Influence of quality of life, self-perception, and self-esteem on orthodontic treatment need

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Introduction: In this study, we aimed to assess the relationship between normative and perceived orthodontic treatment need associated with quality of life, self-esteem, and self-perception. **Methods:** The sample included 248 schoolchildren aged 12 years. The normative aspect of orthodontic treatment was assessed by the Dental Health Component and the Aesthetic Component of the Index of Orthodontic Treatment Need. The subjects were further evaluated for their oral health-related quality of life, self-esteem, and self-perception of oral esthetics. The Aesthetic Component of the Index of Orthodontic Treatment Need was considered as the response variable, and generalized linear models estimated by the GENMOD procedure (release 9.3, 2010; SAS Institute, Cary, NC). Model 1 was estimated with only the intercept, providing the basis for evaluating the reduction in variance in the other models studied; then the variables were tested sequentially, considering $P \leq 0.05$ as the criterion for remaining in the model. **Results:** In the model, self-perception and self-esteem were statistically significant in relation to the perceived need for treatment. The normative need was significantly associated with the outcome variable and was not influenced by independent variables. **Conclusions:** The normative need for orthodontics treatment was not overestimated by the perceived need, and the perceived need was not influenced by sex and the impact on quality of life. (Am J Orthod Dentofacial Orthop 2017;151:143-7)

Malocclusion is a public health problem with high prevalence in different populations,[1-6] causing physical and psychological implications, influencing oral health-related quality of life.[7-11] Social interactions are also influenced by malocclusion, affecting the way persons are perceived and how they perceive themselves.[12] Therefore, their self-perception of oral health plays an important role in understanding the influence of malocclusion on quality of life.[13-17]

In childhood, physical and psychosocial changes contribute to the formation of a child's understanding, so that about 8 years of age, he or she has criteria regarding self-perception similar to those of adults. At this stage, children have also been shown to be more concerned about what others think of them, and this reflects directly on their self-esteem.[18-21]

The association between normative indicators and evaluation of the perceived impact of malocclusion on quality of life allows identifying patients with greater orthodontic treatment needs.[15,17,22] Although orthodontic treatment need is usually identified through normative aspects, it is important to identify the needs that young people perceive regarding their occlusal conditions, increasingly influenced by behavioral and social factors.[21-27]

In this context, the aim of this study was to evaluate the relationship between normative and perceived orthodontic treatment needs, and assess its association with quality of life, self-esteem, and self-perception.

MATERIAL AND METHODS

This cross-sectional study was conducted in municipal schools in Araras, São Paulo, Brazil, with 12-year-old schoolchildren (138 boys, 110 girls).

The minimum sample calculated was 240 persons, considering a level of significance of 5%, test power of 80%, and minimum detectable odds ratio of 1.5. Excluded from the sample were children who had previously undergone, or were at present undergoing, orthodontic treatment; physical or intellectual limitations that would prevent the examination from being performed; and those whose parents did not authorize their participation, so that a sample of 248 schoolchildren was obtained.

Data were collected in a clinical examination performed in the school environment, under natural light, using a wooden spatula and questionnaires that were answered by the children themselves.

The outcome variable was the perceived need for orthodontic treatment, determined by the Aesthetic Component of the Index of Orthodontic Treatment Need (IOTN-AC). The IOTN-AC evaluates a person's psychosocial needs by means of a dental attractiveness scale illustrated by 10 color photographs that present a decreasing and continuous degree of attractiveness, in which photo 1 represents the most attractive dental arrangement and photo 10 the least attractive. The children made the evaluations by identifying the degree of esthetic compromise in the photographs of the scale similar to that of their own smile.[28]

Normative treatment need was assessed by using the Dental Health Component of the Index of Orthodontic Treatment Need (IOTN-DHC). The IOTN-DHC was performed by a duly calibrated examiner (P.R.D.), with experience in epidemiology and knowledge of orthodontics. By means of a scale of 5° in ascending order, the IOTN-DHC evaluates need, absence of teeth (including congenital absence and impacted teeth), overjet (positive or negative), anterior or posterior crossbite, crowding, overbite, and anterior or posterior open bite. Although all alterations were evaluated, only the severest are used as a basis for determining treatment needs; these were classified as without/little need (IOTN 1-2), moderate need (IOTN 3), or definite orthodontic treatment need (IOTN 4-5).[28] To analyze the children's data, they were classified as without malocclusion (IOTN-DHC 1 and 2) and with malocclusion (IOTN-DHC 3, 4, and 5).

The impact of malocclusion on the quality of life was evaluated by the Child Perceptions Questionnaire. This age-specific questionnaire (11-14 years) consists of 37 items, grouped into 4 domains: oral symptoms, functional limitations, emotional well-being, and social well-being. Each item asked about the frequency of events, as applied to the teeth, lips, and jaws, in the last 3 months. The response options were "never, once or twice, sometimes, often," and "every day or almost every day." The quality of life classification was dichotomized into "never, once or twice, sometimes, often" and worst impact ("every day or almost every day"). This instrument allows the score to be evaluated separately for each domain, but only the general score was used.[29]

Self-esteem was assessed with the Global Negative Self-evaluation. Each question contained 6 response options scored from 1 to 6: 1, does not apply at all; 2, does not apply well; 3, applies somewhat well; 4, applies fairly well; 5, applies well; and 6, applies exactly. The scores were added to obtain the average self-esteem score of each schoolchild; these were classified as high self-esteem or low self-esteem.[30]

Self-perception of oral esthetics was assessed by using the Oral Aesthetic Subjective Impact Scale (OASIS). The OASIS measures the impact of external influences in childhood by asking questions concerning the perceptions of others and themselves, as well as about their teeth. The schoolchildren had to answer 5 questions on a 7-point Likert scale, and points awarded to all questions were added to provide an overall oral esthetic impact score as perceived by each child. The scores for all questions and the value of the IOTN-AC were added to obtain the final sum of OASIS. This variable was dichotomized by the means as 0, positive self-perception (OASIS <14), and 1, negative self-perception (OASIS >14).[31]

Statistical analysis

After descriptive analysis of the data, multilevel, multiple logistic regression models were estimated by means of the PROC GENMOD procedure in a statistical program (release 9.3, 2010; SAS Institute, Cary, NC). The variables were sequentially tested in the models according to the study question, considering $P \leq 0.05$ as the criterion for remaining in the model. Adjustment of the model was evaluated based on the lowest Corrected Akaike Information Criterion. Model 1 was estimated with the intercept only, serving as a basis for evaluating the reduction in residue in the remaining models studied. In models 2 and 3, the association between self-perception of the OASIS and the perceived treatment need (IOTN-AC) was analyzed, initially by the raw analysis (model 2) and afterward adjusted for possible confounding variables (sex, impact of malocclusion on quality of life, and self-esteem, model 3). The same procedure was performed for analysis of the association between normative orthodontic treatment need (IOTN-DHC) and the perceived orthodontic treatment need (IOTN-AC) in models 4 and 5.