

Effect of Class II extractions and functional appliance treatment on smile esthetics

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Introduction & Aim: Class II malocclusion treatment may involve functional appliance therapy or extraction of teeth. The objectives of this study were to compare smile esthetics between these groups by measuring various smile variables and the esthetic perceptions by three panels of raters.

Method: A cross-sectional study was performed with 66 patients equally divided into Functional Appliance (FA) and upper first Premolars Extraction (PME) groups. Eight smile variables were measured on post-treatment photographs using Adobe Photoshop software (CS3 10.0). Thirty (30) raters which included an equal number of lay people, general dentists, and orthodontists performed subjective evaluations of smiles using Visual Analog Scale. Mann-Whitney U test was applied to compare smile variables between groups. Kruskal-Wallis test was used to compare Esthetic Scores (ES) among raters. Multiple linear regression analysis was applied to determine smile variables associated with ES.

Results: Statistically significant results were found for Arch form Index (AI) ($p < 0.001$), Buccal Corridor (BCR) ($p = 0.046$) and Visible Dentition Width (VDW) ($p = 0.019$) ratios between PME and FA groups. Kruskal-Wallis test showed significant differences in ES among raters for PME ($p = 0.004$) and FA ($p < 0.001$) groups. Simple linear regression showed significant associations of ES with age ($p = 0.002$), VDW ($p = 0.023$) and BCR ($p = 0.006$). Multiple linear regression analysis showed that age ($p = 0.008$) and VDW ($p = 0.021$) was significantly determining the ES.

Conclusion: AI, BCR, and VDW ratio was higher in PME group. Orthodontists and laypersons rated higher to FA group. General dentists rated lower ES for both treatment groups. Premolar extraction leads to narrower maxillary arches, more VDW and buccal corridor show, so orthodontist must keep this in mind during the orthodontic treatment of a patient to avoid any unwanted effects of this treatment modality on smile esthetics.

Biography

Umair Shoukat Ali is pursuing Ph.D in University of Agriculture, Faisalabad, Pakistan.

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