



Annual Research Day

The Power of Innovation In Dental Research

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Scientific research underlies the pillars of the Kingdom's 2030 Vision. Umm Al-Qura University was built with the aim of becoming a world leader in scientific research and a well-established port for quality evidence-based scientific publications. In furtherance of these aims, and in order to encourage healthy competition between researchers, the scientific research day (Innovation in Dental Research) will be organized by Umm Al-Qura University, Faculty of Dental Medicine.

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Biocompatibility Evaluation of Human and Porcine Acellular Dermal Matrix on Human Primary Gingival Fibroblasts: In Vitro Comparative Study.

Ehab Azab, Abdel-Rahman Youssef

Mothers' Attitudes & Knowledge for Oral Hygiene among pre-school children in Saudi Arabia.

Sarah Ahmed Bahammam.

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Comparative Study of Cytokeratin Immunostaining of Parotid Gland Parenchyma in Normal, Diabetic and Excretory Duct Ligation of Mongrel Dogs.

Hassan S. Sherif and Alqahtani S. Mashael

Comparison of Alveolar Bone Thickness and Height after Slow Expansion using Quad Helix or Clear Aligners.

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Evaluation of Properties of PMMA Denture-Base Materials Reinforced with Alumina Nanofibers: Impact Strength, Flexural Strength and Modulus

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A Comparative Evaluation of Antibacterial Efficacy of Moringa Oleifera Leaf Extract, Octenidine Dihydrochloride and Sodium Hypochlorite as Intracanal Irrigants: An In Vitro Study

Afrah M. Alharbi, Tahani M. Alharbi, Laila M. Kenawi, Ibtesam K. Afifi, Fathy M, Mona T. Rajeh

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The Impact of COVID on Halitosis among general population in Saudi Arabia: a potential symptom

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Ageel Fatma Abdulqader Azouz, Asim Abdulaziz Alkhalifah, Lamis
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Effectiveness of Machine Learning in The Assessment of The Diagnostic Quality of Bitewing Radiographs.

Arwa Qawas, Asma Safar Alghamdi, Prof. Amal Linjawi,
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Abdallah Fawzy Elsadany, Asim Abdullah AlQahtani, -Abdulmajeed
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Yazeed Alharthi, Hamad Almuaigly, Osama Alasmari, Amjad
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Assessment of dental health state utilities of primary teeth in Makkah region

Abdulaziz abed allahyani ,Salem mohammed almatrafi ,Hussain
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The relation between psychological wellbeing and physical activity among healthcare students during the COVID-19 period.

Modhi Senavn Alotibi, Yara Abdulrahman Nasif Haneen Saeed Alkehili, Reem Basher Alhawsawi, Abdulrahman saleh jabr, Asrab Ahmad Banjar, Shahinaz Nabil Sambawa, Arwa U. Al-Saggaf.

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Ruba Abdullah AL-Raddadi, Sumer Alaki, Heba Sabbagh.

Oral Health Literacy and Number of Missing Teeth Among Adult Patients Attending Dental Teaching Hospital at Umm AlQura University, Makkah, Saudi Arabia. :A Cross Sectional Study.

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The relationship of molars to vital anatomical structures: consideration for immediate implant placement

Salwa Aldahlawi, Dalia Nourah, Omair Bukhari, Jawan Binyaseen, Raneem Azab, Ethar Alsehli, Haleema Zamzami.

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A radiographic analysis of the location of the mental Foramen in the Saudi population.

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Patients' Experience and Satisfaction with Teledentistry Compared to Conventional Follow-up Visits in Orofacial Pain and TMD Clinic

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Accuracy and Reliability of Asynchronous Tele-Screening of Dental Caries Using Smartphone Cameras at A Teaching Dental Hospital in Makkah

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The Association Between Dento-Alveolar Trauma (DAT) and Traumatic Brain Injuries (TBI) In Children Attending the Emergency Department at Security Forces Hospital in Makkah (SFHM), Saudi Arabia.

Abdullah Marghalani, Tariq Nazer, Ali Al-Zahrani, Eyad Alhazouri.

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Evaluation of the Cytotoxicity and Apoptotic Effects of Nano Triple Antibiotic Paste with Nano Anti-Inflammatory Drug as an Intracanal Medicament.

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Marginal and Internal Fit of Lithium Disilicate Endocrowns Fabricated by Conventional, CAD/CAM and Combination Techniques.

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ASSESSING PATIENTS' INFORMATION NEEDS FOR ELECTRONIC DENTAL PATIENT PORTAL AT A TEACHING HOSPITAL IN MAKKAH

Ola A. Sheiko, Sharifah Abdullah AlDossary, Alaa H. Qari.

Variation of Intra- and Inter-arch Relationships in Saudi Twins

Walaa Ageeli, Hind Eshwi¹, Aeshah Abuhashem¹, Mafaz Makki¹, Abdulrahman Alshehri² and Zaki Hakami^{2,*}

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an integrative framework to assess dentists' self-reported behavior on the management of adult people with intellectual disabilities.

Asail Alqurashi, Dunya Aqel, Hassan Abed

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Factors Affecting Decision-Making about Future Specialty among Dental Students in UQUDENT, Makkah, KSA

Alhajaji A. J, Alshamrani S. A , Altaf S. A , Salama R. I

Effectiveness of SABA Thyroid Shield in Dental Panorama and Cone Beam Computed Tomography (CBCT)

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Burnout and Its Relation to Emotion Dysregulation and Social Cognition among Female Interns and Undergraduate Dental Students at King Khalid University.

Sandeepa Chalikkandy, Raghad Sulaiman Abdulkhalig Alhifzi, Malak Ali Yahya Asiri, Raghad Saeed A. Alshahrani, Wejdan Nasser Ali Saeed and Sara Ghorman Alamri.

Dental Staining Associated with Various Types of Coffee.

Nada A. Abdelaleem, Afnan A. Nassar, Aseel K. Alhindi, Rahaf K. Jarwan, Raghad M. Iskandar, Shahad O. Bashihab

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Accuracy and perceptions of teledentistry in Saudi Arabia during COVID-19 pandemic: A single center randomized controlled trial.

Khalid T.Aboalshamat, Tariq K.Althagaf, Saad A.Alsaeedi, Saif N.Alhumaidi, Amjad A.Alemam

Knowledge and Attitude of Dental Students Towards HIV Infection in Umm Al-Qura University, Saudi Arabia

Ammar Ali Abiadh, Rayan Mohamed Sahal Turki Ali AlzahraniMahmood Abdulhamid Jabali Afnan Anas Nassar Abdullah Abdulrahman Marghalani.

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Accessibility of people with visual impairment to dental services: A prospective, observational, mixed method study.

Hassan Abed, Raghad Iskandar, Rawan Alsehli, Ohud Alhazmi, Assim Banjar, Rayan Sharka.

The effect of educational animation on patient's knowledge and attitude regarding root canal treatment

Badr saleh alsanei, Afnan A Nassar Ahmad alqamdi Ahmad fodah Ibrahim alyamani.

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The Effect of Story Telling of improving the Recognition of Teledentistry among Adults : Randomized Controlled Trail.

Fyad Sami Alshareef, Ryan Abdulaziz Saluati, Alaa Thabet Aljehani, Saad Abdullah Aljaberi, Bader Saleh Alsanea, Khaled Abualshamat.

The compliance of dentists in Makkah city with the American Academy of Pediatric Dentistry recommendations for prescribing prophylaxis antibiotic for special care pediatric patients at risk of having infective endocarditis.

loujayne maghrabi, Alanood Algarni, Hassan Abed, khalid aljohani, Jameel Abuljadayel, Mohsen Aljabri.

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Gingival Crevicular Fluid and Serum Levels of Lipocalin-2 in Different Stages of Periodontitis.

Amal Saeed Alqahtani, Ghaida Abdulaziz Alshareef, Horiah Mishaal Alotaibi, Prof. Dr. Alaa Attia, Dr. Ehab Azab, Dr. Abdel-Rahman Youssef.

Effect of Dental Prosthesis on Oral health related Quality of Life.

Fares Mosleh Khozai, Faisal Mohammed Khalifah, Zyad Emmad Almasery, Abdlmohsen Abdulruhman Ayad Aljoaid, Arwa U Alsaggaf, Amin A Marghalani, Omair Bukhari.

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Pediatric Emergency Dental Visits at King Abdulaziz University Dental Hospital During the Covid-19 Surge: A Retrospective Study

Sara Alhabli, Eman El Ashiry, Nada Bamashmous

Remineralizing Effects of Resin-Based Dental Sealants: A Systematic Review of In Vitro Studies

Maha AlGhannam, Mana'a AlAbbas, Jumanah AlJishi, Muath AlRuwaili, Jehan AlHumaid and Maria Ibrahim

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Factors associated with seeking preventive dental care: an integrative model exploration of behaviours in Mecca city, Saudi Arabia

Abdullah Rajeh Alutaibi, Abdullah Adnan Albadah, Ali Salem Alsubhi, Meshary Mohammed Allehaibi, Mona Rajeh

Knowledge, Attitude and Practices of Saudi dental students regarding oral/oropharyngeal cancer: A cross-2 sectional study.

Bader Fatani, Abdulaziz Al-Abood , Raghad Fahad Almuqrin.

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Knowledge, Attitude and Behavior of Parents Regarding Early Childhood Caries Prevention of Preschool Children in Western Region of Saudi Arabia: A Cross-Sectional Study

Ozob Turki Almobarak, Shahad Ibrahim Alotaibi , Buthaynah Abdulrahman Mayid Fatani , Reem Abdulqader wasl Alhazmi, Afnan A Nassar.

The Association Between Dento-Alveolar Trauma (DAT) and Traumatic Brain Injuries (TBI) In Children Attending the Emergency Department at Security Forces Hospital in Makkah (SFHM), Saudi Arabia.

Abdullah Marghalani, Tariq Nazer, Ali Al-Zahrani

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Effectiveness of Silver Nanoparticles Mouthwash on Cariogenic Microorganisms, Plaque Index, and Salivary pH in Adolescents

Yahia A. Maher, Adel Fathi, Bassam A Sembawa, Sameeh H. Elkhyat, Habib F. Hafiz, Abdullah Abdulrahman Marghalani

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Factors Modulating Parental Acceptance of SDF Treatment

Amal Bahathiq, Abba Arafah



Posters Abstracts

Day 1
(May 18th)

1- Biocompatibility Evaluation of Human and Porcine Acellular Dermal Matrix on Human Primary Gingival Fibroblasts: In Vitro Comparative Study.

Ehab Azab, Abdel-Rahman Youssef

Objective: Allogeneic and xenogeneic acellular dermal matrix (ADM) grafts have been used to treat periodontal soft tissue defects. The purpose of the current study was to compare the effect of human ADM (AlloDerm) and porcine ADM (Derma) on human primary gingival fibroblasts in vitro regarding the biocompatibility test.

Materials and Methods: Gingival fibroblasts were obtained from healthy adult gingiva and seeded on AlloDerm or Derma ADM in 96-well plate. The control cells were grown on a surface-treated polystyrene cell-culture plate without matrix. The cells were cultured for 3, 7, and 14 days. The fibroblasts morphology was examined using inverted microscopy, and the cell viability of fibroblasts adherent to the dermal matrix was evaluated using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) cell viability assay after 3, 7, and 14 days in culture. The data were statistically evaluated by one-way analysis of variance. p-Value of 0.05 was considered significant.

Results: Gingival fibroblasts adjacent to the AlloDerm and Derma matrices were healthy, attached to the well, and did not exhibit any cytopathic changes similar to control. There were no statistically significant differences in the cell viability between the gingival fibroblasts attached to Derma and AlloDerm on day 3 ($p = 0.841$), day 7 ($p = 0.198$), and day 14 ($p = 0.788$).

Conclusion: Considering this in vitro study's limitations, both human and porcine ADM were compatible with the surrounding human primary gingival fibroblasts. No significant differences were observed in the cell viability between the gingival fibroblasts that were attached to Derma and AlloDerm.

2- Mothers' Attitudes & Knowledge for Oral Hygiene among pre-school children in Saudi Arabia.

Sarah Ahmed Bahammam.

The present study aims to assess the knowledge and attitude of mothers about the maintenance of good oral hygiene among children. The study has employed a cross-sectional analysis. The study was conducted through face-to-face interview at Taibah University College of dentistry and hospital (TUCDH) during the period of January to April 2022. The study recruited 384 mothers aged between 16 to 34 years randomly, based on their willingness to participate. Majority of the mothers (97.4%) reported that they started the practice of brushing among their children after they crossed the age of 2 years. 62.5% believed that child needs supervision in brushing teeth till the age of 4 – 5 years. Majority of the mothers (96.4%) stated that they changed their child's brush after it gets frayed. Only a small percentage of mothers (0.8%) changed their child's brush after every 3 months. Additionally, 66.9% of the mothers did not consider cleaning tongue to be an important part of maintaining oral hygiene among the children; while, 32.3% of the mothers were either not aware about the method of cleaning tongue. ANOVA results found a significant difference between attitudes and knowledge of mothers based on their age, qualification, and working. The results have clearly shown that the attitude of mothers regarding maintaining proper oral hygiene was not satisfactory.

3-Comparative Study of Cytokeratin Immunostaining of Parotid Gland Parenchyma in Normal, Diabetic and Excretory Duct Ligation of Mongrel Dogs.

Hassan S. Sherif and Alqahtani S. Mashaal

Objectives: The present work aimed to study the effects of either diabetes mellitus or gland atrophy induced by duct ligation in order to find out if there is a similarity in their pathological behaviours.

Method: Twelve male mongrel dogs were divided into three groups, control, diabetic dogs and duct ligated dogs. Forty four days post ligation; parotid gland of all groups was dissected out and prepared for immunohistochemical expression of cytokeratin.

Results: Histological results confirmed that the parotid gland parenchyma of diabetic group undergo gland atrophy characterised by loss of the gland architecture and dilated duct system. Furthermore, there is a predominance of a fibrous component with the presence of fat cells within the gland compartments. On the other hand, the duct ligated group undergo severe gland atrophy with the presence of duct like structure. Immunohistochemical expression of CK17 of control parotid gland revealed negative to diffuse mild expression in duct and acinar cells. The gland parenchyma of diabetic group showed mild to strong expression of duct cells with moderate to strong expression of some serous acini. The intensity of CK17 in duct ligated group revealed a variance of expression ranged from negative staining of all gland cells to strong staining diffused all over the gland compartments.

Conclusion: The intensity and diffusion of CK 17 in our results foretells the pathological influence of both diabetes mellitus and duct ligation to the intracellular filaments in a different manner that interfered with production and/or secretion of saliva leading to xerostomia.

4- Comparison of Alveolar Bone Thickness and Height after Slow Expansion using Quad Helix or Clear Aligners.

Maha Bahammam and Tarek El-Bialy.

Objective: The aim of the current study was to evaluate the thickness and height of alveolar bone of individual teeth after slow maxillary expansion (SME) using quad helix expansion or clear aligner appliances using con-beam computed tomography (CBCTs).

Material and Methods: This is a retrospective study; the records of 22 patients who were treated between December 2019 to April 2020 by either Invisalign SmartTrack® aligners or quad helix appliance were retrieved and studied. The cone beam computed tomography (CBCTs) of before and immediately after maxillary expansion (2+1 mm per side) of 22 adult patients (11 in Quad Helix group and 11 in clear aligner) were analyzed. The data collected was analyzed using linear and angular measurement obtained through Ondemand 3D App software. Furthermore, the findings were shown by mean and standard deviations and Scheffe's test was applied to compare the forces by mean of the Statistical Package for Social Sciences version 25.0 (SPSS). The mean age of patients in clear aligner group and Quad Helix was 16.27 ± 0.56 years and 15.5 ± 1.53 years, respectively. Bone thickness at 3 mm and 6 mm apical from the buccal alveolar bone crests, along with the measurements of buccal alveolar bone heights were measured in standardized sagittal sections.

Results: The results showed significant decrease in bone height in both groups. Further, there was significant decrease in bone thickness after treatment in the quad helix group. In short, the results of this study indicate that there is no difference in buccal alveolar bone thickness or heights in patients treated by either quad helix or clear aligners. It is due to the findings that suggest that there was decrease in bone height and bone width when treated with quad helix as compared to clear align.

Conclusion: It can be concluded that the quad helix SME treatment affects alveolar bone integrity.

5-Evaluation of Properties of PMMA Denture-Base Materials Reinforced with Alumina Nanofibers: Impact Strength, Flexural Strength and Modulus

Abdallah Fawzy Elsadany,

Noora Naser Alshammari , Asim Abdullah AlQahtani

Introduction: Aim of current study is to evaluate flexural strength and modulus and impact strength for PMMA denture base materials reinforced with alumina nanofiber.

Materials and Methods: PMMA denture base materials (Lucitone 199, Dentsply, USA) were divided into two groups: control group without adding nanofibers; nanofibers group with 4% alumina nanofibers. Alumina nanofibers were fabricated by electrospinning technique.

Flexural strength and modulus were tested according to ISO/FDIS 20795-1:2012, ten specimens of each group were prepared to dimensions of 64mm length, 10 mm width, and 3.3 mm in height. Flexural strength was measured on universal testing machine at a crosshead speed 5 mm/min.

Impact strength was tested according to ISO 179-A1:2005 ten specimens of each group were prepared with dimensions of 80 mm length, 10 mm width, and 4 mm height.

Data were collected and tabulated and statistically analyzed by SPSS 20.

Results:

	Control Group	Nanofibers Group	P value
Flexural Strength	83.88 ± 7.06	125.30 ± 6.43	0.000
Flexural Modulus	2.002 ± 0.139	3.701 ± 0.209	0.000
Impact Strength	5.22 ± 0.201	7.04 ± 0.51	0.000

Conclusion: Addition of salinized nanofibers improve mechanical properties of PMMA denture base materials and this is due to electrospun nonwoven mats have small pore size, high porosity and high surface area. The interfacial linking force between nanofibers and dental matrix is very solid for the reason of high specific surface area of nanofibers.

6- A Comparative Evaluation of Antibacterial Efficacy of Moringa Oleifera Leaf Extract, Octenidine Dihydrochloride and Sodium Hypochlorite as Intracanal Irrigants: An In Vitro Study

Afrah M. Alharbi, Tahani M. Alharbi, Laila M. Kenawi, Ibtesam K. Afifi, Fathy M, Mona T. Rajeh

Background: Sodium hypochlorite (NaOCl) is the gold standard and most widely used root canal irrigant. However, due to its cytotoxicity, a more biocompatible irrigant with similar antimicrobial activities is needed.

Aim: To evaluate and compare the antibacterial efficacy of Moringa oleifera (M. oleifera) leaf extract, Octenidine Dihydrochloride (OCT) and NaOCl as intracanal irrigants against Enterococcus faecalis (E. faecalis).

Materials and methods: Sixty single-rooted teeth were decoronated to obtain a standardized tooth length. Canal preparation for all specimens was performed using ProTaper Next till size X4 file. Each root specimen was autoclaved in a glass tube containing 3 ml of Brain Heart Infusion broth. After Inoculation of root canals with E. faecalis, specimens were randomly divided into six groups based on the irrigation solution used: 2.5% NaOCl [Group1], 0.1% Octenidine Dihydrochloride (OCT) [Group2], M. oleifera leaves extract [Group3], combination of M. oleifera leaves extract and 1.25% NaOCl [Group4], combination of M. oleifera leaves extract and OCT [Group 5] and normal saline as a negative control [Group 6]. A microbial sample was taken from each root canal and the bacterial viability was assessed using colony forming units (CFU).

Results: The number of CFU after irrigation was statistically significant between groups ($P < 0.001$). The lowest mean value of CFU was obtained with group 4.

Conclusion: M. oleifera leaves extract and 0.1% OCT solutions have an antibacterial effect against E. faecalis and can be used as endodontic irrigants. The combination of herbal and chemical agents can produce a more significant antimicrobial effect.

7- Evaluation of Antibacterial Activities for Two Bioactive Restoratives

Fatima A. Hamooda, Ghadi O. Zerain, Raneem M. Habis, Razan H. Sulaimani, Shahad T. Albar, Yahia A. Maher, Mona T. Rajeh, Nada A. AbdelAleem.

In fact, *S. mutans* is the main cariogenic, cariostatic bacteria and causes the dental caries or recurrent caries. Restorative materials are specially fabricated materials designed for repairing or restoring the damaged or missing tooth structure by dental caries to reproducing the anatomy, function, and esthetic properties of a natural tooth. This study aimed to evaluate the *Streptococcus mutans* count, pH levels and Plaque Index (PI) scores in unstimulated saliva samples before and after seven days of restoration, and antimicrobial activities against *S. mutans* ATCC 25175 in each Resin Modified - Glass Ionomer Cement (RM-GIC) and ACTIVA restorative materials. Seventy-eight eligible participants diagnosed with class II dental caries, selected according to study criteria, and randomly distributed into two groups (39 patients in each). First group used the RM-GIC restorative material, and the second group used the ACTIVA bioactive restorative material. Here, we evaluated *S. mutans* count by serial dilution technique and identified microbiologically. The salivary pH was determined by using a portable pH meter and the PI scores by Silness-Löe method. The antibacterial activity assessed in vitro by using an agar well diffusion method for both. All data were analysed by using paired t test and T test to compare between independent samples. There was no difference in *S. mutans* count, pH levels and PI scores before restoration between both groups ($p < 0.05$). The *S. mutans* count, pH acidity and PI scores were reduced in both groups and showed a significant after seven days from restoration ($p < 0.05$). Both restorative materials were inhibiting the *S. mutans* ATCC 25175 growth and showed a non-significant ($p < 0.05$), superior to ACTIVA.

8- The Impact of COVID on Halitosis among general population in Saudi Arabia: a potential symptom

Noor Ziyad Farsi, Roaa Adel Merwass, Deema Ismail Alshubaili, Lana AhmadZaki Filimban, Khalid Abualshamat.

Objectives: This study aims to assess the impact of COVID-19 on the level of self-perceived halitosis among adults in Saudi Arabia.

Materials and methods: A total of 1143 participants answered the study questionnaire, which was distributed as an online survey on different social media platforms. Halitosis Associated Life-quality Test (HALT) with other questions were used to assess halitosis in addition to various behaviours related to halitosis during COVID-19 pandemic.

Results: Participants' HALT score mean was 14.21 (out of 100), (SD= 17.52). On self-perceived halitosis, 6.2% had halitosis, and 51% sometimes. All of the participants used at least one natural remedy to protect or treat themselves from COVID-19 during lockdown, the most commonly used one associated with good breath was honey (38.40%), and with bad breath was garlic (15.5%). Participants who had COVID-19 and did NOT lose their sense of smell had a significantly higher HALT score than those with no COVID-19 infection ($p=0.01$). A total of 24% think that COVID-19 pandemic improved their hygiene routine, 32.20% had noticed bad smell after wearing the masks, and 30.7% think that wearing mask prevented others from noticing their halitosis.

Conclusion: This study indicated that there is a low level of self-perceived halitosis among the population in Saudi Arabia during COVID-19 pandemic. COVID-19 lockdown changed people behaviour which affected their perception and dealing with halitosis in Saudi Arabia. It is suggested that halitosis might be a secondary symptom to COVID-19 infection, however, more studies are needed for validation.

9- Prevalence and prevention of orthodontically induced dental resorption.

Rehab Fuad Bawyan, Ahmed Nayef Alsharif, Wissam Hussain Alabdalaal, Abdulelah Saad Thakfan Sarah Taha Alesayi, Ghadah Abdullah Shafei, Manal Mohammed Almarwani, Basmah Mustafa Ageel Fatma Abdulqader Azouz, Asim Abdulaziz Alkhalifah, Lamis Marwan Farghal, Ahmad Eissa Rawas

Since 1914, when Ottolengui first described it, dentists and patients have been tormented with root resorption, an unwanted but typical sequence of orthodontic mechanotherapeutics. It has been demonstrated that among other potentially hazardous chemicals, the orthodontic equipment employed has a considerable impact on root repair. The root repair process is highly linked to periodontal ligament necrosis damage. When intense orthodontic pressures are applied for an extended length of time, hyalinization of the underlying periodontal ligament can occur quickly. Protective leukocytes from periodontal ligament capillaries mix quickly with osteoclast progenitors to create cells with high-density genes capable of regenerating mineral tissue. External apical root repair begins when a protective layer of cementoblasts including the hyalinized periodontal ligament, dies, allowing odontoclasts to rebuild cement and teeth. Initially, a cemented protective layer is lost, exposing a green cement surface to odontoclastic assaults. On the other hand, the maxillary second premolar exhibited more excellent root rates in Asians than in Caucasians. The data were taken as evidence that specific races such as Asians were less likely than longer roots to be involved in root repair or were impacted by mutant morphology. In addition, radiographic examination of intermediate IOPAR therapy can detect at-risk teeth and suggest the necessity for appropriate rest to improve performance or anatomical structure. Treatment of afflicted individuals should be continued with caution and proper use of high-intensity light while avoiding movements linked with re-screening such as ingesting.

10- Effectiveness of Machine Learning in The Assessment of The Diagnostic Quality of Bitewing Radiographs.

Arwa Qawas, Asma Safar Alghamdi, Prof. Amal Linjawi, Dr. Raghad Aldabbagh.

Introduction: Artificial intelligence (AI) refers to any computer or technology capable of mimicking human thought processes. There have been several studies conducted on assessing different AI techniques for solving a variety of clinical problems. Machine Learning (ML) is an approach of teaching an AI model or system by providing and feeding it with known data and input.

Aim: Employ Machine Learning and build a clinical decision-support system that can assess the diagnostic quality of bitewing radiographs as per contact areas.

Methodology: • The dataset consisted of 834 bitewing radiographs with only permanent dentition, and any image with findings that might affect the Machine Learning process was excluded. • Images were labeled using RoboFlow based on the overlapping errors at the contact areas and then divided into validation, training and testing sets. • The pre-trained model Efficientdet-d0 was used and trained using TensorFlow. • The model's performance was assessed by calculating classification metrics: recall, precision, F1 score, and Log Loss value.

Results: • The dataset exhibited class imbalance among the 5 labels. • The model excelled at detecting "overlap within enamel" and "overlap with restoration -clear margins-" with F1 score of 0.89 and 0.76, respectively. Contrary to the underrepresented labels. Conclusion: • This model is a "proof of concept" as it achieved a considerable performance in detecting the radiographic errors, and it emphasized the potentials of machine learning in facilitating the decision-making process. • More dataset optimization and reinforced learning have been left for the future due to technicians' bias to delete unacceptable images and lack of time.

11- Cytological Changes in Oral Mucosa Among Smokers in Makkah Region: A Cross Sectional Study

Jumanah Bahatheq, Malaz Mandourah, Weaam Kaaki, Alaa Alandonisi, Mayar Subahi, Rania Hanafi, Shahinaz Sembawa, Amani Harrandah.

Background: Conventional cigarette (CC) and hookah smoking are known to be a major risk factor for several diseases. Recently Electronic cigarettes (EC) were introduced to the market. The effect of EC on oral health is not well studied yet. Further studies are needed to understand its effect on oral health. Aim of the study: to compare the cytomorphological changes in oral mucosa between CC smokers, EC users, hookah smokers and non-smokers and evaluate their effect on oral health.

Material and Methods: A Cross-sectional study conducted in Makkah region. 112 participants were recruited, CC smokers (n=29), EC users (n=26), hookah smokers (n=29) and non-smokers (n=29). Oral examination, brush cytology and salivary flow test was performed. Cytological smears were stained with cytological (H&E) stain and evaluated by a certified pathologist. Oral symptoms, duration, type and frequency of smoking were obtained through a distributed questioner among participants. SPSS program was used for statistical analysis.

Results: Oral symptoms including dry mouth and change in taste sensation were higher in EC. DMFT index was high in CC and EC users. Generalized dark mucosal pigmentations was the highest in CC group. Salivary flow was shown to be reduced in EC users. Nuclear polymorphism was found higher in CC group. While Hyperchromatism and increased nuclear-cytoplasmic ratio were both higher in hookah group. Highest percentage of prominent nucleoli was detected among EC users. Conclusion: All types of smoking produce cytometric changes in the oral mucosa when compared to the control group. These cellular changes could be cytological features for potentially malignant disorders.

12- Effect of Aging on Nanohardness and Elastic Modulus of Dental Resin Composite.

Abdallah Fawzy Elsadany, Asim Abdullah AlQahtani, -Abdulmajeed Mohammed Alsumiri, Mohammad Moshabab Alqahtani, Bader Mohamed Alahmed

Aim of this study to evaluate the effect of artificial aging on nanomechanical properties of some composite materials.

Commercial Name	Composite Type	Manufacturing
GrandioSo	Conventional Nanohybrid	Voco, Cuxhaven, Germany
Alert	Condensable Dental Hybrid Composite	Jeneric/Pentron, Wallingford, CT
Tetric Evo ceram	Nanohybrid bulk fill	Ivoclar Vivadent, Chicago, USA
Flowable SDR Flow	Flowable bulk-fill	DENTSPLY Caulk, Milford, Delaware, USA
Venus Diamond	Conventional	Heraeus Kulzer GmbH, Hanau, Germany

Nanoindentations of the tested samples were obtained with a nano-mechanical tester (UMT 1, Bruker, Santa Barbara, CA, USA).

After that all specimens were stored and artificially aged 30 days. Seven different media were used

After that, nano hardness was reevaluated for all sample.

Results

Commercial Name	Nanohardness (GPa) means \pm standard deviations	
	Before	After
GrandioSo	$1.72 \pm 0.063aA$	$1.59 \pm .081b$
Alert	$1.6 \pm 0.066aB$	$1.51 \pm 0.07 b$
Tetric Evo ceram	$1.49 \pm 0.07aC$	$1.37 \pm 0.064b$
Flowable SDR Flow	$0.78 \pm 0.03aD$	$0.69 \pm 0.02 b$

Commercial Name	Elastic modulus (GPa) means \pm standard deviations	
	Before	After
GrandioSo	$25.9 \pm 0.19 aA$	$23.6 \pm 0.2b$
Alert	$24.2 \pm 0.21aB$	$21.9 \pm 0.188b$
Tetric Evo ceram	$21.12 \pm 0.13aC$	$18.65 \pm 0.17b$
Flowable SDR Flow	$15.29 \pm 0.105aC$	$12.69 \pm 0.13b$
Venus Diamond	$21.48 \pm 0.14aB$	$18.33 \pm 0.14b$

Conclusion

Generally, both E and H were significantly increased when the filler content increased. nanohardness and elastic modulus were significantly affected by artificial aging.

13- Quantifying Health State Utilities for Permanent Dentition.

Yazeed Alharthi, Hamad Almuaiqly, Osama Alasmari, Amjad Alemam, Saif Alhumaidi, Wahdan Elkwatehy, Omair M. Bukhari.

Introduction: Health utility represents the individual preferences strength regard health related outcome as a numerical value, the higher the utility value of a health state achieved by a service or treatment strategy, the more deserving it becomes to implement and allocate resources of this service, this study aimed to found and compare utilities of permanent teeth related health state outcomes.

Materials and methods: Two groups, one of the dentists (50) and another group of dental patients (50) were received a Standard Gamble questionnaire to determine utilities of four hypothetical alternatives of dental health state as follows 1- Carious posterior tooth with pain, 2- Carious posterior tooth without pain, 3- Filled posterior tooth with a temporary restoration, and 4- Filled posterior tooth with permanent restoration, values were calculated and compared between two groups using unpaired student t-test, another comparison between sex groups were made using one-way ANOVA test.

Results: There were significant differences between dentists and patients regarding health status 2, 3 and 4 ($p=0.011$, 0.026 and 0.008 respectively). On the other hand, there were no significant differences between male and female regarding all health status. However there were significant differences between male dentists and male patients for health status 1 and 3 ($p= 0.047$ and $p=0.036$).

Conclusion: There is statistical significant difference between dentists and patients involved in this study in utility value regarding sample type, with no statistical difference between them regarding sex.

14- Assessment of dental health state utilities of primary teeth in Makkah region

Abdulaziz abed allahyani ,Salem mohammed almatrafi ,Hussain hasan alhakani ,Essam muslih alotaibi ,Hamza Abbas kattan , .
Omair M. Bukhari , Amin A. Marghalani

Introduction: The ability to afford needed dental care is the key difference between children who miss school due to a dental problem and those who do not. Among all school age children, those who need dental care but cannot afford it are more likely to miss one or more school days due to dental problems. Significant consequences of tooth decay including pain, chewing difficulties and lack of sleep can impact learning and growth.

Materials and methods: two groups of 30 individuals from the general population of Makkah region and 29 pediatric dentists who worked in Makkah region using Standard Gamble questionnaire to determine utilities of four hypothetical alternatives of dental health state as follows 1- Carious posterior tooth with pain, 2- Carious posterior tooth without pain, 3- Filled posterior tooth with a temporary restoration, and 4- Filled posterior tooth with permanent restoration, values were calculated and compared between two groups using unpaired student t-test.

Results: The lowest mean utility values from both groups were that for (health state 1), with values of 0.516 from the pediatric dentists and 0.333 from the care givers. The highest mean utility values were for (health state 4), which was valued at 0.827 by the pediatric dentists and 0.689 by the care giver. The average utility values of pediatric dentists were consistently higher than those of the care givers.

Conclusion: There is statistically significant difference between pediatric dentist and care giver groups in decayed non-painful posterior tooth and in filled posterior tooth that need further treatment.

15- The Impact of the COVID-19 Pandemic on Patients Undergoing Conventional Fixed Orthodontic Appliances Versus Clear Aligner Therapy in Saudi Arabia: A Multi-center Cohort Study.

Lujain Alsulaimani, Arwa Jan , Suliman Shahin, Anwar Alhazmi, Osama Basri

Introduction: The outbreak of COVID-19 spread caused significant public health issues around the world. Due to the fast transmission of the disease, Saudi Arabia has categorized dental treatments as a “non-essential” activity except for elective non-deferrable and emergency cases. During the COVID-19 lockdown period, all orthodontic treatment cases were postponed until the re-opening of similar activities, and thousands of orthodontic patients missed their monthly visits. On the other hand, certain varieties were noticed concerning the type of orthodontic appliance that patients are undergoing. Our goal is to compare the treatment progress and complications that occurred during the COVID-19 pandemic on patients receiving conventional orthodontic treatment versus clear aligners.

Material & Methods: This cohort prospective multi-center study will be carried out with an online-based questionnaire using google forms.

Result: A total of 512 electronic responses were received. 12% of participants mentioned that they did not miss any of their orthodontic follow-up appointments during the COVID-19 lockdown. Hence, 450 participants were seen with ultimate effect of covid-19 pandemic on continuation of orthodontic treatment. Significantly higher proportion of participants of fixed aligner than clear aligner group described that they not even once tried to communicate their orthodontist. There was significantly higher proportion of participants who received fixed appliance than clear appliance were disagreed about closure of orthodontic clinics during covid-19 pandemic.

Conclusion: COVID 19 pandemic has challenged the existing health care systems across the globe. Therefore, teleorthodontics has provided a solution to continue dental practice during the pandemic.

16- The relation between psychological wellbeing and physical activity among healthcare students during the COVID-19 period.

Modhi Senan Alotibi, Yara Abdulrahman Nasif Haneen Saeed Alkehili, Reem Basher Alhawsawi, Abdulrahman saleh jabr, Asrab Ahmad Banjar, Shahinaz Nabil Sambawa, Arwa U. Al-Saggaf

Background : Physical activity (PA) and mental health have proven to be associated. The activity has changed and regular physical exercise has been adjusted as a result of the coronavirus lockdown in 2020. Furthermore, students become accustomed to studying at home. Students in the health-care field, in particular, have a better understanding of the link between physical activity and mental health.

Aim: This study aimed to determine the association between the psychological and physical activity among health-related students at umm al-quraa University in Makkah, Saudi Arabia during the COVID-19 Period.

Methods: The conduct and reporting of this survey is a cross-sectional study to determine the association between psychological wellbeing and physical activity among health-related students during the COVID-19 period at Umm Al-Qurra University in Makkah city, KSA. Students were invited to participate in the online google form survey , using a self-reported questioner consisting of two sections after the demographic data. One is physical activity: international physical activity-short form and the other is the mental wellbeing: Center for Epidemiologic Studies Depression Scale.

Results: This cross-sectional study conducted in the period between 2020 and 2022 , with the total response is 197 students were the males are 69 and females are 128 from the healthcare & health related students at um al-quraa university in Makkah, Saudi Arabia. The Percentage per colleges that paritsepints were the college of applied medical sciences 28.9% , Nursing 10.7% , public Health and health informatics 22.8%, Dentistry 13.7% , medicine 14.2% , pharmacy 9.6% age 21, 23.4% . the mean age of participants are 21 years old .A significant association between the psychological status during Covid-19 lockdown and specialty type of students at Umm Al-Quraa University in Makkah Saudi Arabia was found.

Conclusion: Physical activity should be promoted in healthcare & health related students, it is crucial to control and support students' l health in order to reduce the pandemic's negative impact.

17- Assessing the relationship between children's screen time exposure and their dental anxiety in the dental setting: A cross sectional study.

Ruba Abdullah AL-Raddadi, Sumer Alaki, Heba Sabbagh.

Objectives: The purpose of this study is to assess the association between screen time and dental anxiety among children aged six to twelve years during dental examination, prophylaxis, and topical fluoride application.

Material and methods: This is a cross-sectional study which includes 402 pediatric dental patients aged six to twelve years old who came to King Abdul-Aziz University Dental Hospital in Jeddah, Saudi Arabia. The data was collected from September 2020 to December 2021. Self-constructed questionnaire was used to collect data from the patient and his/her guardian. It comprises of seven demographic questions as well as 13 multiple-choice questions regarding the patients' screen time. Child dental anxiety was also assessed by using Abeer Children Dental Anxiety Scale (ACDAS).

Results: This study has a response rate of 100%. Out of the 402 participants, 248 (61.7%) was found to have anxiety while 154 (38%) don't. Significant relationship between anxiety during a dental visit and the participant's total exposure hours to electronic devices was found.

Conclusion: The study found statistically significant association between the amount of exposure to the electronic devices and their dental anxiety in the dental clinic among children six to twelve years old.

18- Oral Health Literacy and Number of Missing Teeth Among Adult Patients Attending Dental Teaching Hospital at Umm AlQura University, Makkah, Saudi Arabia. :A Cross Sectional Study.

Sufana Hashim Alattas, Anhar Saleh Almabouth, Ahlam Saud Almuwallad, Sufana Hashim Alattas, Mashaal Mubarak Alzahrani, Abdullah Marghalani.

Background: Oral health literacy (OHL) is a critical component of an individual's oral health and overall well-being.

Objective: To assess the association between oral health literacy and number of missing teeth in adults.

Method: The study designed as a cross-sectional study. The participants were selected using a non-probability convenience sample from Umm Al-Qura University (UQU) dental teaching hospital. Using Arabic translated comprehensive measure of oral health knowledge (CMOHK) tool to assess OHL accompanied with clinical and radiographic examination to count the number of missing teeth. The number of missing teeth were assessed using the index proposed by Hiraki et al.,2008, categorized them into four groups: group 1: number of remaining teeth ≥ 21 ; group 2: 9 to 20; group 3: 1 to 8; and group 4, 0.

Results: Descriptive statistics will be used to describe the level of oral health literacy and the extent of tooth loss among the included sample. The relationship between oral health literacy and number of tooth loss will be presented while adjust for several covariates.

Conclusion/Recommendations: Results dependent.

19- Common Risk Factors in Childhood Dental Caries and Obesity.

Abdullah Marghalani, Ahmed Balkhour, Salem Dehom, Abdullah Hazzazi, Ibrahim Alnofaie, Raed Alghamdi, Abdulaziz Khatri.

Introduction: Obesity and dental caries are serious global public health concerns. The link between caries and obesity has sparked a lot of discussion. Caries and obesity share several common causes, including genetic, dietary, environmental, and behavioral variables. The prevalence of caries was 73% among 397 Saudi school children aged 3-9 years with mean dmft value 3.66 ± 3.13 . The prevalence of overweight children among 7056 Saudi children aged 2-19 years was 19% and the obese children was 23.3%. The aim of this study will be to evaluate common risk factors with dental caries and obesity in children.

Method: The study design will be cross sectional. The participants for this study will be selected from dental teaching hospital at Umm Al-Qura University (UQU) in Makkah including male and female patients. Inclusion and exclusion criteria: children from 6-12 years old will be included in the study, any child with medical condition or physical disabilities will be excluded, any child with developmental or congenital anomalies will be excluded. Caries will be evaluated using DMFT index and Obesity will be evaluated using Body Mass Index (BMI). Additional data about potential common risk factors will be collected including diet, lifestyle, physical activity, demographic and socio-economic status.

Results: According to the data that will be collected and analyzed we will have the answer to find if there is an obvious effect of the common risk factors on both caries and obesity in children or not.

20- The relationship of molars to vital anatomical structures: consideration for immediate implant placement

Salwa Aldahlawi, Dalia Nourah, Omair Bukhari, Jawan Binyaseen, Raneem Azab, Ethar Alsehli, Haleema Zamzami .

Objectives: To assess the relationship between mandibular and maxillary molars and vital anatomical structures in relation to immediate implant placement and to evaluate alveolar bone anatomy, availability of bone height and thickness.

Materials & Method: A descriptive retrospective study was conducted in Umm Al-Qura University teaching hospital, Makkah, Saudi Arabia. CBCT scans were taken from patients records attending the dental clinics in UQU teaching hospital using convenience sampling technique. Scans of adult above age of 18 were included. A total of 200 maxillary molars and 200 mandibular molars were examined in this study from period of January 2019 till January 2021. From each CBCT different measurements were taken by four examiners to assess the relationship between mandibular and maxillary molars and vital anatomical structures in relation to immediate implant placement. The inter-examiner reliability was determined first before conducting the study measurements. Descriptive statistical analysis of all data were done. Mean and standard deviation (SD) were calculated. $P < 0.05$ is considered significant.

21- The Effect of Social Media (SnapChat) Intervention on The Awareness of Pregnancy Oral Health Among Pregnants In Saudi Arabia: Randomized Controlled Trial.

Amal Abdulrahman Dhafer Alhusayni, Sharifah Abdullah Jarradi Alharthi, Alaa Saad Z Alnifae, Jomana Jamil D Alharbi

Background: Many pregnant women tend to avoid attending dental clinics because they believe they would be harmed. Also, their level of knowledge regarding safe and risky dental procedures is inadequate. On the other hand, social media such as SnapChat is a venue to generating and sharing contents. SnapChat is used to make photo and videos between friends and family in relaxed manner. So, the aim of this study is to evaluate the effect of social media (SnapChat) health promotional intervention on oral health pregnancy awareness among pregnant women in Saudi Arabia.

Methodology: The participants will be pregnant women in Saudi Arabia, and they will be recruited using convenience sampling from Umm Al-Qura University dental hospital and social media groups interested in pregnancy. This study will use a single-blinded parallel group RCT design and will be documented using CONSORT guidelines. The participants will be randomized into study group (SG) and control group (CG). The SG will receive information regarding oral health during pregnancy using Snapchat platform. While, the CG will receive the same information in a written flyer. The participants will be evaluated three times: (T1) before the intervention (T2) immediately after the intervention, and (T3) one month after the intervention.

22- A radiographic analysis of the location of the mental Foramen in the Saudi population.

Dr. Abdmalik Ghandourah, Shahinaz Simbawa, Mohammad Badaoud, Anmar Dahlawi, Faisal Alhazmi, Abdullah Alghamdi

The aim of this study was to assess the inter-rater reliability in locating the mental foramen on a digital panoramic radiograph (OPG). Accurate knowledge and identification of anatomical landmarks on radiographic imaging are essential when preparing for an invasive procedure. The mental foramen (MF) has been a topic of many publications due to its significance as the origin point of the mental nerve and its close relation to the lower premolar area. This study was conducted in accordance with the institution's ethics committee approval No. (HAPO-02-K-012-2021-12-896)

Materials and Methods: A retrospective analysis of 385 ± 50 digital panoramic radiographs taken by the same device from January 2021 to December 2021 was carried out. Images were chosen from the database of Umm Al-Qura University, College of dentistry, teaching hospital. Inclusion criteria were sound anterior and premolars teeth in the lower arch, and good quality images. Patients with malformed teeth, presence of restorations, crowns or bridges, and endodontically treated premolars, unclear images and images where a foramen was unclear or absent were excluded. The age of the patients ranged from 10-76 years. Analysis was carried out using SPSS IBM version 21 program. The locations were scored independently by four examiners. A scoring index of 1-6 was utilized to describe the location in relation to the premolars. By drawing five straight lines (between the canine and the 1st premolar, from the cusp tip to the apex of 1st premolar, between the premolars, from the cusp tip to the apex of 2nd premolar, and between the 2nd premolar and the 1st molar). The inter-rater reliability was calculated using Fleiss' Kappa to determine observer agreement

23- The prevalence of burnout among healthcare students during COVID-19 pandemic in Makkah city: A cross-sectional study

Duaa Yousef Bugis, Layan Saad Al-Hemayed, Rahaf Moneer Al-Otaibi, Hoda Fansa, Mona Rajeh.

Background: Burnout is defined by WHO as a syndrome resulting from chronic workplace stress that has not been effectively managed. Burnout was considered as a work-related occurrence, however, it might likewise exist in students. Aim: to determine the prevalence of burnout among healthcare students in Makkah city, Saudi Arabia during the COVID-19 pandemic.

Materials and methods: This was a descriptive, cross-sectional, survey-based study, including healthcare students in Makkah city, Saudi Arabia. To achieve the study's aim, a paper and electronic questionnaire (BCSQ-12-SS) consisting of 12 questions covering domains of overload (4 questions), lack of development (4 questions), and neglect (4 questions) was distributed to the healthcare students between December 11, 2021 and March 3, 2022. Data were collected in Excel and entered into SPSS for analysis. Keywords: Burnout, healthcare students, COVID-19 pandemic.

24- Patients' Experience and Satisfaction with Teledentistry Compared to Conventional Follow-up Visits in Orofacial Pain and TMD Clinic

Alaa H. Qari, Raghad Mohammed Albishri, Shahad Saud Alomiri, Banan Nasser Alandanusi, Lina Ayman Mirza, Mohammad H. Al-Harthy.

Introduction: Teledentistry is a branch of telemedicine that allows remote communication between dental professionals and patients. It can be used in many dental specialties such as in the temporomandibular joint disorders (TMD) clinics for diagnosis and treatment planning. The implementation of teledentistry is beneficial in saving time, efforts, and costs of traveling. Studies in Saudi Arabia have only measured the knowledge and attitudes towards teledentistry.

Aim: This study aims to assess the experience of patients with teledentistry visits in comparison with the traditional visits in Orofacial Pain and TMD clinic at the Teaching Dental Hospital of Umm Al Qura University in Makkah.

Methods: This is an interventional study on a group of follow-up TMD patients (n=20). The first follow up takes place in-person at the hospital clinic and a survey is handed out to patients at the end of the visit. This first survey includes three sections: socio-demographic information, patient experience of the visit, preferred online platforms and patients' familiarity with these platforms. The second follow up is the teledentistry visit that occurs online via ZOOM. The second survey is handed out after the visit to patients, and it includes socio-demographic information and patient experience of the virtual visit. The experience in both surveys measures the following dimensions: ease of use, usefulness, reliability, and effectiveness of teledentistry to patients as well as their perception of privacy and satisfaction with the service. The study will use independent t-test to compare the patients' experience between the conventional and virtual follow up visits.

25- The Effect of Beverages on Esthetic Restorations in Makkah City: A Cross Sectional Study.

Shahinaz Sembawa, Nada Abdalaleem. Jihan Ibrahim Alharbi, Shahad Fuad Alharbi, Rehab Ahmad Alsubhi, Tiaf Ati Almoqati.

Background: A dental restoration involves the use of a dental restorative material. Since their introduction to the dental sector, composite resins have been widely used in both posterior and anterior restorations. Despite ongoing advancements, resin composite restorations still have some significant limitations such as plaque accumulation and color instability, in addition to polymerization shrinkage and secondary caries. In today's world, dietary knowledge is a critical concern. Several beverages have been found in the literature to have an erosive effect on tooth structure and color stability. In this study we focused on the effect of beverages and its relation to color stability of esthetic restorations.

Aim: is to recognize the effect of beverages on the life span of esthetic restorations.

Methods: This is a cross sectional study that was approved by Institutional Review Board approval No. (HAPO-02-K-012-2021-12-869). The sample size was 130. Participants were regular attendants at outpatient clinics of Dental Teaching Hospital of Umm Al-Qura University in Makkah city. Patient composite restorations were examined according to United States Public Health Service (USPHS) guidelines. The following characteristics of the restorations were assessed: color match, cavosurface marginal discoloration, secondary caries, anatomical contour, marginal integrity, surface texture and gross fracture. The participants beverage intake was assessed using a specially designed questionnaire that correlates between beverages intake frequency and longevity of composite restorations. Caries risk and overall oral health was assessed using ADA Caries Risk Assessment questionnaire.

26- Accuracy and Reliability of Asynchronous Tele-Screening of Dental Caries Using Smartphone Cameras at A Teaching Dental Hospital in Makkah

Alaa H. Qari, Moayad D. Hadi, Alawi T. Alaidarous, Abdulrahman A. Aboalreesh, Majed M. Alqahtani, Ibraheem K. Bamaga, Jilen Patel.

Introduction: Teledentistry is a branch of telemedicine that deals with digital dental records for screening and consultation with dental professionals to provide oral healthcare services. This advancement in delivering dental care can minimize the waiting time of patients for consultation and reduce the number of unnecessary referrals for specialists. Limited research existed on assessing the clinical implications of teledentistry in Saudi Arabia. Aim: This study aims to assess the accuracy and reliability of tele-screening of dental caries in dental patients in Makkah.

Methods: Our study implements the store-and-forward modality of teledentistry (asynchronous) at the screening clinics of Umm AlQura University Teaching Dental Hospital. Patients (n=20) are scheduled into three phases. The gold standard phase where patients are screened by dental interns under specialty supervision at the hospital. The second phase (Patients-Delivered Asynchronous Screening) where 6th year dental students screen patients based on intra oral photographs they took of their teeth with smart phones. A photo-taking instructional guide and a video have been developed, tested, and handed out to patients. Photos are stored in a secure platform for examiners to review and screen. In the last phase (Dentist-Delivered Asynchronous Screening), patients are screened by 6th year dental students based on patient' photographs taken by examiners with their smart phones. Screeners are trained for calibration based on WHO criteria for dental charting. To assess the accuracy and reliability of various tele-screening methods in comparison with the gold standard, the sensitivity, specificity, and intra-class correlation (ICC) will be calculated for this study.

27- The influence of obstructive sleep apnea on self-perceived dental aesthetics and need for orthodontic treatment.

Mohammed AL Barashi, Maysaa Khojah, Mona Rajeh, Shahad Alotaibi, Amjad Alotaibi

Objectives: To assess the influence of obstructive sleep apnea on self-perceived dental appearance and need for orthodontic treatment.

Materials and Methods: A self-administered questionnaire was used in a random sample of a general adult population. A total of 1014. participants completed the questionnaires, which included the STOP-BANG questionnaire, Oral Aesthetics Subjective Impact Score questionnaire, and Aesthetic Component of Index of Orthodontic Treatment Need questionnaire. Descriptive statistics and chi-square tests were used to compare differences between the groups.

Results: Overall, 6.5% (66/1014) of the participants were classified as being at high risk of OSA, of which 71.2% were males and 28.8% were females ($p < 0.001$), 57.6% were > 50 years of age, 90.9% had obesity, and 81.8% had an enlarged neck circumference. But only 10.1% of the participants reported that they snore loudly. A positive self-perception of dental esthetics was found in 42 (6.2%) and 518 (76.6%) participants at high and low risk of OSA, respectively. Furthermore, of the participants in the high and low-risk groups, 4.2% and 66.7% considered themselves in need of orthodontic treatment, respectively.

Conclusions: The prevalence rate of people at intermediate to high risk of OSA was 26% of the general population and being at high risk of OSA had no influence on self-perceived dental esthetics and need for orthodontic treatment.



Posters Abstracts

Day 2
(May 19th)

1- Based Quality Analysis of covid 19 Information.

Lamis Alotaibi, Sreekanth Kumar

Background: Internet become the primary source of information worldwide, Misinformation associated with covid-19 pandemic has spread online and increased with vaccine introduction.

Objective: This study assessed the quality of web-based health information on COVID-19 and covid-19 vaccine.

Significance to the Kingdom: This article fills the gap of previous studies by assess the covid -19 vaccine information.

Description: Three search engines were searched on 16 august 2021 using the keywords: sars-cov-2, covid-19, corona virus and vaccine. The first 25 consecutive websites from each engine were analyzed for eligibility, the eligible websites were subjected to quality assessments using the Journal of the American Medical Association (JAMA) benchmarks tool, the DISCERN tool, and Health on the Net Foundation Code of Conduct (HONcode) certification.

Conclusion: The quality information on vaccines regarding COVID-19 on search websites was inconsistent. The majority of the websites scored low using DISCERN tool, and 60% of the websites covered four criteria according to JAMA. The quality of available online health information should be aware of the limitations among the general population.

Keywords: SARS-COV-2", "COVID-19," "Coronavirus," and "vaccine" in various combinations.

2- The Association Between Dento-Alveolar Trauma (DAT) and Traumatic Brain Injuries (TBI) In Children Attending the Emergency Department at Security Forces Hospital in Makkah (SFHM), Saudi Arabia.

Abdullah Marghalani, Tariq Nazer, Ali Al-Zahrani

Background/aim: Craniofacial assessment is an integral part of overall assessment with patients coming for dental traumatic injury. Also, traumatic brain injury (TBI) is associated with facial trauma. However, few studies showed the involvement of TBI with dental trauma. Thus, the aim of this study was to examine the association between DAT and (TBI) in children and adolescents.

Methods: This study consists of hospital-based retrospective cross-sectional study of children who were seen at Security Forces' Hospital in Makkah (SFHM), Emergency Department between January 2017- and October 2021. Children who had Dento-alveolar trauma (DAT) and traumatic brain injuries (TBI) were enrolled in this study. Patients excluded if there is insufficient data or if they had not been seen by a pediatrician or/ and pediatric dentist within 24 hours of the initial injury.

Results: Between the period of January 2017 and October 2021, 428 patients (aged 1 month- 18 years) visited the emergency department at SFHM with head traumatic injury. About 11 (2.5%) had DAT and TBI was recorded in 32 (7.47%) of these traumatic injury visits. Within the group of DAT-positive encounters, 4 (12.5%) had association with TBI. Of trauma encounters where a DAT was not involved, 21 (65%) had TBI.

Conclusions: Adherence to trauma guidelines that include craniofacial assessment is imperative when treating acute dental trauma cases.

3- Evaluation of the Cytotoxicity and Apoptotic Effects of Nano Triple Antibiotic Paste with Nano Anti-Inflammatory Drug as an Intracanal Medicament.

Soha Ahmed.

Objective: The aim of this study is to compare the cytotoxicity of triple antibiotic paste (TAP) with an antiinflammatory drug (TAP+Catafast-TAPC) in nano and regular formulations versus calcium hydroxide as intracanal medicaments.

Methods: The TAPC drugs extraction were made in cell culture media MEM-E (Eagle's minimal essential medium) using concentration of 10 mg/mL of each sample for seven days. Inhibitory concentrations (IC50 values) were determined for each extract. A human fibroblasts cell line was used to evaluate the cytotoxicity of different concentrations (10, 0.625 and 0.07 mg/mL) using MTT essay. The cell viability was measured after 24 h, 48 h and 7 days for all concentrations of the drugs. Flow cytometry analysis was carried out to identify the effect of materials on apoptosis/necrosis. Statistical analysis for the obtained results was done by one-way ANOVA.

Results: The results revealed that cell viability was inversely proportional to the duration of treatment in all of the groups. Calcium hydroxide (Control group) demonstrated a significantly greater cytotoxic effect, followed by Nano Triple Antibiotic Paste with Catafast as an anti-inflammatory drug (Nano TAPC), while Triple Antibiotic Paste with Catafast (TAPC) had the least cytotoxic effect. Nano TAPC has the greatest apoptotic value, while TAPC had the least when compared with the reference group, with no significant difference between groups ($P < 0.05$).

Conclusion: The cytotoxic effect of Nano TAPC was lower than that of calcium hydroxide and higher than that of TAPC. Although Nano TAPC has the highest apoptotic value when compared to TAPC and calcium hydroxide but still there is no statistically significant difference between them.

4- Marginal and Internal Fit of Lithium Disilicate Endocrowns Fabricated by Conventional, CAD/CAM and Combination Techniques.

Danyh Abduljawad

Aim: To compare the marginal and internal adaptation of Endocrowns produced by conventional technique, CAD/CAM technique, and combination (cast digitization) techniques by measuring them with microcomputed tomography (micro-CT).

Materials and methods: That was an in-vitro experiment in which 10 natural mandibular molar teeth were selected for the purpose of the study. Tooth preparation for an all-ceramic Endocrown was performed and 10 conventional impressions using polyvinyl siloxane, and 10 digital impressions using an intraoral scanner were made. Each working cast was scanned using a laboratory scanner and an intraoral scanner. A total of 40 Lithium Disilicate (IPS e.max) Endocrowns were fabricated using four different techniques, and grouped as Group (CO): Conventional Endocrown fabrication (n=10), Group (CAD): CAD/CAM Endocrown fabrication (n=10), Group (COMIO): Combination; Conventional impression / cast digitization (Intraoral scanner) Endocrown fabrication (n=10), Group (COML): Combination; Conventional impression / cast digitization (Laboratory) (n=10). For group (CO), heat-pressed glass-ceramic Endocrowns (IPS e.max Press) were fabricated using casts produced from the conventional impressions. While all other groups (CAD, COMIO, and COML) crowns were milled using ceramic blocks (IPS e.max CAD). Marginal and internal gaps were measured using micro-computed tomography scans. Mean marginal and internal gaps (line angle, cavity walls, and pulpal floor) were compared among the four groups by using Analysis of Variance and Bonferroni multiple comparison test.

Results: Endocrowns fabricated by CO, CAD, COMIO and COML showed significant differences in mean air gap volume ($31.374 \pm 7.032 \text{ mm}^3$, $16.950 \pm 3.179 \text{ mm}^3$, $18.957 \pm 3.829 \text{ mm}^3$ and $17.628 \pm 3.463 \text{ mm}^3$, $p=0.000$), marginal gap ($151.86 \pm 35.08 \mu\text{m}$, $115.25 \pm 27.00 \mu\text{m}$, $110.39 \pm 24.34 \mu\text{m}$, $120.21 \pm 28.67 \mu\text{m}$, $p=0.013$), gap at line angle ($279.7500 \pm 69.78 \mu\text{m}$, $132.11 \pm 36.59 \mu\text{m}$, $135.96 \pm 53.88 \mu\text{m}$, $125.75 \pm 33.16 \mu\text{m}$, $p=0.000$), gap at cavity wall ($214.25 \pm 75.57 \mu\text{m}$, $139.54 \pm 43.09 \mu\text{m}$, $138.86 \pm 52.43 \mu\text{m}$, $146.36 \pm 44.30 \mu\text{m}$, $p=0.010$) and gap at pulpal floor ($496.23 \pm 149.20 \mu\text{m}$, $241.17 \pm 57.63 \mu\text{m}$, $257.57 \pm 58.62 \mu\text{m}$, $236.74 \pm 63.52 \mu\text{m}$, $p=0.000$), respectively.

Conclusion: Digitally fabricated Endocrowns showed superior marginal and internal fit compared to the conventionally fabricated Endocrowns.

5- ASSESSING PATIENTS' INFORMATION NEEDS FOR ELECTRONIC DENTAL PATIENT PORTAL AT A TEACHING HOSPITAL IN MAKKAH

Ola A. Sheiko, Sharifah Abdullah AlDossary, Alaa H. Qari

Introduction: Patient portals are important tools for the delivery of patient-centered care. Through this tool, patients can access and manage their health information. Although the use of this tool in the dental field is minimal, it can provide the same potential benefits for the dental patients.

Objectives: This study aimed to (1) investigate patients' information needs and perspective about the electronic dental patient portal, (2) assess the importance of the unique features that can be provided in this tool, and (3) identify patients' characteristics associated with positive attitude toward the electronic dental patient portal.

Method: A cross sectional survey was conducted on the patients visiting the dental teaching hospital of Umm Al-Qura University in Makkah. Data were collected using a paper base questionnaire acquiring information about patients' demographics, patients' access and use of the internet, the potential use and features of the electronic dental patient portal, dental educational material provided through this tool, and possible patients' limitations from using this tool.

Results: 161 completed survey was received. The oral health information needs included features such as communicating with the dentist via direct instant messaging or e-mail (125/161, 77.63 %), scheduling appointments (90/161, 55.90%), and viewing the dental health summary (80/161, 49.68%). Almost 95% of participants were considered as potential users. A significant association was found ($p=0.03$) between the age of the participants and the potential use of the electronic dental patient portal, where participants of age 25 to 34 years old were more likely to be potential users than other age groups studied. (124/161, 77%) of participants stated that they would not have any limitations from using the electronic dental patient portal tool, while (37/161, 23%) of the participants stated that they would have some concerns regarding the ease of use, privacy and security, and the need for internet access.

Conclusion: The interest in using the electronic dental patient portal tool is considerable among the studied population. Participants of the study showed a positive attitude toward using a comprehensive dental patient portal that would allow them to engage more into managing their oral healthcare. Possible patients' limitations may arise but this could be overcome by designing a user-friendly tool that can be used by any patients' of different age group.

6- Variation of Intra- and Inter-arch Relationships in Saudi Twins

Walaa Ageeli, Hind Eshwi, Aeshah Abuhashem, Mafaz Makki, Abdulrahman Alshehri and Zaki Hakami

Introduction: The comparison of physical characteristics and dental variation in twins can provide useful insight into the relative contributions of hereditary and environmental factors. This study aimed to compare the arch and dental morphologies among the monozygotic and dizygotic twins in Saudi Arabia.

Materials and Methods: Twins were screened at the college of dentistry, Jazan University, Saudi Arabia. Routine orthodontic records were taken and the following variables were evaluated: Angle classification, overjet, overbite, and teeth size buccolingually and mesiodistally, arch length, intercanine and intermolar widths. The cervical vertebral maturation (CVM) approach was utilized to determine the skeletal age differences between the twins. The Kruskal–Wallis test followed by the Mann–Whitney U test were conducted. Also, a chi-squared test was used as appropriate. A $p\text{-value} \leq 0.05$ was statistically significant.

Results: 34 subjects of 17 pairs of twins, average age of (15.3 ± 4.8 years), were screened. Majority of them were monozygotic type (66%; $n=22$) and male (56%; $n=19$), with no significant difference was observed in the age and gender between the monozygotic and dizygotic twins. Significant differences among the monozygotic and dizygotic twins were shown in the molar relationships, upper intermolar width, and upper arch length. Furthermore, significant disparities in the width of the upper central incisors and lower first molars were observed. CVM staging revealed no significant differences in skeletal maturation between monozygotic and dizygotic twins.

Conclusion: The results showed inheritance dental variation within the twins suggesting genetic and environmental components to the dental development of the twins.

7-an integrative framework to assess dentists' self-reported behavior on the management of adult people with intellectual disabilities.

Asail Alqurashi, Dunya Aqel, Hassan Abed

Aims: This study aimed to assess dentists' self-reported behavior on the dental management of adult people with intellectual disabilities.

Methods: An online cross-sectional survey including self-reported behavior using the theoretical domains framework that may affect dentists' decisions regarding dental management of adult people with intellectual disabilities, completed by general dental practitioners. Binary logistic regression analyses were used to assess if demographic variables and the theoretical framework's domains were associated with the dentists' self-reported behavior.

Results: N=129 dentists completed the online questionnaire. Most participants reported they did not know how to manage adult people with intellectual disabilities (n=73, 57%). Multivariable logistic regression analysis indicated that "belief about capabilities" was independently associated with the dentists' self-reported behavior when they manage adult people with intellectual disabilities (OR=1.53; 95% CI=1.10 – 2.12; p-value=0.011).

Conclusion: Most of the general dental practitioners reported that they did not know how to manage adult people with intellectual disabilities. Using the theoretical domains framework to assess dentists' self-reported behavior regarding the dental management of adult people with intellectual disabilities showed that the likelihood of managing adult people with intellectual disabilities increased by dentists through improving their abilities, confidence, and comfort toward management of people with intellectual disabilities.

8- Factors Affecting Decision-Making about Future Specialty among Dental Students in UQUDENT, Makkah, KSA

Alhajaji A. J, Alshamrani S.A, Altaf S. A, Salama R. I

Background: Choosing the specialty considered a problem for many dental students. Multiple factors affect their future decision regarding their gender, clinical skills, desire or interest, and family or relative influence. Most of the previous studies reported that the most popular specialties chosen were orthodontics and oral maxillofacial surgery. Moreover, the importance of establishing a mentoring program that guides the dental students to make the right choice according to their own desire, to get more stable and life-long statistician.

Aim of the study: identify the different influencing factors that affect future decision-making about dental specialties post-dental graduation.

Material and Methods: This crosssectional study was conducted at UQUDENT in Makkah, KSA. The sample size collected from total population is 251 students, 51.2% from male students and 48.8% from female. The data will collect by using self-administration; structured survey included close ended questions. The data was entered and analysed by using multiple software programs.

Results: we found that the private practice was the most preferable future practice plan among the dental students. In addition, the majority of dental students show great interest in restorative dentistry. The strongest influencing factor among the students was personal desire/interest, and the lowest was Influence of family or relative

Keywords: Dental specialty, decision making factors, dental post graduates, specialties related factors.

9- Effectiveness of SABA Thyroid Shield in Dental Panorama and Cone Beam Computed Tomography (CBCT)

Hanan Almutiri, Omemh Bawazeer

Aim: This study aims to investigate the efficiency of newly development Saba thyroid shield to protect the thyroid during panorama and cone beam computed tomography scans.

Method: This study was conducted in the dental Department in the General Network of Healthcare Providers hospital in Saudi Arabia. An anthropomorphic phantom and a solid-state detector were used to measure the surface dose in the thyroid region during panorama and CBCT exams. The measurements were conducted at the thyroid region for the clinical range of kVp (60–85) in panorama, and for CBCT with the clinical protocol of (kVp 90, mA:4, sec:0.1), using without shield and with Saba thyroid shield. Attenuation percentage was calculated in the thyroid region was measured the radiation surface dose without shield and with Saba thyroid shield. The significant of Saba thyroid shield was calculated using a student t-Test. Applying the image quality scoring criteria (IQSC) to visualize the impact of the Saba thyroid shield for all parameters using during panorama and CBCT scans.

Results: In panorama scan, the maximum and minimum average surface doses in the thyroid were without shield using was 301.1 μ Gy and 170.3 μ Gy, respectively and with Saba thyroid shield was 64.43 μ Gy and 12.94 μ Gy, respectively. The reduction of the dose with using the Saba thyroid shield was significant and depended on the tube voltage selected. The attenuation in the thyroid region was between 92.40% and 78.60%. statistically significant differences were found between the thyroid without shield and the thyroid with Saba thyroid shield by 61%, the surface dose was reduced (p, 0.000). In CBCT scan, the maximum and minimum average surface doses in the thyroid region were without shield using was 814.43 μ Gy and 32.4 μ Gy, respectively and with Saba thyroid shield was 62.91 μ Gy and 12.07 μ Gy, respectively. The reduction of the dose with using the Saba thyroid shield was significant and depended on the field size and the position of the field size selected. The attenuation in the thyroid region was between 80.70 and 54.89%. statistically significant differences were found between the thyroid without shield and the thyroid with Saba thyroid shield by 48%, the surface dose was reduced (p, 0.0003). The image quality was maintained when using Saba thyroid shield during panorama and CBCT scans.

Conclusion: Saba thyroid shield are effective in reducing the radiation dose in thyroid region using adult phantom during dental panorama and CBCT scans. The dose reduction is dependent on the tube voltage for panorama scan, as well as field size and the position of the field size on the CBCT scan. Saba thyroid shield had no degrading effects on image quality during dental panorama and CBCT scans in this study.

10- Burnout and Its Relation to Emotion Dysregulation and Social Cognition among Female Interns and Undergraduate Dental Students at King Khalid University.

Sandeepa Chalikkandy, Raghad Sulaiman Abdulkhalig Alhifzi, Malak Ali Yahya Asiri, Raghad Saeed A. Alshahrani, Wejdan Nasser Ali Saeed and Sara Ghorman Alamri.

Introduction: Burnout is a state of vital exhaustion that has a high global prevalence among dental professionals. Diagnosis of this syndrome is challenging due to its multidimensional nature.

Aim: Assess burnout and its relation to emotional dysregulation and social cognition among undergraduate dental students.

Methods: We mailed 148 self-administered questionnaires to interns and undergraduate dental students in King Khalid University, College of Dentistry's female campus, Saudi Arabia. A questionnaire was designed comprising three measuring instruments of psychological inventories to assess work-related stress, namely: burnout(Copenhagen burnout inventory questionnaire(CBI)),emotional dysregulation(emotion regulation questionnaire(ERQ)),and social cognition(interpersonal reactivity index (IRI)).We examined the difference in burnout between two cohorts(interns and undergraduates) using Student's 't' test and the association between emotional regulation/social cognition domains using Pearson's correlation.

Results: Among the participants, around 70% obtained higher scores than the cut-off points for personal and work-related domains in both groups. There was no statistically significant difference in burnout domain between the two cohorts($p > 0.05$; Cohen $d < 0.3$). A negative correlation existed between burnout and emotion regulation, i.e., higher burnout score is associated with lesser cognitive reappraisal and more expressive suppression (CBI—personal burnout $r = -0.251$; $r = -0.220$ respectively). Social cognitive scores had various associations among interns and undergraduates, with personal distress being significantly associated with greater burnout levels among both groups($p < 0.05$).

Conclusions: The present study revealed significantly elevated burnout levels among both interns and undergraduate students. Emotional dysfunction and social cognition assessment can be a valuable adjunct in identifying this erosive syndrome. Early recognition and primordial prevention targeting burnout are strongly recommended.

11- Dental Staining Associated with Various Types of Coffee.

Nada A. Abdelaleem, Afnan A. Nassar, Aseel K. Alhindi, Rahaf K. Jarwan, Raghad M. Iskander, Shahad O. Bashihab

Teeth staining is one of the biggest concerns among people who care about aesthetics. Coffee consumption is linked to teeth staining because it can cause teeth discoloration in many ways. Objectives: This paper aimed to assess the degree of staining associated with different types of commonly consumed coffee and the effect of coffee temperature.

Methods: Sixty extracted human teeth were assigned to six different groups, then their roots were sealed using three barrier layers. The baseline shades were measured using a colorimeter. The teeth in each group were immersed in a different type of coffee. The groups were further subdivided into hot and cold coffee groups. The teeth were immersed for 12 days, after which the change in colour (ΔE) was measured.

Results: The ΔE scores of all groups were >3.3 , which is considered unfavourable. All the teeth that were incubated in cold temperature showed no significant difference in staining among the different types of coffee. The teeth that were incubated in hot solutions showed significant staining in the sweetened coffee ($P = 10.4$) and Turkish coffee ($P = 16.2$) compared to other coffee types. The remaining types of coffee (Arabic, instant and latte) showed a minimum degree of staining. The addition of sugar to coffee can worsen staining. In contrast, the addition of milk or water reduces staining.

Conclusion: Turkish and sweetened coffee have the highest degree of staining; the higher the temperature of the coffee the greater the staining. Recommendations: The study recommends drinking sugar-free coffee; moreover, the addition of milk or water can decrease the amount of staining.

12- Accuracy and perceptions of teledentistry in Saudi Arabia during COVID-19 pandemic: A single center randomized controlled trial.

Khalid T.Aboalshamat, Tariq K.Althagaf, Saad A. Alsaeedi, Saif N.Alhumaidi, Amjad A.Alemam

Objectives: Teledentistry conveniently delivers dental care when in-person visits are restricted, such as during the COVID-19 pandemic. This study aimed to assess Saudi Arabian patients' accuracy, perceptions, knowledge, attitudes, and challenges regarding teledentistry used for diagnosis during the COVID-19 pandemic versus traditional dental visits.

Methods: A single-blind, parallel-group randomized controlled trial design was used. The 70 participants were randomized equally into study and control groups. While the control group waited, the study group received teledentistry diagnoses used to compare to baseline clinical examinations retrieved from the dental hospital. After the intervention was completed, all participants answered a questionnaire.

Results: There were no significant differences between the groups in knowledge or attitudes regarding teledentistry. However, study group participants had more favorable experiences with teledentistry. They reported good accuracy with diagnosis and recording of their chief complaints (74.3%), number of missing teeth (74.3%), number of filled teeth (71.4%), and oral hygiene status (65.7%). Additionally, moderate accuracy was reported on recording of health complaints (51.4%) and number of decayed teeth (40%). The number of decayed teeth and the decayed, missing, and filled teeth (DMF) index scores were significantly ($p < 0.05$) higher using teledentistry than reported in the baseline examinations.

Conclusion: Teledentistry is widely accepted by patients and can be efficient for preliminary examinations, particularly during pandemic lockdowns or even in more frequent condition such as severe weather condition, but subsequent clinical examination is necessary for maximally accurate diagnoses.

13- Knowledge and Attitude of Dental Students Towards HIV Infection in Umm Al-Qura University, Saudi Arabia

Ammar Ali Abiadh, Rayan Mohamed Sahal, Turki Ali Alzahrani
Mahmood Abdulhamid Jabali, Afnan Anas Nassar Abdullah
Abdulrahman Marghalani.

Objectives: To evaluate the Human Immunodeficiency Virus (HIV) / Acquired Immunodeficiency Syndrome (AIDS) related knowledge and attitudes of dental students at Umm Al-Qura University, Saudi Arabia. Also, to compare knowledge and attitude between student's gender and different clinical levels (2nd, 3rd vs. 4th to 7th years).

Methodology: A validated survey was sent electronically to dental students from 2nd to 7th year at Umm Al-Qura University's Dental College. The questionnaire contained 12 knowledge and 13 attitude questions about treating HIV/AIDS patients.

Results: The response rate was 65%. The mean and standard deviation (SD) for the knowledge score was 8.32 ± 1.60 , out of 12. There was no significant difference between gender (P-value = 0.13) and student's clinical level (P-value = 0.175). In majority of the attitude questions, more than half of the students had favorable attitude toward HIV/AIDS subjects. Females had more favorable attitude (P-value = 0.05) as well students with more clinical years of experience (P-value = 0.0006).

Conclusions: Dental students at Umm Al-Qura University showed acceptable knowledge and positive attitude toward HIV/AIDS patients. Students who were females and with higher clinical years demonstrated better attitude but similar knowledge to males.

14- Accessibility of people with visual impairment to dental services: A prospective, observational, mixed method study.

Hassan Abed, Raghad Iskandar, Rawan Alsehli, Ohud Alhazmi, Assim Banjar, Rayan Sharka.

Objectives: This prospective, observational, mixed method study aims to assess patients with visual impairment general and oral health status, oral health-related quality of life, oral health knowledge, and adherence to recommended oral hygiene advice.

Methods: Participants were interviewed using a semi-structured questionnaire at two sequential time points. At the day of recruitment (Time 1), participants were interviewed using questions from the adult dental health survey and the Arabic version of the oral health impact profile-14. At Time 2 (one-month post-dental education given at Time 1), participants were phoned after one month to assess their adherence to recommended oral hygiene instructions given at Time 1. The DMF Index was used to assess prevalence of dental caries.

Results: The mean age of the participants was 21 years (SD = 2.98). Most participants (62.5%) had acute dental pain, brushed their teeth less than twice daily, and were not registered with dentists. Each person experienced a mean of six problems (median = 6) on oral health impact profile-14 and had an average of 7.1 (SD = 4.12) active caries. At Time 2, all participants had registered with a general dentist, and all brushed their teeth at least twice daily. Thematic analyses explored crucial barriers experienced by participants to access dental services.

Conclusions: People with visual impairment reported poor oral health-related quality of life due to poor oral health status, oral health knowledge and education. Participants experienced long waiting lists for appointments in governmental dental hospitals, poor financial status to afford private dental care, and issues with accessibility to dental services due to transportation and caring issues.

15- The effect of educational animation on patient's knowledge and attitude regarding root canal treatment

Badr saleh alsanei, Afnan A Nassar Ahmad alqamdi Ahmad fodah Ibrahim alyamani.

Introduction: The use of video as a teaching tool has a number of benefits. It eliminates discrepancies among educators and has a variety of formats which makes information delivery easy and understood among patients

Aim: The aim of this study is to assess patients' knowledge and awareness regarding root canal treatment (RCT) as well as their worries and expectations. Also, it aims to evaluate the effectiveness of using animated videos as an educational tool.

Methods: Single-blinded parallel group randomized controlled trial design, 120 adult volunteers were recruited via personal invitations using social media and from Umm Al-Qura University Dental hospital. The study consisted of 2 groups: intervention (animation) and control (leaflet). The study group received information about RCT by watching custom-made animation created by the research team, while the control group received the same information using a flyer. The participants were evaluated using validated questionnaire: (T1) before the intervention, (T2) immediately after (T3) one month after the intervention. T2 and T3 will then be compared to T1 in each group (study and control) to evaluate change in Knowledge and attitude after receiving the information. Then the two study groups will be compared to assess if the method of delivering the information had an impact.

Results: on progress.

Conclusion: The use of educational animation is expected to show an increase the knowledge regarding RCT when compared to conventional methods and it is hoped that it will decrease patient's fear from endodontic therapy.

16- The Effect of Story Telling of improving the Recognition of Teledentistry among Adults : Randomized Controlled Trail.

Fyad Sami Alshareef, Ryan Abdulaziz Saluati, Alaa Thabet Aljehani, Saad Abdullah Aljaberi, Bader Saleh Alsanea, Khaled Abualshamat.

Introduction : Teledentistry is a hybrid of telecommunications and dentistry that involves the transmission of clinical data and photographs for dental consultation and treatment planning over long distances. Teledentistry offers the potential to increase access to oral healthcare, enhance its delivery, and reduce costs. It also has the ability to close the gap between rural and urban areas in terms of oral health care. This article examines the origins, logic, scope, premise, and prerequisites of teledentistry, as well as the current literature evidence. The ethical and legal difficulties surrounding the practice of teledentistry, as well as the future of this alternative and creative form of providing dental treatment, are also discussed in this article.

Study Aims: to use storytelling as tool to promote tele-dentistry

Methodology: Using a single-blinded parallel group randomized controlled trial design, 200 volunteers will be recruited via personal invitations and advertisement flyer among dental patients and their relatives in Umm Al-Qura University Dental hospital. The study group received information about tele dentistry by reading custom-made story created by the researcher team, while the control group received information about teledentistry using a written flyer. The participants were evaluated three times: (T1) before the intervention, (T2) immediately after the intervention, and (T3) one month after the intervention for follow-up to evaluate their retention of the information.

17- The compliance of dentists in Makkah city with the American Academy of Pediatric Dentistry recommendations for prescribing prophylaxis antibiotic for special care pediatric patients at risk of having infective endocarditis.

loujayne maghrabi, Alanood Algarni, Hassan Abed, khalid aljohani, Jameel Abuljadayel, Mohsen Aljabri.

Aim: assess the compliance of dentists in Makkah city with the American Academy of Pediatric Dentistry recommendations of prescribing prophylaxis Abs for special care pediatric patients at risk of having infective endocarditis.

Methods: cross-sectional study based on data collection using a standardized questionnaire among dentists in (Al-Noor specialist, Heraa General, King Faisal, and King Abdul-Aziz) Hospitals in Makkah city. Each participant's knowledge regarding the prescription of antibiotics was measured by giving a score to each domain (Total=11). The reliability analysis was used with a model of alpha (Cronbach).

Results: 132 practitioners were recruited. Dentists prescribed antibiotics with extraction (92.4%), periodontal surgery (89.4%), non-surgical RCT beyond apex (77.3%), supra-gingival scaling (67.4%), and retraction cord placement (46.2%). While, no prescriptions was given for placement of orthodontic appliance (87.9%), intra-oral radiograph (87.1%), primary teeth shedding (81.8%), tooth preparation when taking oral impression (76.5%), local anesthesia infiltration (68.2%), and restoration of class II caries with matrix and wedge (56.8%). Significantly lower score was obtained by general dentists compared to other groups (p -value = 0.044). Consultant/specialist group recorded significantly lower knowledge on prescription of prophylaxis antibiotics for restoration of class II caries with matrix and wedge (p -value < 0.001) compared to other groups.

Conclusions: Most dentists followed the American Academy of Pediatric Dentistry recommendations of prophylactic antibiotics for children with high risk of developing infective endocarditis. However, class II dental restorations with matrix and wedge and placement of retraction cord have recorded more incorrect responses. General dental practitioners reported lower knowledge when compared with specialists and consultants.

18- Gingival Crevicular Fluid and Serum Levels of Lipocalin-2 in Different Stages of Periodontitis. Amal Saeed Alqahtani, Ghaida Abdulaziz Alshareef, Horiah Mishaal Alotaibi, Prof. Dr. Alaa Attia, Dr. Ehab Azab, Dr. Abdel-Rahman Youssef.

Background: Periodontitis is the destruction of the periodontal attachment resulting from bacterial invasion and immune response mediators. Periodontitis is directly affecting the immune response presented in elevation of many inflammatory mediators and cytokines. Lipocalin-2 (Lcn2) is a member from lipocalin group, also known as neutrophil gelatinase-associated lipocalin (NGAL). Lcn2 involved in various processes including programmed cell death, transportation of fatty acid and iron metabolic function. It was identified as a biomarker for many systemic inflammatory diseases includes metabolic disorders, hepatic injury, kidney diseases, cancer, and Alzheimer disease. Lcn2 appears to affect the development of periodontal disease. Aim: The aim of this study is to evaluate the level of Lcn2 in GCF and serum in different stages of periodontitis compared to healthy individuals as a potential biomarker for periodontal disease diagnosis, prediction of the prognosis and therapeutic target.

Methods: it will be designed as a comparative cross-sectional study. The study sample will be recruited from patients seeking treatment at the teaching dental hospital, faculty of dentistry, Umm Al-Qura university. After periodontal examination and diagnosis, individuals will be divided into healthy and periodontitis. The samples will be collected from blood serum and gingival crevicular fluid (GCF), and the immunoassay procedure will be used to analyze samples. The data will be statistically analyzed, and correlation will be done between the clinical periodontal parameters and the Lcn2 level.

19-Effect of Dental Prosthesis on Oral health related Quality of Life.

Fares Mosleh Khozai, Faisal Mohammed Khalifah, Zyad Emmad Almasery, Abdlmohsen Abdulruhman Ayad Aljoaid, Arwa U Alsaggaf, Amin A Marghalani, Omair Bukhari.

Oral functions and masticatory efficiency are severely harmed when teeth are lost. According to Akeel (2003), 82% of Saudi Arabian male patients have desire to restore missing teeth. Edentulousness is caused by a variety of reasons, including caries and periodontal diseases, which are the most common causes of tooth loss^{5,6}

The OHIP is commonly used to assess the impact of oral disease on quality of life and to assess clinical intervention results.

5-item OHIP is made up of five questions that represent the four specified aspects: Oral Function, Orofacial Pain, Orofacial Appearance, and Psychosocial Effects

Aim of the study: This study to quantify the impact of dental prosthesis on the quality of life for adults.

Methods: This study will be an observational study that aim to observe and measure patients' quality of life through cohort study design before and after dental prosthesis.

Data collection will be through questionnaire. The questionnaire will be administered via face-to-face interview, for patients in hospital; or via telephone interview, for those who can't fill it during their visit to the hospital.

Work-significance: The ability to quantify the impact of dental prosthesis on will provide more information for policy makers and stake holders to allocate the scarce resources.

20- Pediatric Emergency Dental Visits at King Abdulaziz University Dental Hospital During the Covid-19 Surge: A Retrospective Study

Sara Alhabli, Eman El Ashiry, Nada Bamashmous

Background: In December of 2019, the coronavirus (SARS-CoV-2) first appeared, and quickly spread to become a worldwide pandemic. This study evaluated the prevalence and types of pediatric dental emergencies during the Covid-19 surge in Jeddah, Saudi Arabia at the University Dental Hospital (UDH) of King Abdulaziz University (KAU) and identified the management provided to these dental emergency visits.

Methods: Data collection was done retrospectively from electronic dental records for children aged 0-18 that attended the UDH emergency clinic during the period from March 1st, 2020, to September 30th, 2020. An electronic form formulated specifically for this study was used to collect the required data from the electronic patient records including demographic data, emergency classification, management, and referral.

Results: A total of 3146 patients were seen at the emergency clinics during this period, of which 661 were children (21%). Types of emergency conditions included 0.8% emergency cases, 34% urgent, and 65.2% non-urgent conditions. Severe dental pain (73.1%) and abscesses (20%) were the most common urgent dental conditions. Most non-urgent conditions presented for an initial or periodic visits, recalls, or for routine radiographs (74%). Treatments rarely involved restorations with 8% among urgent conditions and 5.4% among non-urgent conditions. Antibiotics were only prescribed to 6.9% of urgent conditions.

Conclusions: Teledentistry can be a novel solution to avoid large numbers of non-urgent patients presenting to emergency clinics. Additionally, dental care for non-urgent conditions during the pandemic should focus more on procedures with less aerosol generation.

21- Remineralizing Effects of Resin-Based Dental Sealants: A Systematic Review of In Vitro Studies

Maha AlGhannam, Mana'a AlAbbas, Jumanah AlJishi, Muath AlRuwaiti, Jehan AlHumaid and Maria Ibrahim

The incorporation of remineralizing additives into sealants has been considered as a feasible way to prevent caries by potential remineralization through ions release. Thus, this systematic review aimed to identify the remineralizing additives in resin-based sealants (RBS) and assess their performance. Search strategies were built to search four databases (PubMed, MEDLINE, Web of Science and Scopus). Screening, data extraction and quality assessment were completed by two independent reviewers. From the 8052 screened studies, 275 full-text articles were assessed for eligibility. A total of 39 laboratory studies matched the inclusion criteria. The methodologies used to assess the remineralizing effect included microhardness tests, micro-computed tomography, polarized-light microscopy, ions analysis and pH measurements. Calcium phosphate (CaP), fluoride (F), boron nitride nanotubes (BNN), calcium silicate (CS) and hydroxyapatite were incorporated into RBS in order to improve their remineralizing abilities. Out of the 39 studies, 32 studies focused on F as a remineralizing agent. Most of the studies confirmed the effectiveness of F and CaP on enamel remineralization. On the other hand, BNN and CS showed a small or insignificant effect on remineralization. However, most of the included studies focused on the short-term effects of these additives. Due to the lack of a standardized in vitro study protocol, a meta-analysis was not conducted. In conclusion, studies have confirmed the effectiveness of the incorporation of remineralizing agents into RBSs. However, careful interpretation of these results is recommended due to the variations in the studies' settings and assessments.

22- Factors associated with seeking preventive dental care: an integrative model exploration of behaviours in Mecca city, Saudi Arabia

Abdullah Rajeh Alutaibi, Abdullah Adnan Albadah, Ali Salem Alsubhi, Meshary Mohammed Allehaibi, Mona Rajeh

Background: Preventive dental care is a fundamental factor in improving oral health. A high percentage of People living in Saudi Arabia suffer from poor oral health. This study aims to assess the factors that influence the people who are living in Mecca currently from obtaining preventive dental treatment regularly through an Integrative Model of Behavioural Prediction

Methods: This is a cross-sectional study that will be performed by distributing an online questionnaire in the Arabic language to the general population of Mecca city. Preventive dental care reduced caries incidence significantly. This study will investigate the factors preventing people from obtaining preventive dental care. This will allow us to deal with the factors in future studies and increase the rate of people obtaining preventive dental care to reduce caries prevalence.

Result: under processing

Conclusions: The preliminary findings may suggest interventions to increase preventive dental care seeking behavior among people living in Makkah. Also further studies needed in this area

23- Knowledge, Attitude and Practices of Saudi dental students regarding oral/oropharyngeal cancer: A cross-2 sectional study.

Bader Fatani, Abdulaziz Al-Abood , Raghad Fahad Almuqrin.

Introduction: Oral cancers are well-known for their disastrous and fatal consequences. This type of cancer manifests itself in various forms, ranging from simple ulcerative lesions to proliferative growths. The reduction of morbidity and mortality of cancer can be achieved via its early recognition through screening and patient awareness and can improve the outcome of the disease comparatively. Even though most of the dentists who were surveyed said that they are inclined to provide head and neck examinations for their patients, studies show that dentists generally lack the knowledge required for diagnosing oral cancer lesions.

Methodology: The data was collected from the dental students at King Saud University in Riyadh, Saudi Arabia from May 2021 to August 2021. The targeted subjects were dental students—male and female students older than 20 years—studying at King Saud University.

Results: A sample of 206 dental students was analyzed. It was found that most dental students have heard about oral cancer (93.2%) and knew that it was preventable (77.7%). They also knew it was treatable (93.7%) and has the ability to metastasize (93.2%). The relationship between the knowledge of oral cancer and the gender of the students was not statistically significant (all p -value $>.050$). There were significant relationships between oral cancer knowledge and age of the student (p -value $<.001$) and oral cancer treatability and age (p -value $.002$). Similarly, oral cancer knowledge (p -value $= <.001$), treatability knowledge (p -value $= .007$), and metastasis knowledge (p -value $= .030$) were significantly related to the progression of academic years.

Conclusion: Our study showed that dental students have significant knowledge and awareness regarding oral cancer including the clinical appearance, signs, and symptoms of oral cancer. Moreover, few dental students even considered themselves very wellinformed and qualified to detect oral cancer in patients. Therefore, we assume that increasing the dental students' clinical practice as well as their selfconfidence could highly influence the early detection of oral cancer for patients in the future.

24- Knowledge, Attitude and Behavior of Parents Regarding Early Childhood Caries Prevention of Preschool Children in Western Region of Saudi Arabia: A Cross-Sectional Study

Ozob Turki Almobarak, Shahad Ibrahim Alotaibi, Buthaynah Abdulrahman Mayid Fatani, Reem Abdulqader wasl Alhazmi, Afnan A Nassar

Aim: This study aims to assess knowledge, attitude, and behavior of parents regarding early childhood caries prevention in the Western region of Saudi Arabia.

Materials and methods: This cross-sectional study used a self-administered online questionnaire. Parents aged 18 years and above were invited. The questionnaire was validated and composed of three parts: demographics, knowledge, attitude, and behavior questions regarding childhood caries etiology and prevention.

Results: Of the 644 participants, 51.4% were not aware about early signs of teeth decay such as white lines or spots. About 42.4% of parents took their child to visit a dentist only if pain or trauma were present. Only 37% of parents were aware about the importance of fissure sealant and 23% knew how it is applied. Fathers were significantly less aware about hidden sugar, frequency of breast milk feeding or bottle can cause teeth decay especially at night time compared to mothers ($P = < .001$). Similarly, fathers believed that children could achieve effective teeth cleaning without parental assistance when compared to mothers ($P = < .001$).

Conclusion: Parental knowledge and behavior regarding caries formation and prevention were not satisfactory. Fathers showed less awareness when compared to mothers in multiple aspects. Anticipatory guidance should be reinforced by oral healthcare providers to improve parental knowledge in Saudi Arabia.

25- The Association Between Dento-Alveolar Trauma (DAT) and Traumatic Brain Injuries (TBI) In Children Attending the Emergency Department at Security Forces Hospital in Makkah (SFHM), Saudi Arabia.

Abdullah Marghalani, Tariq Nazer, Ali Al-Zahrani

Background/aim: Craniofacial assessment is an integral part of overall assessment with patients coming for dental traumatic injury. Also, traumatic brain injury (TBI) is associated with facial trauma. However, few studies showed the involvement of TBI with dental trauma. Thus, the aim of this study was to examine the association between DAT and (TBI) in children and adolescents.

Methods: This study consists of hospital-based retrospective cross-sectional study of children who were seen at Security Forces' Hospital in Makkah (SFHM), Emergency Department between January 2017- and October 2021. Children who had Dento-alveolar trauma (DAT) and traumatic brain injuries (TBI) were enrolled in this study. Patients excluded if there is insufficient data or if they had not been seen by a pediatrician or/ and pediatric dentist within 24 hours of the initial injury.

Results: Between the period of January 2017 and October 2021, 428 patients (aged 1 month- 18 years) visited the emergency department at SFHM with head traumatic injury. About 11 (2.5%) had DAT and TBI was recorded in 32 (7.47%) of these traumatic injury visits. Within the group of DAT-positive encounters, 4 (12.5%) had association with TBI. Of trauma encounters where a DAT was not involved, 21 (65%) had TBI.

Conclusions: Adherence to trauma guidelines that include craniofacial assessment is imperative when treating acute dental trauma cases.

26- Effectiveness of Silver Nanoparticles Mouthwash on Cariogenic Microorganisms, Plaque Index, and Salivary pH in Adolescents

Yahia A. Maher, Adel Fathi, Bassam A Sembawa, Sameeh H. Elkhyat, Habib F. Hafiz, Abdullah Abdulrahman Marghalani

Background: Several chemical agents have been proposed to control oral biofilms. Aim: To compare the effectiveness of Silver nanoparticles (AgNPs) and Chlorhexidine (CHX) mouthwash on *Streptococcus mutans* (*S. mutans*), *Lactobacillus* spp., and *Candida albicans* (*C. albicans*) count, O'Leary plaque index (O'Leary PI) scores, and salivary pH levels in adolescents.

Methods: The study sample consisted of 117 eligible participants aged 12–18 years. They were divided into control, CHX, and AgNPs groups, 39 subjects per group. The log₁₀ salivary microbial counts, O'Leary PI, and salivary pH values were recorded. All data were analyzed statistically using one-way repeated analysis of variance (ANOVA) and the Tukey post-hoc test.

Results: AgNPs and CHX mouthwash significantly reduced the salivary microbial counts and O'Leary PI scores, and increased the salivary pH levels on the 28th day (p-value < 0.001). For all measured outcomes, the largest effect size was observed with the CHX group followed by the AgNPs group and then the control group.

Conclusions: Chlorhexidine and AgNPs mouthwashes were effective in reducing the cariogenic microbial count and dental plaque, as well as improving the salivary pH values. AgNPs could be used as an adjunctive measure in the prevention of dental caries.

27- Factors Modulating Parental Acceptance of SDF Treatment

Amal Bahathiq, Abla Arafa

Objectives: To assess the degree of parental acceptance of SDF treatment on their children's carious teeth and to explore different factors affecting their decisions

Methods: Parents of healthy children younger than 12-year-old of both gender were asked to fulfill a questionnaire describing their perspective of Silver Diamine Fluoride SDF treatment and different factors that could modify their opinion as sociodemographic characteristics, tooth location, type of dentition, advanced management techniques as well as dental caries management during- and post-COVID pandemic. Participants' responses were categorized according to the three-Point Likert scale as acceptable, neutral, and not acceptable. Fisher test was used to test for significant factors affecting parental acceptance of SDF treatment. The level of significance was tested at 0.05 using SPSS program.

Results: A total of 158 parents participated in this study. The parental acceptance of SDF treatment was found to be limited to 31.6%. The SDF acceptance rate increased significantly if SDF was used on posterior teeth, on deciduous dentition, prior to shifting to conventional restoration under general anesthesia, and to minimize chances for cross-infection particularly during- and after the recovery from the COVID pandemic.

Conclusions: SDF treatment on posterior teeth and deciduous dentition was found to be more accepted by the parents than anterior and permanent teeth. Although a majority of parents reported restricted SDF treatment acceptance, most parents were willing to compromise the esthetic dilemma as they understand the risks of alternative interventions.

Clinical significance: Dentists are encouraged to adopt SDF treatment and offer it for their patients and caregivers prior to shifting to advanced dental management techniques particularly during and following the COVID era. The dentist must provide an informed consent form, which includes clear photographs showing expected staining, especially when treating anterior teeth.



Oral Presentation Schedule

Day 1

9:30 – 9:50 AM

Time

Title
Opening

Speaker

Dr. Amani Harrandah

9:50 – 10:15 AM

Time

Title
**HPLC/MSn Profiling and Healing
Effectiveness of a Muco-
Adhesive Formula of *Salvadora
persica* (Siwak) Extract**

Speaker

Prof. Nadia Bader

10:15 – 10:30 AM

Time

Title
Coffee break

10:30 – 10:55 AM

Time

Title
**The persistence of oral
symptoms after recovery from
COVID -19 infection, A cross-
sectional study in Saudi Arabia**

Speaker

Dr. Salwa Dahlawi

10:55 – 11:20 AM

Time

Title
**Efficiency of Radiation Dose
Reduction by Barium Sulfate
Shield in Dental Cone Beam
Computed Tomography**

Speaker

Dr. Khulood Zayed

Day 2

9:30 – 9:50 AM

Time

Title

The short-term effect of different chlorhexidine forms versus povidone iodine mouth rinse in minimizing the oral SARS-CoV-2 viral load: An open label randomized controlled clinical trial study

Speaker

Dr. Zuhair Natto

9:50 – 10:15 AM

Time

Title

Evaluation of Antibacterial Activity and Shear Bond Strength of Orthodontic Adhesive Containing Chitosan Nanoparticles

Speaker

Dr. Reem Almashael

10:15 – 10:30 AM

Time

Title

Coffee break

10:30 – 10:55 AM

Time

Title

Effect of Strontium in Combination with Fluoride on Demineralization

Speaker

Dr. Abdulmilk Alsagabi

10:55 – 11:20 AM

Time

Title

Bacterial colonization of the dental unit waterlines in dentistry UQU teaching hospital, Makkah, Saudi Arabia

Speaker

Fasial Alotibi



Oral Presentation Abstracts

1- HPLC/MSn Profiling and Healing Effectiveness of a MucoAdhesive Formula of *Salvadora persica* (Siwak) Extract.

Nahla Ayoub, Nadia Badr, Saeed S. Al-Ghamdi, Safaa Alsanosi, Abdullah R. Alzahrani, Ashraf B. Abdel-Naim, Khaled A. Nematallah and Noha Swilam

Salvadora persica L. (*S. persica*, Siwak) is an ethnic plant that is widely used for oral hygiene. This study aimed to exhibit phytochemical profiling of *S. persica* ethyl acetate extract (SPEAE) and to assess the healing capability of a muco-adhesive formula of that extract against acetic acid-induced oral ulcers in rats. HPLC-ESI-QTOF-MS analysis of SPEAE resulted in the identification of 56 metabolites containing fatty acids (23%), urea derivatives (10.5%), and sulphur compounds (10%); in addition to, several amides, polyphenols, and organic acids (6.5%, 5%, and 2%, respectively). SPEAE exhibited superior healing capabilities compared to both the negative and positive control groups on days 7 and 14 of tongue ulcer induction. This was confirmed by histopathological examinations (H&E stained) and Masson's trichrome-stained tongue sections. As well, SPEAE showed potent anti-inflammatory effect, as evidenced by the inhibited expression of interleukin-6 (IL-6) and tumour necrosis alpha (TNF). Besides, SPEAE revealed potent antioxidant activity, as it prevented malondialdehyde (MDA) accumulation, reduced glutathione (GSH) depletion, and superoxide dismutase (SOD) exhaustion. SPEAE significantly enhanced hydroxyproline tongue content and upregulated collagen type I alpha 1 (Col1A1) mRNA expression. SPEAE improved angiogenesis, as shown by the increased mRNA expression of the angiopoietin-1 (Ang-1). In conclusion, *S. persica* extract has a wide range of secondary metabolites and ameliorates acetic acid-induced tongue ulcers in rats. This could be attributed to its anti-inflammatory, antioxidant, procollagen and angiogenic activities. These findings support and validate the use of *S. persica* extract as a conventional treatment for some oral ulcers.

2- The persistence of oral symptoms after recovery from COVID -19 infection, A cross-sectional study in Saudi Arabia.

Salwa Aldahlawi , Dalia Nourah, Shahinaz N Sembawa

Aim: to examine the prevalence and severity of oral symptoms in COVID- 19 patients and to detect the percentage of persistent oral symptoms after recovery from COVID-19 infection in Saudi patients

Material and methods: Electronic questionnaire distributed online through social media outlets targeting covid-19 patients in Saudi Arabia from the period of September 1, 2021 to December 30, 2021.

Results: We analyzed 301 survey. 54% of the participants had recovered form COVID-19 infection more than 6 months 56.2 % had moderate disease severity. 13 % of the participants reported experiencing at least one oral symptom during the COVID-19 infection. Taste and / or smell loss or alteration was the most common reported symptoms (76 and 72 % respectively). Gum pain, bleeding and increase tooth mobility was reported by more than 10 %. Mouth ulcers was also a common reported symptom (14 %). 61% required pain medication or requested a prescription from the dentist. 38% reported the oral symptoms persisted after the recovery form the infection with dry mouth being the most common (45 %) tastes and smell alteration or loss (42 %), dental pain (29%), mouth ulcers (16 %) and gingival bleeding (16 %). The presence of oral symptoms was significantly associated with severe covid cases (OR=6.56)(P<0.001) adjusting for age, gender and oral hygiene measures before covid infection.

Conclusion: oral symptoms is a common find with COVID-19 infection with a high percentage having lasting symptoms after recovery. Dentists should be aware of the need of proper assessment and evaluation of patients post COVID- 19 .

3- Efficiency of Radiation Dose Reduction by Barium Sulfate Shield in Dental Cone Beam Computed Tomography

Khulood Zayed, Hanan Almutairi, Omemah Bawazeer

Background: Cone beam computed tomography (CBCT) is a relatively new technology in dentistry. CBCT is associated with higher doses of radiation than panoramic radiography. Because ionizing radiation carries risks, radiation protection optimization concepts should be followed. Although radiation doses can be reduced in various ways, the use of shields to protect thyroid patients during CBCT has yet to be sufficiently investigated.

Aim: This study aimed to assess the effectiveness of barium thyroid sulfate shields during dental CBCT scans.

Method: An average surface thyroid dose was measured during dental CBCT (NewTom GiANO HR, Italy) using six different field sizes ranging from 5 to 13 cm. It was measured using a solid-state dosimeter in an anthropomorphic phantom. The scans were performed with and without a thyroid shield during the dental CBCT scans. The attenuation percentage was calculated. A t-test was used for the statistical analysis.

Results: At a higher attenuation of $11 \times 13 \text{ cm}^2$, the average surface thyroid dose was $715.5 \mu\text{Gy}$ without the barium sulfate shield and $63.05 \mu\text{Gy}$ with the shield (91% reduction). The lowest attenuation observed was for $8 \times 5 \text{ cm}^2$. At that attenuation, the average surface dose was $79.8 \mu\text{Gy}$ without the shield and $55.9 \mu\text{Gy}$ with the shield (68% reduction). A statistically significant difference in thyroid dose reduction was found for all field sizes.

Conclusion: Barium sulfate thyroid shields have been shown to be significantly effective in dose reduction during dental CBCT scans of different field sizes.

4- The short-term effect of different chlorhexidine forms versus povidone iodine mouth rinse in minimizing the oral SARS-CoV-2 viral load: An open label randomized controlled clinical trial study.

Zuhair S. Natto, Muhammed A. Bakhrebah, Marwah Afeef, Samiah Al-Harbi, Majed S. Nassar, Abdulkarim F Alhetheel, Heba Ashia.

Objectives: Several investigations evaluated the possibility of different types of mouth wash rinse in minimizing the SARS-CoV-2 load. However, results still controversial. The study aim is to assess the short-term efficiency of several over-the-counter mouth rinses and lozenges in minimizing the salivary viral load for SARS-CoV-2 in patients with confirmed COVID-19 in comparison to saline.

Methods: This is a randomized controlled clinical trial with four arms. The recruited cases were randomized using a simple randomization technique and were assigned to chlorhexidine digluconate mouth rinse, 2 mg of chlorhexidine digluconate lozenges, povidone iodine mouth rinse or saline as a control group. Saliva were collected from all study subjects by passive drool technique at two time points. First, prior to intervention with mouth rinse or the lozenges. Second saliva samples were collected immediately after the mouth rinse. Real time PCR was conducted and the value threshold cycle (Ct) for each sample was recorded.

Results: Majority of the participants had an education level of high school or less (60%), were married (68.3), males (58.3%), and non-smokers (58.5%). No statistically significant differences between groups at the two times test (p -value > 0.05). However, a significant decrease of salivary viral load in all four groups combined (p -value for E genes = 0.027, and for S genes = 0.006), and in povidone iodine mouth rinse specifically, ($p = 0.003$ and $p = 0.045$, respectively).

Conclusion: Povidone iodine mouth rinse showed a potential influence on the reduction of the viral load on a short-term basis. However, longer-term studies of the effect of these products should be conducted.

5-Evaluation of Antibacterial Activity and Shear Bond Strength of Orthodontic Adhesive Containing Chitosan Nanoparticles.

Reem almeshal , Sarah Pagni , Ala Ali , Driss Zoukhri.

Aim: To investigate the effect of orthodontic adhesive that contains various sizes of chitosan nanoparticles (CS-NPs) on *Streptococcus mutans* growth and shear bond strength (SBS).

Methods: The antimicrobial activity was tested in two stages. First, disc agar diffusion test was used. Four wells were inoculated with broth (negative control), chlorhexidine (positive control), CS-NPs (20 nm), and CS-NPs (131 nm). Then, total of 24 teeth were divided into three groups. Group 1, the brackets were bonded with an adhesive with no treatment, group 2 the adhesive was blended with CS-NPs (20 nm), and in group 3, the adhesive was blended with CS-NPs (131 nm). Enamel

Results: integrity was measured using the profilometry machine. For the SBS, the teeth were placed in an Instron machine, and all readings were recorded in MPa. One-way ANOVA was performed to compare the means of the zones of inhibition, SBS, and enamel integrity, followed by Tukey's multiple comparison test. CS-NPs significantly reduced the growth of *S. mutans* when compared to the control ($p = 0.024$); however, no statistical significance was noted between sizes (20 nm and 131 nm, $p > 0.99$). Furthermore, orthodontic adhesive containing CS-NPs showed comparable SBS to the control ($p = 0.466$). The profilometry readings reported higher surface roughness values for the control group when compared to the CS-NPs groups ($p = 0.72$).

Conclusion: CS-NPs exhibited bactericidal effect with no difference between the sizes. Furthermore, adhesive containing CS-NPs showed no effect on SBS.

6-Effect of Strontium in Combination with Fluoride on Demineralization.

Abdulmalik Saleh Alsaqabi, Robert Hill & Prof. Paul Anderson,
Richard Lynch & Dr Saroash Shahid

Enamel demineralisation – particularly in the form of dental caries – is one of the most common endemic diseases worldwide. Therefore, several agents (e.g., fluoride and strontium) were explored in order to test their effects on the demineralisation and remineralisation process. Previous studies have proposed a synergistic effect of fluoride and strontium on demineralisation as well as fluoride uptake. However other studies have questioned this synergy. This study aims to investigate the effect of strontium in combination with fluoride on the demineralisation process and fluoride uptake by hydroxyapatite discs at pH 4. To achieve these aims, various techniques were used in combination including, fluorine magic-angle spinning, nuclear magnetic resonance spectroscopy (^{19}F MAS-NMR) to determine fluoride substitution in hydroxyapatite. In addition, solution analysis was carried out using real-time (Ca^{2+} and F^{-}) ion-selective electrodes (ISE) and inductively coupled plasma optical emission spectrometry (ICP-OES) for Ca, Sr, and P. Compressed hydroxyapatite circular discs were investigated as model analogs of enamel. Ten discs were allocated into four groups based on the incorporation and concentration of Sr, F, Sr+F (or not, for the control group) in the demineralisation solution into which they were placed. Each disc was demineralised for 24 h under 37 ± 0.5 °C, and Ca^{2+} ISE and F^{-} ISE were used. Subsequently, the experimental solutions were analysed by ICP-OES, and ^{19}F MAS-NMR used to analyse the disc samples. In summary, our study demonstrates a concentration-dependent synergistic action of strontium in combination with fluoride in retarding the dissolution rate of hydroxyapatite discs compared to each ion alone. Further, it showed an antagonistic effect on fluoride uptake compared to fluoride alone.

7-Bacterial colonization of the dental unit waterlines in dentistry UQU teaching hospital, Makkah, Saudi Arabia

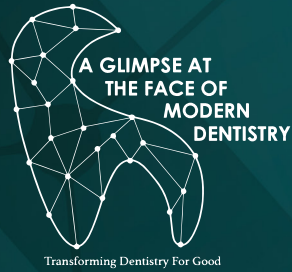
Mustafa Faisal AlMutawif, Faisal Khalid Alotaibi, Ehab Ali Alsayed, Muhammed Redwan Tamboosi, Khalid Rajaa Althubaiti, Abdel-Rahman Youssef

Objective: Contamination of dental unit waterlines (DUWLs) could be a risk factor to many infectious diseases, especially *P. Aeruginosa* and *legionella pnemuphila*, which may affect the patient, dentist and the dental staff. The aim of the current study was to investigate bacterial colonization of the dental units in Umm AlQura University, Dental teaching hospital, Makkah, Saudi Arabia.

Methods: Eight dental units were selected to collect 48 water samples from DUWLs (handpiece, air-water syringe, and cup-filler water). Each sample (300 ml) was treated by Sodium Thiosulfate (10mg /100ml) and then were filtered using 0.2 μ m synthetic filters paper. The filter was then placed on 5% blood agars and incubated for 48 hours at 37oC incubator.

Results: The average number of Heterotrophic plate count (HPC) bacteria in the water samples collected from the output of the 8 DUWLs was 85 CFU per 300ml water (0.28 CFU/ml). These findings were at the acceptable limit according to Egyptian standards for drinking and domestic use water.

Conclusion: The current study has showed the level of CFU in DUWLs is acceptable in dental care unit water system in Umm Al Qura University, Dental teaching hospital



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