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DENTISTRY STUDENTS' RESEARCH DAY 15 MAY 2025

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DENTISTRY STUDENTS' RESEARCH DAY 15 MAY 2025

Guest Editor

Prof. Dr. Evrim DALKILIÇ

Bezmialem Vakıf University, Faculty of Dentistry,
Department of Restorative Dentistry

Acknowledgements

Bezmialem Vakıf University thanks everyone for their contribution and assistance in organizing this event, with special thanks to **Prof. Dr. Rümeyza KAZANCIOĞLU** and **Prof. Dr. Semra ÖZÇELİK** for their valuable contributions.

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PREFACE

Bezmialem Vakıf University Faculty of Dentistry trains primary care dentists who possess up to date knowledge and are interested in research and lifelong learning. Due to its quality approach to education and continuous development, it became one of the first faculties to be accredited in the field of Dentistry in 2010. The vision, mission, general objectives, and goals of the faculty include training students who are scientifically oriented, committed to ethical and academic values, closely follow developments and innovations in the scientific field, and can perform evidence-based practices. In order to achieve these goals, an educational corridor was created in the 2022-2023 academic year, and within this framework, Evidence-Based Dentistry was added to the 3rd grade curriculum, and Scientific Research in Dentistry I, Scientific Research in Dentistry II were added to the 4th and 5th grade curricula. In the Evidence-Based Dentistry, topics such as critical article reading, types of articles, and statistical concepts are covered. In the following courses, Scientific Research in Dentistry I and II, students have the opportunity to apply the knowledge they have learned theoretically. The course consists of a total of 5 modules. At the beginning of the modules, training sessions focused on the research phase are provided, and afterwards, each student briefly presents their work to the scientific committee and their peers, receiving scores according to the module's criteria. Students complete their research by being able to ask a research question, develop a hypothesis, create materials and methods, write ethics and Scientific Research Projects when necessary, and interpret statistics from the first module onwards. At the end of the fifth module, students present their work either orally or as a poster at the "Scientific Research Day" event. We are proud to have successfully completed this 2-year course and to have had each of our students complete a research project. First of all, we would like to thank the esteemed faculty members who made this course possible, our students who will become the scientists of the future, and Prof. Dr. Semra ÖZÇELİK and our rector Prof. Dr. Rümeyza KAZANCIOĞLU for their support in conducting this course.

Prof. Dr. Evrim DALKILIÇ

Bezmialem Vakıf University Faculty of Dentistry

Department of Restorative Dentistry

RESEARCH DAY

15 MAY 2025

09.00 - 09.25: Opening

09.25 - 10.45: Oral Presentations - I

Chairpersons: Professor Doctor Evrim DALKILIÇ

Assistant Professor Gamze NALCI

10.55 - 12.15: Oral Presentations - II

Chairpersons: Professor Doctor Evrim DALKILIÇ

Assistant Professor Gamze NALCI

13.30 - 14.30: Poster Presentations

15.30 - 16.00: Award Ceremony

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DENTISTRY STUDENTS' RESEARCH DAY
15 MAY 2025

ORAL PRESENTATIONS

OP-1

Evaluation of the Effects of Orthognathic Surgery on Patient Satisfaction and Quality of Life in Individuals with Skeletal Class II Malocclusion

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Introduction: Orthognathic surgery is a procedure performed to correct dentofacial deformities. Patient satisfaction is influenced by the success of the surgery, individual expectations, and psychological factors. This study aims to evaluate post-surgical satisfaction and quality of life in individuals with skeletal class II malocclusion using the Orthognathic Quality of Life Questionnaire (OQLQ).

Method: The study included 40 patients who underwent orthognathic surgery at Bezmialem Vakıf University and were at least six months post-operative. The OQLQ, which consists of four domains functional limitations, psychosocial impact, pain, and aesthetic concerns was used to assess quality of life and satisfaction. Data were analyzed using statistical methods.

Results: Patients were divided into two groups based on the median positive overjet value of 8.53 mm. While no significant differences were found between groups regarding total OQLQ score, social aspects, facial aesthetics, and awareness of facial deformity, a significant difference was found in oral function scores ($z=-2.482$, $p=0.014$). Individuals with lower overjet values reported higher quality of life. Additionally, a significant difference was observed in the response to the question "avoiding certain foods" ($z=-2.479$, $p=0.034$). A positive correlation was found between positive overjet and oral function scores. Wits appraisal showed a positive correlation with the oral function domain and question 6. A negative correlation was found between ANB angle and question 16, while the GoGn-SN angle was negatively correlated with questions 5, 16, and 19, as well as with awareness of facial deformity.

Conclusion: High positive overjet appears to negatively affect oral functions and eating habits. Most patients reported satisfaction with surgical outcomes, noting improvements both functionally and aesthetically.

Key words: Orthognathic surgery, quality of life, positive overjet, skeletal class II malocclusion

OP-2

Evaluation of Basic Anatomical Landmark Knowledge on Panoramic Radiographs Among 4th and 5th Year Dental Students Before and After Clinical Internship

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Introduction: This study aims to evaluate the effect of the oral and maxillofacial radiology internship on the ability of 4th and 5th year dental students to identify basic anatomical landmarks on panoramic radiographs.

Method: This study was conducted at the Faculty of Dentistry, Bezmialem Vakıf University during the 2023-2024 and 2024-2025 academic years. A total of 78 fourth-year and 74 fifth-year dental students participated. The students were asked to identify 35 anatomical landmarks marked on three panoramic radiographs. Data were collected via a questionnaire created on Google forms, and assessments were standardized using the university's multimedia room. Students were asked the same questions before and after completing their Oral and Maxillofacial Radiology internship. The percentages of correct answers before and after the internship were compared to analyzing student progress.

Results: Before the internship, the correct identification rate of anatomical landmarks was 39% for fourth-year students and 53% for fifth-year students. After the internship, these rates increased to 69% and 75%, respectively. The differences between pre- and post-internship responses were statistically significant, as determined by the Friedman test ($p<0.05$). A comparison between the two grade levels using the chi-square test revealed a significant difference before the internship ($p=0.023$), which was no longer statistically significant after the internship ($p=0.120$).

Conclusion: The Oral and Maxillofacial Radiology internship significantly improves dental students' ability to identify anatomical reference points on panoramic radiographs. Radiological education plays a crucial role in enhancing diagnostic accuracy and evaluation skills in clinical practice.

Key words: Panoramic radiograph, anatomical landmarks, dental education

OP-3

Evaluation of Dental Interns' Attitudes Towards Brain Drain and Their Life Satisfaction: A Survey Study

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Introduction: This study aims to evaluate the attitudes of dental interns in Türkiye towards brain drain and explore the relationship between their academic year and the type of university they attend.

Method: This descriptive, cross-sectional study was conducted using an online questionnaire after obtaining ethical approval. The sample included 4th and 5th year dental interns from public and foundation universities across Türkiye. Data were collected using a Personal Information Form and the Brain Drain Attitude Scale. Informed consent was obtained from all participants, and the final sample included 504 students.

Results: Of the participants, 60.9% were female and 39.1% were male, with 94.6% in the 20-25 age range. Of these, 53.4% attended public universities and 46.6% attended foundation universities. There was no significant gender difference in pull factor scores ($p=0.246$), but push factor scores were significantly higher in females than in males ($p=0.041$). No significant differences were found based on age, university type, or academic year ($p>0.05$). The highest mean score was for the statement "I would prefer to live in a country where freedom of thought is greater" ($M=4.33\pm0.82$).

Conclusion: The main factors influencing dental interns' inclination to migrate abroad include the desire for freedom of expression, a sense of security, and future concerns. Higher push factor scores among women indicate gender-related differences. No significant differences were found based on age, university type, or academic year. Economic expectations also played a role in attitudes towards brain drain. The findings highlight the impact of individual and socio-political factors on career planning.

Key words: Brain drain, life satisfaction, dental interns, gender differences, career planning

OP-4

Investigation of the Relationship Between Implant-surrounding Gingival Biotype and Peri-implant Mucositis: A Cross-sectional Study

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Objective: Gingival biotype is a critical factor determining the stability of peri-implant soft tissues. Thick biotype generally provides better protection against peri-implant diseases, while individuals with a thin gingival biotype have an increased risk of gingival recession and inflammation. The aim of this cross-sectional study is to examine the effects of implant-surrounding gingival biotype on peri-implant tissue health through clinical parameters.

Method: In this study, 24 patients with at least one dental implant functioning for a minimum of one year and restored with a fixed prosthesis were included. The study was conducted at the Bezmialem University Department of Periodontology clinics starting in 2018. A total of 43 implant sites were evaluated. Implants with thick/medium biotype were included in the control group, while implants with thin gingival biotype were included in the test group. Clinical parameters, including gingival biotype, modified plaque index (mPI), bleeding on probing (BoP), and probing depth (PD), were measured at all implant sites. Implants were classified as "healthy" or "mucositis" based on clinical and radiographic evaluations. Differences between groups were analyzed using the Mann-Whitney U and chi-square tests, with statistical significance set at $p<0.05$.

Results: No significant differences were found between the groups in terms of age, gender, or jaw location ($p>0.05$). The test group showed significantly higher values of mPI, BoP, and PD compared to the control group ($p<0.05$). Similarly, the prevalence of peri-implant mucositis was significantly higher in the test group ($p<0.05$).

Conclusion: In our study, implant sites with a thin gingival biotype showed significantly higher clinical parameters and peri-implant mucositis prevalence compared to the control group. These findings emphasize the importance of gingival biotype in the prevention of peri-implant diseases.

Key words: Peri-implant mucositis, peri-implant health, gingival biotype, dental implant

OP-5

Evalution of the Prevalence of Root Resorptions in Turkish Society by Cone-beam Computed Tomography Scanning

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Introduction: This study aims to detect root resorption in maxillary and mandibular teeth in the Turkish population using cone-beam computed tomography (CBCT) images and classify the prevalence of internal and external root resorption based on localization, gender, and age.

Method: CBCT images of patients visiting the Department of Oral and Maxillofacial Radiology, Faculty of Dentistry, Bezmialem Vakıf University between January 1, 2023, and December 30, 2023, were analyzed. Images with artifacts, poor quality, sectional scans, or lacking demographic information were excluded. The prevalence of internal and external root resorption was evaluated by age, gender, jaw, and localization. CBCT images were obtained using a Promax 3D-Mid (Planmeca, Finland) device with a voxel size of 0.25-0.40 mm.

Results: CBCT images of 1,202 patients were analyzed. Root resorption was found in 49 cases, including 26 females and 23 males, with no significant gender difference. Of the 49 cases, 40 were external root resorption and 9 were internal. Among these patients, 25 had images of only the maxilla, 14 had images of only the mandible, and 10 had images of both jaws. The Shapiro-Wilk test was used to assess the normality of quantitative variables, and Pearson chi-square and Fisher-Freeman-Halton tests were used for categorical variables, with a significance level of 0.05. Statistical analysis was performed using SPSS (version 28).

Conclusion: Due to the limitations of conventional radiographs, CBCT is preferred for detecting and analyzing internal and external root resorption, providing more accurate treatment protocols.

Key words: Internal root resorption, external root resorption, CBCT

OP-6

The Effect of Oral Irrigator and Interdental Brush Usage on Plaque in Patients Undergoing Fixed Orthodontic Treatment

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

Introduction: The aim of this study was to evaluate the effectiveness of oral irrigator and interdental brush usage on plaque removal in patients undergoing fixed orthodontic treatment.

Method: The study included 60 individuals over the age of 12 who had been undergoing conventional orthodontic treatment for at least three months. Participants were divided into three groups: (1) brushing for 10 minutes using the Charters technique, (2) brushing for 2 minutes followed by oral irrigator usage, and (3) brushing for 2 minutes followed by interdental brush usage. Plaque levels were assessed before and after brushing using plaque-disclosing tablets, and plaque removal efficiency was analyzed statistically.

Results: Statistical analyses were performed using SPSS version 26.0. Since the data did not follow a normal distribution, Kruskal-Wallis and Dunn's test were applied. The results showed a statistically significant difference among the three methods ($p<0.001$). The oral irrigator group achieved a significantly higher plaque removal percentage compared to the brushing-only group ($p=0.001$). Similarly, the interdental brush group demonstrated significantly better plaque removal than the brushing-only group ($p<0.001$). No significant difference was found between the oral irrigator and interdental brush groups ($p=1.000$).

Conclusion: The findings suggest that the use of an oral irrigator or an interdental brush significantly improves plaque removal efficiency compared to brushing alone in patients with fixed orthodontic appliances. Therefore, incorporating these additional cleaning methods into daily oral hygiene routines may be beneficial for orthodontic patients.

Key words: Fixed orthodontic treatment, oral irrigator, interdental brush, plaque removal, oral hygiene

OP-7

Comparison of Surface Roughness in Ceramic CAD-CAM Blocks Subjected to Different Polishing Procedures

Doğa TELÖREN[1], Ayşe Alanur SAĞUN[2], Özge PASİN[3], Evrim DALKILIÇ[2]

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Introduction: Surface roughness of restorative materials is a critical factor affecting biomechanical compatibility, aesthetic success, and biofilm accumulation, thus influencing the long-term clinical performance of restorations. This study aimed to evaluate and compare the surface roughness of feldspathic ceramic CAD-CAM blocks subjected to different polishing protocols.

Method: A total of 60 feldspathic ceramic blocks (14 mm×12 mm) were randomly divided into six groups. Group 1 underwent diamond bur abrasion followed by polishing with a porcelain polishing kit (EVE Technick Diapol Twist Porcelain Polishing Kit Eve Technic, Germany); group 2 received only bur abrasion; group 3 was polished only; group 4 was glazed. Group 5 served as the negative control (no surface treatment applied), while group 6 was designated as the positive control (untreated pre-milling surfaces). Surface roughness measurements were performed using a profilometer (MarSurf M 300 C; Mahr GmbH Gottingen, Germany), with values taken from three different points on each specimen and averaged. Data were statistically analyzed using Shapiro-Wilk and Levene tests for normality and homogeneity, respectively. Brown-Forsythe and Dunnett T3 tests were used for intergroup comparisons ($p<0.05$).

Results: Group 2 demonstrated the highest surface roughness values. Groups 1 and 3 exhibited significantly reduced roughness following polishing procedures. The lowest roughness values were recorded in group 4 (glazed group) ($p<0.05$). Group 5 had higher surface roughness than the polished and glazed groups, while group 6 showed significantly lower roughness than all other groups ($p<0.05$).

Conclusion: Glazing was found to be the most effective surface treatment for reducing surface roughness in CAD-CAM restorations. However, considering the potential wear of the glaze layer over time, mechanical polishing is recommended to enhance long-term clinical performance.

Key words: CAD-CAM, feldspathic ceramic, surface roughness, polishing, glazing, restorative dentistry

OP-8

Evaluation of the Relationship Between Unilateral Condylar Hyperplasia and Scoliosis

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Introduction: Unilateral condylar hyperplasia (UCH) is characterized by excessive growth of the mandibular condyle, causing facial asymmetry, while scoliosis is defined as a lateral curvature of the spine. This study evaluates the relationship between UCH and scoliosis.

Methods: The study included 123 patients aged 17-40 years (60 with UCH, 63 with scoliosis). Panoramic, lateral cephalometric, and posteroanterior (PA) radiographs were obtained. Fractal analysis was performed on 50x50 pixel regions of interest from the right and left condyles using ImageJ software. Lateral cephalometric radiographs were utilized to conduct cephalometric analyses according to the Steiner, Jarabak, and Tweed methods. PA radiographs were used to measure the conventional graft-anterior nasal spine-menton angle, menton deviation, and ramus lengths. The Cobb angle was calculated from anteroposterior radiographs for scoliosis evaluation. Temporomandibular joint function was assessed in 63 scoliosis patients. Statistical analyses were conducted using Mann-Whitney U, Pearson's chi-square, Fisher's exact chi-square, and Spearman's correlation tests with IBM SPSS Statistics 22.0.

Results: In UCH patients with a Cobb angle ≥10°, an inverse relationship was found between the Cobb angle direction and mandibular deviation ($p=0.025$). When the Cobb angle was directed to the right, mandibular deviation was to the left. Fractal values in the UCH group showed significant differences based on the side of involvement ($p<0.001$), while no such differences were observed in the scoliosis group ($p>0.05$). UCH patients exhibited greater deviation than scoliosis patients ($p<0.001$). No significant relationship was found between the Cobb angle and deviation when both groups were analyzed together ($p>0.05$).

Conclusion: Mandibular asymmetry was observed in 98.4% of scoliosis patients, and 70.0% of UCH patients were diagnosed with scoliosis. The inverse relationship between menton deviation and the Cobb angle suggests that scoliosis may trigger UCH. Further studies are needed to explore the biomechanical interactions between craniofacial and spinal asymmetries.

Key words: Condylar hyperplasia, scoliosis, mandibular asymmetry, fractal analysis, Cobb Angle

OP-9

Evaluation of Mandibular Condyle Morphology in Diabetic Individuals Using Radiomics

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Introduction: The aim of this study is to evaluate and compare the mandibular condyle morphology in individuals diagnosed with type 2 diabetes mellitus and healthy individuals using radiomics analysis based on cone-beam computed tomography (CBCT) data.

Method: CBCT images of diabetic and healthy individuals were retrospectively analyzed. Mandibular condyles were segmented using 3D Slicer software version 5,7, and radiomic features were extracted using the SlicerRadiomics extension. A total of 15 radiomic parameters were analyzed, including shape-based features (Sphericity, Surface Area), first-order statistical features (Mean, Entropy, Kurtosis), and texture-based features (Contrast, Correlation, Short Run Emphasis, Small Area Emphasis). Statistical comparisons between diabetic and control groups were performed using independent samples t-test and Mann-Whitney U test. The significance level was set at 0,05.

Results: Among the evaluated parameters, six features showed statistically significant differences between diabetic and healthy individuals: Sphericity, gray-level co-occurrence matrix (GLCM)-contrast, GLCM-correlation, gray-level run length matrix (GLRLM)-short run emphasis, GLRLM-long run emphasis and GLSZM-small area emphasis ($p<0.05$). The lower sphericity values in diabetic individuals indicate that the condyle is less spherical and has a morphologically altered shape. Differences in texture-based parameters suggest increased image heterogeneity and disruption of micro-architectural organization in the diabetic group, indicating possible subclinical degenerative or remodeling changes.

Conclusion: The findings of this study demonstrate that diabetes mellitus is associated with both morphological and microstructural alterations in the mandibular condyle. Radiomic analysis provides a sensitive and non-invasive approach to detect subtle changes that may not be visible in conventional imaging. These results underscore the potential of radiomics as a diagnostic adjunct in assessing temporomandibular joint involvement in systemic diseases. Future studies with larger cohorts and longitudinal follow-up are warranted to confirm the clinical implications of these findings.

Key words: Radiomics, mandibular condyle, cone-beam computed tomography (CBCT), diabetes mellitus, bone micromorphology

OP-10

Determination of Attitudes of Preclinical and Clinical Dental Students Towards Individuals with Special Needs

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Introduction: Individuals with special needs may not be able to adequately protect their oral and dental health due to physical, cognitive, and behavioral limitations. The lack of experience among healthcare professionals may complicate the treatment processes for these individuals. The aim of this study is to evaluate the attitudes of dental students towards individuals with special needs.

Method: A total of 172 students, both preclinical and clinical, participated in this cross-sectional study. The sample size was determined using G*Power, and analyses were performed using IBM SPSS Statistics. At least 86 participants were included in each group. Data were collected using a questionnaire created through a literature review. Chi-square (Fisher's exact test) was used to assess the relationships between variables, with a statistical significance level of $p<0.05$.

Results: The attitudes of students towards individuals with special needs varied according to factors such as gender, academic year, the presence of an individual with special needs in the family, and clinical experience. In terms of gender, male students exhibited higher rates of avoidance ($p=0.024$), feeling unsafe ($p=0.009$), and difficulty in understanding ($p=0.045$). Female students, on the other hand, tended to have more positive interactions with individuals with special needs. Regarding academic year, students in higher grades exhibited more positive attitudes towards individuals with special needs ($p=0.001$). Especially, preclinical students had higher levels of discomfort ($p=0.007$) and fear ($p=0.001$). The presence of an individual with special needs in the family positively influenced the students' attitudes. Students who had a family member with special needs showed lower avoidance ($p=0.003$) and higher empathy levels. Regarding clinical experience, students who had worked with individuals with special needs during their internships gave more positive responses to accepting individuals with special needs in their social environment ($p=0.033$).

Conclusion: The attitudes of dental students towards individuals with special needs were shaped by experiences gained during their education, personal history, and individual factors. Students in higher grades and those who had direct contact with individuals with special needs demonstrated more positive attitudes. Increasing clinical experience may contribute to developing more positive attitudes towards individuals with special needs among students.

Key words: Dental students, individuals with special needs, oral health

OP-11

Evaluation of the Effectiveness of Botulinum Toxin and Marjoram Oil Applications in Sleep Bruxism

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Introduction: Bruxism is a parafunctional habit characterized by involuntary teeth clenching or grinding, which can lead to damage in the jaw muscles and dental structures. Sleep bruxism refers to these activities occurring during sleep. This study aimed to evaluate the effectiveness of botulinum toxin and marjoram oil applications in individuals with sleep bruxism.

Method: A total of 30 patients were included in the study. Participants were randomly divided into two groups: botulinum toxin and aromatherapy (marjoram oil). In the Botox group, a total of 40 units of botulinum toxin (Allergan, Ireland) was injected into each masseter muscle. In the aromatherapy group, 10% marjoram oil was applied with manual massage. Assessments were performed bilaterally using ultrasonography at baseline (T0), 1 month (T1), and 3 months (T2) post-treatment. Masseter muscle thickness and stiffness were evaluated. Statistical analyses were conducted using SPSS 26.0, and the significance level was set at 0.05.

Results: In the aromatherapy group, no statistically significant differences were observed in either the right or left masseter muscle between T0-T1, T0-T2, or T1-T2 ($p>0.05$). In the Botox group, a statistically significant difference was found between T0-T1 and T0-T2 ($p<0.05$), but not between T1-T2. No significant differences were found between the two groups at any time point regarding muscle thickness or elastographic values.

Conclusion: Botulinum toxin resulted in a significant reduction in masseter muscle thickness in the treatment of sleep bruxism, whereas marjoram oil application showed no statistically significant effect. These findings suggest that botulinum toxin may be a more effective treatment option for sleep bruxism.

Key words: Sleep bruxism, botulinum toxin, marjoram oil, elastography, masseter muscle

OP-12

Assessment of Buccal Corridor Width and Symmetry on Smile Aesthetics

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Introduction: This study aimed to compare the aesthetic evaluations of buccal corridor widths modified symmetrically and asymmetrically (1%, 5%, 10%, 15%, 20%) by orthodontists, prosthodontists, dentists, and laypersons in patients with high-angle and low-angle skeletal patterns.

Method: The study was approved by the Non-Interventional Research Ethics Committee, Bezmialem Vakıf University (2024/232). Two female patients aged 18-25 with high-angle and low-angle skeletal patterns, no missing teeth, and completed orthodontic treatment history were selected from the patient archive of the Department of Orthodontics, Bezmialem Vakıf University. The minimum sample size for each group was calculated as 54 using power analysis. Frontal smiling photographs were taken after obtaining informed voluntary consent from the patients. The buccal corridors were modified symmetrically and asymmetrically using Procreate and Adobe editing software. The images were randomized using randomizer.org and presented to 247 participants via Google Forms. A Visual Analog Scale was used to evaluate the aesthetics of each photograph. Statistical analysis was conducted using SPSS, with Pearson's chi-square and Kruskal-Wallis tests.

Results: Chi-square tests for gender and age revealed significant differences between all groups ($p<0.05$). In the low-angle patient group, significant differences between professions were observed in both asymmetric (1-5%, 1-10%, 1-20%, 5-15%, 10-20%) and symmetric (10-10%, 15-15%, 20-20%) modifications. In the high-angle group, significant differences were observed between professions for asymmetric (1-15%, 1-20%, 15-20%) and symmetric modifications (10-10%, 20-20%) ($p<0.05$). While significant differences were found in pairwise comparisons between professions in low-angle patients ($p<0.05$), no differences were observed between orthodontists and prosthodontists ($p>0.05$). Statistically significant differences were reported between dentists, prosthodontists, orthodontists, and laypersons for high-angle patients ($p<0.05$).

Conclusion: Buccal corridor width and symmetry significantly affect aesthetic perceptions, with preferences varying by skeletal structure and professional background.

Key words: Buccal corridor, orthodontics, prosthodontics

OP-13

Determination of Mylohyoid Canal Frequency and Related Complications

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Introduction: The aim of this retrospective study is to determine the prevalence and anatomical variations of the mylohyoid canal located in the mandible using cone-beam computed tomography (CBCT) imaging, and to evaluate the potential surgical complications associated with this canal.

Method: The CBCT scans of 1,800 patients who presented to the Department of Oral and Maxillofacial Surgery at Bezmialem Vakıf University between February 2023 and February 2024 and underwent mandibular CBCT imaging were retrospectively examined. Patients with a detected mylohyoid canal were administered a questionnaire, and the data were analyzed statistically. Postoperative quality of life was assessed using the OHIP-14 questionnaire.

Results: The mylohyoid canal was present in 55% of the patients examined, while 36% showed no presence of the canal. There was no statistically significant difference between the presence of the mylohyoid canal and intraoperative pain (mean: 2.65 vs 2.62; p=0.95), postoperative pain (mean: 3.40 vs 2.45; p=0.21), repetition of anesthesia (n=12 vs n=8; p=0.89), or numbness (n=1 vs n=0; p=0.35).

Conclusion: The mylohyoid canal is a common anatomical structure that should be taken into consideration during posterior mandibular surgeries. However, its presence does not significantly affect postoperative complications or patients' quality of life. Nevertheless, preoperative identification of the canal using high-resolution imaging methods such as CBCT may enhance intraoperative comfort during surgical procedures.

Key words: Mandible, mylohyoid canal, cone-beam computed tomography, prevalence, anatomical variation, surgical complication

OP-14

Comparison of Conventional Graft and Gingival Unit Graft Applications in Terms of Color in Cairo Type 2 and Type 3 Localized Gingival Recessions

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Introduction: This study aims to evaluate the differences in color harmony between conventional graft (CG) and gingival unit graft (GUG) applications in Cairo Type 2 and Type 3 localized gingival recessions over an 18-month follow-up period after SDG surgery.

Method: This retrospective clinical study includes 40 patients who underwent surgery at Bezmialem Vakıf University Faculty of Dentistry Local Operating Room between 2022 and 2023. Patients were divided into two groups: the control group (CG) and the test group (GUG). Color differences in the keratinized gingiva area were evaluated using digital imaging. Photographs were taken under standardized lighting and camera conditions using a Nikon camera, and color analyses were performed using Adobe Photoshop software (CS6, 64 Bit). Color changes were measured using CIE (LAB) and LUT (RGB) color indices.

Results: In both the control and intervention groups, significant increases were observed in the L, a, b, and ΔE values during the operation ($p<0.001$). In the postoperative period, these parameters showed a significant decrease ($p<0.001$), returning to baseline levels ($p>0.05$). While time-dependent changes within each group were statistically significant, there were no statistically significant differences between the groups at any time point ($p>0.05$).

Conclusion: The findings of this study indicate that the applied intervention led to short-term changes in tooth color, but this effect was not sustained in the long term. The absence of significant differences between the intervention and control groups suggests that the intervention did not offer a clear advantage over the control condition.

Key words: Cairo type 2, cairo type 3, conventional graft, gingival unit graft, color change, keratinized gingiva, CIE (LAB), LUT (RGB)

OP-15

Evaluation of the Long-Term Success of Restorations Performed by Undergraduate Students in the Pediatric Dentistry Clinic of the Faculty of Dentistry

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Introduction: The aim of this study is to evaluate the long-term clinical success of posterior restorations performed by undergraduate students in the Department of Pediatric Dentistry at Bezmialem Vakıf University Faculty of Dentistry.

Method: Clinical and radiographic examinations were conducted on 100 teeth from patients aged between 6 and 13 years, previously treated by undergraduate students. The findings of the restorations were assessed according to the modified USPHS-Ryge criteria and FDI (World Dental Federation)/Hickel criteria (aesthetic, functional, and biological). Factors such as tooth type (primary/permanent) and restoration type (single-surface/two-surface) were evaluated for their effect on the restoration success. The restorations were divided into four groups based on follow-up: 3-6 months, 6-12 months, 12-24 months, >24 months. The collected data were analyzed using the chi-square test to evaluate the relationships between restoration type and tooth type, with a significance level set at $p<0.05$.

Results: A total of 100 teeth were examined (44 permanent, 56 primary). Of the restorations, 40 were single-surface and 60 were two-surface restorations. Only two restorations showed loss of retention. In the follow-up period of over 24 months, a significant increase in secondary caries was observed ($p=0.004$), and a notable failure was detected in radiographic evaluations ($p=0.042$). Overall, no significant difference was found between restoration type and tooth type with regard to success.

Conclusion: Restorations performed during the 3-6, 6-12, and 12-24 month follow-up periods were largely successful and acceptable. However, in the >24 months follow-up group, biological, radiographic, and aesthetic failures increased. These findings suggest that restorations performed by undergraduate students are effective in the short and medium term, but the success decreases in the long term.

Key words: Composite filling, direct restoration, pediatric dentistry

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15 MAY 2025

POSTER PRESENTATIONS

PP-1

Comparative Evaluation of the Technical Quality of Root Canal Treatments Performed by 4th and 5th Year Students of the Faculty of Dentistry

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Introduction: This study aimed to compare the technical quality of root canal treatments performed by 4th and 5th year dental students at Bezmialem Vakıf University.

Method: A total of 500 root canal treatments performed between 2021 and 2024 were retrospectively evaluated. Periapical radiographs from 182 patients were included. Among treated teeth, 108 were anterior, 114 premolar, and 76 molar. Both single- and multi-rooted teeth were assessed. Of the treatments, 222 were performed by 4th-year students and 76 by 5th year students. Radiographic evaluation was based on three criteria: homogeneity of root filling, presence of adequate taper, and termination of the filling ≤2 mm from the radiographic apex. Treatments meeting all criteria were considered technically successful. Two independent observers performed the evaluations. Data were analyzed using the chi-square test.

Results: In total, 298 teeth were included. Of these, 74.5% were treated by 4th year and 25.5% by 5th year students. 4th year students treated only anterior and premolar teeth (category 1 and 2), while 5th year students treated only molar teeth (category 3) ($p<0.001$). 84.7% of treatments by 4th year students involved single canals, while 81.6% and 17.1% of those by 5th year students had three and four canals, respectively ($p<0.001$). No significant difference was observed between groups regarding homogeneity, taper, and working length ($p=0.229$, $p=0.742$, $p=0.867$). Both groups showed similar technical success.

Conclusion: No significant difference in technical success was found based on student year. Clinical success appears more related to case type and experience diversity.

Key words: Root canal treatment, technical quality, dental education, homogeneity, taper, working length

PP-2

Evaluation of the Effects of Maxillary All-On-Four and All-On-Six Fixed Restorations on Patient Satisfaction and Quality of Life

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Introduction: This study aimed to evaluate patient satisfaction and quality of life in individuals receiving fixed restorations on all-on-4 and all-on-6 implant systems in the maxilla.

Method: A total of 40 patients participated, including 22 females and 18 males. Patients were divided into two groups, each consisting of 20 individuals. The oral health impact profile (OHIP) and Life Satisfaction Scale (LSS) were used to assess quality of life and patient satisfaction. Statistical comparisons were made using the Mann-Whitney U test.

Results: The mean age of the patients was 58.58±10.25 years (range: 25-83). No significant difference was found between the groups in terms of total OHIP ($p=0.068$) and total LSS ($p=0.221$) scores. Additionally, no significant differences were observed in any OHIP subscale scores ($p>0.05$). However, significant differences were found in two LSS items: "My life is close to my ideal in many ways" ($p=0.049$) and "My living conditions are excellent" ($p=0.011$), with lower scores in the all-on-4 group.

Conclusion: The findings suggest that the number of implants (all-on-4 vs. all-on-6) does not significantly affect overall patient satisfaction or oral health-related quality of life. However, patients in the all-on-4 group reported slightly lower scores in specific life satisfaction parameters, which may be influenced by their perception of treatment stability. Further studies with larger sample sizes are needed to confirm these results and explore the underlying factors affecting patient satisfaction.

Key words: All-on-four, all-on-six, implant-supported prosthesis, patient satisfaction, quality of life

PP-3

Evaluation of the Effect of Coat Color Selection on Stress During Dental Treatment in Children Aged 6-10

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Introduction: One of the most common problems encountered during dental treatments is stress, which can lead to delays or failure in completing treatment, particularly in pediatric patients. This study examines the effect of the dentist's coat color on children's stress levels.

Method: The study included 60 children aged 6-10 years (n=30 in the study group, n=30 in the control group) who had no prior dental experience and visited the pediatric dentistry clinic. Initially, all children were welcomed by a dentist wearing a white coat, and their dental anxiety levels were assessed using the Venham Picture Test and Facial Image Scale (FIS). In the control group, polishing and prophylaxis procedures were performed by the dentist in a white coat, and anxiety was re-evaluated afterward. In the study group, children were shown four coat colors (pink, green, blue, and yellow) and asked to select one. The same procedures were then performed by the same dentist wearing the chosen coat, followed by repeated anxiety assessments.

Results: Regarding coat color preferences by gender, pink was most preferred by girls and not chosen at all by boys. Green was preferred by 20% of boys and none of the girls. Yellow was chosen by 40% of boys and 13.3% of girls. Blue was equally preferred by both genders. According to the FIS, anxiety levels decreased in 8 children and increased in 6 children in the study group. In the control group, anxiety decreased in 6 children and increased in 7. The Venham Picture Test showed similar changes in anxiety levels in both groups after treatment.

Conclusion: Children who were allowed to choose the coat color showed a greater reduction in anxiety compared to the control group. These findings suggest that giving children autonomy in such choices can enhance cooperation with the dentist and contribute to positive behavioral outcomes. Further studies with larger sample sizes are recommended for more reliable results.

Key words: Dental anxiety, behavioral guidance, stress management, Venham Picture Test, Facial Image Scale

PP-4

Prevalence of Developmental Dental Anomalies in 6-12-Year-Old Children in İstanbul

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Introduction: The aim of this study was to determine the prevalence of developmental dental anomalies in children aged 6 to 12 years.

Method: This retrospective study was based on the evaluation of panoramic radiographs taken between 2023 and 2024 at the Pediatric Dentistry Clinic of Bezmialem Vakıf University. A total of 2056 randomly selected panoramic images of children aged 6-12 years were assessed by two independent observers under standardized lighting conditions with necessary image adjustments. The data were categorized by age and gender, and analyzed using SPSS version 28. The significance level was set at α=0.05.

Results: Developmental dental anomalies were found in 121 children (5.8%) out of 2056 examined (56 girls, 65 boys). The most common anomaly was impacted teeth, observed in 38 children (1.8%), followed by hypodontia in 33 children (1.6%). Other anomalies included dilaceration and supernumerary teeth (0.5% each), transposition (0.38%), inversion (0.34%), hyperdontia and lateral incisor wedge (0.14% each), oligodontia and ectopia (0.09% each), and enamel hypoplasia, microdontia, and taurodontism (0.04% each).

Conclusion: The prevalence of developmental dental anomalies may vary among populations. In this cohort of 6-12-year-old children attending a pediatric dentistry clinic in Istanbul, impacted teeth and hypodontia were the most frequently observed anomalies.

Key words: Developmental dental anomaly, panoramic radiography, prevalence, impacted tooth, hypodontia, pediatric dentistry

PP-5

The Effects of Orthognathic Surgery on Patient Satisfaction and Quality of Life in Patients with Skeletal Class III Malocclusion

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Introduction: Orthognathic surgery aims to correct skeletal jaw disorders, enhancing functional and aesthetic outcomes for patients. Patient satisfaction critically determines surgical success, reflecting individual's psychological expectations and needs, ultimately transforming. The aim of this study was to evaluate the effects of orthognathic surgery on patient satisfaction and quality of life in patients with skeletal Class III malocclusion using the Orthognathic Quality of Life Questionnaire (OQLQ).

Method: Sixty patients who underwent orthognathic surgery at Bezmialem Vakıf University and were at least six months postoperative were included in the study. The OQLQ was used to evaluate postoperative quality of life and satisfaction. It covers four domains: functional changes, psychosocial effects, pain, and aesthetic concerns. Data were analyzed statistically.

Results: In Class III patients, age was negatively correlated with social aspects (Spearman's rho =-0.451, p=0.016) and facial aesthetics (Spearman's rho =-0.381, p=0.046), suggesting increased satisfaction with age. No significant difference was found between genders in overall scores. However, a difference emerged in the oral function domain, possibly due to biological and psychological factors. Women may be more affected by functional changes due to lower masticatory muscle mass and higher sensitivity. Psychological traits and subjective perceptions may also influence these results. As the OQLQ is a self-reported measure, gender-based differences in perception should be considered. Larger and more balanced samples are needed for further insight.

Conclusion: Orthognathic surgery improves quality of life and satisfaction in Class III malocclusion patients, particularly in functional and aesthetic aspects. Most patients reported favorable physical and psychosocial changes and were satisfied with the outcome.

Key words: Orthognathic surgery, quality of life, Class III skeletal malocclusion

PP-6

The Effect of Mouthwashes Containing Listerine and Chlorhexidine on the Surface Roughness of Supra-nanohybrid Monochromatic Composite Resin

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Introduction: The aim was to evaluate the effect of mouthwashes containing Listerine and chlorhexidine on the surface roughness of supra-nanohybrid monochromatic composite resin.

Method: In this study, a single-shade supranano-hybrid composite resin (Omnichroma, Tokuyama, Japan) was used. A total of 30 resin disk samples were prepared using acetate molds (4×2 mm) (n=10) and polymerized according to the manufacturer's instructions with an LED light device (Valo, Ultradent, United State of America) (1000 mW/cm^2). The samples were divided into three groups based on the immersion solutions: Listerine, chlorhexidine mouthwashes, and distilled water (control). The samples were immersed in 20 mL of the respective solution in a closed container, twice a day (12-hour intervals, 2 minutes each time) for 14 days. After each immersion period, the samples were rinsed and kept in distilled water throughout the study. Before and after immersion in the beverages, surface roughness values of the samples were measured at four different points on the upper surface using a contact profilometer (Marsurf M 300 C) (n=10). Surface roughness data were evaluated using two-way analysis of variance and Bonferroni tests ($p<0.05$).

Results: Exposure to mouthwashes containing Listerine and chlorhexidine did not cause a significant change in the surface roughness values of supra-nanohybrid monochromatic composite resin. Similar roughness values were detected in the composite resin before and after exposure to the solutions.

Conclusion: It has been determined that mouthwashes with different compositions did not create a significant change in the surface roughness of supra-nanohybrid monochromatic composite resins.

Key words: Supra-nanohybrid composite resin, surface roughness, chlorhexidine, Listerine, mouthwashes.

PP-7

The Effect of Preheating Before Polymerization on the Surface Roughness of Composite Resins

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Introduction: The aim of this study was to evaluate the effect of preheating before polymerization on the surface roughness (Ra) of bulk-fill composite resins comparatively before and after brushing.

Method: Filtek One Bulkfill [3M ESPE, United State of America (USA)] composite resin material was used in this in vitro study. Twenty disc-shaped samples (5 mm diameter, 2 mm depth) were prepared and divided into two groups (n=10). Group non-heated (NH): polymerized at room temperature; group preheated (PH): preheated to 68 °C for 70 seconds using a Viscalor Dispenser (VOCO,Germany) before polymerization. Polymerization was performed for 20 seconds with an LED device Valo, Ultradent, USA at 1000 mW/cm². Samples were polished with the Sof-Lex disk system (3M Dental Products, USA) and stored in distilled water at room temperature for 24 hours. Initial surface Ra was measured with a contact profilometer (Mahr M300C Carl-Mahr, Germany). Ra of each sample was calculated as the average of the three readings. Each specimen was then subjected to 10,000 brushing cycles (at a frequency of 1 Hz, 4 min, 2 Newton force) simulating 1 year of brushing. Brushing was performed with a mixture of toothpaste (Signal White Now, Unilever, United Kingdom) and distilled water (1:1) using a constant force electric toothbrush assembly. Surface Ra measurement was repeated after brushing. Statistical analysis was performed using SPSS 23.0 (SPSS Inc., Chicago, IL, USA). Analysis of variance was used for repeated measures (p=0.05)

Results: There was no statistically significant difference in Ra values between group NH and group PH in the measurements made after polymerization before brushing simulation.($p>0.05$) After brushing simulation, both groups showed an increase in Ra values. ($p<0.05$) group PH showed a higher Ra value than group NH. ($p<0.05$)

Conclusion: Pre-heating before polymerization does not affect the surface Ra of bulk-fill composite resins. PH composites showed more surface Ra increase after brushing.

Key words: Composite resin, preheating, surface roughness

PP-8

The Effect of Denture Cleaning Methods on Acrylic Tooth Colouration

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Introduction: The aim of this study was to evaluate the effect of different denture cleaning methods on the colour change of acrylic teeth.

Method: In the study, 39 acrylic tooth samples were used. The samples were kept in distilled water at 37 °C for 24 hours and the initial colour measurements were made. The teeth were divided into three groups (n=13). Group 1: distilled water, group 2: toothbrush and soapy water, group 3: Corega denture cleaning tablet (Waterford, Ireland). The first group was kept in distilled water, the second and third groups in coffee solution and colour measurements were repeated on the 20th day. The second group was cleaned with soapy water and toothbrush, the third group was kept in denture cleaning tablet solution for 24 hours and the third colour measurements were recorded. Colour changes were measured with Vita Easyshade Advance 4.0 spectrophotometer (Bad Säckingen, Germany) and evaluated with Commission Internationale de I'Eclairage L*a*b* system, colour difference (DeltaE) and brightness values (L) were calculated and statistical analyses were performed. Analysis of Variance was used for repeated measurements and Bonferroni correction was applied for comparisons ($p<0.05$).

Results: When the data obtained according to cleaning methods were compared, a significant difference was found only in the DeltaE3 values between group 1 and group 2 ($p<0.05$). There was no difference between the other groups ($p>0.05$). Significant differences were detected between group 1 and group 2 in L1 and L3 values, and group 1 was significantly different from the other two groups in L3 ($p<0.05$).

Conclusion: Different denture cleaning methods increase the brightness of acrylic teeth compared to distilled water and affect the colour change of soapy water group.

Key words: Acrylic teeth, denture cleaning, colour change, spectrophotometer, statistical analysis

PP-9

The Effect of Preheating Before Polymerization on the Surface Microhardness of Composite Resins

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Introduction: The aim of this study was to evaluate the effect of preheating before polymerization on the surface microhardness of bulk-fill composite resins comparatively before and after brushing.

Method: Filtek One Bulkfill [3M ESPE, United State of America (USA)] composite resin material was used in this in vitro study. Twenty disc-shaped samples (5 mm diameter, 2 mm depth) were prepared and divided into two groups (n=10). Group non-heated (NH): polymerized at room temperature; group pre-heated (PH): PH to 68 °C for 70 seconds using a Viscalor Dispenser (VOCO, Germany) before polymerization. Polymerization was performed for 20 seconds with an LED device (Valo, Ultradent, USA) at 1000 mW/cm². Samples were polished with the Sof-Lex disk system (3M Dental Products, USA) and stored in distilled water at room temperature for 24 hours. Surface microhardness measurements of the specimens were obtained using a Vickers microhardness tester (HMV-2, Shimadzu, Japan) (15 s 300 g load) by taking the arithmetic mean of three indentations in the central region of the specimen. (VHN) Each specimen was then subjected to 10,000 brushing cycles (at a frequency of 1 Hz, 4 min, 2 Newton force) simulating 1 year of brushing. Brushing was performed with a mixture of toothpaste (Signal White Now, Unilever, United Kingdom) and distilled water (1:1) using a constant force electric toothbrush assembly. Surface microhardness measurement was repeated after brushing. Statistical analysis was performed using SPSS 23.0 (SPSS Inc, Chicago, IL, USA). Analysis of variance was used for repeated measures ($p=0.05$).

Results: In the measurements made after polymerization before brushing simulation, group PH showed a higher VHN value than group NH ($p<0.05$). After brushing simulation, group PH showed a decrease in microhardness value ($p<0.05$), while no significant difference was observed in the microhardness values of group NH ($p>0.05$). In the measurements made after brushing simulation, group PH showed a higher microhardness value than group NH ($p<0.05$).

Conclusion: Pre-heating before polymerization increases the surface microhardness of composite resins.

Key words: Composite resin, preheating, microhardness

PP-10

The Effect of Pre-heating Before Polymerization on the Color Stability of Composite Resins

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Introduction: This study aimed to evaluate the effect of preheating on the color stability of bulk-fill composite resins.

Method: In this *in vitro* study, Filtek One Bulkfill [3M ESPE, United State of America (USA)] composite resin was used. Twenty disc-shaped samples (5 mm diameter, 2 mm depth) were prepared and divided into two groups (n=10). Group non-heated (NH): polymerized at room temperature; group pre-heated (PH): PH to 68 °C for 70 seconds using a Viscalor Dispenser (VOCO, Germany) before polymerization. Polymerization was performed for 20 seconds with an LED device (Valo, Ultradent, USA) at 1000 mW/cm². Samples were polished with the Sof-Lex disk system (3M Dental Products, USA) and stored in distilled water at room temperature for 24 hours. Color analysis was conducted using a spectrophotometer (Vita EasyShade Advance 4.0, Vita Zahnfabrik, Germany) based on the CIE L*a*b* system: L*(lightness/darkness), a*(redness/greenness), and b*(yellowness/blueness). Three measurements were taken from the center of each sample, and their averages were recorded. Samples were then immersed in a coffee solution (1 teaspoon Nescafe Gold in 200 mL hot water, 37 °C) for one week, and color measurements were repeated. Color change (ΔE) values were calculated. Statistical analysis was performed with SPSS 23.0, using ANOVA for repeated measures and independent samples t-test for ΔE (p=0.05).

Results: After polymerization, no significant difference in L* values was found between group NH and group PH ($p>0.05$). After immersion in coffee, L* values decreased, with group PH showing a significantly lower L* value than group NH ($p<0.05$). Group PH exhibited a significantly higher ΔE value ($p<0.05$).

Conclusion: PH composite resins does not affect their color values after polymerization. However, when exposed to coffee solution, PH composite resins showed more discoloration than NH composite.

Key words: Composite resin, preheating, color stability

PP-11

Compatibility Between Planned and Actual Changes in Vertical and Sagittal Mandibular Jump in Patients Treated with Clear Aligners

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Introduction: The aim of this study is to investigate the compatibility between the planned and actual vertical mandibular jump movement in patients treated with clear aligners during orthodontic treatment.

Method: Ten adult patients (1 male, 9 female, average age 28) who have vertical jump of mandible in the Clincheck system were included in the study. After intraoral scanning with digital scanners, the expected jump amounts in the mandible for each patient were measured using the Clincheck system. After that, pre-treatment and post-treatment lateral cephalometric radiographs of the patients were superimposed on the SN plane, and the actual vertical jump amount was measured using the Pog point as a reference. SPSS software was used for data analysis. Normality was tested using the Shapiro-Wilk test, and parametric data were compared using the independent t-test. The relationship between the planned and actual movements was also analyzed using Pearson correlation analysis.

Results: The statistical comparison showed no significant difference between the groups ($p>0.05$). Pearson correlation analysis revealed no positive or negative correlation between the planned and actual jump amounts ($p>0.05$).

Conclusion: Although there was no statistically significant difference between the planned and actual vertical jump amounts, the correlation results indicated that the planned and actual jump amounts were not compatible when evaluated clinically. Further studies with larger sample sizes are needed for more conclusive results.

Key words: Clear aligners, cephalometry, mandibular jump

PP-12

Prevalence of Root Resorptions in Patients Admitted to Bezmialem Vakıf University Faculty of Dentistry Hospital Evaluated by Orthopantomography

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Introduction: To detect root resorptions in the upper and lower jaw teeth of patients at Bezmialem Vakıf University Faculty of Dentistry using orthopantomographic images and to classify the frequency of internal and external root resorptions based on localization, gender, and age.

Method: Panoramic radiographs of 1.204 patients who visited Bezmialem Vakıf University Faculty of Dentistry, Department of Oral and Maxillofacial Radiology between 01.01.2023 and 30.12.2023 were examined. Radiographs with artifacts, poor image quality, or lacking demographic information were excluded. Radiographs were obtained using the Planmeca Promax 2D (Helsinki, Finland) device (66 kV, 8 mA, 16.1 s). The presence of internal and external root resorptions was recorded, and their prevalence was evaluated based on age, gender, jaw, and localization.

Results: A total of 1.204 patients were evaluated. Gender distribution showed 57.1% were female (n=687) and 42.9% male (n=517). Root resorption was observed in 25 different teeth, with 66.1% of resorptions occurring in the maxilla, particularly in the anterior region. The Shapiro-Wilk test was used to assess normality, while Pearson's chi-square and Fisher-Freeman-Halton tests analyzed relationships between categorical variables. A significance level of 0.05 was set, and SPSS (version 28) was used for statistical analysis.

Conclusion: Orthopantomography is commonly used in routine dental exams, providing general information on the condition of teeth and surrounding tissues. A thorough evaluation of these images is essential for detecting root resorptions. If needed, periapical radiographs or 3D scanning can be used for further investigation.

Key words: Internal root resorption, external root resorption, orthopantomography

PP-13

Evaluation of the Effects of Preoperative Consultations with Orthodontists on Patients' Fear and Anxiety Before Orthognathic Surgery

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Introduction: This study evaluates the impact of preoperative orthodontic consultations on anxiety and fear in orthognathic surgery patients. The null hypothesis suggests no significant effect on the anxiety and fear levels.

Method: This study was approved by Bezmialem Vakıf University Non-Interventional Ethics Committee (decision no: 2024/225). The research was conducted at Bezmialem Vakıf University Faculty of Dentistry Hospital between June 21, 2024, and March 28, 2025, including 25 patients undergoing orthognathic surgery. Patients were divided into two groups: those who had preoperative consultations with their orthodontists (n=9) and those who did not (n=16). During the consultation, orthodontists gave a reassuring speech to the patients and said that they would be present in the operating room. Modified Corah dental anxiety scale (MDAS) and the dental fear scale (DFS) were administered before and after surgery. Physiological responses were assessed using pulse oximetry and blood pressure measurements, while postoperative patient satisfaction was evaluated using the patient satisfaction level questionnaire. Data distribution was assessed with Shapiro-Wilk test, and statistical analyses were performed using IBM SPSS Statistics 22.0.

Results: Participants included 17 males and 8 females. DFS scores ranged from 20 to 69, MDAS from 6 to 20. No significant differences were found between groups in MDAS (p=0.527) or DFS (p=0.932). Consultation patients reported higher satisfaction, but the difference was not statistically significant (p=0.094).

Conclusion: While preoperative consultations do not significantly reduce anxiety and fear, they may enhance patient satisfaction.

Key words: Dental fear, dental anxiety, orthognathic surgery, treatment satisfaction level

PP-14

Evaluation of Mental Foramen Variations with Cone Beam Computed Tomography

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Introduction: This study aims to evaluate the anatomical location and morphological variations of the mental foramen in a selected population using cone beam computed tomography (CBCT).

Method: Mandibular CBCT scans obtained between 2021 and 2023 at the Department of Oral and Maxillofacial Radiology, Bezmialem Vakıf University were retrospectively analyzed. Scans showing mandibular pathology or motion artifacts were excluded. All images were acquired using a Promax 3D Mid unit (Planmeca, Finland) with a voxel size of 0.25-0.40 mm. Mental foramen morphology was categorized into three types. Its location was recorded relative to neighboring teeth and analyzed based on gender and laterality.

Results: A total of 800 hemimandibles from 400 patients (231 females, 169 males) were examined. On the left side, type 1 morphology was observed in 131 females and 93 males; type 2 in 68 females and 52 males; and type 3 in 32 females and 24 males. The most frequent position was in line with the second premolar (51.3%). On the right side, type 1 was found in 147 females and 103 males; type 2 in 60 females and 44 males; and type 3 in 24 females and 22 males. The most common location was between the first and second premolars (45.1%). No significant correlation was found between gender and mental foramen location on either side ($p>0.05$). The positions of the right and left foramina were not symmetrical ($p<0.001$), and the morphological concordance was moderate to low ($p<0.001$).

Conclusion: Mental foramen variations show differences in location and morphology between sides but not significantly between genders. CBCT is an essential tool for detailed evaluation and accurate localization of the mental foramen in clinical practice.

Key words: Mental foramen, cone beam computed tomography, anatomical variation

PP-15

Evaluation of Perception of Tooth Color by 1st and 5th Grade Dental Students

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Introduction: This study aims to evaluate the ability of first and fifth-year dental students to distinguish colors and correctly perceive tooth shade in order to determine whether undergraduate education significantly affects color perception capacity.

Method: This study included two groups of dental students (n=38 each) from Bezmialem Vakıf University. Participants assessed the shade of the middle third of tooth no.: 21. Gender distribution was as follows: 1st year (28 female, 10 male); 5th year (22 female, 16 male). Shade selection was performed using the Vitapan 3D Master shade guide under standardized lighting conditions (5300 K) and against a neutral gray background. The reference shade was previously identified using a spectrophotometer (CIE Lab coordinates). Students' selections were compared to the reference to assess accuracy. Data were analyzed using descriptive statistics (frequency, percentage), and intergroup comparisons were conducted via the chi-square test. All statistical analyses were performed with IBM SPSS Statistics 29.0.2, considering a 95% confidence interval and a significance level of $p<0.05$.

Results: The frequency of participants whose responses were closest to the correct shade was 13.2% for first-year students and 5.3% for fifth-year students. The frequency of clinically acceptable shade matching was 28.9% for first-year and 31.6% for fifth-year students ($p=0.606$). No statistically significant difference was found between the groups for the $\Delta E < 6.8$ parameter ($p=0.815$).

Conclusion: The results of this study indicate that the majority of both first- and fifth-year students were unable to determine the correct shade with Vitapan 3D Master shade guide. Additionally, dental education did not significantly impact color perception skills between the groups.

Key words: Tooth shade, spectrophotometer, vita shade guide, color perception skill

PP-16

Evaluation of Dental Students' Perception of Smile Aesthetics

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Introduction: This study aims to compare the aesthetic perception of dental students at different stages of their education process. In the study, differences in aesthetic perceptions between first-year students and fifth-year students at the graduation stage were examined through the width/height ratios of the central and lateral teeth and noticeable lip fillers

Method: Smile photographs of a female subject were modified using Photoshop CS based on the length/width ratios of the upper anterior teeth. Six modifications were created: 80% width/length ratio (golden ratio), 70% width/length ratio for the central incisors, 70% width/length ratio for both the central and lateral incisors, and each with lip filler. Participants were presented with photographs of these modifications, and surveys were conducted to assess their visual aesthetic perceptions. A total of 200 participants (100 first-year and 100 fifth-year students) completed a 21-question survey via Google Forms.

Results: Most participants considered the golden ratio to be the most aesthetic. The 70% width/length ratio for the central and lateral incisors was found to be closest to the golden ratio, with this difference being statistically significant ($p<0.05$). The photos with noticeable lip filler have been observed to be aesthetically unpreferred ($p<0.05$). No significant difference in aesthetic perception was found between first-year and fifth-year students ($p>0.05$).

Conclusion: Within the limitations of this study, it is observed that dental students' aesthetic perceptions do not significantly change throughout their education. However, there is a stronger preference for golden ratio smiles and elongation of both central and lateral incisors. Conversely, modifications such as noticeably augmented lips and elongation of only the central incisors were perceived negatively by participants. These findings may indicate that dental students tend to favor natural smiles that emphasize symmetry and proportion.

Key words: Golden ratio, anterior aesthetic perception, lip filler

PP-17

Evaluation of Periodontal Risk Awareness Levels in Patients Admitted to Bezmialem Vakıf University Faculty of Dentistry, Department of Periodontology

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Introduction: Periodontal diseases are chronic inflammatory conditions that affect the gums and supporting structures of the teeth. Awareness of these diseases is influenced by age, gender, education, and socio-economic status. This study aimed to assess periodontal disease awareness among patients visiting the Periodontology Clinic at Bezmialem Vakıf University and examine variations based on socio-demographic factors.

Methods: This observational, questionnaire-based study included 154 systemically healthy volunteers aged 18-65 who visited Bezmialem Vakıf University's Periodontology Clinic. A face-to-face questionnaire with 19 items was used to assess participants' awareness of periodontal disease and oral hygiene habits. Data were analyzed using SPSS version 28. Relationships between variables were evaluated with Pearson's chi-square, Fisher's exact, and Fisher-Freeman-Halton tests. Logistic regression was used for multivariate analysis, and the Hosmer-Lemeshow test assessed model fit. Statistical significance was set at $p<0.05$.

Results: The results showed that younger individuals had lower awareness of periodontal disease, though this difference decreased with higher education levels. Women had higher awareness than men. Individuals with a high school education or lower showed significantly lower awareness. Those with low socio-economic status were less likely to attend regular dental check-ups, increasing their risk for periodontal disease. Married participants had higher awareness levels compared to single individuals.

Conclusion: There was a significant relationship between periodontal disease awareness and age, gender, education, marital status, socio-economic status, and oral hygiene habits. Awareness levels were lower among individuals with less education and lower socio-economic status, who were also less likely to seek regular dental care.

Key words: Periodontal awareness, socio-demographic factors, oral health, education, questionnaire study

PP-18

The Effect of Different Smoothie Beverages on the Color Change of Nanohybrid and Microhybrid Composite Resins

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Introduction: In recent years, smoothies have gained popularity due to their health-promoting components. While regular consumption can prevent chronic diseases, their acidic content may adversely affect restorative dental materials. This study investigates the effect of different smoothies on the color change of nanohybrid and microhybrid composite resins.

Method: A total of 60 disc-shaped composite resin samples (4×2 mm) were prepared. Group R samples were made with nanohybrid composite resin (Ruby, Inci Dental, İstanbul, Türkiye), while Group F samples were made with microhybrid composite resin (Filtek Z250, 3M ESPE, St. Paul, Minnesota, USA). The samples were polished with Sof-Lex (3M ESPE, St. Paul, Minnesota, USA) discs. They were divided into three subgroups based on the beverage: Group R-M and Group F-M immersed in purple smoothie (Elite Naturel, Ankara, Türkiye); Group R-Y and Group F-Y immersed in green smoothie (Elite Naturel, Ankara, Türkiye); and Group R-D and Group F-D stored in distilled water. The immersion was done five times a day for 2 minutes over 21 days. Color values were measured using a spectrophotometer (Vita Easy Shade Advance 4.0, VITA Zahnfabrik, Germany). Data were analyzed using the Shapiro-Wilk, Levene, Student's t-test, Mann-Whitney U, and Wilcoxon signed-rank tests ($p<0.05$).

Results: Group F-M showed significantly higher color change than Group R-M ($p<0.05$). No significant color change was observed in the other groups stored in different liquids ($p>0.05$). No statistical difference was found between Group F-M, Group F-Y, and Group F-D ($p>0.05$), or between Group R-M, Group R-Y, and Group R-D ($p>0.05$).

Conclusion: Purple smoothie caused greater discoloration in microhybrid composite resins compared to nanohybrid composites. Green smoothie and distilled water did not cause significant color change differences among the materials.

Key words: Smoothie, color, nanohybrid, microhybrid

PP-19

Dentists's Choice of Post/Core/Crown or Endocron Restoration in Endodontically Treated Teeth

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Introduction: Endocrowns represent a more conservative alternative to post/core/crown restorations in the rehabilitation of endodontically treated teeth with extensive structural loss. The aim of this study is to evaluate the preferences of general practitioners and specialist dentists for post/core/crown or endocrown restorations in endodontically treated teeth and their ability to determine the clinical conditions under which these applications are deemed appropriate.

Method: The study was conducted via an online survey administered to general practitioners and specialists. The questionnaire consisted of 29 items addressing demographic information and restorative preferences. Data were analyzed using SPSS (v.26), and statistical comparisons were made using Pearson's chi-square, Fisher's exact chi-square, and Fisher-Freeman-Halton tests. The significance level was set at $p<0.05$.

Results: A total of 51 dentists participated in the study, 43.1% of whom were specialists and 56.9% general practitioners. Specialists reported a significantly higher preference for endocrown restorations compared to general practitioners ($p<0.05$). For premolars with 50% remaining tooth structure, specialists predominantly choose direct restorations, whereas general practitioners preferred crowns ($p<0.05$). In cases with occlusal risk factors such as bruxism, specialists tended to prefer endocrowns, while general practitioners leaned toward post/crown restorations ($p<0.05$). Regarding questions on endocrown failure types, specialists mostly reported "no failure", while general practitioners frequently indicated they had not performed the procedure ($p<0.05$). For teeth with two remaining axial walls, specialists favored endocrowns, while general practitioners preferred post-crown restorations ($p<0.05$).

Conclusion: Significant differences exist between general practitioners and specialists in terms of the indication and use of endocrown restorations. Specialists tend to adopt more conservative, tissue-preserving approaches. Including both theoretical and practical training on endocrowns in undergraduate curricula could enhance awareness and competence in this area.

Key words: Endocrown, post/core/crown, root canal treatment

PP-20

Long-term Radiographic Evaluation of the Effects of Three Different Implant Designs on Marginal Bone Levels

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Introduction: This study aims to evaluate the effect of implant macrostructure on marginal bone loss using three different dental implant designs (bilimplant, medentika, straumann), which vary in manufacturer, length, diameter, surface preparation, jaw location, and neck design. The study was conducted retrospectively.

Method: A total of 180 patients who received implant treatment at Bezmialem Vakıf University Faculty of Dentistry between 2018 and 2024 were included. Two variables were examined: implant design and jaw location (Group 1, Group 2). Digital panoramic radiographs taken immediately after implant placement (T0) and at least one year after prosthetic restoration (T1) were analyzed. Fractal analysis and marginal bone level measurements were performed using the *ImageJ* and *Planmeca Romexis* software. Statistical analyses were conducted using SPSS (version 28) with a significance level of 0.05. The Kolmogorov-Smirnov test assessed normality. The Kruskal-Wallis test was used for comparing more than two independent groups, with Dunn's test for post hoc analysis. The Mann-Whitney U test compared two independent groups. Spearman correlation analysis was used to evaluate relationships between quantitative variables.

Results: No statistically significant difference was observed in terms of mesial and distal marginal bone loss percentage for Group 1 and Group 2 ($p=0.590$; $p=0.622$; $p=0.922$; $p=0.406$, respectively). Fractal analysis means did not correlate with marginal bone loss measurements for Group 1 and Group 2 variables ($p=0.089$; $p=0.459$; $p=0.597$; $p=0.650$, respectively).

Conclusion: The three different implant designs included in our study and the jaw in which they were applied did not have a significant effect on marginal bone loss.

Key words: Dental implant, dental implant geometry, marginal bone loss, fractal analysis

PP-21

Effect of Mouthwashes on the Color Change of Monochromatic Composite Resin

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Introduction: This study aimed to investigate the color change of monochromatic composite resin (Omnichroma) after exposure to different types of mouthwashes (Listerine and chlorhexidine).

Method: A total of 30 disc-shaped (4x2 mm) monochromatic composite resin samples (Omnichroma, Tokuyama) were prepared and polymerized using an light emitting diode light device (1000 mW/cm^2). The initial color values of the samples were measured using a spectrophotometer. The samples were divided into 3 groups according to different mouthwashes and immersed in Listerine, chlorhexidine, and distilled water (control) for 14 days (n=10). After the exposure period, color measurements were taken again using the spectrophotometer, and the obtained color change values were statistically analyzed with with repeated measures one-way Analysis of Variance and Bonferroni tests ($p<0.05$).

Results: According to the results, no statistically significant differences were found between the groups exposed to different solutions ($p=0.421$).

Conclusion: Listerine and chlorhexidine-containing mouthwashes did not have a remarkable effect on color change of monochromatic composite resin.

Key words: Monochromatic, composite, color stability, mouthwash,

PP-22

The Effect of Endocrown Cavity Depths on the Accuracy of Intraoral Scanners

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Introduction: The use of intraoral scanners by clinicians is increasingly preferred. The aim of this study is to evaluate the accuracy of measurements after scanning endocrown restorations created at different depths with two different intraoral scanners.

Method: A total of two Frasaco (Köln, Germany) plastic teeth were used. Endocrown cavities were prepared on the plastic teeth, one with a depth of 3 mm and the other with 6 mm, with a mesiodistal width of 4 mm and a buccolingual width of 3.8 mm. The cavity widths were measured using a digital caliper, and the depths were measured using a periodontal probe. These cavities were scanned 15 times each with the Medit i700 (Seoul, South Korea) and Dentsply Sirona Cerec Omnicam (Erlangen, Germany) devices. The measurements of the buccolingual, mesiodistal, and depth were repeated at the same points on the images obtained from the scans. The data obtained were statistically analyzed by comparing them with reference model measurements in terms of buccolingual, mesiodistal, and depth dimensions. One sample t-test was used for statistical analysis.

Results: At a depth of 3 mm, both intraoral scanners showed similar results in the buccolingual dimension compared to the reference measurements ($p>0.05$), but showed statistically significant differences in the mesiodistal dimension ($p<0.05$). In depth measurements, only the Cerec device showed different results compared to the reference value ($p<0.05$), while the Medit device provided similar results ($p=0.136$). At a depth of 6 mm, both intraoral scanners showed statistically significant differences compared to the reference values in both mesiodistal and buccolingual measurements ($p<0.05$). In depth measurements, the Cerec device showed similar results to the reference value ($p>0.05$), while the Medit device showed statistically different results ($p<0.05$).

Conclusion: Differences in the measurements of endocrown cavities with different intraoral scanners in terms of mesiodistal, buccolingual, and depth dimensions were observed compared to the reference measurements.

Key words: Endocrown, intraoral scanner, cavity depth, cerec omnicam, medit, scanning accuracy

PP-23

Evaluation of Postoperative Changes in Blood Flow Through the Mental Foramen Following Orthognathic Surgery via Ultrasonography

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Introduction: This study aimed to evaluate vascularization and postoperative neurosensory changes in the mental foramen region using ultrasonography (USG) and clinical assessment in individuals with skeletal Class II and III malocclusions undergoing orthognathic surgery.

Methods: Sixteen patients were evaluated clinically and radiologically at four time points: preoperatively (T1), and postoperatively at the 1st week (T2), 1st month (T3), and 3rd month (T4). Clinical tests included the pinprick test, pressure visual analog scale (VAS), neurosensitivity VAS, brush test, and two-point discrimination. Ultrasonographic assessment was performed with a Philips PureWave device and eL18-4 MHz linear probe to measure mental blood flow and foramen diameter. Color and power Doppler USG were used for vascular assessment. Statistical analysis was conducted using SPSS version 28.0 (IBM Corp.), with significance set at $p<0.05$.

Results: An accessory mental foramen was detected in 9.4% of patients. The mental foramen diameter was significantly greater in males than females ($p=0.025$). A significant decrease in mental blood flow was observed at T4 ($p<0.05$). Friedman test revealed significant changes over time in pinprick, pressure, neurosensitivity, and two-point discrimination scores ($p<0.0083$, $p<0.001$, $p<0.0083$, and $p<0.0083$, respectively). The most notable reductions in sensory scores occurred at T1-T2, with partial recovery by T4.

Conclusion: Orthognathic surgery results in significant temporal changes in both vascularization and neurosensory function in the mental foramen region. Early postoperative sensory deficits showed partial recovery by the 3rd month.

Key words: Mental foramen, ultrasonography, power Doppler, orthognathic surgery, neurosensory function

PP-24

Comparing the Development of Keratinized Gingiva in Free Gingival Graft Surgery Using Conventional Graft and Gingival Unit Graft in Cairo Type 2 and Type 3 Gingival Recessions After 12 Months

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Introduction: This study aims to compare how conventional graft (CG) and gingival unit graft (GUG) techniques affect the growth of keratinized gingiva after 12 months in patients who had free gingival graft (FGG) surgery for Cairo Type 2 and Type 3 gingival recessions.

Method: Forty patients who had FGG surgery due to Cairo Type 2 and Type 3 gingival recessions at the Department of Periodontology, Bezmialem Vakıf University between 2022 and 2023 were included in this study. The patients were split into two groups: 20 in the test group and 20 in the control group. The control group received CGs, while the test group received GUGs. After 12 months, measurements were taken from the mesial, middle, and distal parts of the teeth in the surgical area. These measurements included bleeding on probing, probing depth, gingival recession, plaque, keratinized gingiva, and vestibular depth. The width of the keratinized tissue was measured using an University of North Carolina 15 probe from the free gingival margin to the alveolar mucosa at the middle point of the tooth. The Repeated Measures Analysis of Variance test was conducted in the study. The analysis was performed using IBM SPSS Statistics 29.0.2 with a significance level of 0.05.

Results: The results showed that both the GUG and CG groups had significant improvements in gingival index, plaque index, gingival recession, probing depth, keratinized gingiva, and vestibular depth at the 1st, 3rd, and 12th months compared to the baseline values ($p<0.05$). The GUG group showed a significant reduction in gingival recession ($p=0.017$). However, no significant differences were observed between the two groups for the other parameters ($p>0.05$).

Conclusion: According to this study, both CG and GUG techniques were successful in increasing keratinized gingiva in FGG surgeries. Neither technique was found to be better than the other in terms of effectiveness.

Key words: Gingival recession, gingival unit graft, keratinized gingiva, conventional graft, free gingival graft

PP-25

Retrospective Evaluation of Treatment and Complications of Mandibular Fractures

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Introduction: The aim of this study was to retrospectively evaluate the surgical treatment methods of mandibular fractures, the fixation materials used and the postoperative complications thi may develop according to the techniques applied.

Method: This study included 21 patients (15 males, 6 females; age range: 9-60 years) treated for mandibular fractures between 2019 and 2023. New X-rays were taken from our patients for control purposes; as a result of the comparison of X-rays and the tests performed, parameters such as the type of fracture localization, type of fixation, number of screws and plates used, postoperative healing, nerve tests, maximum mouth opening, presence of deviation-deflection and postoperative pain level [visual analog scale (VAS)] were recorded in the patient files.

Results: In the majority of the 21 patients, fracture localization was concentrated in the angulus (10) region. Unfavorable (14) fractures were common and semirigid fixation (14) was commonly preferred. The average number of screws and plates used in open reconstruction was 8 and 2, respectively. Malunion was observed in 5 patients in the postoperative period, while the other 16 patients had good healing. All patients responded positively to the pinprick test, while only 3 patients responded negatively to the two-point discrimination test. The maximum mouth opening averaged 44 mm and was measured between 30-70 mm. Deviation was detected in 10 patients, deflection in 3 patients, and no deviation or deflection was observed in the remaining 8 patients. Only 5 patients had post-op pain, and the average postoperative pain score measured by VAS was 0.5/10.

Conclusion: Some of the patients had more than one fracture line, the localization of the fractures were as follows: 10 angulus fractures, 6 condyle fractures, 6 parasymphysis fractures, 3 symphysis fractures, the shape of the fractures was favorable in 7 patients and unfavorable in 14 patients. In 7 patients non-rigid fixation was achieved with Intermaxillary Fixation, while in the other 14 patients semi-rigid fixation was achieved with open reduction. The mean post-op mouth opening of the patients was 40: 10 mm. All patients responded positively to the pinprick test, while 3 patients responded negatively to the two-point discrimination test. 18 patients had good healing and 3 patients had malunion. There was no significant difference in VAS scores between patients with good fracture healing and patients with malunion (p=0.740). However, patient selection, appropriate technique preference and surgical experience are of great importance to prevent malunion and other complications.

Key words: Mandibular fracture, fixation method, postoperative complications, nerve tests

PP-26

Comparison of the Effects of Melatonin and Lymphatic Drainage Massage on Pain, Edema, and Mouth Opening After Impacted Third Molar Extraction

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Introduction: Extraction of impacted third molars is among the most frequently performed surgical procedures in oral surgery. These teeth often remain impacted due to various etiological reasons. Sometimes, concerns about postoperative complaints may cause anxiety in patients requiring third molar surgery. The aim of this study is to compare the effects of lymphatic drainage massage and oral melatonin administration on postoperative edema, pain, and mouth opening in order to reduce patients' postoperative complaints and accelerate the healing process.

Methods: This prospective randomized clinical study included patients divided into three groups. The first group (n=7) received no treatment (control group); the second group (n=7) received lymphatic drainage massage once daily for 7 sessions; and the third group (n=6) received 3 mg of oral melatonin once daily for 7 days. Edema measurements, visual analog scale (VAS) scores for pain, and maximum mouth opening were evaluated and compared among the groups. Statistical analyses were performed using the Shapiro-Wilk test, one-way analysis of variance, and the Kruskal-Wallis H test.

Results: No statistically significant differences were found among the groups in terms of Oral Health Impact Profile scores, percentage changes in facial soft tissue measurements (gonion-lateral canthus, tragus-labial commissure, ala nasi-tragus), or mouth opening values ($p>0.05$). However, a statistically significant difference was observed in the changes in VAS pain scores from baseline to days 3 and 7 between the groups ($p<0.05$). A more pronounced reduction in pain was observed in the massage group compared to the melatonin group.

Conclusion: No significant differences were found in the measurements between the melatonin and massage groups when compared to the control group, except for the VAS pain scores. It was concluded that patients in the lymphatic drainage massage group experienced less pain. It is suggested that increasing the sample size could yield more meaningful results in future studies.

Key words: Lymphatic drainage massage, melatonin, visual analog scale, impacted third molar

PP-27

Evaluation of the Change in the Quality of Life of Patients Treated with a Diagnosis of Medication-related Osteonecrosis of the Jaw

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Introduction: This study aims to evaluate the effect of treatments for medication-related osteonecrosis of the jaw (MRONJ) on patients' quality of life.

Method: The study included patients diagnosed with MRONJ at Bezmialem Vakıf University who received either surgical or conservative treatment. The effectiveness of the treatments was analyzed based on patients' quality of life. The treatment protocol followed the evaluation and method strategies recommended by the American Association of Oral and Maxillofacial Surgeons for individuals with MRONJ. The Turkish versions of the Oral Health Impact Profile (OHIP-14) and the Satisfaction with Life Scale (SWLS) were used to evaluate patients' quality of life before and after treatment.

Results: A total of 22 patients (17 women and 5 men) who applied to the clinic within one year were included in the study. The mean age was 66.14±11.12 years (min=42, max=87). No significant change was observed in the total SWLS scores post-treatment ($p=0.200$). However, a statistically significant difference was found between preoperative and postoperative OHIP-14 scores ($p=0.002$). After treatment, a significant decrease was recorded in the total OHIP-14 scores, indicating an improvement in the OHIP-14. No significant relationship was found between gender, stage of necrosis, and the cause of necrosis with OHIP-14 and SWLS scores ($p>0.05$).

Conclusion: The improvement in quality of life following MRONJ treatment highlights the positive impact of the applied treatment protocols on patients.

Key words: MRONJ, life satisfaction, oral health, quality of life, OHIP-14, SWLS

PP-28

Follow-up of Changes in Molar Tooth Axes in Cases of Molar Distalization with Clear Aligners

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Introduction: The aim of this study is to investigate the changes in molar tooth axes in patients undergoing molar distalization with clear aligners. As clear aligners become increasingly common in orthodontic treatment, evaluating their effectiveness and long-term effects becomes important.

Method: A total of 13 participants were included in the study. The treatment group consisted of 7 individuals, and the control group consisted of 6 individuals. Among the treatment group, 57.1% were female and 42.9% were male, with a mean age of 19.14±5.11 years. In the control group, the gender distribution was equal, and the mean age was 23.83±0.75 years. The normality of the variables was assessed using the Shapiro-Wilk test. Variables that conformed to a normal distribution were presented with their mean and standard deviation values. The Paired Samples t-test was used to analyze the differences between two dependent groups. Statistical analyses were performed using IBM SPSS Statistics 22.0, and the significance level was set at 0.05.

Results: No statistically significant differences were observed between the pre-test and post-test, or between the post-test and 6th-month measurements of the following variables in the treatment group: SnGoGn, SNA, SNB, ANB, Wits, 16mcPtv, 16ccPtv, 16vmraPtv, 16mcPP, 16ccPP, 16vmraPP, 16ccOP, and 16vmraOP ($p>0.05$). The most notable changes were observed in the Wits ($p=0.051$) and 16ccPtv ($p=0.051$) measurements; however, these values fell just below the threshold for statistical significance. It was observed that molar distalization using clear aligners did not produce a significant change in molar tooth axes during the treatment process. Nevertheless, extending the follow-up period and conducting studies with larger sample sizes are recommended to evaluate long-term stability.

Conclusion: Molar distalization with clear aligners did not result in significant changes in molar tooth axes. These findings highlight the necessity of further research into the effectiveness and long-term stability of orthodontic treatments with clear aligners. Future studies with larger sample sizes will enhance the generalizability of these results. Additionally, assessing the applicability of these treatments in different patient groups and customizing treatment processes should be further explored in future research.

Key words: Clear aligners, molar distalization, orthodontic treatment, tooth axis changes, statistical analysis

PP-29

The Effect of Mouthwashes on the Surface Roughness and Color Stability of Microhybrid Composite Resin

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Introduction: The aim of this study was to evaluate the effect of different mouthwashes on the surface roughness and color stability of microhybrid composite resin.

Method: A microhybrid composite resin (Filtek Z250, 3M ESPE) was used in this study. Totally 30 disc-shaped composite specimens (4×2 mm) were prepared and polymerized using an light-emitting diode light curing unit with an intensity of 1000 mW/cm² according to the manufacturer's instructions. The samples were divided into 3 groups according to different mouthwashes and immersed in Listerine, chlorhexidine, and distilled water (control) for 14 days (n=10). Surface roughness was measured using a contact profilometer, and color changes were evaluated with a spectrophotometer before and after immersion in different mouthwashes. The obtained data were analyzed statistically with repeated measures analysis of variance and Bonferroni tests ($p<0.05$).

Results: Exposure to different mouthwash solutions did not result in a statistically significant change in the surface roughness values of microhybrid composite resin specimens. Similarly, no significant color changes were observed before and after exposure.

Conclusion: The findings of this study suggest that the tested mouthwashes did not have a significant effect on the surface roughness and color stability of microhybrid composite resin.

Key words: Microhybrid, composite resin, mouthwash, surface roughness, color stability

PP-30

Evaluation of Pre and Post Graduation Empathy Levels of Dentists

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Introduction: Empathy is a crucial factor in the patient-physician relationship, directly affecting the professional competence of dentists and patient satisfaction. This study aims to compare the empathy levels of dentists before and after graduation to assess the impact of professional experience on empathy development. Additionally, it examines whether there are differences in empathy levels based on the participants' gender.

Method: The study included a total of four groups: the "pre- and post-graduation main groups" and the "male-female subgroups." The sample size was calculated using the G*Power statistical program (ver. 3.1.9.7). According to the one-way analysis of variance experimental design, the power of the test was set at 0.90, the effect size at 0.25, and the type-1 error level (α) at 0.05. Based on these calculations, a minimum of 58 participants per group was determined, totaling 232 participants.The study included 135 undergraduate dental students in their 4^{th} and 5^{th} years and 118 graduate dentists. Participants' empathy levels were assessed using the Jefferson Scale of Physician Empathy-Health Professionals, which measures three subscales: perspective-taking, compassionate care, and standing in patients' shoes. Descriptive statistics were expressed as frequency (n) and percentage (%). Relationships were analyzed using the chi-square (Fisher's exact) test, with statistical significance set at $p<0.05$. Statistical analyses were conducted using SPSS software (IBM SPSS for Windows, ver. 26).

Results: The study revealed significant differences in empathy levels between pre- and post-graduation participants ($p<0.05$). Additionally, variations in specific empathic attitudes based on gender were identified ($p<0.05$).

Conclusion: These findings suggest that professional experience may play a role in enhancing dentists' empathy levels and that empathic attitudes may vary based on gender. It is recommended that empathy skills receive greater emphasis in dental education programs.

Key words: Empathy, dental education, Jefferson Scale of Physician Empathy, perspective-taking

PP-31

Evaluation of the Effects of Mandibular All-on-Four and All-on-Six Fixed Restorations on Patient Satisfaction and Quality of Life

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Introduction: The present study aims to comparatively assess the impact of all-on-four and all-on-six fixed prosthetic rehabilitation concepts in the mandible on patient satisfaction and quality of life.

Method: A total of 40 patients were included in the study, with 20 patients treated using the all-on-four concept and 20 patients using the all-on-six concept. Patient-reported outcomes were collected through the oral health impact profile questionnaire.

Results: While the all-on-six group reported fewer issues in specific domains such as speech articulation and overall life satisfaction, the all-on-four group demonstrated higher satisfaction in several key areas, including taste perception, pain reduction, and ease of eating. Notable differences favoring the all-on-four protocol were observed in parameters such as "discomfort while eating" (1.80 vs. 1.45), "oral pain experience" (2.00 vs. 1.55), and "unsatisfactory diet" (1.75 vs. 1.40). No statistically significant differences were observed between the groups regarding functional limitations.

Conclusion: Both implant-supported prosthetic protocols appear effective in enhancing overall patient satisfaction. However, the all-on-four concept may provide superior outcomes in specific functional and psychosocial dimensions. Further studies involving larger sample sizes are necessary to validate these findings.

Key words: All-on-four, all-on-six, patient satisfaction, quality of life, mandibular prosthetics

PP-32

The Effect of Modeling Liquids on the Color Stability of Different Composites

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Introduction: This study aimed to evaluate the effect of modeling liquids on the surface roughness and color stability of different composite resins.

Method: A total of 120 samples (n=10) were made using Filtek Z250 and Estelite Sigma Quick composites. Samples were grouped as follows: (1) Control (no liquid), (2) Clearfil Universal Bond Quick, and (3) Signum Liquid. All were light-cured for 20 seconds with transparent strips on the surface. Initial surface roughness (Ra) was measured using a profilometer, and color values were assessed with a spectrophotometer. Samples were stored in distilled water or Nescafe for six weeks, followed by repeated Ra and color measurements. Color change (ΔE) was then calculated.

Results: Initially, the bonding agent group had the highest surface roughness ($p<0.05$), while the other two groups showed no significant difference. After six weeks, Ra values among all groups were similar ($p>0.05$). Color changes over time were significant for both composites ($p<0.05$), but there were no notable differences between composite types or application methods ($p>0.05$).

Conclusion: Modeling liquids did not significantly impact surface roughness, though bonding agents increased it. Color stability was not influenced by material or application type, but both composites experienced noticeable discoloration over time. These effects should be considered in clinical use for long-term aesthetics and surface performance.

Key words: Composite resin, color stability, surface roughness, modeling liquids

PP-33

Evaluation of the Incidence of Postoperative Pain Following the Use of Resin-based and Bioceramic-based Root Canal Sealers with the Warm Vertical Compaction Technique

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Introduction: This study aims to compare the incidence of postoperative pain associated with the use of resin-based and bioceramic-based root canal sealers when applied using the warm vertical compaction technique.

Method: Ten patients aged between 18 and 60, with no systemic diseases and requiring root canal treatment in a single-rooted tooth without percussion sensitivity, were included in the study. Based on the type of sealer and obturation technique, patients were randomly allocated into four groups: Group 1: AH Plus (Dentsply Sirona, USA) with cold lateral compaction , Group 2: AH Plus with warm vertical compaction, Group 3: BioRoot (Septodont, France) with cold lateral compaction, Group 4: BioRoot with warm vertical compaction. Following standard canal shaping and irrigation procedures, all root canal treatments were completed in a single visit. Postoperative pain was evaluated at 4, 24, and 48 hours using the visual analog scale (VAS), based on follow-up phone interviews with the patients.

Results: At the 4-hour evaluation, one patient each from the AH Plus and BioRoot warm vertical compaction groups reported a pain score of 6 out of 10. At the 24- and 48-hour intervals, both reported no pain (VAS: 0). Among the remaining 8 patients treated with cold lateral compaction, the average pain score at 4 hours was 2 out of 10, which decreased to 0 at both 24 and 48 hours.

Conclusion: The warm vertical compaction technique was associated with a higher incidence of postoperative pain compared to the cold lateral compaction technique. These findings suggest that cold lateral compaction may offer a clinical advantage in terms of postoperative pain management. Nevertheless, further studies with larger sample sizes and longer follow-up periods are needed to validate these results.

Key words: Postoperative pain, warm compaction technique, bioceramic root canal sealer

PP-34

Color Changes of Feldspathic CAD/CAM Ceramic Blocks in Different Solutions

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Introduction: This study aimed to evaluate the color changes of feldspathic computer-aided design/computer-aided manufacturing (CAD/CAM) ceramic blocks when exposed to different solutions (cola, sour cherry juice, coffee, and distilled water as control).

Method: Forty feldspathic CAD/CAM ceramic blocks (1x10x10 mm) were prepared and divided into four groups (n=10). Each group was immersed in one solution (cola, sour cherry juice, coffee, and distilled water as control). Color measurements were taken using a spectrophotometer at baseline, 24, 48, and 96 hours of immersion in solutions. Color parameters L*, a*, and b* were recorded. Data were analyzed using ANOVA and Kruskal-Wallis tests.

Results: Statistical analyzes showed that solutions had varying effects on color stability. No significant change was observed in the distilled water group ($p>0.05$). Significant color changes occurred in the coffee and sour cherry juice groups ($p<0.001$), with coffee causing the most pronounced discoloration. In the sour cherry juice group, a* values significantly increased ($p<0.001$), while b* changes were not significant ($p=0.200$). Cola caused moderate but statistically significant changes in both a* and b* values ($p<0.01$), indicating a partial effect on color.

Conclusion: Feldspathic CAD/CAM ceramic blocks showed varying degrees of color change depending on the solution. Coffee and sour cherry juice caused significant discoloration, while cola had a moderate effect. Distilled water had no impact. Beverage consumption may affect the long-term esthetics of ceramic restorations and should be considered during treatment planning.

Key words: Feldspathic CAD/CAM ceramic, color change, spectrophotometry, coffee, sour cherry juice, cola

PP-35

Comparison of Changing Dietary Habits and Their Impact on Repair Frequency in Patients Treated with Fixed Orthodontic Appliances Versus Clear Aligners

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Introduction: This study compared changes in dietary habits and the frequency of clinic visits for repairs during the first three months of treatment between patients undergoing fixed orthodontic treatment (FOT) and clear aligner therapy (CAT).

Method: The study included 30 patients starting FOT (12 males, 18 females) and 30 patients starting CAT (8 males, 22 females). The mean age was 24.5±5.2 years in the FOT group and 26.3±6.1 years in the CAT group. Participants completed a food frequency questionnaire at pretreatment, 1-month, and 3-month time points. Retrospective 3-day food consumption records were collected, and the relationship between repair needs and dietary habits was evaluated. Nutrient analysis was performed using BeBiS 9.0, and statistical analyses were conducted with Jamovi 2.6.26. Normality was assessed using Shapiro-Wilk test and Q-Q plots. Generalized linear models analyzed nutrient intake, with age included as a covariate, followed by Bonferroni-corrected post-hoc tests for between-group comparisons.

Results: The FOT group showed significant reductions in energy, carbohydrates, protein, omega-3, iron and phosphorus intake during treatment compared to baseline ($p<0.05$), while the CAT group showed decreases in iron and omega-3 intake ($p<0.05$). The absolute reduction in iron and omega-3 intake was more pronounced in the FOT group. Of the patients requiring repairs, 96% were from the FOT group, compared to only 4% from the CAT group. Eighty percent of these visits were due to eating-related complications.

Conclusion: FOT requires critical dietary adjustments, whereas CAT is more protective. The higher repair frequency in the FOT group, primarily caused by eating-related damage, highlights the need for better dietary education for FOT patients.

Key words: Fixed orthodontic treatment, clear aligners, questionnaire, diet, repair

PP-36

Evaluation of Metamerism in Feldspathic CAD-CAM Material Evaluation of Metamerism in Feldspathic Computer-aided Design (CAD)-Computer-aided Manufacturing (CAM) Material

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Introduction: Metamerism is a critical factor affecting color harmony in prosthetic restorations in dentistry. This study aimed to evaluate the metameric effects of feldspathic hairside Economical Restoration of Esthetic Ceramics (CEREC) blocks under different light sources by examining the effect of aging before and after thermal cycling, with the goal of enhancing esthetic success in clinical applications.

Method: The study took place at the Research Laboratory of Bezmialem Vakıf University. Fourty CEREC block samples (1x10x10 mm) were divided into four groups (n=10) based on light sources: D65, D50, TL84, and Illuminant A. Samples were cut using a Mecatome T180 (PRESI-Métallographie, Eybens, France). Color measurements were made before and after thermal aging under four light sources using a spectrophotometer (VITA Easyshade Advance 4.0, Zahnfabrik BAD Sackingen, Germany) in a light box (Prowhite Lightbox 4.0, İstanbul, Türkiye) with the CIE Lab* system. Aging was done with a thermal cycling device (SD Mechatronik, Feldkirchen-Westerham, Germany) for 10,000 cycles (5-55 °C). Color changes were analyzed.

Results: Differences in L, a, and b-values among light groups were evaluated. A statistically significant difference in L-values was found between groups (p=0.001). The D65 group had significantly higher mean L-values than the others (p=0.006; p=0.039; p=0.001). Significant differences were also observed in mean changes of L and a values (p<0.001; p=0.016), but no significant difference in b-value changes (p=0.990). The D65 group showed greater L change compared to Illuminant A and D50 (p<0,001; p<0,001), while TL84 had a higher L change than D50 (p=0.034).

Conclusion: The study demonstrated that prosthetic materials exhibit shade variations under different light sources. Therefore, light source selection should be considered when evaluating metamerism and determining restorative material. Accurate shade matching in future prosthetic applications depends on appropriate illumination conditions.

Key words: Computer-aided design, computer-aided manufacturing, metamerism, feldspathic ceramic, thermal cycling, light source

PP-37

Evaluation of the Relationship Between Overhanging Restorations and Adjacent Alveolar Bone Level

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Introduction: Aim of this study is to evaluate the effect of overhanging restorations on neighboring alveolar bone crest. This is done by examining existing cone beam computed tomography images retrospectively.

Method: Patients with overhanging restoration on one tooth and unrestored or properly restored symmetrical teeth were included in this study. The distance between the cemento-enamel junction and the alveolar bone was measured on four surfaces. These measurements were recorded for both the affected teeth with overhanging restorations and symmetrical teeth. The age and gender of each patient were recorded. Kolmogorov-Smirnov test, Mann-Whitney U test and Spearman' correlation test were used to analyze gathered data, significance level was set at $p<0.05$.

Results: Sixty-five patients were included in this study. Of teeth with overhangs, 46.2% were premolars and 53.8% were molars. Sixty-six-point two percent were in maxilla while 33.8 were in mandibula. Forty-three-point one percent were male and 56.9% were female. A statistically significant difference was between the teeth with overhanging restorations and healthy teethin mesial and distal surfaces ($p<0.05$), however, no significant differences were observed on other surfaces ($p>0.05$). Additionally, medium level correlation was found between age and alveolar bone loss on mesial and buccal surfaces of healthy teeth.

Conclusion: The results of this study suggest that overhanging restorations may contribute to alveolar bone loss, particularly on the mesial and distal surfaces of affected teeth. These findings highlight the importance of the restoration's compatibility with the anatomical structure of the tooth, as overhangs could potentially lead to complications such as bone resorption. Also, Spearman's correlation results suggest that even on teeth without overhangs, aging may cause bone loss.

Key words: Overhanging restorations, alveolar bone loss, dental restorations, radiographs, bone resorption, cone beam computed tomography

PP-38

Prevalence, Severity, and Effectiveness of Splint Therapy in Temporomandibular Disorders

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Introduction: Bruxism-related temporomandibular joint disorders are musculoskeletal conditions characterized by pain and impaired jaw function. This study evaluates the effects of stabilization splints on pain, jaw functions and quality of life in temporomandibular disorders (TMD) patients while investigating gender differences in TMD prevalence.

Method: Sixty-two TMD patients were evaluated before treatment and six months after splint therapy. Pearson's chi-square test was used for response ratios, and McNemar/McNemar-Bowker tests were applied for dependent group comparisons. The statistical significance level was set at p=0.05, and analyses were conducted using SPSS 28.

Results: Among the participants, 77.4% (n=48) were female, and 22.6% (n=14) were male. Symptoms such as pain during yawning and consuming hard foods, clicking/popping sounds, pain in the temples and cheeks, and bruxism (either during the day or at night) were significantly present before treatment. However, a statistically significant reduction in these symptoms was observed after treatment ($p<0.001$). When evaluating the relationship between gender and symptoms before and after treatment, no significant differences were found except for discomfort while cleaning teeth and swallowing ($p>0.05$). However, a statistically significant improvement in these symptoms was observed in male participants after treatment ($p<0.05$), whereas no similar improvement was detected in females. Pain scores showed a significant decrease after treatment (mean=0.6129, median=1.0000±0.74), and a positive correlation was found between improved jaw function and health parameters ($p<0.05$).

Conclusion: Splint therapy is an effective conservative approach for reducing pain, improving jaw function, and enhancing quality of life in TMD patients. These findings support the role of stabilization splints in TMD management, though further studies are needed for validation.

Key words: Bruxism, quality of life, temporomandibular disorders, gender, splint therapy

PP-39

Evaluation of Mandibular Bone Density in Diabetic Patients Using Cone-beam Computed Tomography-based Radiomics

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Introduction: This study aimed to compare the micromorphological structure of the alveolar bone immediately distal to the mental foramen in the edentulous mandibular posterior region of diabetic and healthy individuals using cone-beam computed tomography (CBCT)-based radiomics. The goal was to explore the potential impact of diabetes on mandibular bone structure through radiomic feature analysis.

Method: This retrospective study utilized CBCT images from patients presenting with posterior tooth loss at Bezmialem Vakıf University Faculty of Dentistry, between January and August 2024. Images were processed using 3D Slicer software (v5.7.0). A standardized region of interest (30x15x30 mm) was placed distal to the mental foramen. Radiomic features-mean intensity, energy, contrast, correlation, homogeneity, and skewness-were extracted using the SlicerRadiomics extension. For reliability assessment, 25% of the cases were re-segmented by an expert one month later. Statistical analyses were performed with SPSS v28.0, with significance set at $p<0.05$.

Results: No statistically significant differences were found between diabetic and healthy groups across all radiomic features ($p>0.05$). While the energy parameter was slightly higher in the diabetic group, it did not reach statistical significance. Similarly, small variations in homogeneity and correlation values were observed but were not significant. The intraclass correlation coefficient was 0.92, confirming high segmentation reliability.

Conclusion: Radiomic analysis did not reveal statistically significant micromorphological differences in the mandibular posterior bone between diabetic and healthy individuals. Although minor variations were observed, larger-scale studies incorporating different anatomical regions are recommended for more definitive conclusions.

Key words: Radiomics analysis, cone-beam computed tomography, diabetes, mandible, micromorphology

PP-40

The Effect of Toothpastes with Different Abrasiveness on the Surface Roughness of Feldspathic Porcelains

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Introduction: This study aimed to evaluate the effect of toothpastes with different levels of abrasiveness on the surface roughness of feldspathic porcelain restorations.

Method: Thirty feldspathic porcelain discs (1x10x10 mm) were prepared and randomly divided into four groups according to different toothpastes (low, medium, high abrasiveness toothpaste, and control group; n=10). After finishing and polishing, each sample was brushed using an automatic toothbrush with a 1:3 toothpaste-distilled water mixture for 15 minutes (equivalent to 6 months of brushing). Surface roughness values were measured before and after brushing using a profilometer. Data were analyzed using SPSS 28. Normality was assessed via the Shapiro-Wilk test, and group differences were evaluated using the Kruskal-Wallis test followed by Dunn's post-hoc test.

Results: A statistically significant difference in surface roughness was observed between groups ($p<0.001$). The control group had significantly lower roughness values than all three experimental groups (p 0.049; 0.005; <0.001). Additionally, the low-abrasiveness group exhibited significantly lower roughness values compared to the high-abrasiveness group ($p=0.050$). No significant difference was found between other group pairs ($p>0.05$).

Conclusion: The abrasiveness of toothpaste affects the surface roughness of feldspathic porcelains. Toothpastes with high abrasiveness increase surface roughness and may compromise the longevity and aesthetics of ceramic restorations. Low-abrasive toothpaste is recommended for patients with ceramic restorations.

Key words: Feldspathic porcelain, surface roughness, toothpaste, abrasiveness, Kruskal-Wallis, profilometry

PP-41

Evaluation of Dental Anxiety Levels in Children Aged 7-11 Years According to Age Groups

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Introduction: Dental anxiety is a common yet often overlooked issue among children, negatively affecting treatment outcomes. This study aimed to assess dental anxiety levels in healthy children aged 7-11 using the Children's Fear Survey Schedule-Dental Subscale (CFSS-DS), investigate its relationship with demographic variables such as age and gender, and identify the most fear-inducing dental procedures.

Method: A total of 73 systemically healthy children aged 7-11 years (40 boys, 33 girls), who presented to the Department of Pediatric Dentistry at Bezmialem Vakıf University were included in the study. The CFSS-DS questionnaire was administered individually prior to dental examination. Children with a CFSS-DS score of ≥38 were classified as having dental anxiety. Data were analyzed using SPSS version 28.0, with statistical significance set at $p<0.05$.

Results: Dental anxiety (CFSS-DS ≥38) was present in 27.4% of the children. No statistically significant association was found between gender and anxiety levels ($p=0.660$), nor between age and anxiety levels ($p=0.460$). The most fear-inducing stimulus was "injection," with 31.5% of children reporting being "very afraid." The least fear-inducing was "people in uniform," with 86.3% indicating they were "not afraid at all."

Conclusion: Children in this study generally exhibited low levels of dental anxiety. No significant correlations were found between dental anxiety and demographic factors. Identifying specific fear triggers such as injections may assist pediatric dentists in implementing targeted behavioral management strategies.

Key words: Dental anxiety, Children's Fear Survey Schedule-Dental Subscale, children, age, gender, pediatric dentistry

PP-42

Evaluation of the Technical Quality of Root Canal Treatments in Molar Teeth Performed by Final-year Dental Students

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Introduction: The aim of this study is to evaluate the technical quality of root canal treatments performed on molar teeth by fifth-year students of Bezmialem Vakıf University Faculty of Dentistry, based on periapical radiographs.

Method: In this retrospective study, 162 molar teeth and 502 root canals from 145 patients treated by fifth-year students were examined. The treatment quality was assessed using three main criteria on preoperative, working length determination, and postoperative periapical radiographs: the distance of the filling to the apex (≤2 mm), the homogeneity of the filling, and the adequacy of the taper. Analyses were performed using Python software. In addition to descriptive statistics, success rates were calculated based on filling length, taper, and homogeneity. The relationships between the number of canals (3 or 4) and technical success, as well as the localization of the tooth (maxillary/mandibular) and success, were evaluated using the chi-square test, supported by Fisher's exact test when necessary. A significance level of $p<0.05$ was accepted, and the clinical significance of differences was assessed using the Phi coefficient, Cramer's V, and odds ratio.

Results: 76.3% of the 502 molar root canals were found to be successful in terms of filling length, taper, and homogeneity. When the criteria were evaluated individually: 91% of the canal fillings were terminated within ≤2 mm of the apex, taper adequacy was 90.6%, and homogeneity was found to be sufficient in 89.4% of cases. No significant difference was found in the success rates between teeth with 3 and 4 canals using the chi-square test [χ^2 (1, n=502) = 0.002, p=0.967], and Fisher's exact test yielded similar results (p=1.000). The relationship between tooth localization and success was also evaluated using the chi-square test and found to be insignificant [χ^2 (1, n=502) = 0.153, p= 0.696], with Fisher's test confirming this result (p=0.751).

Conclusion: 76.3% of the root canal treatments performed by fifth-year students were technically successful. Taper and homogeneity emerged as the most influential factors. Focusing clinical education on these aspects may help improve treatment quality.

Key words: Root canal treatment, intern dental students, radiographic evaluation

PP-43

Evaluation of the Knowledge and Awareness Level Regarding Intraoral Scanning Devices Among 4th and 5th Year Students of Bezmialem Vakıf University Faculty of Dentistry

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Introduction: The aim of this study is to evaluate the level of knowledge and perception regarding the factors affecting the accuracy and ease of use of intraoral scanners, and to statistically analyze student attitudes.

Method: This cross-sectional study was conducted with 103 students who actively participated in clinical training during the 2024-2025 academic year. Data were collected through a 25-item questionnaire and analyzed using SPSS 30. Frequency, chi-square, Mann-Whitney U, and Spearman correlation tests were applied. The significance level was set at $p<0.05$.

Results: A total of 99.0% of participants reported being familiar with intraoral scanners; however, only 42.7% had received formal education on the subject. iTero was the most well-known brand (33.0%), whereas 55.3% of participants did not recognize any brand. A statistically significant difference was found between class level and brand knowledge ($p=0.016$). Fourth-year students more strongly agreed with the impact of environmental factors on scanner accuracy ($p=0.013$). Fifth-year students reported greater difficulty regarding maintenance and storage ($p=0.018$). According to the Spearman correlation test, a positive and significant relationship was found between environmental and technical factors affecting scanner accuracy ($p=0.562$; $p<0.001$). A strong correlation was also observed between perceived cleanliness level and the impact of software-hardware components ($p=0.425$; $p<0.001$).

Conclusion: Although students demonstrate a high level of awareness toward digital technologies, deficiencies in technical knowledge remain. Spearman analysis indicate that students have developed a holistic technical awareness. Curriculum integration and economic accessibility will play key roles in addressing these deficiencies.

Key words: Intraoral scanner, digital dentistry, student awareness, technical knowledge, education

PP-44

The Effect of Listerine and Chlorhexidine-containing Mouthwashes on the Surface Roughness of Nanoceramic Composite Resin

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Introduction: The aim is to evaluate the effect of Listerine and chlorhexidine-containing mouthwashes on the surface roughness of nanoceramic composite resin.

Method: In this study, nanoceramic aesthetic composite resin (Neo Spectra ST LV, Dentsply Sirona, Germany) was used. A total of 30 resin disk samples were prepared using acetate molds (4×2 mm) (n=10) and polymerized according to the manufacturer's instructions with an LED light device (Valo, Ultradent, USA) (1000 mW/cm^2). The samples were divided into three groups based on the immersion solutions: Listerine, Chlorhexidine mouthwashes, and distilled water (control). The samples were immersed in 20 mL of the respective solution in a closed container, twice a day (12-hour intervals, 2 minutes each time) for 14 days. After each immersion period, the samples were rinsed and kept in distilled water throughout the study. Before and after immersion in the beverages, surface roughness values of the samples were measured at four different points on the upper surface using a contact profilometer (Marsurf M 300 C) (n=10). Surface roughness data were evaluated using two-way analysis of variance (ANOVA) and Bonferroni tests ($p<0.05$).

Results: It has been determined that mouth rinses containing Listerine and chlorhexidine do not cause a significant change in the surface roughness of nano-ceramic composite resin. Similar roughness values were obtained before and after exposure to the solutions.

Conclusion: It has been determined that mouthwashes with different contents do not cause a significant change in the surface roughness of nanoceramic composite resins.

Key words: Nanoceramic composite resin, surface roughness, chlorhexidine, Listerine, mouthwashes

PP-45

Evaluation of Parents' Knowledge Level Regarding Dental Trauma in Children

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Introduction: Dental trauma in children represents a significant issue for both oral and overall health, and it is believed that the level of knowledge possessed by parents plays a crucial role in the prevention of such traumas and early intervention. This study aims to evaluate the level of knowledge parents have regarding dental trauma in children.

Method: The study included parents of 120 pediatric patients who applied to the Department of Pedodontics at Bezmialem Vakıf University Faculty of Dentistry for routine dental examination and treatment. Parents were asked to sign an informed consent form and complete a questionnaire. The questionnaire was designed to assess parents' knowledge about the causes, symptoms, and emergency interventions related to dental trauma.

Results: Among the participants, 31.7% were male and 68.3% were female, with the most common age group being 30-39 years (39.2%). Only 8.3% of the participants had previously received education on dental trauma, and 80% of this group had a high level of knowledge. Overall, 66.7% of the participants had a high level of knowledge, 29.2% had a moderate level, and 4.2% had a low level. The knowledge level of those who had received prior education was significantly higher compared to those who had not ($p<0.05$). A statistically significant relationship was found between the desire to gain more knowledge about dental trauma and the current level of knowledge ($p<0.05$). The knowledge scores of participants who did not wish to gain further information were significantly lower compared to those who were willing ($p=0.001$) and those who were undecided ($p=0.028$).

Conclusion: Overall, parents demonstrated a high level of knowledge regarding dental trauma in children. However, educational background and the need for information were identified as influential factors. Targeted educational programs for parents are believed to be beneficial in enhancing preventive measures.

Key words: Pediatric dentistry, dental trauma, parental knowledge level

PP-46

Endodontically Treated Teeth with Periapical Lesions: Evaluation of Potential Failure Causes Using Cone Beam Computed Tomography

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Introduction: The aim of endodontic treatment is to completely debride the root canal system and achieve a homogeneous, hermetic obturation. However, anatomical variations and operator-related factors may compromise treatment outcomes. Common technical errors include instrument separation, missed canals, inadequate or excessive obturation, and lack of coronal restoration. This study aims to identify the most frequent technical errors in teeth with apical periodontitis using cone-beam computed tomography (CBCT) and to determine which root canals are most commonly affected.

Method: CBCT scans from the department of oral and maxillofacial radiology at Bezmialem Vakıf University were retrospectively reviewed. Teeth diagnosed with apical periodontitis were evaluated for technical errors. Two calibrated examiners independently assessed the images at different times. Calibration was achieved through consensus evaluation of 20 CBCT scans prior to data collection.

Results: Patient data from CBCT scans performed between 2022 and 2023 were retrospectively analyzed. A total of 416 teeth with periapical lesions were included: 56 incisors, 38 canines, 143 premolars, and 232 molars. The most common causes of failure in periapical periodontitis teeth were underfilling (45.7%), overfilling (15.74%), fractured instruments (0.5%), non-homogeneous obturation (11.5%), canal deviation (0.7%), lack of coronal restoration (14.4%), and missed canals (11.8%). Endodontic errors were more frequent in teeth #36 and #46. A statistically significant correlation was found between age and underfilling ($p=0.004$), overfilling ($p=0.016$), and missed canals ($p=0.044$).

Conclusion: CBCT enables the detailed identification of technical errors within the root canal system, offering a more comprehensive diagnostic assessment compared to conventional radiographic methods. With this capability, it provides clinicians with significant advantages in determining the causes of endodontic failure and planning retreatment.

Key words: Cone beam computed tomography, endodontic errors, apical periodontitis

PP-47

Evaluation of the Knowledge Level of 4th and 5th Year Internship Students at Bezmialem Vakıf University Faculty of Dentistry on Digital Dentistry

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Introduction: The aim of this study is to assess the knowledge level and attitudes of 4th and 5th year internship students at Bezmialem Vakıf University Faculty of Dentistry regarding digital dentistry.

Method: In the 2024-2025 academic year, a paper-based questionnaire consisting of 25 questions was administered to 100 internship students to measure their knowledge and perception levels regarding digital dentistry. The data were analyzed using IBM SPSS statistics 28.0; descriptive statistics, as well as Mann-Whitney U and Kruskal-Wallis tests, were applied.

Results: 57% of the participants were female, and 52% were 4th year students. 49% of the students evaluated their knowledge of digital dentistry as low. The general attitude towards digital technologies was reported as positive by 87%. 49% of the participants stated that their knowledge level was low. 87% exhibited a positive attitude towards digital dentistry. 92% believed that digital systems could enhance treatment quality and patient satisfaction. 75% were not knowledgeable about computer-aided design / computer-aided manufacturing technologies. 42% thought that 3D models were inferior to traditional methods, while 56% disagreed with this view. A significant proportion of participants believed that artificial intelligence could be effective in implant planning (75%), orthodontic predictions (60%), and oral cancer detection (85%). The majority of students thought that digital dentistry could improve patient satisfaction and treatment quality. A significant relationship was found between knowledge level and general attitude ($p=0.004$). Although differences in other variables were not statistically significant, they were still noteworthy.

Conclusion: Students demonstrate a positive attitude towards digital dentistry; however, their technical knowledge is insufficient. This highlights the need for more effective integration of digital content into the undergraduate curriculum.

Key words: Digital dentistry, knowledge level, computer-aided design / computer-aided manufacturing (CAD/CAM), artificial intelligence, student attitude

PP-48

Evaluation of Anesthetic Requirements in Patients Diagnosed with Hypertension Undergoing Procedures Under Local Anesthesia

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Introduction: Hypertension is a common chronic disease that poses a significant risk in dental treatments. The cardiovascular effects of local anesthetics, especially those containing vasoconstrictors, are controversial in hypertensive individuals. Anxiety, pain, and stress can cause sudden increases in heart rate and blood pressure, thereby increasing the risk of complications. This may lead to faster absorption and reduced effectiveness of local anesthetics. The aim of this study is to compare the anesthesia requirements of hypertensive patients with those of normotensive individuals during procedures performed under local anesthesia.

Method: Patients who underwent full-thickness mucosal flap procedures such as impacted third molar extractions, implant surgeries, and cyst operations-under local anesthesia at Bezmialem Vakıf University Department of Oral and Maxillofacial Surgery between 2022 and 2024, were divided into hypertensive and normotensive groups. Blood pressure values, pain assessments, and anesthetic doses used during the procedure were recorded. The obtained data were compared between the groups.

Results: In total, 90 patients (45 hypertensive, 45 normotensive) were included in the study. Anesthesia had to be repeated in 28 hypertensive patients during the procedure, whereas this occurred in only 4 patients in the normotensive group. Statistically, the mean dose of articaine used in hypertensive patients was 164.9 mg, while it was 98.7 mg in the control group. T-test analysis revealed a statistically significant increase in anesthetic requirement in hypertensive patients ($p<0.001$).

Conclusion: The data suggest that dental surgical procedures under local anesthesia may lead to increases in blood pressure and heart rate in hypertensive patients. These changes, along with increased anxiety and blood flow, may accelerate the breakdown of the anesthetic agent, leading to intraoperative pain. Repeated anesthetic dosing due to pain may further elevate blood pressure and exacerbate intraoperative complaints. Consequently, sedation or general anesthesia should be considered in hypertensive patients undergoing extensive procedures.

Key words: Hypertension, local anesthesia, epinephrine, hemodynamics

PP-49

Prevalence of the Incisive Canal in the Anterior Mandibular Region and Associated Complications

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Introduction: The incisive canal in the anterior mandible is an important anatomical structure that should be considered in surgical planning. This study aims to determine the prevalence of the incisive canal in the anterior mandibular region using cone-beam computed tomography (CBCT) and to evaluate complications that may arise after surgical procedures performed in areas close to this anatomical structure.

Method: Between February 2023 and February 2024, CBCT images of 1800 patients who applied to the Department of Oral and Maxillofacial Surgery at Bezmialem Vakıf University and underwent CBCT imaging of the mandibular region were retrospectively examined. A questionnaire was administered to patients in whom the incisive canal was detected, and the data were statistically analyzed. Postoperative quality of life was evaluated using the Oral Health Impact Profile questionnaire.

Results: The presence of the incisive canal was identified in 49% of the patients, while 6% had no canal. The mean pain level during the procedure was 2.14 in the group with the canal and 2.33 in the group without it; postoperative pain was 2.88 and 3.00, respectively. These differences were not statistically significant ($p=0.894$ and $p=0.963$). Repeated anesthesia was observed in 9 patients with the canal and in 2 patients without it, which was also not statistically significant ($p=1.000$). One patient in each group reported postoperative numbness.

Conclusion: The incisive canal is a common anatomical variation that should be considered during surgery in the anterior mandibular region. Although its presence does not significantly affect postoperative complications or patients' quality of life, detecting it preoperatively using high-resolution imaging methods such as CBCT can enhance surgical planning safety and allow for a more controlled intraoperative process.

Key words: Mandible, incisive canal, cone-beam computed tomography, anatomical variation, pain, complication

PP-50

Investigation of the Relationship Between Mini-screw Failures and Vitamin D Deficiency

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Introduction: Vitamin D is essential for bone mineralization and regeneration. Mini-screw implants used in orthodontic treatments generally have high success rates. However, stability loss may occur in some patients, primarily depending on bone quality. This study aimed to investigate the potential relationship between mini-screw failure and serum 25-hydroxyvitamin D levels, an important indicator of bone quality.

Method: The study included 20 patients who underwent mini-screw placement in an orthodontic clinic. The patients were divided into two groups: Group 1 (n=10), which experienced mini-screw failure within one month, and group 2 (n=10), which had successful mini-screw outcomes. Blood samples were collected within one month after mini-screw placement, and serum 25-hydroxyvitamin D levels were measured. These levels were categorized as deficient (<20 mg/L) or normal (20-70 mg/L). Data were analyzed using descriptive statistics, independent sample t-test, and chi-square test with SPSS v. 28 software, and the significance level was set at $p<0.05$.

Results: No significant difference in serum 25-hydroxyvitamin D levels was found between the mini-screw failure group (14.58±10.92 mg/L) and the successful group (11.26±5.29 mg/L) ($p=0.40$). No significant correlation was observed between mini-screw success and age ($p=0.85$) or gender ($p=0.35$). Vitamin D levels were significantly influenced by seasonal changes, with the highest levels recorded in spring (19.42 mg/L) and the lowest in winter (10.60 mg/L) and summer (10.55 mg/L).

Conclusion: Serum 25-hydroxyvitamin D levels do not appear to be associated with mini-screw failure, although they fluctuate seasonally. Further multi-center, prospective studies with larger sample sizes are needed to explore the relationship between mini-screw stability and serum vitamin D levels.

Key words: Vitamin D, bone mineralization, mini-screw, mini-screw failure, bone quality, 25-hydroxyvitamin D, orthodontic treatment, serum vitamin D levels, seasonal variations

PP-51

Evaluation of Stress Levels Among Pedodontics Clinic Students at Bezmialem Vakıf University Faculty of Dentistry

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Introduction: This study aims to assess the stress levels experienced by fourth- and fifth-year students at Bezmialem Vakıf University Faculty of Dentistry during their pedodontics internship and to identify the factors contributing to this stress.

Method: The study was conducted with 132 students, who were evaluated using the Pedodontic Practice Stress (PPS) Scale to measure their stress levels in the pedodontics clinic. Additionally, students responded to seven questions designed to gather their opinions on specializing in dentistry. Statistical analyses were performed using IBM SPSS Statistics 22, and significance was set at $p<0.05$.

Results: Among all students, the highest mean stress scores were associated with complications such as foreign body aspiration and allergic reactions, whereas the lowest stress scores were observed in radiography procedures and infiltrative anesthesia applications. In the inter-class comparisons, the total PPS scale score of fourth-year students was found to be significantly higher than that of fifth-year students ($p<0.05$). Regarding career preferences, 75.8% of students reported that dentistry was their first-choice profession, but only 12.9% expressed a desire to specialize in pedodontics. Furthermore, 83.3% of students stated that the most impactful experience related to pedodontics was clinical practice.

Conclusion: The findings indicate that the pedodontics internship induces a significant level of stress among students. However, as clinical experience increases, stress levels tend to decrease. This study highlights the critical role of clinical training in reducing stress levels, emphasizing its importance in dental education. Consequently, curriculum development efforts in dental education should prioritize the necessity of clinical training.

Key words: Pedodontics, stress, dental students

PP-52

Determining the Ideal Tooth Brushing Duration for Patients Receiving Fixed Orthodontic Treatment

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Introduction: This study is aimed to determine the ideal tooth brushing duration for patients undergoing fixed orthodontic treatment by using plaque disclosing agents.

Method: Patients undergoing fixed orthodontic treatment for at least 3 months and age over 12 were included. Primarily patients were taught oral hygiene education and Charters brushing technique. Preliminary studies show even after 10 minutes of brushing there is plaque presence under a few brackets and interproximal areas. Based on these studies all patients were instructed to brush for 10 minutes. Before brushing, plaque disclosing agents were used to detect plaque presence. Patients used same brand, medium hard toothbrushes. Standardized photographs were taken minute by minute, from first minute to 10th minute. Cleaning percentage was detected using the Rustogi Modification of the Navy Plaque index (RMNPI). According to RMNPI index buccal surfaces of all teeth except molars divided into 9 areas and scored in accordance with plaque existence. Full mouth plaque scores were determined per minute and cleaning percentages were calculated.

Results: Out of 20 patients 18 achieved an adequate cleaning percentage of (≥90%). The average time to reach the sufficient cleaning percentage was 5±2.06 minutes. Significant differences were observed at the 1st ($p<0.001$), 2nd ($p<0.001$), 3rd ($p=0.001$), and 4th ($p=0.028$) minutes. No significant differences were found from the 5th minute onward ($p=0.936$), indicating effective plaque removal from this point. However, the 9th ($p=0.038$) and 10th ($p=0.004$) minutes showed significantly higher percentages than the ideal threshold.

Conclusion: The findings suggest that minimum 5 minutes of tooth brushing is sufficient to achieve adequate plaque removal in patients undergoing fixed orthodontic treatment. Extended brushing beyond 5 minutes provides limited benefits.

Key words: Fixed orthodontic treatment, tooth brushing duration, plaque removal, Charters method, RMNPI, plaque disclosing agents

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Accuracy Rate of Skeletal Malocclusions Diagnosed at an Early Stage in Children

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Introduction: The lateral cephalogram is crucial for orthodontic diagnosis and treatment planning, yet concerns regarding unnecessary radiation exposure in children have led to the exploration of alternative methods. This study compared craniofacial measurements obtained from cephalometric radiographs with those from standardized facial photographs to evaluate the relationship between the two.

Method: The study was carried out at the Department of Orthodontics, Bezmialem Vakıf University. Forty children, aged 6 to 18 years, were initially examined by an experienced orthodontist. Detailed anamnesis was obtained from the parents, and comprehensive intraoral and extraoral examinations were performed to determine skeletal classifications. A second orthodontist then independently re-evaluated the patients using the standart protocol. Lateral cephalometric radiographs were subsequently taken, and skeletal classifications were determined using the ANB value from Steiner's analysis. The accuracy of classifications between the clinical and radiographic methods was then statistically assessed.

Results: Statistical analyses on data from 40 patients revealed that the agreement between the initial and final clinical diagnoses was moderate (Cohen's Kappa =0.50; $p<0.001$), while the agreement between the initial diagnosis and the cephalometric classification was moderate (Kappa =0.35; $p=0.007$). In contrast, the agreement between the final diagnosis and the cephalometric classification was high (Kappa =0.65; $p<0.001$). Pearson correlation coefficients supported these findings, with $r=0.45$ (initial vs. final), $r=0.37$ (initial vs. cephalometric), and $r=0.65$ (final vs. cephalometric).

Conclusion: While lateral cephalograms remain the primary diagnostic tool in orthodontics, facial photograph analysis may offer a viable alternative-particularly for reducing radiation exposure in pediatric patients-when supported by standardized protocols and comprehensive anamnesis.

Key words: Cephalometry, diagnosis, radiation, malocclusion

PP-54

Investigation of the Relationship Between Implant-surrounding Keratinized Gingiva Width and Peri-implant Mucositis: A Cross-sectional Study

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Introduction: Adequate keratinized mucosa (KM) improves peri-implant health by reducing inflammation, infection risk, and enhancing resistance to trauma. It also aids plaque control, preventing complications like peri-implantitis. This cross-sectional study evaluated the impact of insufficient KM (<2 mm) on peri-implant tissues.

Method: Twenty-four patients (38 implants) with fixed prostheses (in function ≥1 year) evaluated at Bezmialem University Department of Periodontology clinics starting in 2018 were divided into test (KM <2 mm, n=20) and control (KM ≥2 mm, n=18) groups. Clinical parameters (KM width, mPI, BoP, PD) were recorded. Implants were classified as "healthy" or "mucositis" based on clinical/radiographic findings. Mann-Whitney U and chi-square tests were used ($p<0.05$).

Results: No significant differences were observed between the groups in terms of age, sex, or jaw location ($p>0.05$). However, implants in the test group (KM <2 mm) were significantly more likely to be located in the molar region compared to those in the control group (KM ≥2 mm) ($p<0.05$). The test group also exhibited significantly higher mPI, BoP, and PD values ($p<0.05$). Furthermore, the prevalence of peri-implant mucositis was significantly higher in the test group ($p<0.05$).

Conclusion: A reduced width of keratinized tissue around dental implants is a risk factor for the severity of peri-implant mucositis. Overall, the findings suggest that maintaining an adequate amount of keratinized mucosa may help mitigate the risk and severity of peri-implant mucositis.

Key words: Keratinized mucosa, peri-implant mucositis, peri-implant health, dental implant

PP-55

Evaluation of the Long-Term Success of Restorations Performed by Postrgraduate Students in the Pediatric Dentistry Clinic of the Faculty of Dentistry

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Introduction: The aim of this study is to evaluate the long-term clinical success of posterior composite restorations performed by postgraduate students in the pediatric dentistry clinic of Bezmialem.

Method: In this study, a total of 100 teeth from children aged 6-13 years, treated by postgraduate students, were clinically and radiographically evaluated according to the Modified United States Public Health Service / Ryge and World Dental Federation (FDI) / Hickel criteria (aesthetic, functional and biological). The data collected were analyzed using chi-square test.

Results: Of 100 teeth examined, 51 were primary and 48 permanent teeth. The restorations were classified as following: 42 one-surface, 26 two-surface, 10 three-surface restorations. Only one restoration showed failure. In the long-term follow-ups, restorations demonstrated high success rates during the first 12 months, however, after 12th month, decrease was observed. Statistically significant differences were found for surface gloss ($p=0.014$) andaesthetic anatomical form ($p=0.008$) under the FDI aesthetic criteria, breakage ($p=0.026$) under the functional criteria, and anatomical form ($p=0.015$) under the Ryge criteria. No statistically significant difference was observed between tooth typeand biological or functional success ($p>0.05$). when evaluated according to the number of restoration-surface, three-surface restorations showed significant increase in failure rates regarding marginal adaptation ($p=0.011$), marginal discoloration ($p=0.011$), and secondary caries ($p=0.015$).

Conclusion: In conclusion three-surface restorations showed significant increase in marginal adaptation defects, discoloration, and secondary caries over time, while tooth type wasn't a determining factor on its own. Therefor, particularly for multisurface restorations, meticulous planning of material selection and clinical application processes could positively impact treatment success.

Key words: Composite filling, direct restoration, pediatric dentistry.