

Does orthodontic treatment improve oral health-related quality of life?

Abstracted from

Zhou Y, Wang Y, Wang X, Volière G, Hu R.

The impact of orthodontic treatment on the quality of life a systematic review. *BMC Oral Health* 2014; **14**: 66. doi: 10.1186/1472-6831-14-66.

Address for correspondence: Dr Y Zhou, Department of Orthodontics, Hospital of Stomatology, Wenzhou Medical University, 113 West College Road, 325000 Wenzhou, China. E-mail: 15608974@qq.com

Question: What is the impact of orthodontic treatment on oral health-related quality of life (OHRQoL)?

Data sources PubMed, Embase, Cochrane Central Register of Controlled Trials, China Biology Medicine disc and Goggle-Scholar databases and the journals; *American Journal of Orthodontics and Dentofacial Orthopedics*, *European Journal of Orthodontics*, *Angle Orthodontist*, *Journal of Orthodontics* and *World Journal of Orthodontics*.

Study selection Studies in patients receiving orthodontic treatment (fixed, removable appliance or interceptive) with outcomes that showed changes in oral health-related quality of life (OHRQoL) from baseline (pre-treatment) to follow-up after at least one month were considered.

Data extraction and synthesis Two reviewers independently selected studies and abstracted data. Pooling of data was based on study design, population characteristics, outcomes and OHRQoL-domains affected. A narrative summary was planned.

Results Eleven studies were included (six cohort studies, four cross-sectional studies, one case-control study). The majority (seven studies) were conducted among child/adolescent populations. An observed association between quality of life and orthodontic treatment was generally detected irrespective of how they were assessed. However, the strength of the association could be described as modest at best.

Conclusions Findings of this review suggest that there is an association (albeit modest) between orthodontic treatment and quality of life. There is a need for further studies of their relationship, particularly studies that employ standardised assessment methods so that outcomes are uniform and thus amenable to meta-analysis.

Commentary

This systematic review aimed to establish from existing evidence, the relationship between orthodontic treatment and oral health-related quality of life (OHRQoL). The review included studies comparing OHRQoL (using recognised measures of OHRQoL) in participants who were undergoing or had completed orthodontic treatment. Despite the high levels of provision of such treatment, only 11 studies were identified that met the inclusion criteria. Of these four were high quality cohort studies (Level 1B evidence), with the remainder being cross-sectional or case-control studies with lower levels of evidence. Four measures of OHRQoL had been used: Oral Health Impact Profile; Oral Impacts on Daily Performances index; The Child Perceptions Questionnaire; and The Oral Health-related Quality of Life in the

UK measure. Due to differences in the measures used and follow-up protocol meta-analysis of the results was not possible. However, the majority of studies did find correlations with orthodontic treatment and improvement in OHRQoL. Interestingly, one longitudinal study found that participants reported an increase in OHRQoL scores (indicating increased impact) in the month following appliance insertion. These impacts were particularly increased within the first week, where increases in impacts associated with pain, psychological discomfort and physical disability were reported. This finding highlights the importance of informing patients that they may have some difficulties adapting to their appliance in the first few weeks. The inferences the authors drew from the reported correlation statistics and regression statistics was that the effects of orthodontic treatment on OHRQoL could be described as moderate.

This systematic review highlights some important issues in the measurement of OHRQoL. The majority (n=8) of the studies included in the review had participants aged 16 years and under, however, only three of those studies used a measure designed specifically for children. While the Child Perceptions Questionnaire is designed for 11- to 14-year-olds, its content and structure may be more appropriate for those aged under 16 than some of the measures developed with adult populations in mind. Additionally, as the measures used were designed to cover a range of oral conditions, it may be that they are not sensitive enough to pick up subtle changes associated with treatment specifically for malocclusion. The authors recommend that further high quality research, which takes into account potential confounding factors, is required to fully understand the effect of orthodontic treatment on OHRQoL. In particular the use of a malocclusion-specific measure of OHRQoL would be of benefit, not only to ensure changes related to malocclusion are identified, but also to provide a standardised measure of this construct.

Practice points

- It would appear from the available evidence that orthodontic treatment has positive effects on OHRQoL following treatment. However, deterioration in some aspects may occur during the first week of treatment.
- Further high quality research is required to confirm these findings using a standardised measure specifically designed to measure the impact of malocclusion.

Fiona Gilchrist and Zoe Marshman

School of Clinical Dentistry, Claremont Crescent, Sheffield, UK

Evidence-Based Dentistry (2015) **16**, 86. doi:10.1038/sj.ebd.6401118