

UNIVERSITI TEKNOLOGI MARA

**RETENTION OF METAL BRACKETS
BONDED ON ACRYLIC TEETH
WITH DIFFERENT SURFACE
PREPARATION AND ITS
IMPACT ON ORAL HEALTH
RELATED QUALITY OF LIFE OF
ORTHODONTIC PATIENT: A
PRELIMINARY STUDY**

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ABSTRACT

This research aims to evaluate and compare the retention of metal brackets bonded onto acrylic teeth with different surface preparation methods, to measure the impact of the acrylic teeth towards patient's function, appearance, and social life throughout the study, and to assess the impact of the acrylic teeth towards patient's Oral Health-Related Quality of Life (OHRQoL). Orthodontic patients aged between 18 and 35 years who had at least one missing tooth, and required space idealisation for any prosthesis, were recruited. Patients were randomised into four different surface preparation methods. Group 1: Transbond XT adhesive only; Group 2: Transbond adhesive XT with surface sandblasting; Group 3: Transbond XT adhesive with surface abrasion; and Group 4: Triad Gel adhesive only. Once the space was adequate, the prepared tooth was ligated to the arch-wire. The attachment between acrylic teeth and metal bracket was monitored and recorded in attachment days for six months. The patient's perception was assessed using the Visual Analogue Scale (VAS) at 4 hours, 24 hours, and 7 days after every review for six months. The short version of Oral Health Impact Profile (S-OHIP-14) was used to measure the difference in OHRQoL after six months. The data on the longevity of brackets attachment were analysed using Kaplan-Meier survival graph. Overall, 78.40% of all samples had retained the attachment within the six-months period with a median survival of 238 days. Bracket survival distribution for different surface preparations was compared with pairwise comparison and showed no statistical significance. Transbond XT and surface sandblasting preparation of acrylic teeth have the highest retention, whereas the surface preparation method using Triad Gel adhesive was the least retentive. The VAS score for each domain showed improvement within same visit ranged between 2.3% to 27.5%. and between visits was 13.0% to 64.0%. The S-OHIP-14 showed an overall improvement of 28.3% with additive scores (ADD), with handicap domain showing the highest improvement. This was statistically significant ($p=0.001$). In conclusion, there was no significant difference in retention of acrylic teeth bonded onto different surface preparations of acrylic teeth. The VAS score for patient perception on function, appearance, and socialising after attachment of acrylic teeth showed an improvement within the same visit and between different visits. There was statistically significant improvement in OHRQoL on the domain of psychological discomfort, physical disability, and handicap after attachment of acrylic teeth.

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