

Malocclusion impacts the quality of life of Peruvian school children. A cross-sectional study.

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Receipt: 07/19/2017 **Revised:** 08/16/2017
Acceptance: 09/11/2017 **Online:** 09/11/2017

Abstract: Objective: To assess the impact of malocclusion considering the orthodontic treatment need (IOTN) on the oral health related quality of life evaluated with the Child Perceptions Questionnaire in students aged 11 to 14 years (CPQ₁₁₋₁₄) of the Peruvian public schools in the city of Juliaca. Materials and methods: A cross-sectional study was performed. The sample included 354 students. The data were obtained from the tool of self-perception using the aesthetic component (AC) and the oral health component (DHC) from the IOTN, and the CPQ₁₁₋₁₄. For the data analysis the Kruskal Wallis test was used ($p < 0.05$). Results: The value of the impact on the quality of life was higher in the dimension moderate treatment need with 56.08; followed by need for treatment with 55.56 ($p < 0.001$). Conclusion: Malocclusion affects the quality of life of students aged 11 to 14 years in Peruvian public schools of the city of Juliaca.

Keywords: Quality of life; malocclusion; orthodontics.

INTRODUCTION.

Malocclusions constitute a misalignment of the dental arches related to changes in the growth and development of the craniofacial system that affects both function and aesthetics. High prevalence rates make malocclusions a worldwide public health problem.¹

Many associated factors have a strong influence on the self-perception of facial aesthetics and on how individuals are judged by their peers. This could have a negative impact on the individual's psychological development, on their self-image and self-esteem.² Orthodontists traditionally consider restoration of oral health, function and aesthetics as their therapeutic objectives. However, it is important to realize that some individuals do not recognize that they have a problem, others think they need treatment but cannot afford it or receive it.³

Quality of life is closely related to general health and has been a part of human history since ancient times, but the scientific community has shown a recent interest on this subject from the 1990s onwards.⁴⁻⁶ Thus, it seems necessary to evaluate these impacts in each region of Peru, since the variability of health dimensions will allow us to collect adequate information about the country and propose reforms in public oral health policies.

The aim of this study is to assess the impact of malocclusion con-

Conflict of interests: None.

Ethics approval: The present study was approved by the Scientific Committee of the Andean University Nestor Cáceres Velásquez.

Funding: None.

Authors' contributions: This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

Acknowledgements: None.

Cite as: Mamani L, Mercado S, Mercado J & Ríos K. Malocclusion impacts the quality of life of Peruvian school children. A cross-sectional study. *J Oral Res* 2017; 6(9):234-236. doi:10.17126/joralres.2017.066

sidering the orthodontic treatment need (IOTN) on the oral health related quality of life evaluated with the Child Perceptions Questionnaire in students aged 11 to 14 years (CPQ₁₁₋₁₄) of the Peruvian public schools in the city of Juliaca.

MATERIALS AND METHODS.

Design and sample

A cross-sectional study was performed. Both the study protocol and informed consent were evaluated and approved by the Scientific Committee of the Andean University Nestor Caceres Velasquez. Students from 25 public schools registered in the Unit of Local Educational Management (UGEL) of the city of Juliaca participated in the study. The sample was comprised by subjects 11 to 14 years of age, with informed consent signed by their parents, children in apparently good physical and mental health, without a history of previous orthodontic treatment. The sample size was established as 354 subjects.

Data collection

Data collection was carried out in three stages. First, the students filled out their enrollment sociodemographic data in a card. Second, the quality of life was evaluated with CPQ₁₁₋₁₄ using, a self-administered

modality in the classroom.

This questionnaire consists of 37 items, 6 correspond to the domain of oral symptoms (OS), 9 for functional limitations (FL), 9 for emotional wellbeing (EW) and 13 for social welfare (SW). The questionnaire enquires about events that occurred in the last 3 months involving teeth, lips or jaws. Each response was coded on a Likert scale from 0 to 4, where 0 is never, 1 is one or two, 2 is sometimes, 3 is frequently and 4 is every day or almost every day.⁷

Third, the clinical examinations for the IONT were performed through a photographic analysis. The IONT has two components: the Dental Health Component (DHC) assessed by the dentist, and the Aesthetic Component (AC) assessed by the patient. Thereafter, the students rated the perceived perception of their dental appeal with the AC-IONT. For the evaluation of the AC, the child was asked to observe ten photographs, asking them to select the one that qualifies their aesthetic perception of their teeth.

Statistical analysis

A descriptive statistical analysis was performed, and differences were analyzed using Kruskal-Wallis test ($p < 0.05$). The statistical package SPSS 22.0 (IBM, USA) was used in all cases.

Table 1. Mean values of quality of life according to the need for orthodontic treatment.

Need for orthodontic treatment	Quality of Life				Total
	Oral symptoms	Functional limitations	Emotional well-being	Social welfare	
No need for treatment	7.49 ± 4.95	9.63 ± 6.52	11.49 ± 8.26	14.68 ± 9.91	43.29 ± 28.01
Moderate need for treatment	8.99 ± 3.17	12.80 ± 4.70	15.25 ± 6.14	19.04 ± 7.28	56.08 ± 17.86
Definite need for treatment	9.32 ± 4.55	12.85 ± 6.37	14.68 ± 6.80	18.72 ± 9.04	55.56 ± 23.78
p-value	0.010	<0.001	<0.001	<0.001	<0.001

RESULTS.

From the sample, 53.4% (n=191) were female and 46.6% (n=167) were male. The average age was 12.37±1.07 years. The need for treatment according to DHC-IONT was 67%; whereas, the need for treatment according to AC-IONT was 62%. Table 1 shows mean values of quality of life dimensions and total score (CPQ₁₁₋₁₄) in schoolchildren according to AC-IONT.

DISCUSSION.

In the last few years, different studies have been carried out on factors that condition the need of orthodontic treatment. Research such as that of Perillo² and Bellot-Arcís *et al.*,³ demonstrate that the need for orthodontic treatment is not only conditioned to occlusal features but also depends on factors such as subjective appreciation, sociocultural factors, and influences from

the family environment, sex and age.

In this study, 67% of definite need for orthodontic treatment was found, according to the DHC. Students show that their need for treatment was affected largely due to malocclusion, especially at the level of social and emotional well-being.^{8,9} These domains are relevant to interpersonal relationships and strengthening of self-esteem;¹⁰ as such, it can be inferred that other students from the same city and age group may be in a similar condition.

CPQ₁₁₋₁₄ facilitates its application in the clinical setting where the opinion of the patients is necessary to evaluate the results of the disease and clinical care. In the same way, they can be applied in population surveys, resulting in time-savings compared to other types of surveys.

One weakness of this study is that no further socio-demographic variables were evaluated; this could influence the need for treatment and thus negatively

impact the quality of life of students. Likewise, it is important to stress that the majority of studies have a cross-sectional design, which does not allow the establishment of causality due to the fact that data are collected at a single moment in time.

Further longitudinal studies should be carried out to determine the cause-and-effect relationship between malocclusion/orthodontic treatment and the impact on quality of life. Since the assessment of quality of life has become an integral part of health programs, studies with a higher level of scientific evidence are fundamental to understanding how malocclusions and orthodontic treatment can affect the quality of life of students.

CONCLUSION.

The malocclusion affects the quality of life of students 11 to 14 years old, having a more significant impact over the social and emotional well-being.

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