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ORAL PRESENTATIONS

OP-1

Evaluation of the Effect of Different Light Values and Dentistry Education on Tooth Color Selection

Erva MEYDAN¹, F. Şehnaz KAZOKOĞLU², Ali TOPRAK³

¹Bezmialem Vakıf University Faculty of Dentistry, İstanbul, Türkiye

²Bezmialem Vakıf University Faculty of Dentistry, Department of Prosthodontic, İstanbul, Türkiye

³Bezmialem Vakıf University Faculty of Medicine, Department of Biostatistics and Medical Informatics, İstanbul, Türkiye

Introduction: Tooth color selection is a fundamental determinant of aesthetic success in prosthetic treatments. This process can be performed via digital systems or visual assessment. Despite the technical superiority of digital systems, visual methods remain the primary choice in clinical practice. However, this method is a subjective process influenced by factors such as ambient lighting, color temperature, and clinical experience. The aim of this study is to evaluate the impact of different color temperatures (5000K and 6500K) and dental education levels on the accuracy of tooth shade selection.

Methods: The study was conducted at Bezmialem Vakıf University Faculty of Dentistry, involving 214 dental students (107 preclinical and 107 clinical). The Ishihara test was administered to exclude individuals with color vision deficiencies. Participants were asked to match shades A2, A4, C2, and C4 from the Vita Classical shade guide under high color rendering index fluorescent illumination at color temperatures of 5000K and 6500K using a Prowhite light booth. Data were analyzed using the generalized estimating equations method.

Results: Shade-matching accuracy demonstrated significant differences regarding education level ($p=0.019$), light temperature ($p=0.022$) and specific shade ($p<0.001$). Clinical students exhibited higher accuracy rates compared to preclinical students. Higher accuracy was observed under 6500K light temperature. Significant variations were found between shades; specifically, A2 and C2 yielded lower accuracy rates. Significant interaction was not detected between education level and light temperature ($p=0.122$).

Conclusion: The accuracy of tooth shade selection is significantly influenced by education level and light temperature. Clinical students demonstrated superior accuracy. The 6500K light temperature was associated with higher precision. Accuracy was found to be lower for middle tones (A2, C2) and higher for darker tones (A4, C4). While optimized light temperature enhances accuracy, challenges in distinguishing certain shades persist.

Keywords: Shade selection, color temperature, dental education, clinical experience, Vita Classic

OP-2

Comparison of the Effects of Different Retention Protocols on Orthodontic Stability

Zeynep Ece ÖZDEMİR¹, Gökmen KURT², Şerife ŞAHİN², İrem Öykü ÇELİKER², Beril KAPLAN³, Ayşegül YABACI TAK⁴

¹Bezmialem Vakıf University Faculty of Dentistry, İstanbul, Türkiye

²Bezmialem Vakıf University Faculty of Dentistry, Department of Orthodontics, İstanbul, Türkiye

³Bezmialem Vakıf University Institute of Health Sciences, Department of Orthodontics, İstanbul, Türkiye

⁴Bezmialem Vakıf University Faculty of Medicine, Department of Biostatistics and Medical Informatics, İstanbul, Türkiye

Introduction: Maintaining the long-term stability of tooth alignment after orthodontic treatment is essential for treatment success. Fixed lingual retainers are commonly used for retention, particularly because relapse frequently occurs in the mandibular anterior region. Various retainer materials with different mechanical properties are currently used in clinical practice, and evaluating their effectiveness in preserving mandibular stability and maintaining lower incisor alignment is important. This study aimed to compare the effects of two different lingual retainer materials used after orthodontic treatment on orthodontic stability.

Methods: This study included individuals who completed orthodontic treatment and received a fixed lingual retainer between the mandibular canines. Participants were divided into two groups according to the retainer material used: DeadWire (n=14) and PentaOne (n=17). A control group (n=20) consisting of individuals who had not undergone orthodontic treatment was also included. Dental impressions were obtained at the end of treatment (T0) and at the 6-month retention period (T1) to create dental models. The models were digitized and analyzed using CloudCompare software. T0 and T1 models were superimposed in the mandibular intercanine region, and mean surface distance values were calculated. The data were analyzed using appropriate statistical methods.

Results: A total of 51 individuals were included. The Kruskal-Wallis test showed no statistically significant difference in mean distance values among the control, PentaOne, and DeadWire groups ($H=3.689$, $p=0.158$). Median values were 0.0158, 0.0306, and 0.0237, respectively.

Conclusion: DeadWire and PentaOne lingual retainers demonstrated similar retention performance. Both materials appear to be reliable options for maintaining orthodontic stability.

Keywords: Orthodontic retention, fixed lingual retainer, mandibular incisor irregularity, DeadWire, PentaOne

OP-3

Effect of Additional Silane Application on the Shear Bond Strength of CAD/CAM Block Repairs

Halil İbrahim KARAKOÇ¹, Evrim DALKILIÇ², Sultan CEYLAN AYDIN²

¹Bezmialem Vakıf University Faculty of Dentistry, İstanbul, Türkiye

²Bezmialem Vakıf University Faculty of Dentistry, Department of Restorative Dentistry, İstanbul, Türkiye

Introduction: Intraoral repair of fractured computer-aided design (CAD)/computer-aided manufacturing (CAM) restorations is highly valuable for clinical success. Silane used during repair aims to strengthen the bond by establishing a chemical bridge between the porcelain and the restorative material. This study aims to investigate the effects of two different adhesive systems and additional silane application on bond strength, and their interaction.

Methods: Standard 2 mm-thick sections obtained from Dentsply Sirona CEREC blocks were embedded in acrylic resin and subjected to standard surface roughening. Specimens were randomly divided into 4 groups (n=12): GC/S, GC, Kulzer/S, and Kulzer. Adhesive and repair composite-applied specimens underwent thermocycling (10,000 cycles) to simulate intraoral temperature changes. Subsequently, shear bond strength was measured in MPa using a universal testing machine at a crosshead speed of 0.5 mm/min. Data were statistically analyzed using two-way analysis of variance and Tukey HSD tests ($\alpha=0.05$).

Results: Additional silane application significantly increased bond strength regardless of the adhesive brand used ($p<0.05$). Although the GC adhesive system generally yielded higher values than Kulzer, the difference was not significant ($p>0.05$).

Conclusion: Findings indicate that additional silane application is the most fundamental parameter determining bond strength in CAD/CAM block repair, independent of the adhesive system used.

Keywords: CAD/CAM, repair, silane, shear bond strength, adhesive systems

OP-4

The Effects of Different Finishing Techniques Applied During the Placement of Clear Aligner Attachments on Enamel Discoloration

Ece MERT¹, Sultan CEYLAN AYDIN², Banu KILIÇ³, Evrim DALKILIÇ²

¹Bezmialem Vakıf University Faculty of Dentistry, İstanbul, Türkiye

²Bezmialem Vakıf University Faculty of Dentistry, Department of Restorative, İstanbul, Türkiye

³Bezmialem Vakıf University Faculty of Dentistry, Department of Orthodontics, İstanbul, Türkiye

Introduction: In clear aligner therapy, composite attachments are bonded to tooth surfaces, and various finishing and polishing procedures are applied around these attachments to remove residual material. This study aimed to evaluate the effects of different finishing and polishing techniques applied around composite attachments on enamel discoloration during clear aligner treatment.

Methods: In this *in vitro* experimental study, 60 caries-free human premolar teeth were used. A universal adhesive (G-Premio Bond) was applied to the middle third of the buccal surfaces using the etch-and-rinse technique. Composite attachments were placed and polymerized using an LED light-curing unit. Based on the finishing procedures applied to residual composite, the teeth were randomly divided into three groups (n=20): Group T, tungsten carbide bur; Group T/P, tungsten carbide bur followed by polishing discs (Sof-Lex); and Group C (control), no finishing or polishing. Each group was further divided into two subgroups (n=10) according to storage medium: coffee solution or distilled water. Specimens were stored at 37 °C for 7 days. Color measurements were performed at baseline (T0) and after storage (T1) using a spectrophotometer (Vita Easyshade Advance). Data were analyzed using two-way analysis of variance and Bonferroni tests.

Results: Color change significantly increased in all groups after storage in coffee ($p<0.001$). No significant differences were found among groups stored in distilled water ($p>0.001$). After coffee storage, Group T/P showed significantly lower discoloration compared to Group T and Group C ($p<0.001$). The highest color change was observed in Group C.

Conclusion: Finishing and polishing procedures after composite attachment placement significantly influence enamel discoloration, particularly after coffee exposure. Polishing following tungsten carbide bur use reduces staining around attachments.

Keywords: Clear aligner, attachment, enamel discoloration, finishing, polishing, ΔE , spectrophotometry

OP-5

Evaluation of Stress Distribution of Pediatric Zirconium Crowns Applied with Different Cements in Primary Anterior Teeth by Finite Element Analysis

Muhammet Emin YILDIZ¹, Şerife ÖZDEMİR²

¹Bezmialem Vakıf University Faculty of Dentistry, İstanbul, Türkiye

²Bezmialem Vakıf University Faculty of Dentistry, Department of Pedodontics, İstanbul, Türkiye

Introduction: Zirconium crowns are widely used in pediatric dentistry for the restoration of severely decayed primary anterior teeth due to their aesthetic and mechanical properties. The cementation is crucial for the long-term clinical success of these restorations. This study aimed to evaluate the effect of different cement types on stress distribution in zirconium crowns applied to primary anterior teeth using three-dimensional finite element analysis.

Methods: A three-dimensional finite element model of a primary maxillary central incisor restored with a zirconium crown was created. Different cement materials (resin and glass ionomer) were simulated with a specific standard cement thickness. Vertical and angulated static forces were applied to the palatal surface of the crown. To compare the biomechanical behaviors of different cement types, stress values on the tooth, cement, and surrounding bone tissues were calculated.

Results: According to the analysis results, the use of resin cement reduced the stresses generated at the tooth-cement and tooth-bone interfaces under both vertical and angulated force applications. In contrast, when the stresses generated in the supporting bone structure attached to the tooth were examined, it was determined that the use of glass ionomer cement produced lower stress values.

Conclusion: According to the findings of this analysis, cement selection directly affects stress distribution in primary anterior tooth zirconium crown restorations. While resin cements provide a more favorable biomechanical profile to protect the tooth-cement interface and reduce stress in this region, glass ionomer cements offer advantages when the goal is to minimize the load transmitted to the supporting bone tissue. Case-specific clinical requirements should be the determining factor in the choice of cement material.

Keywords: Finite element analysis, primary teeth, zirconium crown, dental cements, stress distribution

OP-6

Clinical Evaluation of Posterior Primary Tooth Restorations Under General Anesthesia: 6-30 Month Follow-up

Sudenur KARA¹, Meltem BAKKAL²

¹Bezmialem Vakıf University Faculty of Dentistry, İstanbul, Türkiye

²Bezmialem Vakıf University Faculty of Dentistry, Department of Pediatric Dentistry, İstanbul, Türkiye

Introduction: Primary tooth restorations occupy an important place in pediatric dentistry. Dental treatment under general anesthesia (GA) is frequently employed for uncooperative pediatric patients. This study aimed to comparatively evaluate the clinical success of composite resin and stainless steel crown (SSC) restorations applied to posterior teeth under GA with regard to tooth group, material type, and follow-up duration.

Methods: In this retrospective study, 210 restorations—composite resin (n=43) and SSC (n=167)—placed on posterior primary teeth under GA in 43 patients (aged 36-72 months) were followed for 6-30 months. Restorations were assessed for color match, surface integrity, anatomic form, retention, marginal adaptation, and secondary caries. Teeth were classified as first and second primary molars; follow-up periods as 0-10, 11-20, and 21-30 months. Chi-square and Fisher's exact tests were used ($p<0.05$).

Results: No statistically significant difference was found between groups in terms of tooth group and follow-up duration ($p>0.05$). In the material comparison, SSC demonstrated statistically significant superiority over composite resin in color match (100.0%, n=167 vs. 72.1%, n=31; $p<0.001$), surface integrity (100.0%, n=167 vs. 83.7%, n=36; $p<0.001$), and secondary caries (100.0%, n=167 vs. 90.7%, n=39; $p<0.001$) criteria. All restorations showed 100% success in anatomic form. No significant difference was found between materials in terms of retention and marginal adaptation ($p>0.05$).

Conclusion: SSCs demonstrated statistically significant clinical superiority over composite resin in color match, surface integrity, and secondary caries resistance at longer follow-up periods. Tooth group and follow-up duration did not significantly affect overall success. These findings may guide clinicians in material selection.

Keywords: General anesthesia, primary tooth restoration, composite resin, stainless steel crown, clinical evaluation, pediatric dentistry

OP-7

Translation and Validation of the Turkish Version of the Psychosocial Impact of Gingival Aesthetics Questionnaire: A Scale Adaptation Study

Selin ÖZAY¹, Cansu Can YAŞAR²

¹Bezmialem Vakıf University Faculty of Dentistry, İstanbul, Türkiye

²Bezmialem Vakıf University Faculty of Dentistry, Department of Periodontology, İstanbul, Türkiye

Introduction: Gingival aesthetics can significantly influence individuals' self-perception, self-confidence, and social interactions. The Psychosocial Impact of Gingival Aesthetics Questionnaire (PIGAQ) was developed to assess the psychosocial effects of gingival aesthetics. The aim of this study was to translate the PIGAQ into Turkish, perform a cross-cultural adaptation, and evaluate its validity and reliability.

Methods: This methodological study included 230 volunteers aged 18-80 years presenting to the Department of Periodontology at Bezmialem Vakıf University Faculty of Dentistry. The PIGAQ was translated into Turkish and culturally adapted using a forward-backward translation procedure, expert panel review, and pilot testing. Construct validity was assessed using exploratory factor analysis. Internal consistency was evaluated using Cronbach's alpha coefficients and item-total correlations. Test-retest reliability was assessed in 30 participants who completed the questionnaire again after 4 weeks, and intraclass correlation coefficients (ICC) were calculated.

Results: The Kaiser-Meyer-Olkin value was 0.926 and Bartlett's test of sphericity was statistically significant ($\chi^2=5305.973$, $p<0.001$). Exploratory factor analysis revealed four factors with eigenvalues greater than 1, explaining 77.7% of the total variance. Factor loadings ranged between 0.423 and 0.916. The overall Cronbach's alpha coefficient of the scale was 0.948, while the subscale values ranged from 0.915 to 0.957. Item-total correlations ranged between 0.282 and 0.835. Test-retest reliability demonstrated excellent stability with an ICC of 0.980.

Conclusion: The Turkish version of the PIGAQ is a valid and reliable instrument for assessing the psychosocial impact of gingival aesthetics in the Turkish population.

Keywords: Gingival aesthetics, psychosocial impact, questionnaire validation, scale adaptation, periodontology

OP-8

Evaluation of Odontogenic Cysts Using A Cone Beam Computed Tomography-based Radiomic Approach

Ata Mert DEMİR¹, Elifhan ALAGÖZ², Ayşegül YABANCI TAK³, Doğan DOLANMAZ⁴

¹Bezmialem Vakıf University Faculty of Dentistry, İstanbul, Türkiye

²Bezmialem Vakıf University Faculty of Dentistry, Department of Oral and Maxillofacial Radiology, İstanbul, Türkiye

³Bezmialem Vakıf University Faculty of Medicine, Department of Biostatistics and Medical Informatics, İstanbul, Türkiye

⁴Bezmialem Vakıf University Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, İstanbul, Türkiye

Introduction: Odontogenic cysts are epithelium-lined pathological cavities surrounded by fibrous connective tissue, originating from odontogenic tissues in the tooth-bearing regions of the maxilla and mandible. Radiomics quantifies textural information in digital diagnostic images through the mathematical extraction of signal intensity distributions and pixel/voxel relationships imperceptible to the human eye. This study aims to evaluate cone-beam computed tomography (CBCT) images of patients histopathologically diagnosed with residual cysts, odontogenic keratocysts, and dentigerous cysts using a radiomics approach to predict diagnosis without histopathological data.

Methods: This retrospective study utilized CBCT images of 75 histopathologically confirmed lesions (25 residual cysts, 25 odontogenic keratocysts, 25 dentigerous cysts) from patients presenting between January 2017 and September 2024. Images meeting the inclusion criteria were manually segmented using the freehand (polygon) method in 3D Slicer (v5.10.0) software. Following segmentation, radiomic analysis extracted 107 features, exported in CSV format. The data acquired were analyzed utilizing machine learning algorithms within the R statistical programming environment.

Results: According to the analysis, the most powerful features for differentiating the groups showed substantial concordance between univariate statistical analysis and the multinomial elastic net model. The top ten radiomic variables remaining significant after false discovery rate correction and frequently selected by the model are: shape_Sphericity, firstorder_Minimum, shape_Flatness, shape_Elongation, glszm_GrayLevelNonUniformityNormalized, glrlm_GrayLevelNonUniformityNormalized, firstorder_Uniformity, glcm_Imc2, gldm_LargeDependenceLowGrayLevelEmphasis, and firstorder_Range. The prominence of shape-based markers proves that morphological differences between groups are determinative, whereas texture-based features indicate that intralesional heterogeneity plays a critical role in differentiation.

Conclusion: The findings demonstrate that these radiomic variables support the histopathological diagnosis of odontogenic lesions. Integrated with machine learning, this method has the potential to strengthen preoperative preliminary diagnosis, providing an essential guideline in the differentiation of cysts.

Keywords: Radiomics, CBCT, residual cyst, odontogenic keratocyst, dentigerous cyst

OP-9

Retrospective Evaluation of Canalis Sinuosus Prevalence in the Maxillary Anterior Region Using Cone Beam Computed Tomography

Zeynep Rana USLU¹, Elifhan ALAGÖZ², Özge Serpil ÇAKIR³, Doğan DOLANMAZ³

¹Bezmialem Vakıf University Faculty of Dentistry, İstanbul, Türkiye

²Bezmialem Vakıf University Faculty of Dentistry, Department of Oral and Maxillofacial Radiology, İstanbul, Türkiye

³Bezmialem Vakıf University Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, İstanbul, Türkiye

Introduction: The canalis sinuosus (CS) is a small neurovascular canal branching from the infraorbital canal, carrying the anterior superior alveolar nerve and associated vessels. It follows a curved course in the anterior maxilla and may show anatomical variations. This study aimed to determine the prevalence of CS using cone-beam computed tomography (CBCT), evaluate its clinical significance, assess its visibility on panoramic radiographs, and compare the diagnostic performance of these imaging modalities.

Methods: In this retrospective study, 1,550 CBCT images obtained between January 2023 and January 2025 were evaluated. A total of 570 patients were excluded due to pathology, previous surgery, insufficient field-of-view, or imaging artifacts, leaving 980 patients. The presence of CS was assessed on CBCT images, and panoramic radiographs of CS-positive cases were analyzed for visibility. All images were first evaluated by a student observer, and after one month, 20% of the dataset was re-evaluated blindly by an expert radiologist. Interobserver agreement was 77% for CBCT and 74% for panoramic radiography. Statistical analyses were performed using SPSS 28.0.

Results: CS was detected in 73.2% of CBCT images and 53.7% of panoramic radiographs. On CBCT, 14.6% of cases were unilateral and 58.6% bilateral, whereas panoramic radiographs showed 30.9% unilateral and 22.8% bilateral cases. A moderate agreement was found between the two methods ($\kappa=0.587$), with a statistically significant difference ($p<0.001$). No significant association was observed with gender ($p>0.05$). A significant increase in prevalence with age was found in CBCT ($p=0.039$), but not in panoramic imaging.

Conclusion: CS has a high prevalence, and CBCT is more reliable for its detection. Panoramic radiographs may be useful for preliminary evaluation, but CBCT is recommended for surgical and implant planning.

Keywords: Canalis sinuosus, CBCT, panoramic radiography

OP-10

Investigation of the Relationship Between Emotional Intelligence and Academic Success in Dental Students

Abdülkerim Esad SELVİ¹, Şerife ŞAHİN²

¹Bezmialem Vakıf University Faculty of Dentistry, İstanbul, Türkiye

²Bezmialem Vakıf University Faculty of Dentistry, Department of Orthodontics, İstanbul, Türkiye

Introduction: Emotional intelligence (EI) is a critical factor influencing professional development and academic resilience among dental students. The aim of this study is to investigate the relationship between EI levels and academic success [grade point averages (AGNO) and YKS rankings] among dental students studying at various universities in İstanbul.

Methods: This cross-sectional study was conducted with 518 dental students studying at 23 different universities in İstanbul during the 2025-2026 academic year. Participants' EI levels were measured using the 20-item Trait Emotional Intelligence Questionnaire-Short Form, developed by Petrides and adapted into Turkish by Işık, Özer, and Deniz. YKS rankings and AGNO were used as academic success criteria. Demographic data, hobby counts, and professional optimism levels were collected via an online structured questionnaire and analyzed statistically.

Results: No direct relationship was found between total EI scores and objective academic success criteria (AGNO and YKS); however, a positive relationship was detected between the emotionality sub-dimension and AGNO. Very strong positive relationships were found between EI, professional satisfaction, and self-perceived success. As the students' number of hobbies increased, all EI sub-dimensions rose significantly. Furthermore, while male students had higher total EI, well-being, and self-control scores, female students had higher AGNOs. It was observed that students who achieved top ranks in YKS were more anxious about the profession's future, and as the ranking worsened, professional optimism increased.

Conclusion: In dental education, EI is strongly related to professional satisfaction, self-perceived success, and individual hobbies rather than objective academic grades. The positive relationship between high university entrance success and future professional anxiety suggests that as the effort invested by students increases, they carry a greater concern about not being rewarded for this effort. Supporting students' emotional competencies and social areas alongside their cognitive skills is the key to multifaceted development.

Keywords: Academic success, dental education, dental students, emotional intelligence