

THE IMPACT OF MALOCCLUSIONS ON THE QUALITY OF LIFE AMONG CHILDREN BETWEEN 8 AND 14 YEARS

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ABSTRACT

Introduction: More recently, many studies have been carried out among different populations in order to acquire knowledge about malocclusions and their impact on OHRQOL (Oral health quality of life). Therefore, the aim of this study was to carry out a systematic review of quantitative studies on the impact of malocclusions on the quality of life in children, ageing between 8 and 14 years of age.

Material and methods: Two databases were searched: MEDLINE via PubMed and Google Scholar; and articles published between 2010 and 2020. The following criteria were used when selecting articles: population of children, school children between 8 and 14 years of age; cross-sectional study; no orthodontic treatments have been previously performed; the relationship between malocclusions and quality of life; groups with and without malocclusions; assessment of malocclusions and the need for orthodontic treatment by professionals; use of questionnaires in OHRQOL assessment; articles published in English.

Results: Out of a total of 30 articles found and reviewed, based on the initially set criteria, five studies met the initially set conditions. All five studies were cross-sectional studies, and all were rated as high quality since they took into account all important obstacles in their final interpretation of the results. The results of all studies indicated a negative impact of malocclusions on the quality of life of the respondents.

Conclusion: There is a scientific proof that malocclusions, especially those in the aesthetic zone, have a negative impact on the quality of life of school children, aged 8-14 years, especially on their emotional and social well-being.

Key words: quality of life, mixed dentition, malocclusion, orthodontics, children between 8 and 14 years old, school children.

Introduction

Malocclusion affects the function and aesthetics, but also has important social and psychological consequences. [1]

Therefore, most patients seek orthodontic treatment for aesthetic reasons. [2] That is one of the reasons why the presence of malocclusion does not usually mean that the orthodontic treatment is needed, because malocclusions often do not compromise oral function, but may affect the emotional development, self-esteem and social integration. [3] There are various aspects of the need for orthodontic treatment - aesthetic, psychological, social and functional.

The differences between the perception of orthodontists and patients about the aesthetic effect and the needs of orthodontic treatment are significant, and the psychosocial consequences that may arise due to a particular malocclusion cannot be ignored. While in orthodontists, the assessment of the need for orthodontic treatment is dominated by impaired occlusion, mastication and phonation, improving oral health, preventing caries and periodontal disease, and enabling optimal oral hygiene, patients are dominated by the desire for better appearance, self-esteem and society acceptance. [1, 2, 3]

Physical appearance is very important factor in establishing social interactions, especially in adolescents and young adults. Since a smile is an important part of the aesthetic impression of a face, and teeth are its most prominent part, it is reasonable to expect that dental aesthetics affect an individual's psychosocial status. [4]

Oral health quality of life [OHRQOL] is defined as the impact of oral disorders on aspects of everyday life that are important to patients, provided that these impacts are large enough [either in terms of severity, frequency or duration] to affect an individual's overall life perception. The goal of dental treatment will therefore be to improve the quality of life of patients. [5]

OHRQOL was developed to supplement clinical indicators by addressing the functional and psychosocial deficiencies of such disorders and

providing a more complete picture of an individual's health. One of the main reasons why people seek orthodontic treatment is dissatisfaction with their tooth appearance, low self-esteem and parental concern about the child's teeth. [6]

Occlusal changes that occur in mixed dentition in most cases affect child's self-image. Therefore, it is important to assess occlusion in mixed dentition and early permanent dentition to avoid further functional and psychological impairment. [7]

The impact of oral diseases or oral health quality disorders [OHRQOL] can be evaluated using quantitative assessments such as questionnaires. More recently, many studies have been conducted among different populations to gain knowledge about malocclusions and their impact on OHRQOL. [8]

Therefore, the aim of this study was to conduct a systematic review of quantitative studies on the impact of malocclusions on quality of life in children, between 8 and 14 years of age.

Material and methods

The literature search was carried out systematically, in the following order:

1. defining the research question,
2. formulating a literature search plan,
3. literature search, and
4. interpretation and evaluation of the selected literature.

Defining a research question

The question addressed in this review paper is: Do malocclusions affect the quality of life of children ageing between 8 and 14 years?

Formulating a literature search plan

The literature search was based on finding all studies assessing the impact of malocclusions on quality of life [OHRQOL]. Two databases were searched: MEDLINE via PubMed and Google

Scholar including articles published between 2010 and 2020. The following keywords were used in the search: 'quality of life', 'mixed dentition', 'malocclusion', 'orthodontics', 'children between 8 and 14 years', 'school children'.

Literature search

The following inclusion criteria was used:

- Population of children, school children between 8 and 14 years;
- Cross-sectional study;
- No orthodontic treatments have been previously performed;
- Relationship between malocclusions and quality of life;
- Division of respondents into groups with and without malocclusions;
- Assessment of malocclusions and the need for orthodontic treatment by professionals;
- Use of questionnaires in OHRQOL assessment;
- Articles published in English.

Each version of the article in full text was thoroughly analyzed and evaluated. The reference lists of articles that are deemed to meet the requirements were also searched in order to find additional literature.

Interpretation of the selected literature

The quality of each of the found articles in their full text was analyzed, and further selection of articles depended on: year of publication, study layout, study population, OHRQOL assessment, malocclusion assessment or need for orthodontic treatment, results obtained.

Results

Out of total of 30 articles found and reviewed, based on the initially set criteria, 11 articles in the

full text remained for final analysis. Of the remaining 11 articles, after detailed analysis: two articles were rejected due to the age of the respondents [18-25 years] [9, 10], one article was rejected due to poor research methodology [11], one article had a group of respondents who were already orthodontically treated [12], one study was a case-control study [6] and the other review study [13], and for this reason these two studies did not qualify.

The remaining five studies met the initial conditions, included school children aged 8-14 years [in two studies the subjects were children aged 8-10 years, one study examined children aged 8 to 12 years, and two studies examined children of 12 years), the design of the studies is cross-sectional, the methods and material are precisely and in detail stated, the analysis of the data is carried out at a satisfactory level. [7, 14, 15, 16, 17]

In four studies, the Dental Aesthetic Index [DAI] was used to assess the presence of malocclusions and the need for orthodontic treatment, while the Child Perspective Questionnaire [CPQ11-14 or CPQ8-10] was used to assess OHRQOL. [7, 14, 15, 16] In one study, the DHC component of the IOTN index was used to assess the need for orthodontic treatment, and the AC component of the IOTN index was used to assess OHRQOL. [17]

Discussion

This review article including a detailed analysis of five cross-sectional studies indicates that there is a proof that serious malocclusions in the aesthetic zone have a negative impact on the quality of life of children aged between 8 and 14 years.

This negative effect is present in these groups of children because this is the period when they are most vulnerable, and all this reflects in large amount on their self-confidence and psycho-social component of life. Malocclusions in the area of the aesthetic zone as those being most visible, had the greatest impact on OHRQOL.

In the four studies using Dental Aesthetic Index to assess malocclusion, and CPQ questionnaire to

assess the impact of malocclusion on the quality of life, according to the obtained results, the presence of severe malocclusion had a negative impact on quality of life, while less severe malocclusion had no impact on quality of life.

In the study conducted by Guimaraes et al., malocclusion having the largest negative impact was anterior crossed bite [15], while in study conducted by Dutra et al. this malocclusion was maxillary anterior overjet 3 mm. [16]

Dos Santos et al., contrary to the remaining four studies, used two components of the IOTN index to assess the impact of malocclusions on quality of life, and according to their results, malocclusions had an impact on the quality of life of respondents. [17]

The period of mixed dentition and early permanent dentition is a period of life in which the social relations are transferred from the family environment to a friendly environment. Therefore, physical appearance and worries about self-confidence are issues of great importance for children in that period of life, because they seek the approval of their characteristics among peers. The main concerns related to the characteristics of the body are usually the focus on body weight and face lines.[8]

Liu et al., concluded that there is a modest association between the existence of malocclusion and the need for orthodontic treatment and quality of life, and felt that further studies were needed to analyze their relationship in more detail. [8]

Sun at al. in their review study and meta-analysis, also concluded that untreated malocclusions were significantly associated with OHRQOL. The more severe malocclusion meant the worse impact on some physical domains and all psychosocial domains of OHRQOL. [18]

In the future, studies could be conducted to assess the impact of malocclusions on quality of life, but with the use of several different indices to assess the need for orthodontic treatment.

Conclusion

There is a scientific evidence that malocclusions, especially those in the aesthetic zone, have a negative impact on the quality of life in school children, aged 8-14 years, especially on their emotional and social well-being.

An individual with unsightly occlusal traits is faced with more challenges with quality of life than their peers who do not have or have mild need for orthodontic treatment.

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