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ORIGINAL

Quality of life and oral hygiene habits in schoolchildren aged 11 to 14

Calidad de vida y hábitos de higiene bucal en escolares de 11 a 14 años

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ABSTRACT

Introduction: oral diseases affect the quality of life of schoolchildren, especially during the transition period between childhood and adolescence.
Objective: to determine the relationship between quality of life and oral hygiene habits in schoolchildren aged 11 to 14.
Method: a basic, quantitative, correlational study with a non-experimental cross-sectional design. The sample consisted of 237 schoolchildren selected by simple random probability sampling from a population of 618 students. Two validated questionnaires were administered: the CPQ-Esp 11-14 to measure oral quality of life and a structured questionnaire to assess oral hygiene habits. Data analysis was performed in SPSS v. 26 using descriptive statistics using the Spearman coefficient and the Chi-square test.
Results: a low positive correlation was found between quality of life and oral hygiene habits (rho = 0,281; $p < 0,01$). A significant relationship was also found between both variables and the age and sex of the schoolchildren ($p < 0,05$). "Low" quality of life and "fair" hygiene habits predominated.
Conclusions: there is a significant relationship between quality of life and oral hygiene habits, suggesting the need to strengthen educational strategies in oral health from school age.

Keywords: Oral Health; Quality Of Life; Oral Hygiene; Schoolchildren; Sociodemographic Factors.

RESUMEN

Introducción: las enfermedades bucodentales afectan la calidad de vida de los escolares, especialmente durante la etapa de transición entre la niñez y la adolescencia.
Objetivo: determinar la relación entre la calidad de vida y los hábitos de higiene bucal en escolares de 11 a 14 años.
Método: estudio básico, cuantitativo, correlacional y de diseño no experimental de corte transversal. La muestra fue de 237 escolares seleccionados mediante muestreo probabilístico aleatorio simple, a partir de una población de 618 estudiantes. Se aplicaron dos cuestionarios validados, el CPQ-Esp 11-14 para medir la calidad de vida bucal y un cuestionario estructurado para evaluar los hábitos de higiene bucal. El análisis de datos se efectuó en SPSS v.26 utilizando estadística descriptiva mediante el coeficiente de Spearman y la prueba Chi-cuadrado.
Resultados: se halló una correlación positiva baja entre la calidad de vida y los hábitos de higiene bucal (rho = 0,281; $p < 0,01$). Asimismo, se evidenció relación significativa entre ambas variables con la edad y el sexo de los escolares ($p < 0,05$). Predominó la calidad de vida "baja" y hábitos de higiene "regulares".
Conclusiones: existe una relación significativa entre la calidad de vida y los hábitos de higiene bucal, lo que sugiere la necesidad de fortalecer estrategias educativas en salud bucodental desde edades escolares.

Palabras clave: Salud Bucodental; Calidad De Vida; Higiene Oral; Escolares; Factores Sociodemográficos.

INTRODUCTION

The World Health Organisation (WHO) reported that oral diseases are the leading cause of pain, discomfort, deformity, etc. in the health sector, affecting people's quality of life.[1] It is estimated that almost 3,5 billion people suffer from these diseases, with dental caries being the most common and morbid disorder in 2017. It is also estimated that almost 10 % suffer from severe periodontitis. As treatment is expensive, many people do not seek care, and prevention is neglected.[2]

The transition from childhood to adulthood is the stage that generally impacts oral health with the appearance of caries, gingivitis, periodontitis, among other problems that can lead to poor psychosocial conditions related to self-esteem and aesthetics. In this sense, quality of life is often perceived as unsatisfactory due to oral pathologies that affect overall health.[3]

Scientific literature has identified that the preschool and school years are the most significant risk and manifestation of oral diseases due to inadequate hygiene habits.[4] Thus, a study in Nigeria reports that 12-year-old schoolchildren have a higher prevalence of gingivitis, with poor oral hygiene resulting from the misuse of toothbrushes and toothpaste, as well as a lack of importance placed on cleaning and care.[5]

In Mexico, a sample of 259 schoolchildren showed that 70 % brush their teeth twice a day and 30 % only once or not at all; 90 % use only toothbrushes and toothpaste, and 6 % also use dental floss. It is also recognised that the dental symptoms of inadequate hygiene practices or habits cause tongue lesions (40 %), bleeding gums (40 %), and toothache (60 %), affecting quality of life.[6]

Rodríguez, F. et al. pointed out that children aged 11 to 14 in the Brazilian state of Amazonas report discomfort in their teeth and mouth to such an extent that it causes them pain, discomfort and bad breath; symptoms that generate sadness, frustration or concerns about their teeth, negatively impacting their emotional well-being, limiting the performance of daily routines and creating social harm.[7]

Although behaviour is a personal factor in guiding schoolchildren towards healthy oral hygiene habits, it is sometimes influenced by their parents' decisions, attention, and importance to their children's health.[8,9] Furthermore, it is in the educational environment that high consumption of sweets and sweetened drinks occurs, which is why oral health education is prioritised through strategies to strengthen hygiene habits. However, oral health problems worldwide remain difficult to reduce.[10,11]

In the Peruvian context, a public educational institution in Tacna found that of 116 students aged 8 to 10, 90,5 % had poor oral hygiene, 76,7 % had poor oral quality of life, and 23,3 % had fair oral quality of life, with a significant relationship between these variables.[12] In another institution, 202 students aged 11 to 14 were found to have excellent oral quality of life (21,3 %) and poor oral quality of life (18,3 %), with social well-being being the most significant problem in the lives of schoolchildren (73,8 %).[13]

However, few studies have been conducted locally on quality of life and oral hygiene habits in the 11-14 age group. This led the Cleofe Arévalo Del Águila institution, located in the city of La Banda de Shilcayo, to recognise problems of this nature, as schoolchildren showed signs and symptoms of poor oral health. Thus, the general objective was to determine the relationship between quality of life and oral hygiene habits in schoolchildren aged 11 to 14.

METHOD

The basic study aimed at expanding existing knowledge without seeking immediate applications. A quantitative approach was adopted, using numerical data to describe, analyse, and interpret the results. The level of research was correlational, as the aim was to identify the relationship between the variables of quality of life and oral hygiene habits. The methodological design was non-experimental and cross-sectional, as the variables were not manipulated and the data were collected at a single point, allowing the relationship between variables to be analysed under natural conditions.

Two main variables were considered: quality of life as the independent variable and oral hygiene habits as the dependent variable. Quality of life was assessed using the CPQ-Esp 11-14 questionnaire, which consists of four dimensions: oral symptoms (6 items), functional limitation (9 items), emotional well-being (9 items), and social well-being (13 items), for a total of 37 indicators. Oral hygiene habits were measured using a questionnaire that included three dimensions: oral hygiene items, oral hygiene habits, and oral hygiene techniques, each with four items, for 12 indicators.

The unit of analysis consisted of schoolchildren aged 11 to 14 from the Cleofe Arévalo del Águila Educational Institution, located in the district of La Banda de Shilcayo, Peru. The total population was 618 students, and the sample selected consisted of 237 schoolchildren, calculated with a confidence level of 95 %. The sampling method used was simple random sampling, which ensured that all students had the same probability of being selected.

Data were collected using a survey technique and two questionnaires as instruments. The first was the CPQ-Esp 11-14 questionnaire, adapted and validated by Núñez et al.[14], designed to assess the quality of life related to oral health in children. The second questionnaire, based on the work of Mego,[15] assessed oral hygiene habits

using 12 items with a three-level nominal scale (poor, fair, and reasonable). Both instruments were validated by three experts in dentistry using Aiken's V coefficient, which yielded a value of 1,0, indicating optimal validity. Reliability was verified using Cronbach's alpha test, achieving an index of 0,79 for the quality of life questionnaire and 0,72 for the oral hygiene habits questionnaire, which guaranteed their internal consistency and reliability for application.

The data obtained were initially processed in Microsoft Excel 2019 and then analysed using SPSS statistical software version 26. Descriptive statistical techniques were used to categorise the variables, and inferential statistics were used to verify their relationships. Given the ordinal nature of the data, Spearman's correlation coefficient was used to analyse the relationship between quality of life and oral hygiene habits. In addition, Pearson's chi-square test was applied to contrast relationships according to age and gender, establishing a significance level of 5 % ($p < 0,05$).

Regarding ethical aspects, informed consent was requested from the participating schoolchildren, who were clearly and comprehensively informed about the objectives of the study, its voluntary nature, and the confidentiality of their responses. The physical and psychological well-being of the minors was guaranteed before, during, and after the data collection process. Likewise, the confidentiality of the information and the anonymity of the participants were ensured by using the data exclusively for academic and scientific purposes, using the data exclusively for academic and scientific purposes, using the data exclusively for academic and scientific purposes, by the principles of integrity and good research practices.

RESULTS

According to Table 1, it was determined that the quality of life variable had a low positive correlation (rho = 0,281) with the oral hygiene habits of children at the Cleofe Arévalo Del Águila Educational Institution. from which it can be inferred that, according to the CPQ-Esp 11-14, frequent indicators of low quality of life related to oral health, oral hygiene habits are poor among schoolchildren in La Banda de Shilcayo.

Table 1. Relationship between quality of life and oral hygiene habits

		Oral hygiene habits
Quality of life	Correlation coefficient	0,281**
	Mr. (bilateral)	0,000
	N	237

Note: **. Correlation is significant at the 0,01 level (two-tailed).

To test the research hypothesis, the following was proposed:

H0: No significant relationship exists between quality of life and oral hygiene habits in schoolchildren aged 11 to 14.

H1: A significant relationship exists between quality of life and oral hygiene habits in schoolchildren aged 11 to 14 in La Banda de Shilcayo.

Therefore, according to the table above, the p-value was 0,000, which is less than 0,05, so the null hypothesis is rejected, i.e., there is a significant relationship between quality of life and oral hygiene habits in schoolchildren aged 11 to 14 in La Banda de Shilcayo.

On the other hand, table 2 shows that the p-value was less than 0,05 for both quality of life and oral hygiene habits, so the variables analysed are dependent or related. Age is a determining factor for schoolchildren aged 11 to 14 in La Banda de Shilcayo in defining their quality of life and oral hygiene habits.

Table 2. Relationship between quality of life and oral hygiene habits according to age

Variables/Levels			Age				Total	p
			11	12	13	14		
Quality of life	Low	Recount	86	102	18	26	232	**0,000
		% within Quality of life	37,1 %	44,0 %	7,8 %	11,2 %	100,0 %	
	Regular	Recount	1	2	2	0	5	
		% within Quality of life	20,0 %	40,0 %	40,0 %	0,0 %	100,0 %	
Total		Recount	87	104	20	26	237	
		% within Quality of life	36,7 %	43,9 %	8,4 %	11,0 %	100,0 %	
Oral hygiene habits	Low	Recount	9	9	3	1	22	**0,000
		% within Oral hygiene habits	40,9 %	40,9 %	13,6 %	4,5 %	100,0 %	
	Regular	Recount	63	83	16	18	180	
		% within Oral hygiene habits	35,0 %	46,1 %	8,9 %	10,0 %	100,0 %	

	High	Recount	15	12	1	7	35
		% within Oral hygiene habits	42,9 %	34,3 %	2,9 %	20,0 %	100,0 %
Total		Recount	87	104	20	26	237
		% within Oral hygiene habits	36,7 %	43,9 %	8,4 %	11,0 %	100,0 %

Note: **. Correlation is significant at the 0,01 level (two-tailed).

Of the 237 schoolchildren surveyed, 232 reported a 'low' quality of life, and 5 reported a 'fair' quality of life. Oral hygiene habits were also found to be 'poor' for 22 schoolchildren, 'fair' for 180, and 'good' for 35. According to age, 'low' quality of life predominated in 12-year-old schoolchildren with 44,0 %, followed by 11 (31,7 %), 14 (11,2 %), and 13 (7,8 %) years old. On the other hand, 40,0 % of schoolchildren aged 12 and 13 reported 'fair' quality of life. No schoolchildren were found to have a high quality of life regarding oral health.

Regarding oral hygiene habits, 22 schoolchildren had 'poor' oral hygiene habits, 180 had "fair" habits, and 35 had 'good' habits. According to age, 'regular' oral hygiene habits were predominant among 12-year-old schoolchildren (46,1 %), followed by 11-year-olds (35,0 %), 14-year-olds (10,0 %), and 13-year-olds (8,9 %). There were also cases of 'poor' habits in schoolchildren aged 11 and 12 (40,9 %), 13 (13,6 %), and 14 (4,5 %). On the other hand, there were schoolchildren with 'high' oral hygiene habits distributed among 11 (42,9 %), 12 (34,3 %), 13 (2,9 %), and 14 (20,0 %) years of age.

To analyse the relationship between quality of life and oral hygiene habits in schoolchildren aged 11 to 14 years according to gender, Pearson's chi-square inferential statistic was used, as one of the variables came from a nominal scale. In this regard, Table 3 shows that the p-value was 0,000, which is less than 0,05, confirming that gender is related to quality of life and oral hygiene habits in schoolchildren aged 11 to 14 years in La Banda de Shilcayo (table 3).

Table 3. Relationship between quality of life and oral hygiene habits according to gender

Variables/Levels			**Sex**		**Total**	**p**
			Feminine	**Male**		
Quality of life	Low	Recount	113	119	232	*0,000
		% within Quality of life	48,7 %	51,3 %	100,0 %	
	Regular	Recount	3	2	5	
		% within Quality of life	60,0 %	40,0 %	100,0 %	
Total		Recount	116	121	237	
		% within Quality of life	48,9 %	51,1 %	100,0 %	
Oral hygiene habits	Low	Recount	11	11	22	
		% within Oral hygiene habits	50,0 %	50,0 %	100,0 %	
	Regular	Recount	92	88	180	
		% within Oral hygiene habits	51,1 %	48,9 %	100,0 %	
	High	Recount	13	22	35	
		% within Oral hygiene habits	37,1 %	62,9 %	100,0 %	
Total		Recount	116	121	237	*0,000
		% within Oral hygiene habits	48,9 %	51,1 %	100,0 %	

Note: *Pearson's chi-square test with significance level p < 0,05.

Likewise, a prevalence of 'low' quality of life was observed in 51,3 % of male schoolchildren and 48,7 % of female schoolchildren. A 'fair' quality of life was also identified in 60 % of female and 40,0 % of male schoolchildren. About oral hygiene habits by gender, 'regular' habits were predominant in 51,1 % of female schoolchildren and 48,9 % of male schoolchildren. This was followed by 'high' habits in 62,9 % of male and 37,1 % of female schoolchildren. Finally, there was an equal distribution of 'poor' oral hygiene habits among 50 % of female and male schoolchildren.

DISCUSSION

This research aimed to determine the relationship between quality of life and oral hygiene habits in schoolchildren aged 11 to 14 years, through the application of reliable instruments, obtaining a low positive correlation rho = 0,281 and p-value < 0,05, a result that agrees with the study by Armas et al.[16] in Ecuador, who, when surveying schoolchildren, found a correlation between quality of life and difficulty drinking, eating and speaking (p-value < 0,05), problems associated with poor oral hygiene habits due to functional limitations in quality of life.

In the same field, Reinoso et al.[17] reported, based on an analytical study of 359 schoolchildren aged 11 and 12, the incidence of quality of life on the oral health of adolescents, with 98,8 % showing some impact

on their oral well-being as a result of inadequate habits, a result higher than that found in the present study, where, with a representative sample of 237 schoolchildren aged 11 to 14, a dependence of 28,1 % (rho = 0,281) of quality of life on oral hygiene habits was identified. When compared with the study by Figueroa,[18] who evaluated 60 patients between the ages of 6 and 12, it was determined that the quality of life of minors is not related to oral health or hygiene habits (p>0,05); from which it can be inferred that age is a determining factor in the prevalence of the relationship between the variables studied.

Research reports in the Peruvian context, such as the case of Díaz et al.[19] in Chiclayo, identified a high positive relationship between oral habits and quality of life in 244 students aged 12 to 16. In contrast, Agurto et al.[20] in Piura found a slight inverse relationship (rho = -0,172) between quality of life and oral health in 150 adolescents. The first case supports the findings of the low positive relationship presented in this study. In contrast, the second report differs from the reality of schoolchildren aged 11 to 14 in La Banda Shilcayo.

Regarding the relationship between quality of life and oral hygiene habits in schoolchildren aged 11 to 14 years according to age, a relationship was demonstrated (p-value < 0,05). This finding is similar to that reported by Diaz et al.[19], who found a significant relationship between quality of life and oral health with age (degree of dependence of 24,3 %) in schoolchildren aged 12 to 16.

This study by Perez[21] also reported that 68,8 % of schoolchildren had a fair quality of life, and 23,6 % had good oral hygiene but a poor quality of life. These values are related to the present study, where there was a predominance of 'low' quality of life in 12-year-old schoolchildren with 44,0 %, followed by 11 (31,7 %), 14 (11,2 %), and 13 (7,8 %) years. On the other hand, 40,0 % of schoolchildren aged 12 and 13 had a 'regular' quality of life. The study by Discuvich[22] estimated that, using the CPQ11-14 instrument, of 354 schoolchildren, 40,1 % considered their dental health good and 2,8 % considered it poor. It also highlights that 5,4 % reported negative oral symptoms almost daily, with a predominance of regular quality of life, as found in the present study.

In contrast, in Ecuador, Constante et al.[23] found that there is no relationship between perceived quality of life and oral health in 128 adolescents aged 11 to 14 years (p-value > 0,05), a result that differs from that found in the present study, where, based on 237 schoolchildren aged 11 to 14, a positive relationship was found between age and quality of life (p-value < 0,005), as in the study by Cervantes et al.[24], which confirmed the association between age and quality of life related to oral health in 62 adolescents.

About oral hygiene habits, this study showed a predominance of 'regular' oral hygiene habits in 12-year-old schoolchildren (46,1 %), followed by 11-year-olds (35,0 %), 14-year-olds (10,0 %), and 13-year-olds (8,9 %). Cases of 'poor' habits were also reported in schoolchildren aged 11 and 12 (40,9 %), 13 (13,6 %), and 14 (4,5 %). On the other hand, there were schoolchildren with 'high' oral hygiene habits distributed among 11 (42,9 %), 12 (34,3 %), 13 (2,9 %), and 14 (20,0 %) years of age. These results are consistent with those of Aranguren,[25] who conducted a study in Lima, Peru, on a population of 90 schoolchildren aged 11 to 14 years and found that 72,2 % of schoolchildren had 'fair' oral health, 18,9 % had 'poor' oral health and only 8,9 % had 'good' oral health, all about oral hygiene habits. Similarly, in Ecuador, in the study by Salazar et al.[26], due to the impact of oral hygiene habits and quality of life on a population of 103 schoolchildren, they found that 56,3 % of schoolchildren aged 11 to 14 had a 'very mild' condition about their oral health. In contrast, 34 % had a mild condition.

Sáenz et al.[27] mention that, in general, 96,15 % of schoolchildren in the 12-year-old group have a common oral health problem. They also found that 49,52 % had 'fair' oral hygiene and 45,71 % had 'good' oral hygiene. According to Alcantara[28], based on their study conducted in Junín, Peru, on a group of 276 schoolchildren aged 11 and 12, their quality of life was 'very severe' for 79,2 % of 11-year-olds, with the highest value, and for 50 % of 12-year-olds, with 'inferior' quality of life. Thus, Alcaina et al.[29] suggest that the most common bad habits in the 12-17 age group that are harmful to oral health are: infrequent brushing, lack of importance given to visits to the dentist, a sedentary lifestyle, and high consumption of foods with high sugar content.

CONCLUSIONS

A significant, albeit small, relationship exists between quality of life and oral hygiene habits in schoolchildren aged 11 to 14. Most students reported a 'low' quality of oral life and 'fair' hygiene habits, with age and gender being factors related to both variables.

These findings suggest that inadequate oral hygiene practices directly impact the physical, emotional, and social well-being of schoolchildren, affecting their daily functioning and their perception of health.

From a practical perspective, the study highlights the importance of implementing oral health education programmes aimed at children and adolescents in schools and the family environment. Interventions should focus on improving oral hygiene knowledge and techniques, promoting appropriate tools such as toothbrushes and dental floss, and encouraging sustainable habits from an early age. The results can also serve as a basis for local public health policies integrating preventive and monitoring actions in educational institutions, with the active participation of teachers, parents, and health professionals. This will contribute to improving not only oral health but also the overall quality of life of the school population.

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