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Oral health–related quality of life among adolescents in peri-urban communities: A cross-sectional study.

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Abstract

Oral health–related quality of life (OHRQoL) is an important indicator of the impact of oral conditions on daily functioning, well-being, and social interactions, particularly during adolescence, a stage characterized by significant physical and psychosocial development. Assessing OHRQoL in this population is essential for identifying unmet oral health needs and guiding preventive strategies in vulnerable settings. This study aimed to evaluate oral health–related quality of life among adolescents in peri-urban communities. An observational cross-sectional study was conducted among 107 secondary school students selected from a population of 147 adolescents. Data were collected using the Child Perceptions Questionnaire, a validated instrument for assessing OHRQoL in young populations. Descriptive statistical analysis was performed using frequencies and percentages. Overall, 77.6% (n = 83) of participants reported a good level of oral health–related quality of life, while 22.4% (n = 24) reported a moderate level. When stratified by age, a higher proportion of good OHRQoL was observed among 13-year-old adolescents (87.0%), followed by those aged 12 years (80.0%), 11 years (71.4%), and 14 years (71.4%). These findings indicate that most adolescents perceive their oral health as having a limited impact on their daily lives; however, a relevant proportion still experiences some degree of impairment. In conclusion, oral health–related quality of life among adolescents in peri-urban communities was predominantly favorable, although targeted preventive and educational interventions remain necessary to address existing disparities.

Keywords: Oral Health, Quality of Life, Adolescents, Oral Health Impact, Cross-Sectional Studies.

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Introduction

Oral health–related quality of life (OHRQoL) is a multidimensional construct that reflects how oral conditions affect everyday functioning, emotional well-being, social interactions, and self-perception. In contemporary dentistry, OHRQoL has become an essential patient-centered outcome because it complements traditional clinical indicators by incorporating the individual's own experience of oral health and disease. This perspective is particularly relevant during adolescence, a developmental stage in which oral conditions may interfere not only with function and symptoms, but also with self-image, school participation, and social relationships. Recent evidence syntheses have shown that worse oral health status, socioeconomic disadvantage, and demographic factors are consistently associated with poorer OHRQoL in pediatric and adolescent populations. [1–5]

Prior studies conducted in Latin America and Peru have shown that oral conditions such as caries, pain, malocclusion, and perceived dental problems may substantially affect the daily lives of schoolchildren and adolescents, especially in activities related to eating, smiling, oral hygiene, and social interaction. In Peruvian children aged 11 to 14 years, Pulache et al. [6] found that oral health problems were negatively associated with all CPQ11-14 domains and total scores. Likewise, Cadenas de Llano-Pérula et al. [7] reported that more severe caries and malocclusion were associated with poorer oral health perception in Peruvian adolescents from urban and rural communities.

Similar patterns have been observed in Chile, Peru, and Ecuador, where school-based studies have documented a high frequency of impacts on daily performances and considerable variation according to setting and self-perceived oral problems. However, much of the available evidence in the region has relied on Child-OIDP or other instruments, and fewer studies have specifically examined adolescents using CPQ-based approaches in socially vulnerable or peri-urban contexts. [6–12]

From a methodological and public health perspective, assessing OHRQoL in adolescents requires valid and age-appropriate instruments capable of capturing subjective impacts across relevant domains. The Child Perceptions Questionnaire for ages 11–14 (CPQ11-14) was specifically developed for this age group and has demonstrated adequate validity for measuring the perceived impact of oral conditions on quality of life. In Peru, the CPQ11-14 has also been cross-culturally adapted and psychometrically validated for the Peruvian Spanish language, supporting its use in adolescent populations. In addition, review evidence has identified CPQ11-14 as one of the most widely used and best-supported instruments for evaluating OHRQoL in children and adolescents. These characteristics make it especially useful for studying populations living in peri-urban communities, where social and environmental vulnerabilities may shape oral health experiences in ways not fully captured by clinical indicators alone. [13–15]

The objective of this study was to evaluate oral health–related quality of life among adolescents in peri-urban communities. This research is justified by its contribution to the clinical and public health understanding of how adolescents perceive the impact of oral conditions on their daily lives, with direct implications for preventive planning, school-based oral health strategies, and evidence-based dental care in socially vulnerable settings.

Methods

Study Design and reporting guideline

An observational, cross-sectional study was conducted among adolescents from peri-urban communities in 2021. The study was designed and reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement. [16]

Population, sample, and sampling

The target population comprised 147 secondary school students aged 11 to 14 years. The final

sample included 107 adolescents selected through simple random sampling. Sample size was calculated for a finite population using a 95% confidence level, an expected proportion of 50%, and a margin of error of 5%.

Students were eligible if they were enrolled in secondary school during the study period and agreed to participate in the research. Students who declined participation, withdrew after initial agreement, or submitted incomplete questionnaires were excluded from the analysis.

Procedures and data collection

Prior to data collection, authorization was obtained from the relevant academic and administrative authorities. Data were collected remotely through a self-administered online questionnaire created in Google Forms. Participants completed the questionnaire during scheduled school activities after receiving instructions about the study purpose and response procedure. Informed consent from parents or legal guardians, as well as assent from the adolescents, was obtained before participation.

Once completed, responses were exported to a database for coding and analysis. The study variable was oral health–related quality of life, and the covariables were sex and age group.

Measurement instrument

Oral health–related quality of life was assessed using the Child Perceptions Questionnaire for ages 11–14 years (CPQ11-14), a validated instrument specifically developed for adolescents. The questionnaire contains 37 items grouped into four domains: oral symptoms (items 1–6), functional limitations (items 7–15), emotional well-being (items 16–24), and social well-being (items 25–37). Responses are scored on a Likert-type scale ranging from 0 to 4, and the total score ranges from 0 to 103, with higher scores indicating poorer oral health–related quality of life. [14] The Peruvian Spanish version of the CPQ11-14 has shown satisfactory cross-cultural adaptation and psychometric properties for use in adolescents. [14]

For descriptive interpretation in this study, overall scores were categorized as good (0–34), moderate (35–69), and poor (70–103), according to the study operationalization scheme. Sex was categorized as male or female, and age was grouped into 11, 12, 13, and 14 years.

Variables

The primary variable was oral health–related quality of life, treated as an ordinal qualitative variable. It was evaluated through four dimensions: oral symptoms, functional limitations, emotional well-being, and social well-being.

The covariables were sex, considered a nominal qualitative variable, and age group, considered a quantitative variable categorized according to completed years of age.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 25.0 and Microsoft Excel. Descriptive statistics were used to summarize the findings through absolute frequencies and percentages. Cross-tabulations were performed to describe oral health–related quality of life according to sex and age. If inferential comparisons are retained in the final version of the manuscript, the chi-square test should be applied, with a significance level of 5% ($p < 0.05$).

Ethical Considerations

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. [17] Ethical approval was obtained from a duly constituted institutional ethics committee. Participation was voluntary, and informed consent from parents or legal guardians, as well as assent from adolescent participants, was obtained before data collection. Confidentiality and anonymity were preserved throughout the study, and the collected information was used exclusively for research purposes.

Results

Overall, most adolescents demonstrated a good level of oral health–related quality of life (OHRQoL) (77.6%, n=83), while 22.4% (n=24) were classified as moderate, and no participants were categorized as poor (Table 1).

Table 1. Overall oral health–related quality of life among adolescents in peri-urban communities.

Oral health–related quality of life	n	%
Good	83	77.6
Moderate	24	22.4
Poor	0	0.0
Total	107	100.0

Across the evaluated dimensions, the highest proportion of good OHRQoL was observed in functional limitation (87.9%, n=94), followed by oral symptoms (80.4%, n=86) and social well-being (72.9%, n=78), whereas emotional well-being showed the lowest proportion of good classification (57.9%, n=62) and the highest proportion of moderate levels (42.1%, n=45) (Table 2).

Table 2. Oral health–related quality of life according to its dimensions.

Dimension	Level	n	%
Oral symptoms	Good	86	80.4
	Moderate	21	19.6
	Poor	0	0.0
Functional limitation	Good	94	87.9
	Moderate	13	12.1
	Poor	0	0.0
Emotional well-being	Good	62	57.9
	Moderate	45	42.1
	Poor	0	0.0
Social well-being	Good	78	72.9
	Moderate	29	27.1
	Poor	0	0.0

Regarding sex, a higher proportion of good OHRQoL was observed among males (81.5%, n=44) compared to females (73.6%, n=39), while moderate levels were more frequent in females (26.4%, n=14) than in males (18.5%, n=10) (Table 3).

Table 3. Oral health–related quality of life according to sex.

OHRQoL Level	Male n (%)	Female n (%)	Total
Good	44 (81.5)	39 (73.6)	83
Moderate	10 (18.5)	14 (26.4)	24
Poor	0 (0.0)	0 (0.0)	0
Total	54 (100)	53 (100)	107

In relation to age, the highest proportion of good OHRQoL was found among adolescents aged 13 years (87.0%, n=20), followed by those aged 12 years (80.0%, n=28), whereas lower proportions were observed among those aged 11 and 14 years (both 71.4%) (Table 4).

Table 4. Oral health–related quality of life according to age.

OHRQoL Level	11 n (%)	12 n (%)	13 n (%)	14 n (%)	Total
Good	5 (71.4)	28 (80.0)	20 (87.0)	30 (71.4)	83
Moderate	2 (28.6)	7 (20.0)	3 (13.0)	12 (28.6)	24
Poor	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0
Total	7 (100)	35 (100)	23 (100)	42 (100)	107

Discussion

The present study found that oral health–related quality of life was predominantly classified as good among adolescents from peri-urban communities, with no participants in the poor category. This overall pattern suggests that, in this population, oral conditions may not have produced a severe perceived impact on daily life. This finding is consistent with the multidimensional concept of OHRQoL described by Sischo and Broder [1], Bennadi and Reddy [2], and Baiju et al. [3], who emphasized that perceived oral health burden is shaped not only by clinical conditions but also by psychological, social, and contextual factors. At the

same time, the fact that nearly one quarter of participants were classified in the moderate category indicates that oral health problems still affect a substantial subgroup of adolescents and should not be overlooked from a preventive and public health perspective.

When the dimensions were analyzed separately, functional limitation and oral symptoms showed the highest proportions of good scores, whereas emotional well-being exhibited the lowest proportion of good classification and the highest proportion of moderate impact. This pattern is relevant because it suggests that emotional aspects may be more sensitive to oral health experiences than other domains in this age group. In this regard, Omara et al. [21] reported in their systematic review that OHRQoL in children and adolescents is often distributed across four major dimensions, including oral function, pain-related effects, appearance, and psychosocial impact, and that these domains are not necessarily affected to the same extent. Likewise, Pulache et al. [6], working with Peruvian children aged 11 to 14 years, found that oral problems were associated with worse CPQ11-14 scores across all domains, supporting the view that emotional and social consequences may emerge even when clinical impacts are not perceived as severe.

Our results also showed descriptive differences according to sex and age. A higher proportion of good OHRQoL was observed among males than females, and the highest proportion of good OHRQoL was found among 13-year-old adolescents. Although these differences should be interpreted cautiously in the absence of stronger analytical modeling, they are broadly compatible with previous evidence suggesting that sex and age can influence adolescents' self-perceived oral health. Chimbinha et al. [4], in their umbrella review, identified female sex and older age among the factors often associated with poorer OHRQoL. Similarly, Sfreddo et al. [19] reported that socioeconomic disadvantage and female sex were associated with worse CPQ11-14 scores over time, while Hu et al. [22] found that adolescent OHRQoL was also related to sociodemographic and behavioral characteristics. These findings suggest that perceived oral health is embedded within broader developmental and social contexts rather than explained exclusively by clinical status.

From a clinical and scientific standpoint, the findings reinforce the value of incorporating patient-reported outcomes into adolescent oral health assessment. Traditional epidemiological indicators are important, but they do not fully capture how oral conditions interfere with daily life, especially in socially vulnerable settings. As Foster Page et al. [13] established, and Abanto et al. [14] later confirmed for Peruvian Spanish, the CPQ11-14 is a suitable instrument to assess these subjective impacts in adolescents. Moreover, previous studies by Moreno et al. [8], Paredes-Martínez and Díaz-Pizán [9], Ingunza et al. [10], Reinoso-Vintimilla and del Castillo-López [11], and Encalada Verdugo et al. [12] have shown that schoolchildren frequently report impacts on eating, smiling, oral hygiene, and social interaction. In that sense, identifying a predominantly favorable OHRQoL in the present study does not eliminate the need for school-based prevention and early management, particularly for those adolescents who already report moderate impairment in emotional and social domains.

This study has some strengths, including the use of a validated Peruvian version of the CPQ11-14, the inclusion of adolescents from a peri-urban context, and the structured evaluation of four OHRQoL domains. However, certain limitations should also be acknowledged. First, the cross-sectional design prevents causal inference. Second, the study relied on self-reported responses, which may be affected by recall and reporting bias. Third, the absence of concurrent clinical examinations limited the possibility of directly linking perceived quality of life with specific oral conditions. This limitation is important because previous studies have shown that dental caries, malocclusion, and traumatic dental injuries may negatively affect adolescent OHRQoL. Scapini et al. [18] found that malocclusion negatively affected adolescents' quality of life independently of caries and trauma, while Göranson et al. [20] later confirmed in a systematic review and meta-analysis that malocclusions have a negative impact on OHRQoL after adjustment for confounders. In addition, Das et al. [23] showed that

traumatic dental injuries can strongly influence OHRQoL in children and adolescents. Future research should therefore combine subjective instruments such as the CPQ11-14 with clinical oral health indicators, include broader peri-urban and rural populations, and explore longitudinal changes over time to better understand the determinants of adolescent OHRQoL.

Conclusions

Oral health–related quality of life among adolescents was predominantly classified as good, with no cases of poor quality of life identified. Across dimensions, functional limitation and oral symptoms showed the highest levels of favorable outcomes, whereas emotional well-being presented a greater proportion of moderate impact. Descriptive differences were observed according to sex and age, with higher proportions of good quality of life among males and among adolescents aged 13 years.

Author Contributions Statement (CRediT)

JS: Conceptualization, Formal analysis, Data curation, Validation, Visualization, Methodology, Writing – Original Draft, Supervision.

AG: Resources, Project administration, Funding acquisition, Writing – Review & Editing.

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Conflict of Interest

The authors declare that there are no competing interests of any kind, whether financial, institutional, or personal, that could have influenced the design, execution, or reporting of this study.

Data Availability

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

References

[1] Sischo L, Broder HL. Oral health-related quality of life: what, why, how, and future implications. J Dent Res. 2011;90(11):1264-1270. https://doi.org/10.1177/0022034511399918

[2] Bennadi D, Reddy CVK. Oral health related quality of life. J Int Soc Prev Community Dent. 2013;3(1):1-6. https://doi.org/10.4103/2231-0762.115700

[3] Baiju RM, Peter E, Varghese NO, Sivaram R. Oral health and quality of life: current concepts. J Clin Diagn Res. 2017;11(6):ZE21-ZE26. https://doi.org/10.7860/JCDR/2017/25866.10110

[4] Chimbinha IGM, Ferreira BNC, Miranda GP, Guedes RS. Oral-health-related quality of life in adolescents: umbrella review. BMC Public Health. 2023;23(1):1603. https://doi.org/10.1186/s12889-023-16241-2

[5] Moghaddam LF, Vettore MV, Bayani A, Bayat AH, Ahounbar E, Hemmat M, et al. The association of oral health status, demographic characteristics and socioeconomic determinants with oral health-related quality of life among children: a systematic review and meta-analysis. BMC Pediatr. 2020;20(1):489. https://doi.org/10.1186/s12887-020-02371-8

[6] [6] Pulache J, Abanto J, Oliveira LB, Porras JC, Bönecker M. Exploring the association between oral health problems and oral health-related quality of life in Peruvian 11- to 14-year-old children. Int J Paediatr Dent. 2016;26(2):81-90. https://doi.org/10.1111/ipd.12160

[7] Cadenas de Llano-Pérula M, Ricse E, Fieuws S, Willems G, Orellana-Valvekens MF. Malocclusion, dental caries and oral health-related quality of life: a comparison between adolescent school children in urban and rural regions in Peru. Int J Environ Res Public Health. 2020;17(6):2038. https://doi.org/10.3390/ijerph17062038

[8] Moreno X, Vera C, Cartes R. Impacto de la salud bucal en la calidad de vida de escolares de 11 a 14 años, Licantén, 2013. Rev Clin Periodoncia Implantol Rehabil Oral. 2014;7(3):142-148. https://doi.org/10.1016/j.piro.2014.07.002

[9] Paredes-Martínez ER, Diaz-Pizan ME. Impacto de las condiciones bucales sobre la calidad de vida en escolares del distrito de San Juan de Miraflores. Rev Estomatol Herediana. 2014;24(3):171-177. https://doi.org/10.20453/reh.v24i3.2092

[10] Marcelo Ingunza J, del Castillo López C, Evangelista-Alva A, Sanchez Borjas P. Calidad de vida relacionada a la salud bucal en escolares de ámbito urbano-marginal. Rev Estomatol Herediana. 2015;25(3):194-204. https://doi.org/10.20453/reh.v25i3.2622
[11] Reinoso-Vintimilla N, del Castillo-López C. Calidad de vida relacionada a la salud bucal en escolares de Sayausí, Cuenca Ecuador. Rev Estomatol Herediana. 2017;27(4):227-234. https://doi.org/10.20453/reh.v27i4.3214
[12] Encalada Verdugo L, Garcia-Rupaya CR, del Castillo López CE. Calidad de vida relacionada a la salud oral en escolares del sector urbano y rural. Cañar, Ecuador. Rev Estomatol Herediana. 2018;28(2):105-114. https://doi.org/10.20453/reh.v28i2.3326
[13] Foster Page LA, Thomson WM, Jokovic A, Locker D. Validation of the Child Perceptions Questionnaire (CPQ11-14). J Dent Res. 2005;84(7):649-652. https://doi.org/10.1177/154405910508400713
[14] Abanto J, Albites U, Bönecker M, Martins-Paiva S, Castillo JL, Aguilar-Gálvez D. Cross-cultural adaptation and psychometric properties of the Child Perceptions Questionnaire 11-14 (CPQ11-14) for the Peruvian Spanish language. Med Oral Patol Oral Cir Bucal. 2013;18(6):e832-e838. https://doi.org/10.4317/medoral.18975
[15] De Stefani A, Bruno G, Irlandese G, Barone M, Costa G, Gracco A. Oral health-related quality of life in children using the Child Perception Questionnaire CPQ11-14: a review. Eur Arch Paediatr Dent. 2019;20(5):425-430. https://doi.org/10.1007/s40368-019-00418-8
[16] Von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP; STROBE Initiative. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. PLoS Med. 2007;4(10):e296. https://doi.org/10.1371/journal.pmed.0040296
[17] World Medical Association. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. JAMA. 2013;310(20):2191-2194. https://doi.org/10.1001/jama.2013.281053
[18] Scapini A, Feldens CA, Ardenghi TM, Kramer PF. Malocclusion impacts adolescents' oral health-related quality of life. Angle Orthod. 2013;83(3):512-518. https://doi.org/10.2319/062012-509.1
[19] Sfreddo CS, Moreira CHC, Nicolau B, Ortiz FR, Ardenghi TM. Socioeconomic inequalities in oral health-related quality of life in adolescents: a cohort study. Qual Life Res. 2019;28(9):2491-2500. https://doi.org/10.1007/s11136-019-02229-2
[20] Göranson E, Ahl-Nuamah K, Blixt M, Bondemark L. Malocclusions and quality of life among adolescents: a systematic review and meta-analysis. Eur J Orthod. 2023;45(3):295-307. https://doi.org/10.1093/ejo/cjad009
[21] Omara M, Stamm T, Bekes K. Four-dimensional oral health-related quality of life impact in children: A systematic review. J Oral Rehabil. 2021;48(3):293-304. https://doi.org/10.1111/joor.13066
[22] Hu X, Wang C, Gao J, Tian J, Li L, Li Z, et al. Association between oral health-related behaviors and quality of life of adolescents among three provinces in Northwest China. Front Public Health. 2024;12:1407623. https://doi.org/10.3389/fpubh.2024.1407623
[23] Das P, Mishra L, Jena D, Govind S, Panda S, Lapinska B. Oral health-related quality of life in children and adolescents with a traumatic injury of permanent teeth and the impact on their families: A systematic review. Int J Environ Res Public Health. 2022;19(5):3087. https://doi.org/10.3390/ijerph19053087