Evidence that of orthodontics improves long term psychological well being lacking

Abstracted from

Arrow P, Brennan D, Spencer AJ.

Quality of life and psychosocial outcomes after fixed orthodontic treatment:
a 17-year observational cohort study. *Community Dent Oral Epidemiol* 2011; **39:** 505-514. [Epub 2011 May 20]

Address for correspondence: Peter Arrow, Australian Research Centre for Population Oral Health,
The University of Adelaide, 122, Frome Street, Adelaide, South Australia 5000, Australia.
E-mail: peter.arrow@adelaide.edu.au

Question: Does orthodontic treatment have a positive impact on psychosocial outcomes and quality of life?

Design Cohort study.

Exposure Children who were examined in 1988/1989 were invited to a follow-up in 2005/2006. Respondents completed a questionnaire, which collected information on quality of life, receipt of orthodontic treatment and psychosocial factors, and were invited for a clinical examination. Oral health conditions including occlusal status using the Dental Aesthetic Index were recorded.

Data analysis Descriptive statistics, bivariate analysis, analysis of variance and multivariate analyses using linear regression were conducted to determine the effects of various factors on the psychosocial outcomes of orthodontic treatment.

Results No statistically significant association between occlusal status at adolescence and quality of life at adulthood was found. Individuals who had orthodontic treatment but did not need orthodontic treatment had higher self-esteem and were more satisfied with life than other treatment groups. Occlusal status at adulthood was significantly associated with quality of life. Multivariate analyses showed a statistically significant association between occlusal status at adolescence and adulthood with quality of life. Orthodontic treatment was negatively associated with psychosocial factors fixed orthodontic treatment and self-esteem.

Conclusions Occlusal status appears to have limited association with quality of life and psychosocial factors. Receipt of fixed orthodontic treatment does not appear to be associated with oral health related quality of life but appears to be negatively associated with self-esteem and satisfaction with life.

Commentary

Physical appearance, social attractiveness and facial beauty are intricately linked. Satisfactory peer relationships during childhood are directly related to successful social development. Perceptions of others can hinder a conducive environment for an individual's social and intellectual development. The value of dental aesthetics in overall attractiveness has been stated by several authors. Having stated and emphasised this it is paradoxical that there is very little evidence to show a strong correlation between orthodontics and oral health related quality of life or social well being. To what extent does orthodontic treatment transcend the divide between desirable and essential? A 17 year observational cohort study reporting on the longitudinal follow-up of quality of life and psychosocial outcomes of orthodontic treatment has far-reaching implications in defining a perspective for orthodontic treatment in a larger health care ambit.

The study has a focus on relating quality of life and psychosocial outcomes of orthodontic treatment. The cohort study is well defined, the follow-up and inclusions of adults for a final assessment is quite detailed and thorough. From an original sample of 3925, a total of 425 adults were examined and a further 25 excluded. The comparison sample however consists of only 547 adults with 112 examined, evidently of the same age group and socioeconomic strata as the study cohort. Defining psychosocial outcomes was never going to be easy and it is obvious that the authors have had to sift through a very diverse portfolio of parameters to help arrive at some conclusions. Responses have been sought on use of dental services, dental knowledge and behaviour, attitudes towards oral health, quality of life, self-esteem and a panoply of socio-demographic factors. To quantify the impact of orthodontic treatment, some objective outcomes would have to be defined. The question that remains a little fuzzy is could these be directly correlated to orthodontic treatment and its psychosocial outcomes? A malocclusion at any point of time reflects a point of equilibrium and balance and need not necessarily affect all the parameters of the oral health impact profile which uses 14 items to capture seven conceptual dimensions. The satisfactions with life scale and self-esteem scale have fairly objective outcomes. The data analysis is rigorous with descriptive statistics; bivariate analysis, analysis of variance and linear regression have been conducted to determine the effect of various parameters on psychosocial outcomes of orthodontic treatment.

It becomes interesting to note that income at baseline has a significant association with oral health impact profile amongst both those with fixed orthodontic treatment and those without it. A closer look at the results seems to cloud the outcomes of the study

which to some extent follows a predictable pattern, but the authors come up with a strong observation that the receipt of orthodontic treatment has a negative association with life satisfaction and self-esteem. A longitudinal observational study would have some inherent issues of bias and follow-up. There is no randomisation and the authors have correctly observed that while fixed orthodontics would be a negotiated entity between the adolescent, parents/carers and orthodontists, a large number of factors would remain unmeasured which could contribute towards outcome of the study. The findings of this study seem to be in consonance with previous studies where it has been inferred there is no significant association of occlusal aesthetics with quality of life and psychosocial measures. The observation that occlusal changes consequent to orthodontic treatment have no impact on oral health or social well being could be a little flawed, since the study has measured the changes over the observation period and psychosocial factors only at follow-up. It is obvious that some or all measures of psychosocial factors would have altered during the observation period. Most longitudinal studies have found little effect of occlusal conditions on psychosocial factors. The present study concludes that the data do not support the assumption of orthodontics improving long term psychological well being. The conclusions of the study require serious introspection and thought. To suggest that fixed orthodontic treatment may not influence oral health related quality of life is acceptable, but to observe that there is a negative association between orthodontics and satisfaction with life/self-esteem seems paradoxical. It conflicts with the effect and perceived benefits of orthodontics on a mind–body–spirit paradigm. It is obvious that the data and evidence required for finding an association between fixed orthodontic treatment and quality of life in all its dimensions is insufficient. It is also very obvious that the reasons for seeking orthodontic treatment would be complex and would need to be delved into in depth. The other conclusion, that occlusal conditions are associated with oral health related quality of life while receipt of orthodontic treatment was not, needs to be interpreted with caution. It is apparent that a more critical examination of the issue is essential and at the end of the study one emerges a little confused and perplexed. Does the burden of evidence suggest that there are no benefits of fixed orthodontic treatment on quality of life and psychosocial factors? The negative association of orthodontics with self-esteem and satisfaction seems to lack closure and an understandable conclusion. Would it have been correct to conclude that the present evidence is deficient to conclude a strong association between orthodontics and psychosocial factors and quality of life? To draw a clinical outcome to this study is difficult. If the purpose of the study is to highlight the need for more focused evidence and the unravelling of the complexity of longitudinal studies, then the authors have achieved a lot. To conclude that orthodontic treatment would have no impact but rather a negative association with self-esteem and quality of life seems to be lacking in plausibility and acceptance.

Anmol S Kalha

Institute of Dental Studies and Technologies, Modinagar, India

Evidence-Based Dentistry (2011) **12**, 108-109. doi:10.1038/sj.ebd.6400825