ODOVTOS
International Journal of Dental Sciences

UNIVERSIDAD DE COSTA RICA FOd Facultad de Odontología

https://revistas.ucr.ac.cr/index.php/Odontos

CLINICAL RESEARCH:

Quality of Life, Oral Health and Dental Caries in Military Personnel from Arequipa, Peru

Calidad de vida, salud oral y caries dental en militares de Arequipa, Perú

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Received: 25-III-2025 Accepted: 11-VII-2025

ABSTRACT: The objective of this research was to determine oral health-related quality of life and its relationship with the incidence of dental caries, oral hygiene, and gingival health in a military population in the city of Arequipa, Peru. The study was cross-sectional and included 234 Peruvian military personnel. Oral quality of life was assessed using the Oral Health Impact Profile (OHIP-14Sp) questionnaire. Clinical condition was determined using the DMFT (cavities), OHI-S (simplified oral hygiene), and the Löe and Silness reduced gingival index (GI-r). The median OHIP-14Sp score was 19 (RI: 12-27), with physical pain being the most affected dimension (mean: 4.1±1.7). A significant association was found between the OHIP-14Sp and the OHI-S ($p=0.011$) and OHI-r ($p<0.001$) indices. In the case of the DMFT index, no statistically significant association was found with the overall OHIP-14Sp score ($p=0.152$); however, a trend was observed in which higher DMFT values corresponded to higher OHIP-14Sp scores, suggesting a possible clinically unperceived impact in this population. In conclusion, there is a significant relationship between oral health-related quality of life and levels of oral hygiene and gingival inflammation. Although no statistically significant association was found between DMFT and perceived quality of life, the observed trend suggests that caries experience could influence oral well-being at more advanced stages. Implementing oral health prevention and promotion strategies that address both hygiene and early caries diagnosis in institutional settings is recommended.

KEYWORDS: Quality of life; Oral health; OHIP-14Sp; CPOD; Oral hygiene; Military personnel.

RESUMEN: El objetivo de esta investigación fue determinar la calidad de vida relacionada con la salud bucal y su relación con la frecuencia de caries dental, la higiene oral y la salud gingival en una población militar de la ciudad de Arequipa, Perú. El estudio fue transversal en 234 militares peruanos. La calidad de vida bucal fue evaluada mediante el cuestionario “Perfil de Impacto en la Salud Bucal” (OHIP-14Sp).

La condición clínica se determinó a través de los índices CPOD (caries), IHO-S (higiene oral simplificado) y el índice gingival reducido de Löe y Silness (IG-r). Como resultado, la mediana del puntaje OHIP-14Sp fue de 19 (RI: 12-27), siendo la dimensión más afectada el dolor físico (media: 4,1±1,7). Se encontró una asociación significativa entre el OHIP-14Sp y los índices IHO-S (p=0,011) e IG-r (p<0,001). En el caso del índice CPOD, no se evidenció una asociación estadísticamente significativa con el puntaje global del OHIP-14Sp (p=0,152); sin embargo, se observó una tendencia en la que mayores valores de CPOD se correspondían con mayores puntajes en el OHIP-14Sp, sugiriendo un posible impacto no percibido clínicamente en esta población. En conclusión, existe una relación significativa entre la calidad de vida relacionada con la salud bucal y los niveles de higiene oral e inflamación gingival. Aunque no se halló una asociación estadística significativa entre el CPOD y la percepción de calidad de vida, la tendencia observada sugiere que la experiencia de caries podría influir en el bienestar bucal en etapas más avanzadas. Se recomienda implementar estrategias de prevención y promoción en salud oral que aborden tanto la higiene como el diagnóstico temprano de caries en contextos institucionales.

PALABRAS CLAVE: Calidad de vida; Salud bucal; OHIP-14Sp; CPOD; Higiene oral; Personal militar.

INTRODUCTION

Oral health-related quality of life (CVRSO) is a multidimensional construct that reflects the impact of oral conditions on people's functionality, self-esteem, mental health, and social relationships. Beyond the presence or absence of diseases, this approach considers the way in which oral health affects individuals' daily lives, their psychological well-being, their self-perception, and their ability to function socially (1).

According to the World Health Organization (WHO), more than 3,500 million people in the world suffer from some type of oral condition, the most common being dental caries and periodontal diseases (2). Caries is a disease of multifactorial etiology, characterized by the progressive destruction of hard dental tissues, which can lead to pain, tooth loss and systemic complications if not treated in a timely manner (3,4). On the other hand, gingival diseases, such as gingivitis, are equally prevalent and generate symptoms such as bleeding, inflammation and bad breath, which can have an impact on the aesthetics, comfort and social interactions of those affected (5,6).

Oral health promotion and disease prevention should be initiated from an early age to minimize the impact throughout the life cycle (9,10). To do this, it is essential not only to clinically diagnose oral conditions, but also to understand how they are perceived by patients. The combination of objective clinical indicators, such as the index of decayed, missing and filled teeth (DMFT), the Simplified Oral Hygiene Index (IHO-S) and the reduced gingival index (IG-r), with self-perception instruments, allows us to obtain a comprehensive view of the oral health status in a given population (14-17).

In this context, the Oral Health Impact Profile (OHIP-14Sp), which was developed by Gary D. Slade in 1994, together with his research team in Australia, has become a widely used and validated tool to assess the perceived impact of oral health on quality of life. The OHIP-14Sp consists of 14 items grouped into seven dimensions: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap (15). This instrument has demonstrated good validity and reliability in various Latin American contexts and has been adopted as

a reference in epidemiological and clinical studies that seek to evaluate HRQoL in different population groups (15,20).

Several studies have shown a significant relationship between OHIP-14Sp scores and clinical indicators of oral health. For example, Quintanilla-Cohello and García-Rupaya (3) found that while most participants perceived a positive impact of their oral health on their daily lives, psychological distress remained a critical component. Likewise, research such as that of Valenzuela-Ramos *et al*. (21), Chávez and Zapata (20), and Galecio-Calle and Rojas-Padilla (22) has underlined that poor oral hygiene, combined with gum disease and untreated caries, has a direct impact on the levels of psychological and functional well-being of individuals.

Despite this evidence, there are still populations that are little studied in terms of their oral health and quality of life, as is the case of military personnel. Factors such as physical demands, exposure to adverse environmental conditions, unbalanced eating routines, and limited access to dental services predispose members of the Armed Forces to develop oral diseases silently but progressively (24). Added to this is the fact that oral health may not be perceived as a priority within the military context, which could aggravate pre-existing oral conditions.

In this framework, the present study aims to analyze the relationship between the DMFT, IHO-S and IG-r indicators and quality of life related to oral health, measured by the OHIP-14Sp questionnaire, in a young military population in the city of Arequipa, Peru. By integrating clinical and perception instruments, this research seeks to generate useful evidence to design preventive, educational, and therapeutic interventions adapted to the military context, reinforcing oral health as a key component of comprehensive well-being in this strategic population.

MATERIAL AND METHODS

This descriptive research is quantitative, non-experimental, observational and cross-sectional. The population studied was made up of 300 military personnel who work in the Mariano Bustamante barracks of the Third Service Brigade - III Army Division, in the district of Mariano Melgar in the city of Arequipa. For the present study, the formula was used to estimate a population proportion, considering a confidence level of 95%, an expected proportion of 50% (which maximizes the sample size) and an accuracy of 5%, which determined a minimum sample size of 169 subjects. However, to increase the precision of the study, a precision of 3% was chosen, thus obtaining a final sample size of 234 participants aged 18 to 26 years, male or female, who were serving in the military at the aforementioned facility, selecting them randomly. Civilian personnel or personnel serving at another facility and military personnel who did not agree to be part of this investigation were excluded. Subject recruitment and data collection were carried out between the months of August and December of FY-2022.

Through questionnaires and structured interviews, an indication of eating habits, previous access to dental care and socioeconomic level was obtained, to identify the characteristics of the study sample. The Kappa index was used to corroborate the researcher's calibration, values above 90% were obtained to guarantee the consistency and reliability of the data collected.

This research received the approval of the Ethics Committee of the Scientific University of the South with certificate number No. 280-CIEI-CIENTÍFICA-2022.

PROCEDURE

For oral health-related quality of life (CVRSO), the OHIP-14Sp. Questionnaire was applied, which consists of 14 items that allow quantifying the perceived impacts. The questionnaire is of the Likert type and is made up of five answer alternatives: never (1), almost never (2), sometimes (3), frequently (4) and always (5); divided into seven dimensions: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap.

For the collection of clinical data, a structured file was used that allowed the recording of the findings derived from the individual dental examination. This file incorporated three validated instruments widely used in epidemiological studies.

For the topic of oral health, the oral health of military personnel was clinically examined using a collection form to record the data obtained with the DMFT (Decayed, Lost and Filled) indicators, an epidemiological index used to evaluate the prevalence and severity of dental caries.

The IHO-S, an index used to evaluate oral hygiene in a population, is based on identifying the presence of bacterial plaque and dental calculus in six selected teeth.

The Reduced Löe and Silness (IG-r), an index used to assess gingival health in a population, is based on the assessment of gingival inflammation at four sites around each tooth, is used to assess the prevalence and severity of gingivitis.

Estos instrumentos se utilizan comúnmente en estudios epidemiológicos y clínicos para evaluar la salud bucal en una población y relacionarla con otros factores, como la calidad de vida o el impacto de la salud bucal en la calidad de vida.

The procedure was as follows:

An expert in cariology and periodontics trained the researcher in the DMFT, IHO-S, and IG-r indices. This training was carried out with ten randomly selected soldiers, then a pilot test and calibration was carried out with 30 randomly chosen soldiers. A data collection form was applied with the OHIP, CPOD, IHO-S and IG-r indices, verifying the agreement with the expert using the Kappa index, values greater than 90% agreement were obtained.

In accordance with the selection criteria, the military personnel of the Third Service Brigade were summoned, and it was carried out in the dental office of the Regional Military Hospital of Arequipa, who signed informed consent. The OHIP-14 Sp questionnaire was applied through an individual interview, which lasted about ten minutes per participant. Subsequently, a clinical dental examination was performed to evaluate caries (DMFT), oral hygiene (IHO-S) and gingival health (IG-r), lasting approximately 15 minutes per participant.

For descriptive data, mean, standard deviation, median, and interquartile range were calculated. Regarding the categorical variables, absolute and relative frequencies were calculated in simple and tetrachoric tables. In addition, Fisher's Exact Test, the U-Man Whitney and Kruskal Wallis tests were used to compare the overall score of the OHIP-14Sp with categorical variables; Spearman's correlation allowed the comparison of numerical variables. Generalized linear models (GLMs) of the Poisson family were used to determine prevalence

ratios (PRs) between OHIP-14Sp variables and global scores adjusting for sex, age, and covariates (CPOD, IHOS, IG-r indices). We worked with a confidence level of 95%. Data were evaluated using the Stata program (version 17).

RESULTS

The descriptive data in Table 1 highlights a significant proportion (73.4%) of the participants had a high DMFT index, while 72.5% of the sample exhibited a moderate to severe IG-r (Table 1).

Table 2 shows that the highest mean on the OHIP-14Sp scale corresponded to physical pain (4.1±1.7), indicating predominantly negative responses in this dimension compared to the others.

Table 3 shows that the relationship between the OHIP-14Sp scale and the CPO-D index was not significant.

Table 4 shows that dental pain was more common in those who had worse hygiene habits (p=0.030). Sleep problems (p=0.035) and tolerance to oral deficiencies (p=0.047) were more frequent in people with a poor IHOS level.

Table 5 shows the comparison between the IHOS and the overall score of the OHIP-14Sp shows that the groups with regular and poor hygiene presented greater dental problems compared to those with good hygiene ($p<0.05$). Likewise, with respect to the Löe and Silness index, moderate to severe inflammation had higher values related to a low quality of life in relation to oral health

In the multivariate model, shown in Table 6, the Caries Index (DMFT) was not associated with the overall OHIP-14Sp score. The association between the IHOS index and the Löe-Silness index (IG-r) with the overall OHIP-14Sp score were statistically significant relationships.

Table 1. General characteristics and of the OHIP-14Sp in a military population of Arequipa (n=263).

Variables		n	%
Sex			
	Male	236	89,7
	Female	27	10,3
Age (years)Me (RI)		19	19-20
Caries Index (DMFT)			
	Very-low / Low	33	12,5
	Moderate	37	14,1
	High / Very- high	193	73,4
Simplified Oral Hygiene Index (IHOS)			
	Well	16	6,1
	Regular	148	56,3
	A little	99	37,6
Reduced Löe and Silness Index (IG-r)			
	No inflammation/ Mild inflammation	72	27,5
	Moderate inflammation/ Severe inflammation	190	72,5
OHIP-14Sp Me (RI)		19	12-27

Note. Me: Medium; RI: Interquartile Range.

Table 2. OHIP-14Sp scale and scores obtained for each domain in a military population of Arequipa (n=263).

Dimensions	Minimum observed	Maximum observed	M	OF	Me
Functional limitation	0	8	3,1	1,6	3
Physical pain	1	8	4,1	1,7	4
Psychological distress	0	8	3,8	2,2	4
Physical disability	0	8	2,1	2	2
Psychological disability	0	8	2,6	1,9	2
Social disability	0	8	2,5	2	2
Disability	0	8	1,8	1,9	1

Note. M: Medium; SD: standard deviation; Me: Medium.

Table 3. Association between OHIP-14Sp responses and the CPO-D index in the military population of Arequipa in 2022 (n=263).

		CPOD	Never	Almost never	Some-times	Frequently	Always	p*
			%	%	%	%	%	
		Very low/low	3	24,2	54,6	15,2	3	
Functional limitation	Question 1	Moderate	5,4	5,4	67,6	18,9	2,7	0,48
		High/very high	8,8	12,9	59,6	12,9	5,7	
		Very low/low	33,3	42,4	21,2	3	0	
	Question 2	Moderate	37,8	18,9	32,4	8,1	2,7	0,442
		High/very high	30,1	30,6	31,6	3,6	4,2	
		Very low/low	9,1	12,1	48,5	24,2	6,1	
Physical pain	Question 3	Moderate	0	10,8	56,8	18,9	13,5	0,723
		High/very high	7,8	12,9	47,2	19,7	12,4	
		Very low/low	9,1	24,2	48,5	15,2	3	
	Question 4	Moderate	10,8	29,7	48,7	8,1	2,7	0,557
		High/very high	7,3	17,7	48,9	17,7	8,3	
		Very low/low	18,2	27,3	30,3	9,1	15,2	
Psychological discomfort	Question 5	Moderate	18,9	37,8	24,3	0	18,9	0,494
		High/very high	17,6	26,4	31,1	10,9	13,9	
		Very low/low	21,2	15,2	33,3	6,1	24,2	
	Question 6	Moderate	21,6	18,9	18,9	18,9	21,6	0,526
		High/very high	17,6	13,5	36,3	13,5	19,2	
		Very low/low	48,5	18,2	27,3	6,1	0	
Physical disability	Question 7	Moderate	54,1	16,2	24,3	0	5,4	0,335
		High/very high	35,2	25,9	27,5	6,2	5,2	
		Very low/low	42,4	27,3	30,3	0	0	
	Question 8	Moderate	51,4	18,9	21,6	2,7	5,4	0,546
		High/very high	39,1	26	27,6	5,7	1,6	
		Very low/low	45,4	27,3	12,1	9,1	6,1	
Psychological disability	Question 9	Moderate	43,2	24,3	24,3	2,7	5,4	0,646
		High/very high	38,3	23,3	28,5	5,7	4,2	
		Very low/low	27,3	30,3	30,3	6,1	6,1	
	Question 10	Moderate	18,9	48,7	21,6	8,1	2,7	0,229
		High/very high	19,2	25,9	39,9	10,4	4,7	
		Very low/low	39,2	12,1	39,4	6,1	3	
Social disability	Question 11	Moderate	54,1	21,6	21,6	0	2,7	0,245
		High/very high	32,1	22,8	33,7	5,7	5,7	
		Very low/low	24,2	36,4	30,3	3	6,1	
	Question 12	Moderate	43,2	18,9	29,7	5,4	2,7	0,643
		High/very high	31,1	23,8	33,7	7,8	3,6	
		Very low/low	51,5	27,3	18,2	3	0	
Discomfort	Question 13	Moderate	54,1	21,6	16,2	2,7	5,4	0,804
		High/very high	40,9	28,5	23,3	3,1	4,2	
		Very low/low	54,6	15,2	27,3	0	3	
	Question 14	Moderate	42,7	26,6	23,8	3,5	3,5	0,803
		High/very high	44,6	26,9	22,3	3,6	2,6	

* Fisher's Exact Tes.

Table 4. Association between OHIP-14Sp responses and the IHOS index in a military population in Arequipa (n=263).

			Response Alternative (OHIP-14Sp)					
		IHOS	1	2	3	4	5	p*
			%	%	%	%	%	
		Good	0	6,3	81,2	12,5	0	
Functional limitation	P1	Fair	10,1	16,9	61,5	10,1	1,4	0,002
		Poor	5,1	9,1	54,6	20,2	11,1	
		Good	50	31,2	18,8	0	0	
	P2	Fair	28,4	31,8	35,8	1,4	2,7	0,034
		Poor	33,3	28,3	24,2	9,1	5,1	
		Good	12,5	0	31,2	31,3	25	
Physical pain	P3	Fair	7,4	16,9	50	16,9	8,8	0,073
		Poor	5,1	8,1	49,5	23,2	14,1	
		Good	6,3	50	31,3	0	12,5	
	P4	Fair	8,1	20,3	52,7	13,5	5,4	0,03
		Poor	8,2	15,3	45,9	22,5	8,2	
		Good	37,4	31,3	31,3	0	0	
Psychological discomfort	P5	Fair	22,3	27,7	21,6	12,8	15,5	0,001
		Poor	8,1	28,3	42,4	5,1	16,2	
		Good	25	0	43,7	18,7	12,5	
	P6	Fair	19,6	18,9	32,4	9,5	19,6	0,179
		Poor	16,2	10,1	33,3	18,2	22,2	
		Good	56,3	18,7	25	0	0	
Physical disability	P7	Fair	40,5	24,3	25	2,7	7,4	0,049
		Poor	35,4	23,2	30,3	10,1	1	
		Good	43,7	37,5	18,8	0	0	
	P8	Fair	43,5	23,8	25,8	3,4	3,4	0,347
		Poor	37,4	25,2	30,3	7,1	0	
		Good	56,3	25	18,7	0	0	
Psychological disability	P9	Fair	45,9	18,3	27	6,1	2,7	0,035
		Poor	28,3	32,3	25,2	6,1	8,1	
		Good	43,7	31,2	12,5	12,5	0	
	P10	Fair	19,6	27,7	38,5	9,5	4,7	0,343
		Poor	17,2	32,3	36,4	9,1	5	
		Good	68,7	18,8	0	12,5	0	
Social disability	P11	Fair	31,8	23,7	35,1	4,7	4,7	0,057
		Poor	37,4	18,2	34,3	4	6,1	
		Good	75	6,3	18,7	0	0	
	P12	Fair	27,7	26,3	33,8	8,1	4,1	0,047
		Poor	31,3	25,5	33,3	6,1	4	
		Good	43,7	43,7	12,5	0	0	
Discomfort	P13	Fair	48,6	23	23,6	0,7	4,1	0,059
		Poor	37,4	31,3	20	7,1	4	
		Good	68,7	18,7	12,5	0	0	
	P14	Fair	52	22,3	22,3	0,7	2,7	0,042
		Poor	36,4	29,3	24,2	7,1	3	

* Fisher's Exact Test; P1 to P14 (OHIP-14Sp questionnaire questions).

Table 5. Association between the overall OHIP-14Sp score and variables in a military population in Arequipa (n=263).

		OHIP-14Sp		p
		Me	RE	
Sex				
	Male	19	12-26	0.660U
	Female	20	13-28	
Age (years)		0,07C		0,235**
Caries Index (DMFT)				
	Very low/low	18	13-24	
	Moderate	17	11-23	0,989K
	High / Very High	20	13-27	
Simplified Oral Hygiene Index (IHOS)				
	Buenox	15,5	12-17,5	
	Regulary	18	11-27	0,011K
	Maloz	20	15-27	
Reduced Löe and Silness Index (IG-r))				
	No inflammation/Mild swelling	14,5	10-20	<0,001U
	Moderate/severe swelling	20	14-28	

Note. U: U Man Whitney Test; ** Spearman's correlation, C: Correlation coefficient, K: Kruskal-Wallis test; x, y, z: Comparisons with the regular, bad and good category, respectively, with p<0.05 in the Post Hoc test.

Table 6. Multivariate analysis between the overall OHIP-14Sp score and variables in a military population in Arequipa (n=263).

		Raw model			Adjusted modelA		
		RP	IC	p	RP	IC	p
Sex							
	Male	0,99	0,83-1,18	0,923	1,02	0,86-1,21	0,806
	Female	Ref.			Ref.		
Age		1,03	0,98-1,08	0,294	1,03	0,98-1,08	0,278
Caries Index (DMFT)							
	Very low/low	Ref.			Ref.		
	Moderate	0,99	0,78-1,28	0,986	0,94	0,74-1,20	0,596
	High / Very High	1,10	0,79-1,23	0,275	1,02	0,86-1,23	0,824
SKIN							
	Well	Ref.			Ref.		
	Regular	1,30	1,10-1,54	0,002	1,92	1,01-1,39	0,051
	A little	1,45	1,23-1,72	<0.001	1,26	1,06-1,51	0,010
Reduced Löe and Silness Index (IG-r)							
	No inflammation/Mild swelling	Ref.			Ref.		
	Moderate/severe swelling	1,36	1,19-1,56	<0.001	1,30	1,13-1,51	<0.001

Note. A: The adjusted model compares the overall OHIP-14Sp score to DMFT, IHOS, and IG-r respectively. It has been adjusted for sex and age.

DISCUSSION

This research was able to show that oral health and quality of life are only related to oral hygiene and the reduced Löe and Silness index (IG-r), but not to the caries index (DMFT). This finding is interesting, as much previous research has shown that tooth decay affects both physical health and psychological well-being due to pain and the functional repercussions it generates. However, in this case, caries could have been perceived as a localized problem that, in the absence of severe pain or associated infections, does not significantly impact the general perception of quality of life. This is in contrast to periodontal disease, which tends to have a more obvious impact due to the inflammation, pain, and chronic discomfort they generate.

Quality of life has been measured in different populations, such as students, adults, and older adults (9, 23). Mombiedro-Sandoval (24) have documented that factors such as physical demand, long working hours and exposure to the sun cause dehydration, which leads to the consumption of sugary drinks and can reduce salivary flow. This causes the military population to be a focus of oral health research.

On the other hand, studies have homogenized the criteria for analyzing oral health using previously validated instruments (12,19). One of the most widely used to measure quality of life in relation to oral health is the OHIP-14. (15)

In this study, the majority (73.4%) had a very high and high DMFT, which is consistent with what was found in other studies carried out in populations of similar ages, as evidenced in the work of Espinoza-Solano and León-Manco (23). These researchers conducted a study on the frequency of dental caries among university students where they reported that 71.2% had this condition, mainly students from the faculties that have the lowest costs in pensions. In another study, López-Segrega *et al*. (25) observed that 56% of university students in Cartagena had dental caries, similar to what was reported by Arrieta-Vergara *et al*. (26) who found that the prevalence of caries in students was 55.9%. When comparing these studies, it was noted that the prevalence of this dental condition was higher in military personnel. One of the reasons may be an indicator of socioeconomic differences, as pointed out by Vásquez-Rodríguez *et al*. (27), that dental caries is more common in low-income populations.

In contrast to these studies, there is the work of López-Vantour *et al*. (28), who concluded that, in the group of Cuban soldiers they analyzed, the levels of caries are moderate. This reality was determined by the priority that these people give to dental care in the country, and not by their socioeconomic level.

Regarding IHOS, this study obtained a predominantly regular one (56.3%), followed by a bad one (37.6%). These findings were comparable to those of López-Vantour *et al*. (28), where most young people have poor oral hygiene (62.5%). This is attributed to the neglect of personal hygiene during the juvenile stage, where the most important thing is the acceptance of the group. In contrast to the findings of Gómez-Ríos and Morales-García (29), who showed that a high percentage of respondents (81.5%) had good oral hygiene, while a small proportion (17.4%) had regular or poor hygiene.

The incidence of gingivitis in Latin America varies from 34% to 77% (20), with differences depending on the geographical location of the population. In this study, an IG-r was found that showed a mild inflammation of 21.4%, a moderate one of 66.4% and a severe one of 6.1%, these findings were comparable to the study carried out by Puelles (30) where they used the Löe and Silness scale to measure the gingival index in an educa-

tional institution, finding that 50% of the subjects showed mild inflammation, 49% moderate inflammation and only 1% severe inflammation. On the other hand, Álamo and Gallardo (31) identified mild gingival inflammation in 21.5% of young people between 18 and 19 years of age, in Sullana, in addition to 87.5% moderate and no cases of severe gingival inflammation.

When assessing CVRSO with the OHIP-14, low scores were obtained indicating that some people rarely feel that their oral health affects their overall well-being. However, in the domains of physical pain and psychological distress, scores were more negative, suggesting that oral complications impact dental pain and oral health repercussions. Blanco (32) highlights that oral deficiencies are a public health problem that requires a comprehensive approach.

In the adjusted regression model, the Caries Index (DMFT) was not associated with the overall OHIP-14Sp score, this may be due to the fact that the caries is more localized and there may be a period of habituation to the lesion by the subject. On the other hand, the reduced Löe and Silness Index (IG-r) showed that those with moderate to severe inflammation are 30% more likely to experience negative consequences on oral health-related quality of life. Some authors suggest that periodontal diseases can cause greater discomfort, causing pain and inflammation, which is highly perceived by patients (33).

When compared to previous studies, it is observed that while some research has associated high DMFT with a decrease in quality of life, others have found similar results to those of this study, especially in specific populations such as young adults or workers with limited access to dental care. In contrast, r-IG is consistently associated with quality of life due to the visible and palpable effect of gingival inflammation, which can lead to constant discomfort, bleeding when brushing, and, in severe cases, pain that affects feeding and communication.

A point to highlight is that the Simplified Oral Hygiene Index (IHOS), which also showed a strong relationship with quality of life, directly reflects oral hygiene habits. This differentiates it from DMFT, which measures cumulative damage, but is not necessarily linked to current behaviors or present symptoms.

It is likely that the cause of the lack of association between DMFT and quality of life could lie in the degree to which people adapt to the state of their teeth, it is due to the fact that many of the participants have learned to live with dental caries without these representing significant discomfort in their daily lives. especially if they have not progressed to painful or infectious states.

On the other hand, the r-IG and IHOS measure factors that have a more immediate and visible impact on everyday life. Gingival inflammation, for example, is associated with discomfort when eating, bad breath and aesthetic problems, all aspects that people tend to notice more easily and that directly affect their social interactions and quality of life. Poor oral hygiene, reflected in a regular or poor IHOS, can have similar consequences, as well as being an indicator of habits that could generate concern or discomfort in the individual.

Lack of access to regular dental services, ignorance of preventive practices and living conditions can exacerbate problems such as gingivitis and perpetuate inadequate oral hygiene habits. This could explain why these indices, rather than DMFT, more significantly reflect perceptions of quality of life.

This analysis suggests that although DMFT is a key indicator of oral health, it does not always reflect the subjective impact that oral problems have on a person's quality of life. On the other

hand, oral hygiene and gingival inflammation seem to be more relevant in this context due to their direct and visible effect. This highlights the importance of prioritizing education and prevention programs that address not only the incidence of cavities, but also the management of gum disease and the promotion of good oral hygiene habits to improve people's overall well-being. In summary, the study has made it possible to identify the epidemiological profile of oral hygiene of military personnel in Peru, serving as a basis for future oral health interventions in high-risk military populations. These findings will be useful for monitoring oral health indicators in the population studied and could be replicated in other institutions of the Armed Forces.

CONCLUSION

It is concluded that the quality of life in oral health of this military population had negative evaluations in physical pain and psychological discomfort. There was a high frequency of dental caries and poor oral hygiene, with gingival health showing moderate inflammation. The groups with regular and poor hygiene had an impact on their quality of life in relation to oral health, compared to those with good hygiene ($p<0.05$); on the other hand, regarding the Löe and Silness index versus the overall quality of life score in relation to oral health, it indicated that higher levels of inflammation are capable of negatively altering the well-being of individuals. Based on what has been found, in order to improve oral health in this military population, it is essential to implement oral hygiene education programs, as well as to carry out regular campaigns for the prevention and treatment of caries and periodontal diseases. In addition, future research could focus on identifying specific barriers within military culture that impede proper oral hygiene and developing customized strategies to overcome them.

AUTHOR CONTRIBUTION STATEMENT

Conceptualization and design: R.Y.C.C. and C.R.G.R.
Literature review: R.Y.C.C.
Methodology and validation: R.Y.C.C. and C.R.G.R.
Formal analysis: R.Y.C.C.
Research and data collection: R.Y.C.C.
Appeals: C.R.G.R.
Data analysis and interpretation: R.Y.C.C. and C.R.G.R.
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