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**Project:** Oral health-related quality of life changes in orthodontic patients at Christchurch Hospital

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**Introduction:**

Malocclusion is a common oral condition which can have significant impacts on the psychosocial wellbeing of an individual. These wider aspects of an individual's oral health status encompass the term oral health-related quality of life (OHRQoL) which can be defined as 'the extent to which oral diseases and disorders affect functioning and psychosocial well-being'. OHRQoL measures are becoming increasingly important in orthodontics due to their ability to capture the multidimensional effects of a malocclusion on the well-being of an individual and the impact of orthodontic treatment. Traditional assessment of orthodontic treatment outcome was based on clinical measures such as occlusal indices which do not consider the impacts of malocclusion and its treatment on a patient's overall wellbeing. There is currently some disagreement in the literature as to the relationship between clinically assessed treatment outcome and self-reported OHRQoL following orthodontic treatment.

**Aim:**

The aim of this project is to investigate the oral health-related quality of life (OHRQoL) changes following publically funded orthodontic treatment and compare this to the clinical orthodontic treatment outcome.

**Method:**

This study was a retrospective analysis of a cohort of 68 consecutively treated patients in the orthodontic department of Christchurch Hospital from 2007-2015. Eligibility for treatment in the orthodontic department is restricted to those with handicapping malocclusions and/or craniofacial anomalies such as orofacial clefting. Study participants were grouped as either standard patients with severe malocclusions requiring orthodontic treatment (n=30), or cleft patients receiving orthodontic treatment as part of their multidisciplinary cleft management (n=38). Consent was obtained from each patient before treatment commenced and ethical approval was obtained through the University of Otago (HD15/053). Sociodemographic information was collected on all participants through the hospitals electronic management system which included age, sex, ethnicity, socioeconomic status, and the degree of treatment need (Dental Aesthetic Index). OHRQoL was measured using the Child Perception Questionnaire (ISF-8) which has the following domains, oral symptoms, functional limitations, emotional and social well-being. This self-report instrument consisting of 8 questions asking participants the recall frequency of specific events related to an adolescents orofacial status during the past 3 months. Responses are graded on a 5 point scale. Orthodontic treatment outcomes were assessed using the Peer Assessment Rating (PAR) index.

This index consists of 11 occlusal traits which are weighted to produce a score that can be used to assess the improvement in occlusion following treatment. The gold standard for treatment is a mean percentage reduction of at least 70%.

**Results:**

There was a reduction in the mean CPQ-ISF8 score for all groups following orthodontic treatment corresponding to an improvement in OHRQoL. There was a greater change seen in the cleft patients (effect size 0.27) than standard patients (effect size 0.08). When examining the 4 domains, standard patients had an improvement in all domains, except oral symptoms where cleft patients improved in all domains except functional limitations. There was a large variation in responses, particularly in the emotional and social well-being domains, with these findings being significant (p value greater than the threshold of 0.05). The average percentage reduction in PAR score after treatment was 69.4%. When further separating into standard and cleft subgroups the scores were 85.5% and 56.8% respectively. A reduction in score of 70% occurred in 61.3% over the overall sample. More than two-thirds (75%) of the standard group and less than half (47.5 %) of the cleft group reached this threshold. A small proportion (11%) of the sample were found to be worse or no different following treatment, all of these were cleft patients. The difference between the standard and cleft group scores was statistically significant (p value less than 0.05).

**Conclusion:**

There are a number of factors which must be considered when assessing treatment outcome in orthodontics. It can be concluded that orthodontic treatment improves both OHRQoL and clinical treatment outcome in the majority of our sample. When further separating the sample into treatment groups, greater changes were observed in OHRQoL for cleft patients with larger improvements in PAR scores for standard patients. However it must be noted that due to the small sample size and large variation in responses, there are some limitations to the interpretation of results. A complementary qualitative study of this cohort would help identify why there was such variation in patient experiences. Further follow up would also allow us to determine whether these changes, particularly in OHRQoL are sustainable.