved by the Ethics Committee of the Universidad Científica del Sur (POS-53-2023-00344) and authorized by the Peruvian National Police Hospital. All participants were informed about the objectives of the study and written informed consents were obtained before the study from all patients.

-Study population and data collection

This observational, descriptive, and cross-sectional study was conducted on police officers and their rela-

tives who attended the dental department of a Peruvian National Police Hospital in Lima, Peru. The sample size was determined using Epidat version 4.2 software, significance level of 0.05 and a power of 0.80. Hence, the study sample was composed of 243 police officers and their relatives aged 18-70 years, with apparent good general health. Individuals with genetic and mental alterations, orthodontic treatment, complete or edentulous prostheses, or treatment for bruxism were excluded.

On the day of the dental appointment, the participants were invited to answer two questionnaires: one related to probable bruxism diagnosis (11) and other related to OHRQoL using the Peruvian version of the OHIP-14 (17). All these data were collected by a single examiner who was a dentist trained in the intonation and reading of questionnaire questions. The clinical assessment of probable bruxism was conducted for the same examiner who has undergone a calibration. In this process, ten individuals were examined by the examiner with an interval of 15 days. This calibration process was conducted by an expert of oral rehabilitation. The kappa value for inter- and intraexaminer reliability were 0.880 and 0.936, respectively, resulting in very good agreement.

-Probable Bruxism's data

In this study, a questionnaire developed by Dr. Celia Elena del Perpetuo Socorro Mendiburu Zavala based on other authors (11,18-20) was adapted from the Mexican Spanish version (11) to the Peruvian context. This version was pilot tested on a convenience sample of 30 individuals aged 18-70 years who did not participate in the final sample (21). Then, a revision panel consisting of two postgraduate professors in Oral Rehabilitation, and three postgraduate professors in Oral Health areas, all fluent in Spanish, reviewed the results and in consensus developed the Peruvian Spanish version of the questionnaire named probable bruxism instrument (11).

This instrument consists of two sections: 1) Self-report questionnaire which contains 8 self-report questions, as well as anamnesis of symptoms in the last 6 months, and 2) the oral clinical examination which register oral signs of bruxism such as lingual indentations, thickening of the jugal linea alba, gingival recessions, presence of exostosis and/or palatal or lingual torus, hypertrophy of the masseter muscles, xerostomia, fracture of restorations and/or teeth, limitation of mouth opening, tooth mobility without the presence of periodontal disease, presence of tooth wear facets resulting from tooth rubbing or clenching and tooth wear. The Tooth Wear Assessment System was used to determine the presence of tooth wear (TWES 2.0) (22). Hence, this instrument was added to the questionnaire for classifying the severity of the tooth wear.

For data collection, all participants answered the 8 self-report questions. Then, an oral clinical examination was conducted with a mouth mirror in a dental chair.

The responses of the questionnaire were dichotomous (yes or no), and the diagnosis of probable bruxism was determined when the participants answered “yes” to questions 1 and/or 2, 7 and/or 8 and when they had 2 or more signs or symptoms (11).

-Individual’s OHRQoL data

The Peruvian version of the OHIP-14 sp questionnaire for assessing the impact of OHRQoL was used in this study. This instrument consists of 14 questions divided into 7 dimensions: ‘functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap (10). The higher the score is, the lower the OHRQoL; conversely, the lower the score is, the higher the OHRQoL (17).

On the dental appointment, this questionnaire was applied to the participants by a previously trained examiner. Thus, they answered all the questions in a quiet environment.

-Statistical analysis

Descriptive analysis was performed using absolute and relative frequencies for qualitative variables (bruxism, sex, age, education level, type of insurance and tooth wear) and measures of central tendency and dispersion for quantitative variables (OHRQoL instrument: OHIP-14: total score and score for each dimension). For the bivariate statistical analysis, after determination of normality, the nonparametric Mann–Whitney U test was applied. Additionally, a linear regression analysis adjusted for age, sex and type of insurance was performed. The significance level was set at $p < 0.05$. The statistical software used was STATA version 18 in Spanish.

Results

The main sociodemographic characteristics of the study population are shown in Table 1. The sample consisted of 243 participants with a mean age of 54.9 ± 11.8 years. The majority were male (58.4%) and 46.9% had a technical education level. Most of the participants were active police officers (36.6%), and 28.4% were their relatives. Regarding the oral conditions of the participants, a total of 48.6% had probable bruxism while 45.7% had moderate tooth wear. In relation to OHRQoL, the total OHIP-14 mean score was 13.4 ± 8.0 .

According to the bivariate analysis of factors associated with probable bruxism, no statistically significant differences were found according to sex, age, type of insurance, education level and degree of tooth wear variables (Table 2).

Regarding probable bruxism and OHRQoL, statistically significant differences were found in individual domains: physical pain domain ($p=0.001$), psychological discomfort domain ($p=0.012$), social disability domain ($p=0.002$), and handicap domain ($p=0.007$). A higher OHIP-14 mean score was associated with a lower OHRQoL ($p=0.012$) (Table 3).

Table 1: Sociodemographic and clinical characteristics of the study population (n=243).

| Characteristics | n (%) |
|-------------------------|-------------|
| Age | 54.9 ± 11.8 |
| Age of range | |
| 18 – 35 | 26 (10.7) |
| 36 – 59 | 114 (46.9) |
| 60 to more | 103 (42.4) |
| Sex | |
| Female | 101 (41.6) |
| Male | 142 (58.4) |
| Type of insured | |
| Active police officer | 89 (36.6) |
| Retired police officer | 85 (35.0) |
| Family police officer | 69 (28.4) |
| Education level | |
| Primary | 1 (0.4) |
| Secondary | 61 (25.1) |
| Technician | 114 (46.9) |
| Undergraduate | 67 (27.6) |
| Score OHIP-14 | 13.4 ± 8.0 |
| Probable Bruxism | |
| Absence | 125(51.4) |
| Presence | 118(48.6) |
| Tooth wear | |
| No tooth wear | 29 (11.9) |
| Slight | 50 (20.6) |
| Moderate | 111 (45.7) |
| Severe | 40 (16.5) |
| Extreme | 13 (5.4) |

Mean ± SD

The multivariate analysis assessed the relation between OHRQoL with probable bruxism. Thus, it was adjusted with variables: age in years, sex, type of insurance, education level and type of tooth wear. The mean OHIP-14 total score was higher in individuals with probable bruxism than in those without bruxism (95% CI; 0.37, 4.39) (Table 4).

Discussion

The purpose of this study was to determine the impact of probable bruxism on the OHRQoL among police officers and their relatives. At this respect, there are crucial factors associated with bruxism that include emotional stress; tobacco, alcohol or coffee consumption; and obstructive sleep apnea and anxiety disorders (23). Also, it is even associated with dental wear (6).

Regarding police officers, emotional stress was associa-

Table 2: Bivariate analysis between factors associated with probable bruxism (n=243).

| Variable | Without Probable Bruxism | With Probable Bruxism | p |
|------------------------|--------------------------|-----------------------|--------------------|
| | n(%) | n(%) | |
| Sex | | | 0.303 ^a |
| Female | 48 (38.4) | 53 (44.9) | |
| Male | 77 (61.6) | 65 (55.1) | |
| Age (years) | 55.2 ± 11.5 | 54.6 ± 12.1 | 0.692 ^b |
| Range of years | | | 0.280 ^a |
| 18 – 35 | 13 (10.4) | 13 (11.0) | |
| 36 – 59 | 53 (42.4) | 61 (51.7) | |
| 60 to more | 59 (47.2) | 44 (37.3) | |
| Type of insured | | | 0.441 ^a |
| Active police officer | 48 (38.4) | 41 (34.8) | |
| Retired police officer | 46 (36.8) | 39 (33.0) | |
| Family | 31 (24.8) | 38 (32.2) | |
| Education level | | | 0.134 ^c |
| Primary | 1 (0.8) | 0 (0.0) | |
| Secondary | 27 (21.6) | 34 (28.8) | |
| Technician | 56 (44.8) | 58 (49.2) | |
| Undergraduate | 41 (32.8) | 26 (22.0) | |
| Tooth wear | | | 0.484 ^c |
| No wear | 19 (15.2) | 10 (8.4) | |
| Slight | 25 (20.0) | 25 (21.2) | |
| Moderate | 53 (42.4) | 58 (49.2) | |
| Severe | 20 (16.0) | 20 (17.0) | |
| Extreme | 8 (6.4) | 5 (4.2) | |
| Score OHIP-14 | 12 ± 7.4 | 14.9 ± 8.0 | 0.010 ^b |

Mean ± Standard Deviation; a: Chi-square test; b: U- Mann–Whitney test; c: Fisher test.

Table 3: Relationship between probable bruxism and oral health-related quality of life through OHIP-14.

| Domains- OHIP 14 | Without Probable Bruxism | With Probable Bruxism | p |
|--------------------------|--------------------------|-----------------------|-------|
| | Mean ± SD | Mean ± SD | |
| Functional limitation | 1.3 ± 1.5 | 1.6 ± 1.7 | 0.134 |
| Physical pain | 1.5 ± 1.4 | 2.1 ± 1.6 | 0.001 |
| Psychological discomfort | 0.8 ± 1.2 | 1.3 ± 3.1 | 0.012 |
| Physical disability | 2.9 ± 1.5 | 2.9 ± 1.6 | 0.848 |
| Psychological disability | 3.2 ± 1.7 | 3.6 ± 1.7 | 0.079 |
| Social disability | 1.4 ± 1.6 | 1.9 ± 1.5 | 0.002 |
| Handicap | 1.0 ± 1.5 | 1.4 ± 1.4 | 0.007 |
| Score OHIP-14 | 23.0 ± 13.7 | 28.3 ± 15.9 | 0.012 |

U-Man Whitney test.

Table 4: Multivariate analysis between OHRQoL and Probable Bruxism adjusted for confounding variables.

| Variables | Unadjusted | | | Adjusted | | |
|-------------------------|---------------------|---------------|----------|---------------------|---------------|----------|
| | OHIP-14 | | | OHIP-14 | | |
| | Coefficient β | IC 95% | <i>p</i> | Coefficient β | CI 95% | <i>P</i> |
| Probable Bruxism | | | | | | |
| Absent | Ref. | | | Ref. | | |
| Presence | 2.86 | 0.86 - 4.87 | 0.005 | 2.38 | 0.37 - 4.39 | 0.021 |
| Age (years) | 0.08 | -0.10 - 0.16 | 0.085 | 0.80 | -0.11 - 0.27 | 0.153 |
| Sex | | | | | | |
| Female | Ref. | | | Ref. | | |
| Male | -1.04 | -3.10 - 1.02 | 0.320 | 0.36 | -2.15 - 2.88 | 0.777 |
| Type of insured | | | | | | |
| Active police officer | Ref. | | | Ref. | | |
| Retired police officer | 0.24 | -2.13 - 2.61 | 0.842 | -1.91 | -5.04 - 1.22 | 0.230 |
| Family | 3.38 | 0.87 - 5.88 | 0.008 | 1.35 | -2.20 - 4.90 | 0.454 |
| Education level | | | | | | |
| Primary | Ref. | | | Ref. | | |
| Secondary | -7.03 | -22.69 - 8.62 | 0.377 | -7.19 | -23.34 - 8.95 | 0.381 |
| Technical | -9.89 | -25.49 - 5.70 | 0.213 | -8.72 | -25.04 - 7.60 | 0.293 |
| Undergraduate | -11.61 | -27.26 - 4.03 | 0.145 | -10.03 | -26.32 - 6.27 | 0.227 |
| Tooth wear | | | | | | |
| No wear | Ref. | | | Ref. | | |
| Slight | 2.45 | -1.24 - 6.14 | 0.191 | 1.88 | -1.75 - 5.52 | 0.309 |
| Moderate | 3.56 | 0.26 - 6.85 | 0.035 | 3.09 | -0.19 - 6.37 | 0.065 |
| Severe | 3.11 | -0.74 - 6.97 | 0.113 | 2.51 | -1.39 - 6.42 | 0.206 |
| Extreme | 3.03 | -2.25 - 8.31 | 0.259 | 2.16 | -3.29 - 7.61 | 0.436 |

CI: Confidence Interval; Linear multivariate model; adjusted for sex, age, type of insured, education level and type of tooth wear.

ted with bruxism, independently of the type of work, and they are most likely to suffer from tooth wear and sleep disorders (24,25). Thus, these disorders could induce possible negative consequences in the family environment due to their effects on health, sleep and stress. In this investigation, it was found that police officers and/or their relatives with probable bruxism have lower OHRQoL. These results agree with the findings of other studies regarding probable bruxism conducted by Mendiburu *et al.* (11) in Mexico, Yildirim *et al.* in Turkey (13) and Câmara *et al.* in Brazil (8). Likewise, significant correlations between OHRQoL and probable bruxism have also been reported in diverse studies (7,12,14,15). In respect of our results, it must be state that bruxism negatively affects police officers and their relative’s quality of life. This could be explained due to individuals with oral problems reported to have higher rates of pain and suffering that could cause functional and aesthetic problems with nutritional and psychological consequences (8). Furthermore, we found differences regarding physical pain domain, psychological distress domain, social

disability, and handicap domain. In contrast to Yildirim *et al.*, who reported differences in all dimensions of the OHRQoL instrument, indicating that it was negatively affected in patients with probable bruxism (13). Similarly, Câmara *et al.* reported that all instrument dimensions were affected. This could be because they considered four dimensions: oral function, orofacial appearance, orofacial pain and psychosocial impact (7). As a result, probable bruxism was related to physical pain, psychological distress, social disability, and handicap. Hence, this could be explained due to participants had a tendency of psychosocial, emotional and pain that can causes difficulties to concentrate and interfere daily works and activities. In the present study, there was no association between dental wear and bruxism, which agreed with Bronkhorst *et al.* and Beddis *et al.*, who reported that bruxism activity should not be deduced only from the presence of tooth wear (26,27). In this research, the TWES 2.0 tooth wear assessment system (22) was used to identify the severity of tooth wear, and no significant differences were found between the groups of individuals with probable bruxism and those without probable bruxism.

However, tooth wear was mostly moderate in individuals with probable bruxism, which agrees with the findings of Bartolucci *et al.*, who used the same assessment system and reported that the sleep bruxism group experienced tooth wear with dentine exposure, with no significant differences (28). One explanation could be the etiology of tooth surface loss which is a combination of normal physiological functional and pathological wear. Also, this pathology has multifactorial etiology and can be associated with dental erosion from dietary or gastric sources, abrasion and abfraction (27).

In this study, no significant differences were found between variables associated with probable bruxism such as sex, age, education level, and type of insurance. These results are similar to those of Yildirim *et al.*, who evaluated the effects of bruxism in an adult population and reported no associations with demographic characteristic such as sex, age and level of education (13). However, most participants in that study had a higher level of education, contrary to our study where the majority had a high level of technical education. This could be explained due to the differences between economic level and social condition in participants from these studies.

Other studies have identified other stress factors, such as job characteristics, lifestyle factors, negative coping strategies and negative personality traits (29). It must be highlighted that stress risk factors may also be present in retired police officers and family members. People under stress are highly likely to develop bruxism (30), which can have an impact on their oral health and affect their well-being or quality of life.

This was a cross-sectional study; hence, the limitations involve inability to determine causal relationships between the variables, and the convenience sample does not allow extrapolate the results to the population of police officers and their relatives. For this reason, further studies are needed to assess the impact of diverse types of bruxism on the OHRQoL of police officers and their family.

To the best of our knowledge, this is the first study that assessed the impact of probable bruxism on OHRQoL in police officers and their relatives. Therefore, our results highlight the importance of mental health care in police officers since diverse traumatic incidents could develop emotional stress which could affect negatively their daily activities, OHRQoL and their families.

Conclusions

Probable bruxism had a negative effect on the oral health-related quality of life of Peruvian police officers and their relatives. Likewise, this pathology increases physical pain, psychological discomfort, social disability and handicap. Therefore, this study is relevant because this pathology has an impact on the daily activities of individuals, affecting their well-being.

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Institutional Review Board Statement

The Institutional Research Ethics Committee of Universidad Científica del Sur approved the research by Constance N° 221.CIEI. CIEN-TIFICA-2023 with registration number: POS-53-2023-00344 on 28.08.2023. All the participants provided written informed consent.

Data Availability Statement

The datasets used and/or analyzed during the current study are available from the corresponding author.

Authors' contributions

J.A., G.H., and R.L. were responsible for the research design. J.A. was responsible for the data collection. G.H. analyzed the instrument and performed the calibration. E.A. wrote, reviewed and edited the data. R.L. was responsible for the statistical analysis. J.A. and R.L. were responsible for the interpretation of the data. All the authors reviewed and approved the final manuscript.

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Conflict of interest

The authors declare that they have no conflicts of interest.

References

- Lobbezoo F, Ahlberg J, Glaros AG, Kato T, Koyano K, Lavigne GJ, de Leeuw R, Manfredini D, Svensson P, Winocur E. Bruxism defined and graded: an international consensus. *J Oral Rehabil.* 2013;40(1):2-4.
- Lobbezoo F, Ahlberg J, Raphael KG, Wetselaar P, Glaros AG, Kato T, Santiago V, Winocur E, De Laat A, De Leeuw R, Koyano K, Lavigne GJ, Svensson P, Manfredini D. International consensus on the assessment of bruxism: Report of a work in progress. *J Oral Rehabil.* 2018;45(11):837-844.
- Estrada N, Evaristo T. Psychoemotional States and the Presence of Bruxism in Peruvian Dental Students. *Odovtos.* 2018;21(3):193-9.
- Cifuentes C, Véjar N, Salvado B, Gómez F, Azocar A. Bruxismo: etiología, diagnóstico y sus repercusiones en adultos. Revisión de la literatura. *Odontol Sanmarquina.* 2022. 25(4): e23839
- Wetselaar P, Manfredini D, Ahlberg J, Johansson A, Aarab G, Paggianni CE, Reyes Sevilla M, Koutris M, Lobbezoo F. Associations between tooth wear and dental sleep disorders: A narrative overview. *J Oral Rehabil.* 2019 Aug;46(8):765-775.
- Tay K, Ujin Y, Allen P. Impact of Sleep Bruxism on Oral Health-Related Quality of Life. *Int J Prosthodont.* 2020;33(3):285-91.
- Câmara MB, Costa OM, Rodrigues RCM. Association of sleep bruxism with oral health-related quality of life and sleep quality. *Clin Oral Investig.* 2019;23(1):245-51.
- Spanemberg JC, Cardoso JA, Slob EMGB, López-López J. Quality of life related to oral health and its impact in adults. *J Stomatol Oral Maxillofac Surg.* 2019;120(3):234-9.
- Slade GD. Derivation and validation of a short-form oral health impact profile. *Community Dent Oral Epidemiol.* 1997;25(4):284-90.
- Del Perpetuo Socorro Mendiburu-Zavala CE, Naal-Canto AA, Peñaloza-Cuevas R, Carrillo Mendiburu J. Probable Bruxism and Oral Health-Related Quality of Life. *Odovtos.* 2022;1;24(2):164-75.
- Turcio KHL, de Moraes-Melo Neto CL, Pirovani BO, dos Santos DM, Guiotti AM, de Magalhães Bertoz AP, et al. Relationship of bruxism with oral health-related quality of life and facial muscle pain in dentate individuals. *J Clin Exp Dent.* 2022;14(5):385-9.
- Yıldırım G, Erol F, Güven MC, Şakar O. Evaluation of the effects of bruxism on oral health-related quality of life in adults. *Cranio.* 2023;41(3):230-237.
- Phuong NTT, Ngoc VTN, Linh LM, Duc NM, Tra NT, Anh LQ. Bruxism, related factors and oral health-related quality of life

- among vietnamese medical students. *Int J Environ Res Public Health*. 2020;17(20):1-10.
14. Thetakala RK, Chandrashekar BR, Sunitha S, Maurya M, Sharma P, Shubhi G. Bruxism and oral health-related quality of life among male inmates in a penal institution, Mysore: A cross-sectional study. *Indian J Dent Res*. 2018;29(3):275-279.
 15. Duarte J, Pauletto P, Massignan C, Bolan M, Domingos F, Hallal A, et al. Association Between Sleep Bruxism and Quality of Life: A Systematic Review. *J Oral Facial Pain Headache*. 2020 Nov;34(4):341-52.
 16. Becerra B, Condori Á. Adaptación y validación en adultos peruanos del instrumento Perfil de impacto de la salud oral Adaptation and validation of the tool Oral Health Impact Profile in Peruvian adults. *Rev Cuba Estomatol*. 2022;59(1).
 17. Vanegas-Avecillas E, Villavicencio-Caparo E, Alvarado Omar, Ordóñez P. Frecuencia del edentulismo parcial y total en adultos y su relación con factores asociados en la Clínica universitaria Cuenca Ecuador 2016. *Rev. Estomatol. Herediana*. 2016;26(4):215-221.
 18. González Soto EM, Midobuche Pozos EO, Castellanos JL. Bruxismo y desgaste dental. *Revista ADM*. 2015;72(2):92-8.
 19. De La Hoz Aizpurua JL, Winocur E. Bruxismo del sueño: revisión actualizada de conceptos y utilidad de la toxina botulínica en su tratamiento. *RESED*. 2014;21:4-13.
 20. Rojas Z, Torres G, Garavito E, Castañeda S, Lopez R. Construcción y validación de instrumentos de medición en el ámbito de la salud. *Revisión de Literatura. Odontol Pediatr*. 2022;21(1):46-52.
 21. Wetselaar P, Wetselaar-Glas MJM, Katzer LD, Ahlers MO. Diagnosing tooth wear, a new taxonomy based on the revised version of the Tooth Wear Evaluation System (TWES 2.0). *J Oral Rehabil*. 2020;47(6):703-12.
 22. Kuhn M, Türp JC. Risk factors for bruxism. *Swiss Dent J*. 2018;12;128(2):118-124.
 23. Serra-Negra JM, Aquino MS, Silva MES, Abreu MH, Silveira RR. Tooth wear and sleep quality: A study of police officers and non-police officers. *Cranio*. 2018;36(1):6-10.
 24. Carvalho ALA, Del Bel Cury AA, Garcia RCMR. Prevalence of bruxism and emotional stress and the association between them in Brazilian police officers. *Braz Oral Res* 2008;22(1):31-5.
 25. Bronkhorst H, Kalaykova S, Huysmans MC, Loomans B, Pereira-Cenci T. Tooth wear and bruxism: A scoping review. *J Dent*. 2024;145:104983.
 26. Beddis HP, Davies SJ. Relationships between tooth wear, bruxism and temporomandibular disorders. *Br Dent J*. 2023;234(6):422-6.
 27. Bartolucci ML, Incerti Parenti S, Bortolotti F, Della Godenza V, Vandi S, Pizza F, et al. Sleep Bruxism and Orofacial Pain in Patients with Sleep Disorders: A Controlled Cohort Study. *J Clin Med*. 2023;12(8).
 28. Galanis P, Fragkou D, Katsoulas TA. Risk factors for stress among police officers: A systematic literature review. *Work*. 2021;68(4):1255-1272.
 29. Chemelo VDS, Né YGS, Frazão DR, de Souza-Rodrigues RD, Fagundes NCF, Magno MB, da Silva CMT, Maia LC, Lima RR. Is There Association Between Stress and Bruxism? A Systematic Review and Meta-Analysis. *Front Neurol*. 2020;11:590779.