



8th UiTM Dental Students' Symposium 2018

**"Tomorrow's
Dentistry
Today"**



2nd & 3rd April 2018



**Faculty of Dentistry
UiTM, Sg. Buloh**

Main Sponsor



Colgate

Program Tentative

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Welcome note by Rector UiTM Selangor

Assalamualaikum w.b.t

First and foremost, I would like to congratulate Faculty of Dentistry, one of faculties of UiTM Cawangan Selangor for being able to organise the 8th UiTM Dental Student's Symposium 2018. Allow me to extend a warm welcome to all participants, especially the international delegates for making time to join us.

With the theme, *"Tomorrow's Dentistry Today"*, and exciting program planned, I believe that everyone will benefit from this symposium and gain new knowledge besides expanding the social and intellectual network. As part of the Academic Calender of the faculty, this symposium also promotes the aspiration of the university in becoming the centre of excellence in education and research in dentistry not only for Malaysia but the world over. This symposium highlights the creativity and innovative thinking of the students and their supervisors in extending the horizon through research activities that consistently translate into tangible outcomes.

I would like to thank the sponsors for their continuous support that has made this program possible. To the organising committee, congratulations and thank you for ensuring this event run smoothly. Last but not least, I wish all the best to the competing participants, and to the international delegates, have a great stay in Malaysia.

Prof. Dato' Dr. Abu Bakar Abdul Majeed

Rector, UiTM Selangor



Message from the Dean

Assalamualaikum and welcome to the 8th UiTM Dental Student's Symposium and welcome to our home, Faculty of Dentistry UiTM in Sungai Buloh. A special welcome to our international delegates from Puthisastra University, Cambodia, Coorg International Dental School, India and Manipal College of Dental Sciences, Mangalore, India.

This symposium is our annual event since its inaugural in 2011. With the theme of *"Tomorrow's Dentistry Today"*, the symposium continues to showcase the research and other curricular outcomes from dentistry students. This is the awaited event where everyone is involved, one or another. The main event is the Elective Research Projects oral presentations by the Year 4 students which are held in two days, on the 2nd and 3rd April. There are other activities including the video and poster of oral health promotion, Oral and Medical Science quiz, debate, artistic dental photography and research e-poster competitions which involved the undergraduates as well as the postgraduate students. On top of that, this event will also help UiTM to discover our representative for our university for the National Dental Students' Symposium 2018.

We are so grateful to our sponsors whom have supported our programme financially and physically, contributing to the smooth and running of our symposium. I would also like to thank the organising committee led by Dr Noor Ilyani Othman, for taking up the challenge to organise the symposium this year and bring it to a success. Good luck to all the participants and wishing you a successful journey and enriching experience throughout this symposium. For our international guest, we hope that you will be able to take some time out to visit our places of interest in Kuala Lumpur and nearby. Once again, thank you to all for your participation and contribution.

Thank You.



PROFESSOR DR MOHAMED IBRAHIM ABU HASSAN

Founding Dean, Faculty of Dentistry UiTM

Message from Chairperson

Assalamualaikum wbt.

Dear Distinguished Participants and Colleagues,

On behalf of the Organizing Committee, I feel very honoured and privileged to welcome you to join and actively participate in the 8th Dental Students' Symposium (DSS) 2018, Universiti Teknologi MARA. I would like to take this opportunity to express my sincere thanks and warmest welcome to our invited international delegates to our faculty's annual event.

With all the changes occurring in dentistry, as well as in the larger healthcare arena, coupling of high tech materials, integration of techniques, and diagnostics with scientifically evidence-based research are witnessed. This holistic approach marks the new era in dentistry hence highlights the theme of this year's symposium - "Tomorrow's Dentistry Today".

As the chairman of this event, I am therefore confident the scientific programs will be served as a great platform for you to gain significant knowledge in dentistry and its related matters. Through a combination of interesting parallel sessions and engaging Video and Poster Competitions, Oral Scientific Presentation Competition, e-Poster Presentation Competition, Oral and Medical Science Quiz and the Debate Competition; you will be provided with a precious opportunity to exchange your pre-clinical and clinical experience and ideas with other participants.

The symposium provides excellent opportunity for the dental students to gain experience which will enhance their outlook in research, improve their communication skills, and promote interaction with other affiliates with similar interests.

I would like to wish you a successful outcome of this important event, and hope that you will have an enjoyable time and memorable experience here at our beloved faculty in Sungai Buloh. Finally, I want to express my gratitude to our kind sponsors. Your tremendous support and contribution to the symposium are deeply appreciated.

DR. NOOR ILYANI OTHMAN

Chairman, 8th UiTM Dental Students' Scientific Symposium 2018



Program Tentative

Day 1

2nd April 2018 (Monday)

Time	Venue		
	Al-Biruni	Al-Zahrawi	Al-Azhar
8.00 - 8.30 am	Registration Level 1		
8.30—9.00 am	Opening Ceremony		
9.00 - 10.30 am	Oral Presentation 1	Oral Presentation 2	E-poster (PG Year 2, 3, 4)
10.30 - 11.00 am	BREAK		
11.00 - 12.30 pm	Oral Presentation 3	Oral Presentation 4	E-poster (PG Year 2, 3, 4)
12.30 - 2.00 pm	BREAK FOR LUNCH		
2.00 - 3.15 pm	Oral Presentation 5	Oral Presentation 6	
3.15—3.30 pm	BREAK		
3.30 - 5.00 pm	Oral Presentation 7	Oral Presentation 8	
5.00 pm	END OF DAY 1		

Program Tentative

Day 2

3rd April 2018 (Tuesday)

Time	Venue
	Al-Biruni
8.00 - 8.15 am	Registration
8.15 - 10.00 am	Oral Presentation 9
10.00 - 10.30 am	BREAK
10.30 - 12.30 pm	Debate UG (Final)
12.30 - 1.00 pm	Talk by Colgate-Palmolive Representative
1.00 - 2.00 pm	BREAK FOR LUNCH
	Al-Biruni
2.00 - 3.15 pm	<i>Keynote Lecture</i> There is No Planet B <i>Dato Dr Sharifah Fauziah Al Habshi</i>
3.15 - 5 pm	CLOSING CEREMONY & AWARD PRESENTATION Best Poster (UG) Presentation Award Best Oral Presenter Award Best Video Award Winner for Quiz Competition Winner for Artistic Photography Competition Best Debate Team Award Best Debater Award Best E-Poster (PG) Award
5.00 pm	END OF DENTAL STUDENTS SYMPSOSIUM 2018

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4	Bring Back the Perfect Smile. Cleft Lip and Palate	Oral and Maxillofacial Surgery
5	Pregnancy and oral Health	Centre Preclinical Studies
6	Veneer is a Solution but Who Can Get It?	Restorative Dentistry and Implantology
7	Warning Sign of Child Abuse	Paediatric Dentistry and Orthodontology
8	Vomiting and Dental Care	Periodontology

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2	My Tooth Journey	Centre of Restorative Dentistry Studies
3	Tooth Avulsion	Centre of Oral and Maxillofacial Surgery Studies
4	Let's Explore Together With Us!	Centre of Oral and Maxillofacial Diagnostic and Medicine Studies
5	Be Mouthaware	Centre of Population Oral Health & Clinical Prevention Studies
6	A Fake Periodontist	Centre of Periodontology Studies
7	We Care...Because Everyone Is Special	Centre of Comprehensive Care Studies
8	World of Tomorrow	Centre of Preclinical Science



Undergraduate
ABSTRACTS

1

Dental Anxiety and Fear Among Outpatient Attending Primary Dental Clinic

BADRUL HISHAM N. F.¹, MARJUKI N. N.¹, BAHARUDDIN I.H.¹, AZA A.²

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Introduction: Anxiety and fear towards dental treatment is quite prevalent in dentistry world. It was found to be associated with poor oral health status, reduction in oral health related quality of life, negative psychosocial consequences and complicated patients' management. **Objective:** The objective of this study was to determine the prevalence of dental anxiety and fear among patients attending primary dental clinic and its association to specific dental stimuli. **Methods:** A cross-sectional study was conducted involving newly registered patients attending UTM Primary Dental Clinic. A validated Malay version of Index of Dental Anxiety and Fear Scale (IDAF-4C and IDAF-S module) questionnaires were distributed by convenience sampling to 439 patients. A cut point of 2.5 in average score for IDAF-4C module was set to indicate the presence of dental anxiety and fear. Descriptive statistics was used to check the prevalence. Pearson's correlation was used to check the association of related dental stimuli towards dental anxiety and fear. **Results:** The prevalence of patients who had dental anxiety and fear was 32.8%. All dental stimuli measured were significant ($p < 0.05$) with r ranging from 0.628 (*the cost of dental treatment*) to 0.780 (*not knowing what the dentist is going to do*). **Conclusion:** Dental anxiety and fear among patients attending primary dental clinic was high. They were most afraid when they were left clueless about the procedures performed by the dentist.

Keywords: dental anxiety and fear, patients, primary dental clinic

2

Readability of Online Materials for Oral Ulcerations: Do Patients Really Understand?

ISHAK N.I.M, MARIZAM W.N.A.W, ROSDY N.M.M.N.M

Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh Campus, Selangor, Malaysia

Background: Patients have a greater access to online information nowadays compared to previous decades where physicians or dentists were the primary source of health information. With the advent of information technology, the wisdom of information resources is better than ever. **Objective:** This study was conducted to evaluate the readability of online patient education information specifically on oral ulceration. **Methods:** Three terms "oral ulcer", "oral ulceration" and "aphthous ulcer" were browsed from the largest search engine, Google, and the link addresses were copy-pasted and calculated using a web-based readability test tool (<https://www.webpagefx.com/tools/read-able/>). Approximately 200 websites were identified from all those three keywords. Patient-directed content from all relevant articles greater than 100 words and directly accessible from the original parent site are inclusive. All non-English websites were excluded. Readability was analyzed using 6 established methods which are Flesch Kincaid Reading level, Flesch Kincaid Grade level, Gunning Fog Score, SMOG Index, Coleman Liau Index and Automated Readability Index. One-way ANOVA was used to establish statistical differences between groups, with significance set a priori at $P < 0.05$. **Result:** Results shows the 200 Web sites demonstrates an average grade level of 7 to 8 which can be easily understood by 12 to 14 years old. Flesch-Kincaid grade level, Flesch-Kincaid Reading Ease and Coleman-Liau Index showed average grade level of 7. Whereas, Simple Measure of Gobbledygook Index, Automated Readability Index and Gunning-Fog Score show average grade level of about 8. **Conclusion:** Websites regarding oral ulcerations available on the internet are found to be readable at a minimum grade level of 7 to 8, which conformed with the recommended grade level for patient educational materials according to The National Institutes of Health, USA.

Keywords: Oral ulceration, readability, patient education

3

Evaluation of Image Quality of Bitewing Radiograph at Faculty of Dentistry UiTM.

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Objectives: The aims of this study are to analyse the quality of bitewing radiograph taken by UiTM dental students and to evaluate the difference in caries lesion found on bitewing radiograph and clinical examination. **Materials and method:** 120 patients were selected and their bitewing radiographs and clinical dental charting were retrieved from the patient record to be evaluated. The quality of bitewing radiograph is classified into three categories which are excellent, acceptable and poor based on European guideline on radiation protection in dental radiology. Then, data will be recorded on how many caries lesions were seen only in radiograph, only in clinical examination and by both methods. **Result:** The qualities of bitewing radiographs are mostly acceptable to be used as diagnostic tool and one of the factors which commonly affected the quality of the bitewing is overlapping of adjacent teeth. Highest number of caries was detected radiographically which is about 74% compared to 25% caries detected on clinical examination. **Conclusion:** It can be concluded that bitewing radiograph provides additional value for determination of interproximal and secondary caries compared to clinical examination only. For a bitewing radiograph to be used as diagnostic tool, it should have acceptable quality without affecting image interpretation that can affect dentist's treatment decision.

Keywords: Bitewing radiograph, dental caries, clinical examination.

4

Never Too Early to Start : Awareness of Young Parents

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¹Faculty of Dentistry, Universiti Teknologi MARA

²Centre of Studies for Paediatric Dentistry & Orthodontics, Faculty of Dentistry, UiTM

Objectives: The objective of this study are to identify the knowledge and awareness among parents regarding early oral health care, anticipatory guidance and early dental treatment of their children in preventing Early Childhood Caries (ECC) among children in Sungai Buloh. **Materials and Methods:** A cross-sectional study was conducted involving parents having children age 0-2 years old in Sungai Buloh. A validated questionnaire was distributed by convenience sampling to those who fulfil the inclusion and exclusion criteria to 227 respondents. Parents were later categorized into aware and unaware groups for 1) early oral health care and anticipatory guidance and 2) early dental treatment based on the criteria set earlier. Descriptive statistics were performed to get the prevalence of aware and unaware parents for both objectives. **Results:** The percentage of parents aware of early oral health care and anticipatory guidance was 35.2% while for awareness of early dental treatment was 22.9%. **Conclusion:** Awareness of early oral health care, anticipatory guidance and early dental treatment among parents towards their children in Sungai Buloh is very low.

Keywords: Early Childhood Caries (ECC), Awareness, Early dental treatment

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Profiles of Patients Managed by the Special Care Dentistry Clinic Specialists at the UiTM Dental Centre

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Objectives: To investigate the profiles of individuals and patterns of cases managed by the Special Care Dentistry clinic specialists at the Universiti Teknologi MARA (UiTM) Dental Centre. **Methods:** Dental records of patients seen in that clinic in January 2017 to December 2017 were reviewed. Patient's information, such as sociodemographic characteristics, sources and reasons for referral, dental treatment needs and medical profile, was recorded. Quantitative data was analysed via SPSS with further statistical analysis using Chi Squared test ($p < 0.01$). **Results:** 182 patients were seen and treated during 2017, with mostly Malays (89.6%), male (63.2%) and within the age group of 0-20 years old (69.8%). Many patients were seen during mobile dental service program (53.8%), and mostly were first seen for routine checkup (66.5%). Among treatment required include periodontal therapy (76.9%), restoration (47.3%), exodontia (28.0%) and denture (12.1%). Patients seen include those with physical impairments (58.8%), complex medical conditions (32.4%), psychiatric disorder (8.8%) and intellectual disability (8.2%). Medical conditions reported were cardiovascular disorder (8.7%), respiratory disease (9.9%) and endocrine disorder (7.7%). **Conclusions:** The study provided important information that will guide future planning for oral health care service for people with special needs at the UiTM Dental Centre.

Keywords: Consultations, Dentistry, Referral, Special needs, Specialist

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Effects of Antihypertensive Drugs on Alveolar Bone Loss in Patients with Chronic Periodontitis: A Retrospective Study

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Objective: This retrospective study aims to evaluate the possible effects of antihypertensive drugs on alveolar bone loss in patients with chronic periodontitis. **Methods:** 50 patients on antihypertensive drugs selected as the experimental group and 50 patients with chronic periodontitis with no known systemic illnesses as control group were randomly selected as the study samples. Orthopantomographs (OPG) were obtained, calibration and assessment of alveolar bone loss (ABL) was performed by using the computer software program available in the faculty, through radiographic linear measurement procedure. Premolars, first and second molars were measured from the most apical point to the cemento-enamel junction (CEJ) for mesial and distal aspects in the form of millimetres and percentile of the root length. Data was statistically analyzed using independent t-test and ANCOVA in SPSS V23 with significance at $p < 0.05$. **Results:** A total of 2428 sites were measured. Analysis has shown that there is significant difference in alveolar bone loss in experimental group and control group ($p = 0.002$). Bone loss in the experimental group was less (16.28 ± 9.48) compared to the control group (22.66 ± 12.58). Within the experimental group, there was no significant difference for the duration of antihypertensive drug intake. However, the bone loss was more among the males (19.71 ± 11.22) than the females (12.99 ± 5.99). **Conclusion:** Antihypertensive drugs appear to have a positive effect on alveolar bone loss progression. Patients under these drugs exhibit lower levels of bone loss compared to those who are not.

Keywords: Antihypertensive drugs, Alveolar bone loss, Chronic periodontitis

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Architecture and Amount of Alveolar Bone Loss in Patients with Chronic Periodontitis Modified by Diabetes Mellitus Type 2

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Objectives: The objective is to evaluate the amount and types of alveolar bone loss in patients with chronic periodontitis and diabetes mellitus type 2. **Materials and Methods:** A retrospective study was done by examining 40000 patient's folders attended the Faculty according to the faculty's ethics approval from year 2006 to 2016. Inter-examiner, intra-examiner calibration session performed. Fifty diabetes mellitus type 2 and 50 with chronic periodontitis were randomly selected. Radiographic linear measurement procedure software was used on their panoramic radiographs (OPGs) to evaluate the amount and types of the alveolar bone loss in mesial and distal for all posterior teeth were measured from the most apical point to the cemento-enamel junction (CEJ) in the form of millimetres and percentile of the root length. Horizontal and vertical bone loss of a total 2628 sites was measured for both groups. Data statistically analyzed using SPSS V20 with significant at $p < 0.05$. ANCOVA, Two-way ANOVA and Independent t-tests. **Results:** Analysis shown that there was no significant difference in total alveolar bone loss in experimental group and control group ($p = 0.343$). It was more in the experimental ($40.59 \pm 35.09, 46.09$) compared to control group ($36.78 \pm 31.28, 42.28$). There was significant difference in horizontal bone loss in experimental compared to control group ($4.84 \pm 4.48, 5.203, 79 \pm 3.43, 4.15$), ($p = 0.000$). There was no significant bone loss in relation to the duration of diabetes mellitus. **Conclusion:** Higher amount of bone loss found in patients with diabetes mellitus which reflect the local destruction of the alveolar bone caused by the disease.

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The Value of Panoramic Radiograph as Screening Tool Prior to Complete Denture Construction

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Objectives: The aim of this study is to determine the frequency of detecting abnormal radiographic findings from panoramic radiograph (OPG) which is commonly used as a screening tool before complete denture construction. **Method:** Dental records and panoramic radiographs of complete denture patients treated by students between 2012 and 2016 at Faculty of Dentistry, UiTM were reviewed. The number of cases with abnormal radiographic findings such as retained roots, impacted tooth and irregular ridges were calculated. **Results:** A total of 194 complete denture patient records and their panoramic radiographs were reviewed. Out of 194 patients, radiographic abnormalities which require intervention before denture construction were detected in only 11 patients (6%), 7 of which had retained root that require extraction and 4 had irregular ridges that require alveoloplasty. Another 13 patients (7%) had radiographic abnormalities detected but did not require any intervention before denture construction. Out of these 13 patients, 4 had retained root that are deeply embedded, 4 had irregular ridges, 4 had impacted teeth and 1 had a hairline fracture. The remaining 168 patients (87%) which form the majority of the complete denture patients treated had no abnormal findings detected on their panoramic radiographs. **Conclusion:** Abnormal radiographic findings that affect denture construction were only found in 6% of patients and therefore it may be concluded that the taking of panoramic radiograph prior to complete denture construction offers insignificant clinical value and its discontinuation as a screening tool is recommended.

Keywords: OPG, Complete denture, Pathology, Radiation, Cost

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Allicin: Promising Agent in Treating Candida-Associated Denture Stomatitis

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Objectives: The aim of this study is to investigate the antifungal activity of allicin (active compound of garlic), the potential synergy between allicin with nystatin (commercial antifungal) and the ability of allicin to disperse established biofilms of *Candida albicans*. **Method:** The antifungal activity was evaluated using minimum inhibitory concentration (MIC) and minimum fungicidal concentration (MFC). The synergistic effect of allicin in combination with nystatin was evaluated using checkerboard microdilution. Prior to the experiment, self-polymerized acrylic resin cubes were prepared to mimic a denture base. The potential of allicin (Sub-MIC concentration) to disperse the established biofilm on the acrylic resin cubes was assessed by exposing the allicin to the biofilm within five minutes. Commercial denture cleanser (X brand) was used as a positive control. The experiments were performed in triplicate and repeated five times independently. All the data obtained were analysed using SPSS version 20. Statistical significance measured using Kruskal Wallis test with p value < 0.05 and Mann Whitney test which presented as means \pm SD. **Results:** Allicin exhibited antifungal activity against *Candida albicans* with MIC and MFC, 8 μ g/mL and 16 μ g/mL, respectively. A synergistic interaction was observed for the combination of allicin with nystatin (FICI ≤ 0.5). The data presented shows that 50% ($p < 0.05$) of biofilm was dispersed following exposure to allicin. Meanwhile 42% ($p < 0.05$) of biofilm was dispersed by exposure to X brand. **Conclusion:** These results of this study suggest the effectiveness of allicin as antifungal agent in treating *Candida albicans* associated with denture stomatitis.

Keywords: biofilm, allicin, *Candida albicans*, denture, stomatitis, antifungal.

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Comparison between Case-Based Learning and Problem-Based Learning Module and Creation of Case-Based Learning Package

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Student-centred learning, Problem Based Learning (PBL) has been used in health science education since 1969 and has been an integral part of Universiti Teknologi MARA (UiTM) Dental curriculum. Case based learning (CBL) has now been introduced in addition to PBL. **Objectives:** The purpose of this study is to compare the students' perception and experience regarding Case Based Learning (CBL) in UiTM Dental undergraduate curriculum against previously used PBL. The hypothesis is that CBL is better than PBL. The study also plans to construct a CBL learning package based on real world scenarios. **Materials and methods:** The study protocol was approved by the Ethics Committee of UiTM (600-IRMI(5/1/6)). This study used previously published questionnaires. A representative sample of 143 students from Year 1 and 2 UiTM Faculty of Dentistry was given the survey questions which consists 30 questions in 6 domains. The survey uses a five-points Likert scale for both CBL and PBL. The results were analysed using paired T-Test and descriptive analysis. For the creation of the CBL package, a total of 138 case write ups written during General Medicine and General Surgery posting of year 3 UiTM Dental students in the academic year 2016-17 was reviewed. **Results:** There is a statistically significant evidence of the advantage of CBL over PBL in 3 points: A. Relation to public health topics ($p=0.019$) B. Active student engagement ($p=0.018$) C. Clinical relevance ($p=0.010$). **Conclusion:** The students involved finds CBL is superior to PBL in relation to the public health topics, active students engagements and clinical relevance.

words: Case Based Learning, Problem Based Learning, dental curriculum, dental education,

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Determination of Sugar Types and Content in Formulated Milk of Infants and Children in Malaysia

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It is evident that high sugar intake in diet contribute to an increased risk of non-communicable diseases like diabetes, obesity and hypertension as well as dental caries. Infants and young children who drink formulated milk have been exposed to free sugars in their diet early in life. World Health Organization (WHO) recommended that free sugar intake should be less than 10% of total calories per day. **Objectives:** The main objective of this study is to determine the sugar content in different formulated milk that are available in Malaysia and to compare the sugar content in formulated milk based on the recommended serving intake per day by manufacturer with the recommended intake of free sugar per day by WHO. **Methods:** High-Performance Liquid Chromatography (HPLC) was used to determined sugar types and content in five different brands of formulated milk. The determination involves a simple 1:100 dilution of milk and HPLC determination in 8 minutes. The method was validated with respect to specificity, linearity, accuracy, precision and sensitivity for the quantitative determination of different monosaccharide and disaccharide in formulated milk. Percentage of free sugar intake per day was calculated based on HPLC result, recommended serving size per day in nutritional label of milk products and recommended calories intake by WHO. **Results:** From 20 aged-specific formulated milk range from 0-9 years' old, the total free sugar intake recommended serving by manufacturer was range from 0.08% - 23.28% out of total calories of the specific aged. One out of 20 aged-specific formulated milk was exceeding the WHO recommendation of free sugar intake per day. **Conclusions:** The amount of sugar in formulated milk should be monitored by health policy as some of the formulated milk has exceeding the recommended free sugar intake by WHO.

Keywords: formulated milk, sugar content, free sugar, infants and children

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Human Amniotic Membrane – The Future of Restorative Dentistry

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Ever wondered how technological advancements and improvements in the field of tissue engineering have helped in Restorative Dentistry? This world has evolved to a stage where amniotic membrane can be considered as a factor in treating pulpal diseases. The Human Amniotic Membrane can be isolated without sacrifice to the human embryos and it consists of the inner amniotic membrane made of single layer of amnion cells fixed to collagen-rich mesenchyme attached to chorion. The most interesting factor about this beautiful membrane is its low immunogenicity, anti-inflammatory properties and cell differentiation property. Hence, is also an ideal substrate for supporting the growth of epithelial progenitor cells by prolonging their lifespan. Human amniotic membranes have been used successfully for a wide range of applications for over 70 years. Amniotic membrane is resistant to various proteolytic factors owing to the presence of interstitial collagens. Elastin present in amnion is responsible for providing elasticity. It has multiple metabolic functions such as its role in water and soluble material transportation and production of bioactive peptides, growth factors, and cytokines. The safety, logistical, and surgical advantages of amnion membrane are vast. Dental applications of amniotic membrane are currently showing great promise in various specialties of dentistry. Amniotic membranes have already been used extensively in medical field as biologic dressings in ophthalmic, abdominal, and plastic surgery.

Keywords: Human Amniotic Membrane, Collagen rich, low immunogenicity, anti-inflammatory, cell differentiation

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Probiotic as a Therapeutic for Patients with Gingivitis – A Systematic Review

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Background: Gingivitis is the most encountered oral condition affecting all ages worldwide and may progress to its chronic form and periodontitis. The ability of probiotic-contained mouth rinse producing similar effect to chlorhexidine mouthrinse in reduction of plaque and gingival scores in a clinical trial highlights the potential of probiotic against gingivitis and its progression, with minimal side effect. **Objectives:** The aim of this study was to review the published literature with the purpose to determine the importance potential of using probiotics as preventive and therapeutic methods for management of gingivitis in clinical setting. **Material and Methods:** An electronic search in PubMed, Cochrane, Springer and Science Direct databases with the keywords “gingivitis AND probiotics” was conducted. The inclusion criteria include: randomized clinical trials (RCTs) that assess the action of any probiotic strain in the treatment and / or prevention of gingivitis. Probiotic therapy in combination with other active ingredients was excluded. The Jadad scale was used to assess the quality of the RCTs. **Results:** Eighteen articles were considered for this review. Among the literatures, 8 were of good quality (Jadad scale). **Conclusions:** The literature reviewed suggests that probiotics usage could be beneficial for the management of gingivitis, due to its ability to reduce the plaque and/or gingival scores. However, randomized clinical trials with long-term follow-up periods are needed to confirm their efficacy in reducing the prevalence of gingivitis. Clinical trials should also include the evaluation of gingival crevicular fluid in order to describe the mechanistic point of probiotic against gingivitis.

Keywords: probiotic, bacteriotherapy, gingivitis, clinical trials

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Formulation and Assessment of Comprehensive Care Curriculum on Students' Knowledge, Attitude and Perception

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Objectives: In Comprehensive Care curriculum, integrated dental treatment is provided to address patient needs holistically. There is no validated questionnaire available to assess the student perception and understanding of this curriculum. This study is aimed to formulate and validate the questionnaire entitled 'Students Perception and Understanding on Comprehensive Care Curriculum (P-CCC)' for dental clinical training. **Methods:** In this cross sectional and validation study, a set of questionnaires were formulated (n=10) based on four domains: 1) patient management, 2) interaction and cooperation, 3) emotional wellbeing and 4) clinical perception. The content validity is carried out by 3 experts after the questionnaires been formulated by focus group. Following, face validity then been carried out by 10 Year 5 students. The questionnaire was distributed to the subject comprised of Year 3 to Year 5 students (n=155). Data obtained were analysed using SPSS version 24. The Exploratory Factor Analysis (EFA) and Cronbach's Alpha value calculated. **Result:** For EFA, Kaiser-Meyer-Olkin (KMO) was 0.767 Bartlett's test of sphericity was significant (P-value < 0.001). EFA resulted one item with low communalities and factor loadings. No cross loading factors were extracted among all the items. For the Cronbach's Alpha analysis, the coefficient for clinical perception, communication and interaction, and emotional well-being are 0.8566, 0.778, and 0.713 respectively. **Conclusion:** Validation study of the 10 items of the questionnaire resulted 9 items been accepted and validated, 1 item removed due to very low factor loading. Three domains were identified out of four.

Keywords: Comprehensive Care curriculum, Formulation, Questionnaire, Student, Validation

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Pilot Study to Evaluate Silver Diammine Fluoride to Arrest Caries in a Cambodian Slum School

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Objective: To test the effectiveness of silver diammine fluoride (SDF) in arresting primary tooth caries in 6-12 year old Cambodian children. **Methods:** This study was a longitudinal observational study using a convenience sample of 167 children from Api Wat Meanchey primary school. Participants received two applications of SDF (Cariestop 30%) at a six month interval across the course of 1-year. Oral health education was provided to the participants at the beginning of the study and a school tooth brushing program was in place. **Results:** 118 (70.7%) of the participants were followed up after one year of which 56.8% were female. The mean dmft/DMFT at baseline was 10.5 (SD 7.6) / 4.6 (SD 4.9). At follow up 82.5% of open carious lesions were arrested. **Conclusions:** This study involved children with a very high caries experience and the 30% SDF solution applied two times per year was an effective way to manage caries in this population.

Keyword: Arrest of Caries, Dental Caries, Cambodia, Silver Diammine Fluoride, Primary Teeth

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OBSTRUCTIVE SLEEP APNEA & THE PIVOTAL ROLE OF A DENTIST

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Objectives: To give an over view of Obstructive Sleep Apnea (OSA), its risk factors, clinical features, investigations and management while highlighting the crucial role of a dentist in OSA. **Materials and Methods:** A literature search was carried out through PubMed to estimate the types, risk factors, investigations and management of OSA using the key words OSA, screening, oral appliance therapy etc. **Results:** OSA is one of the most commonly undiagnosed sleep disorder and makes an individual susceptible to diseases several chronic systemic diseases including Coronary Artery Disease, Stroke, Neurocognitive consequences. Early identification aided by recognition of risk factors and treatment of OSA can reduce the associated morbidity and improve the quality of life. A Dentist plays a significant role in the management of OSA since Oral appliances have proven to be extremely effective in the treatment of OSA. A dentist is also in a unique position to help early identification of individual with OSA & thus reduce disease burden. **Conclusion:** Dental community can be first line of defense to screen & even treat many of the patients with OSA. Thus it is important to increase awareness of dentist regarding OSA.

Keywords: Obstructive Sleep Apnea, Oral Manifestations, Oral Appliance Therapy

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Background: Food labels play an important function in communicating nutrition information influencing food choices and dietary behaviour. Ideally consumers should be able to locate, read, interpret and understand the food labels in order for them to make informed choices. **Objectives:** To assess the usage of food labels among local consumers and consumers' attitude towards sugars in their food. **Materials and methods:** A cross sectional study was carried out in an urban and rural setting in Malaysia. Validated questionnaires were used to assess the usage of food labels among local consumers and consumers' attitude towards sugars in their food. Data was collected from 282 consumers through convenience sampling. **Results:** Six out of the 14 nutritional information tested had been seen by more than 50 % of the respondents. The most looked for information when shopping for personal use is 'Low Fat' claim, and 'Reduced Sugar' claim when shopping for the family. The proportion of urban respondents and those with high education background and those with high income who looked for health claims, ingredient list, and reduced sugar information were significantly higher ($p < 0.05$) as compared to rural respondents, those with lower education and low income respectively. Correspondingly, the proportion of urban, high income and high education respondents who consume low sugar in their drinks were also higher as compared to the other groups respectively. **Conclusion:** Education, urbanity and income impacts on how labels are being used by consumers. Consumers predilection in reading labels is reflected in their sugar consumption behaviour.

Keywords: food labels, nutritional content, sugar

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Objective: To explore the oral health perceptions and experiences of elderly Cambodians. **Methods:** 50 elderly Cambodians from 5 provinces and Phnom Penh were interviewed in their own homes using a questionnaire developed following an earlier qualitative study. **Results:** the mean age was 69.4 (SD 8.4) years. 72.7% were female, 89.0% ethnic Khmer, 52.0% widowed, 57.4% illiterate, and 58.3% "home-makers". Many had difficulty eating (68.1%), dressing (27.4), bathing (21.3%), getting up (14.3%) and cleaning their teeth (13.3%). 54.0% said their health was "poor" or "very poor". The main health problems were: joint pain (79.0%), back pain (76.7%), weakness (70.0%), dizziness (68.7%), headache (60.5%), and mouth pain (59.0%). 70.0% had difficulty eating particular foods. 21.7% had never been for dental treatment. When they had a dental problem, 28.0% had attended a pharmacist, 25.0% a dentist, and 19.7% a traditional dentist. At the last dental visit, 47.6% had extractions, 29.9% restorations, 29.2% a denture, and 27.8% scaling. 57.8% said the treatment was painful. Only 35.0% knew of a dental clinic in their area. 14.3% of people had a denture, and 55.8% said they needed a new one; 55.8% said they could not eat easily with their denture. 41.4% and 13.7% of males, and 5.9% and 86.3% of females smoked and chewed betel quid respectively. 42.0% never brushed their teeth. The main barriers to obtaining dental care were cost (44.3%), distance (32.2%), and fear (24.6%). **Conclusion:** Elderly Cambodians have many health and oral health problems. The risk factors, perceptions, and barriers to care identified in this study, will help inform the development of a Care Pathway for elderly people in Cambodia.

Key words: geriatric, elderly, oral health, Cambodia, perceptions, care pathway

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Background: Assisting tobacco users to quit proved to be the most cost effective investments in healthcare. Faculty of Dentistry, UiTM is one of the higher institutions in Malaysia that embed tobacco cessation counselling (TCC) in the curriculum and train the dental students to deliver TCC to their patients who smoke. **Objectives:** The aim of this study is to evaluate the outcomes for student-delivered tobacco cessation counselling in Oral Health Suite, UiTM. **Methods:** Data collection of 100 patients who completed three visits of the tobacco cessation counselling (TCC) with dental students from year 2014 to 2016 were analysed. The outcomes measured are quitting status, number of cigarettes, exhaled carbon monoxide (CO) level and nicotine dependency scores (FTND) were extracted from the records. Subsequently, a follow up telephone survey was conducted for follow up of the quitting status (quit or relapse) of the participants. **Results:** Twenty-five percent of the participants quit smoking during the third visit. The participants' CO level and FTND scores showed a significant reduction after attending TCC ($p < 0.001$). There is a positive association between quitting status and CO level, ($r=0.65$, $p < 0.001$) and FTND scores ($r=0.54$, $p < 0.001$). The participants who has low CO level ($< 6\text{ppm}$) are 3 times more likely to quit smoking than participants with higher CO level ($> 6\text{ppm}$) with $\text{OR}=3.19$, 95% CI [1.25, 8.12]. **Conclusion:** Tobacco cessation counselling delivered by the students to patients attending Oral health Suite in UiTM has shown favourable outcomes in helping the patients to quit smoking.

Keywords: tobacco cessation, dental students, evaluation

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Objectives: The smile assessment and comparison between pre and post-orthodontic treatment will induce patients' interest and awareness towards orthodontic treatment. Orthodontists are in benefit on improving the treatment plan. **Materials and Methods:** Photographs of 59 subjects were taken from postgraduate students in orthodontic clinic by using a standardized technique. Patients' smile will be evaluated including the smile line, midline of the dental arch and relationship of the smile arch to the lower lip curvature by observing the patients' frontal smile photographs. The smile lines are classified into 4 types, with Type 3 (average smile line: gingival embrasures only visible) is the most desirable smile. **Results:** For patients' smile line, the total number of patients that have achieved Type 3 post orthodontic treatment is 40.4%. As for the relationship of the smile arch to the lower lip curvature, 96.6% of the patients had their maxillary incisor edges in light contact or slightly apart with lower lip. 61.0% of subjects showed no deviation from the midline. Based on survey conducted regarding patients' perception of smile, most of the patients preferred type 3 smile line which is 86.0% rather than type 2 (10.0%), type 4 (4.0%) and none on type 1. Regardless of the age group and gender, type 3 is the most preferable among the participants. **Conclusion:** Orthodontic treatment can improve patients' appearance and will give impact on the smile aesthetic, thus will aid orthodontist to achieve a comprehensive treatment plan to improve the smile aesthetic, patient's compliance and motivation towards treatment.

Keyword: Smile assessment, Pre-orthodontic treatment, Post-orthodontic treatment.

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Objectives: To establish the cephalometric norms for the Malaysian Malay population and to determine the ethnic differences of cephalometric measurements between Malaysian Malay and Caucasian populations. **Methods:** Samples collection and analysis of lateral cephalometric radiograph were from patients of Faculty of Dentistry, Universiti Teknologi MARA. The study sample consists of 100 subjects aged 15 to 30 on the basis of Class I skeletal pattern from Malaysian Malay pure ethnic groups (50 males, 50 females). All lateral cephalometric landmarks were located and determined; subsequently tracings were assessed according to Eastman analysis using a software (Dolphin's software). Statistical comparison between Malaysian Malay and Caucasian populations was done using One sample t-test. Inter-reliability assessment using Interclass correlation (ICC) was done prior to statistical analysis. **Results:** ICC showed excellent agreement between raters with value of correlation above 0.9. There was a significant difference of cephalometric measurement between Malaysian Malay and Caucasian norms for all values: SNA, SNB, UInc to MxPI, Linc to MnPI, inter-incisal angle, MMPA and facial proportion except for ANB. The study shows no statistically difference between male and female so the data is well distributed between both gender with no bias. **Conclusion:** Significant differences are observed between Malaysian Malay and Caucasian for all values: SNA, SNB, UInc to MxPI, Linc to MnPI, inter-incisal angle, MMPA and facial proportion except ANB which remain the same. Thus, the values provided in this study would help as a guide in orthodontics assessment, orthodontic examination and diagnosis consequently the treatment plan.

Keywords: Lateral cephalometric radiograph, Eastman analysis, Malaysian Malay, Caucasian norm

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Oxidative stress, mediated by the host immune system, has been implicated to play a role in the pathogenesis of periodontitis by mechanisms like lipid peroxidation and DNA damage. Salivary biomarkers, malondialdehyde and micronuclei have been identified as products of lipid peroxidation and DNA damage respectively. Additionally, diabetes mellitus and tobacco habits have been associated with higher levels of oxidative stress. **Objectives:** 1. Compare the levels of malondialdehyde and micronuclei among different categories of periodontitis patients, with and without diabetes mellitus and habits, thereby comparing the severity of genotoxic damage. 2. Establish a correlation between malondialdehyde and micronuclei. **Methods:** Five categories of patients were established, with varying involvement of periodontitis, diabetes mellitus and tobacco habits. From each patient, a saliva sample and a buccal smear was obtained. Malondialdehyde was assessed from the saliva sample using TBARS assay, while micronuclei count was assessed from buccal smear using acridine orange under fluorescent microscopy. **Results:** Significant difference in levels of micronuclei and malondialdehyde was seen between controls and disease. Both micronuclei and malondialdehyde were increased in periodontitis cases when compared to healthy controls. **Conclusion:** Results indicated that cytogenetic damage in the form of micronucleation and malondialdehyde was definitely more in periodontitis compared to controls. However, presence or absence of habits or diabetes mellitus is not a contributing factor to these levels. It is the periodontitis which is the actual disease which shows these changes. Larger sample sizes are needed to substantiate the findings of our study.

Keywords: chronic periodontitis, micronuclei, malondialdehyde, diabetes mellitus; tobacco smoking/chewing habit

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Objectives: To assess if the recall appointments for paediatric dental patients at Faculty of Dentistry, UiTM comply with current guidelines. **Method:** A retrospective study was conducted using patients' dental records that were registered at the Faculty of Dentistry UiTM. The sample consisted of 350 randomly chosen treatment records of paediatric patients aged between birth and 16 years of age at the time of data collection which was in the year 2016. Data collection included demographic details, whom the cases were treated by, caries risk assessment, radiographs taken and time taken for the patient's review appointments. **Results:** The records analysed were that of 56% female and 44% male patients between the ages of 1 to 16 years old. The mean age of patients seen when they were first seen is 6.3 years old. Caries Risk Assessment was not reported in majority of the cases (58%). Baseline radiographs were taken in 44.6% of the cases. The review appointments at 3 months interval was 5.1% whereas at 6 months was 8.3 % and one year recall was 8.9%. A chi-square test showed significant difference between the category of operators for the 1 year review whereby review was higher among students and specialists as compared to dental officers. **Conclusion:** This study shows poor adherence to the recommended recall protocol as suggested by NICE and AAPD guidelines. Further studies need to be done to assess the patients' and clinicians awareness regarding the recall protocol and determine the problems causing poor recall attendance.

Keywords: Audit, Paediatric dental, Recall system

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Objective: To carry out analyses to understand the microbiological status of necrotic pulp of teeth involved with trauma. **Material and method:** Electronic literatures were obtained from Google Scholar search engine. Selected published articles were free and ranged from 1957 to 2015. The collected articles contained the key words selected for this research. Trauma included are subluxation and luxation with no crown fracture. An article was read in full text if the abstract was considered to be potentially relevant. After thorough selection of collected articles, a total of 20 articles were considered relevant. **Result:** It was found that the flora of the necrotic pulp was dominated by anaerobic microorganisms, species belonging to *Bacteroides*, *Corynebacterium*, *Peptostreptococcus* and *Fusobacterium*. Early pulp necrosis due to subluxation and/or luxation was found to be at least 30% and delayed pulp necrosis was found 68% of the time. **Conclusion:** With the findings learned from this systematic review, thorough examination and review appointments of traumatic teeth should be of priority. The progression of these teeth to further develop root resorption could be stopped. The association of luxation, pulp necrosis and root resorption should not be taken lightly.

Key words: dental trauma, microorganism, pulp necrosis and luxation.

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Objectives: An in vitro study to assess and compare the effect of different milk products on primary and permanent tooth enamel surfaces hardness over a period of 10 days. **Materials and Methods:** 30 noncarious extracted deciduous and permanent teeth incisors (15 deciduous and 15 permanent) were collected and cleaned then divided randomly into five groups (n=6 per group): G1- distilled water (control); G2- fresh milk (cow milk); G3- Dutch Lady, chocolate flavoured milk; G4- Calpis, Orange flavoured cultured milk; G5 –Bliss, fruit lassi milk. The 10 days immersion cycles for the test products were performed thrice daily and were interspersed with exposure of the artificial saliva. Enamel surface microhardness were performed at baseline, 5th day and 10th days of experimentation by Vickers hardness test machine. The pH of each milk products were assessed. The data were evaluated by using repeated measures ANOVA test. **Results:** ANOVA test indicated that reduction in microhardness was maximum in Group 4 and least in Group 1 on 5th day and 10th day. On Intergroup comparison, there was no difference ($p>0.05$) in group 3 and group 5. However highly significant ($p<0.01$) difference between group 4 with all other groups on 10th day. **Conclusion:** Fresh milk can be effective in increasing the enamel microhardness and efforts should be made to increase the consumptions of milk that could benefit the enamel.

Keywords: milk products, primary and permanent teeth, enamel surfaces, microhardness

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Background: Anthropometric analysis provides the most reliable comparison of the body forms by using specific landmarks determined in respect of anatomical prominences. The knowledge of unique shape, anatomy and dimensions of the nose is very useful for surgeon undertaking its repair and reconstruction. Prosthetic rehabilitation also requires the ability to imagine the position and dimension of the nose within the facial proximity. Therefore, the access to nasal data for each population are advantageous. **Objectives:** The aim were to measure parameters of external nose of a Malay population and to determine the significant different in nose value parameters between gender and age group. **Methods:** The direct anthropometric measurements were carried out in 86 Malay subjects within the age range of 18 to 55 years old who attended UiTM dental clinic. Nasal landmarks were identified and the nose parameters were measured using digital caliper. The values were expressed as mean, standard deviation and range. **Results:** Nasal height, width and length of the nasal bridge were higher in male. The intercanthal width and philtrum length were statistically not significant for both genders. There were significant differences in nasal width, philtrum length, intercanthal width and outer intercommisural mouth width between the three age groups. However, the height of the nose, length of the nasal bridge and nasal index between age group were statistically not significant. **Conclusion:** Male population and the 41-55 years age group have higher nose value parameters. The most common type of nose was platyrrhine:broad. This study results also suggested that Malay population have medium broad nose as the nasal index for both gender was ≤ 84.90 .

Keywords: Nose; anthropometry; nasal index

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Translation and Validation of Malay Version of Psychosocial Impact of Dental Aesthetics Questionnaire (PIDAQ)

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Objective: The aim of this study was to translate the original English version of Psychosocial Impact of Dental Aesthetics Questionnaire (PIDAQ) into Malay and also to assess its validity and reliability. **Methods:** The original questionnaire was translated into Malay, back-translated, pre-tested in 27 individuals and cross-culturally adapted. The final Malay version of PIDAQ was completed by 184 individuals, aged between 18-30 years old along with two other indices which are the Index of Orthodontic Treatment Need and the Perception of Occlusion Scale. **Results:** The internal consistency of translated PIDAQ was measured by Cronbach's Alpha, it ranged from 0.755 to 0.928. Factor analysis revealed a 3 domain question structure with factor loading ranging from 0.533 to 0.920 after 7 items deletion. The test retest was done in two weeks' interval and its reliability was measured using intraclass - correlation (ICC) and presented with a satisfactory result. **Conclusion:** The translated Malay version of PIDAQ shows good reliability and validity, and it can be a useful tool to evaluate the psychosocial impact of malocclusion in Malaysia young adult population. It may also be used as an adjunct to other orthodontic scales in determining the need for orthodontic treatment.

Keywords: Dental aesthetics, malocclusion, orthodontic, PIDAQ translation, psychosocial impact

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TEMPERO-MANDIBULAR DISORDER MANAGEMENT USING MODIFIED HAWLEY'S APPLIANCE AND ESSIX RETAINER

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Objective: Management of Tempro-mandibular Disorder (TMD) consequent to Trauma from Occlusion (TFO). The occlusal disharmony has been proven to cause TMD, if not in every patient with occlusal disharmony but in few cases. Elimination of occlusal interference and subsequent stabilization of occlusion is crucial aspect of managing tempero-mandibular disorder. **Method:** A 20-year old female patient reported to the department with pain in the right and left TMJ, on clinical examination clicking of TMJ with anterior TFO was observed. Patient compliance for fixed mechano-therapy was poor, hence a decision for using modified Hawley's appliance with a modified Essix retainer was made. Initial followup of 2 months and 6 months were made. **Result:** In the initial follow up of 2 months, overjet of 2 mm was achieved with reduced pain in TMJ. The 6 months follow up demonstrated no symptoms of pain/clicking of TMJ. **Conclusion:** The Modified Hawley's appliance and modified Essix retainer were effective in correcting TFO and TMD. Thus these appliances can be of choice for treating patient with TFO or bruxism habit.

Keywords: Tempero-mandibular disorder, Essix retainer, Hawley's appliance.

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A Survey on Preference for Continuing Professional Dental Education amongst General Dental Practitioners in Malaysia

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Objectives: This study was undertaken to investigate the current CPD practices of Malaysian general dental practitioner (GDP) as well as to identify the participations and preferences in CPD amongst GDP in Malaysia. **Materials and Methods:** A total of 229 GDP that attended three CPD programmes at Faculty of Dentistry, Universiti Teknologi MARA (UiTM) from April 2017 to November 2017 were invited to participate in the paper-based questionnaire to assess their current CPD practices, to identify the participations and preferences in CPD programme. **Results:** Of 110 respondents, 81.7% kept a CPD portfolio. 93.9% of GDP agree it is important to engage with CPD program. Topic in restorative dentistry, aesthetic dentistry and endodontics attracted high level of interest among GDP while Biostatistics was the least preferred. Full day duration hands on workshops on Sunday and Saturday was the most preferred CPD programs by most respondents. 83.3% of GDP considered that lack of time was the main obstacles for attending CPD. **Conclusion:** This study will provide valuable information to assist Malaysian CPD provider to formulate appropriate approaches and topics during planning and conducting the CPD courses and programmes according to the needs and actual demands.

Keywords: general dental practitioner, continuing dental education, dentistry

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A COMPARATIVE STUDY OF THE PROPORTION AND SEVERITY OF STRESS RELATED TEMPORO-MANDIBULAR JOINT DISORDERS IN PRECLINICAL AND CLINICAL UNDERGRADUATE STUDENTS OF DENTISTRY

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Temporomandibular Joint Disorders (TMDs) are characterized by TMJ pain, restricted opening of the mouth, muscle tenderness and intermittent joint sounds. Secondary symptoms like muscle fatigue, radiation of pain to neck, headaches, and incoordination of jaw movement may be present. TMD has a multifactorial etiology, including trauma, occlusal interferences, postural changes, parafunctional habits and emotional stress. **Objectives:** This cross-sectional study compared the proportion and severity of stress-related TMD in preclinical and clinical undergraduate students of dentistry in India, gender predilection and influence of parafunctional habits. **Methods:** The data were collected using Fonseca's Anamnestic index (FAI) and Zung's self-rating anxiety scale. A short educational session was then conducted. **Results:** Of the 200 students (100 each of preclinical and clinical years) aged 17 to 24, females and males were 70.5% and 20.5% respectively. According to the FAI, 59% of preclinical and 49% of clinical students had no TMD. Mild, moderate and severe TMD was seen in 34%, 7% and 0% of preclinical and 40%, 9% and 2% of clinical students respectively ($p=0.3$). Mild, moderate and severe TMD was seen in 41.1%, 9.2% and 1.4% of females and 27.1%, 5.1% and 0% males respectively ($p=0.076$). Mild-moderate anxiety levels were seen in 8% preclinical and 3% clinical students. Severe anxiety levels were not seen in the students ($p=0.121$). Mild-moderate anxiety levels were seen in 6.4% females and 3.4% males ($p=0.397$). The habit of chewing gum had no significant influence on the incidence of TMD. **Conclusion:** While incidence of TMD was higher in clinical students, stress was higher in preclinical students.

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Objectives: The aim of this study was to assess and compare 1) patient satisfaction and 2) impact of denture in patients treated with fixed, partial and complete dentures in their day to day living experiences. **Methods:** Two questionnaires were self-administered included Patient Satisfaction Questionnaire and Short-form Oral Health Impact Profile Questionnaire (S-OHIP (M)). A convenience sample of 24 adult patients aged 30-70 years has been recruited from Faculty of Dentistry, Universiti Teknologi MARA, Sg Buloh Campus; they comprised 8 patients who have been treated with fixed prosthodontics, 8 patients with partial removable denture and 8 complete denture. All data obtained from the questionnaires were entered into the database. SPSS version 24 was used to perform the statistical analysis. **Results:** The mean difference in Patients' Satisfaction on the complete denture, partial denture and bridge are significant. Group with partial denture has a higher satisfaction score than group with complete denture ($p < 0.05$). Group with bridge also has a higher score ($p = 0.05$) compared to group with complete denture. However, there is no significant difference between group with partial denture and group with bridge ($p > 0.05$). The mean difference for the impact score of complete denture, partial denture and bridge were not significantly different ($p > 0.05$). **Conclusion:** There is a significant difference and a higher score for Patients Satisfaction on partial denture and bridge to the complete denture. There is no significant difference for the impact of all the three types of denture to the patients' day to day living experiences.

Keywords: Patient satisfaction, Impacts, Denture, Quality of life

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Introduction: Papoose board is a safe stabilization device with easy application technique and effective in managing uncooperative children or anxious patient. This method however reported to be unpopular dental practice in some continents. **Objective:** The objectives of the study; i) To evaluate parents' perceptions, attitudes and concern in using papoose board on their child during dental treatment as one of behaviour management in dentistry and ii) To assess socio-demographic factors associated and parent's willingness towards the usage of the papoose board for their children dental care. **Methods:** One hundred parents with at least one healthy children age between 4 – 7 years old were recruited. A video showing steps-by-steps of placing a papoose board on a child prior dental treatment was shown. Later, each parent instructed to complete a 12-items questionnaire consist of two domains; i) Demographic and ii) Acceptance. A Horizontal-Visual Analogue Scale (H-VAS) was used to measure the acceptance; the value ranges from 0 mm (Totally Disagree) to 100 mm (Totally Agree). Descriptive and simple logistic regression analysis was performed to generate the mean and standard deviation, frequency and percentage as well as correlation. **Results:** More than half of respondents feel that papoose board is an effective technique to use and would permit its use during dental treatment for their children with 63.2 % and 65.8 % respectively. 43.4 % of respondents are worried about their child's treatment. Age of the parents has been found to be significant for the decision making. **Conclusion:** Protective stabilization appears to be well-accepted by parents as one of the behaviour management technique in condition a proper explanation of its usage was given prior the application.

Keywords: Papoose Board, Passive Stabilization, Parental Acceptance

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The Therapeutic Potential of Allicin in Treating *Staphylococcus aureus* Infection

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Objectives: This study aims to investigate the antibacterial activity of allicin (organosulfur compound obtained from garlic), its potential synergistic activity with chlorhexidine and the ability of allicin to dispersed established *S. aureus* biofilms on heat-polymerised acrylic resin cubes. *S. aureus* was the most frequent *Staphylococcus* species isolated from a lesion of denture stomatitis. **Method:** Minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) were determined by broth microdilution method. The synergistic interaction between allicin and CHX 0.12% was carried out using checkerboard microdilution. For the formation of biofilm, self-polymerised acrylic resin cubes were used to mimic the denture base. The potential of allicin to disperse established biofilm was assessed by treating *S. aureus* biofilm with allicin for 5 minutes. The commercial denture cleanser (X brand) was used as positive control. All experiments were conducted in triplicate for five times. Data were statistically analysed using SPSS software: Version 20.0. A Kruskal-Wallis test followed by post-hoc Mann-Whitney U test was applied, and level of significance was set at $P < 0.05$. **Results:** From this study, allicin exhibited antibacterial activity against *S. aureus* with MIC value equal to MBC value (8 µg/mL). A synergistic interaction was observed between allicin and CHX 0.12% (FICI ≤ 0.5). The biofilm eradication assay shows that allicin at sub-inhibitory concentration induced the dispersion of biofilm with 52.6% ($p < 0.05$) and the commercial denture cleanser (X brand) caused 44.7% biofilm dispersion. **Conclusion:** The results of this in-vitro study suggest a possible therapeutic potential of allicin in treating *S. aureus* infection.

Keywords: Allicin, *Staphylococcus aureus*, biofilm

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The Morphological Characterization of Autologous Concentrated Growth Factor (CGF) in Diabetic and Healthy Subjects

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Introduction: Concentrated Growth Factor (CGF) is the latest platelet concentration with highly positive benefits for clinical application especially in dentistry. The content is rich of growth factors which are VEGF, PDGF-AB, TNF- α , TGF- β 1, BDNF, BMP2 and IGF-1 for aid of tissue regeneration. It is well known that healing for any medical and dental procedure in diabetic subject is compromised. Until now, there are limited studies showing the CGF morphological characteristics of diabetic subject. **Objectives:** To compare the macroscopic and microscopic morphological characteristics of CGF in healthy and diabetes mellitus type II subjects. **Materials and methods:** Ten millilitres of venous blood samples were obtained from 2 healthy and 2 diabetic subjects then, processed immediately using specific centrifuge. The macroscopic structures were evaluated in terms of its width and length. While the microscopic structures were evaluated under SEM for its content; cell types, density and arrangement of fibrin network. **Result:** The analysis of macroscopic structures showed comparable width and length in healthy and diabetic subjects. While, the morphological analysis of microscopic structures under SEM for both groups showed multiple dense fibrin network where platelets were trapped in between with presence of few leucocytes. **Conclusion:** This study demonstrated the presence of same morphological characteristics in tested groups suggesting possible application of CGF for diabetes mellitus type II subjects in clinical setting.

Keywords: Concentrated Growth Factor; Scanning Electron Microscope; Diabetes Mellitus

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Prevalence of Odontogenic Cysts in UiTM Dental Centre

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Objectives: The objective of this study is to determine the prevalence of odontogenic cysts of the jaws among patients attending UiTM Dental Centre. **Materials and Methods:** This is a record review, retrospective study involving outpatients attending UiTM Dental Centre. Histopathology records were retrieved from Department of Oral & Maxillofacial Diagnostocs and Medicine UiTM dating from April 2010 to January 2018. All odontogenic cystic lesions of the oral and jaw were selected. The data obtained was tabulated according to the age, gender, and type of odontogenic cyst. **Results:** A total of 32 cases of odontogenic cyst were retrieved with mean patient age of 38.5 years and 53.1% of the patients were males ($P > 0.05$). Radicular cyst was the most prevalent odontogenic cyst (68.8%), followed by odontogenic keratocyst (15.6%). Ethnic background indicated that 75 % of the patients were Malay, followed by Chinese (15.6%), Indian (3.1%), and other ethnic groups (6.3%). There is no significant relationship found between age, gender and type of odontogenic cyst. **Conclusions:** To the best of our knowledge, this is the first prevalence study of odontogenic cyst done in Faculty of Dentistry, UiTM. These could be used as baseline data to obtain more epidemiologic information about the odontogenic cyst in this faculty.

Keywords: Odontogenic, cysts, prevalence

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PROPERTIES OF DENTURE LINERS BONDED TO HEAT POLYMERIZING ACRYLIC RESIN AFTER STORAGE IN DIFFERENT MEDIA

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Objectives: This investigation evaluated the effect of storage duration in water and denture cleansing solution on the hardness and tensile bond strength of silicone-based and acrylic resin based resilient liners that were either heat or autopolymerized denture base acrylic resin. **Material and methods:** The study comprised of 8 groups of 10 specimens for evaluation of tensile bond strength with heat cure denture base acrylic and 8 groups of 10 specimens each for the hardness test of soft liners. The materials utilized were four types of resilient liners. In this study evaluation of the tensile bond strength (in mega Pascal) using a universal testing machine and Testing of hardness was done in shore units using a shore A durometer after storing the samples in water and denture cleansing solution for 1 day, 1 week and 1 month. The statistical tools used were, descriptive statistics, one way analysis of variance (One way ANOVA), two sample t test and wilcoxon test. **Results:** One way analysis of variance (1 way ANOVA) test was used to check whether there is any significant difference in the tensile bond strength and hardness values between the durations of immersion (1 day, 1 week, 1 month) of the four different soft liner specimen in water and denture cleansing solution. **Conclusion:** A significant difference exists in the tensile bond strength and the hardness values of all the four types of soft liner specimen when immersed in water and denture cleansing solution between the periods of immersion.

Keywords: Soft liners, Silicone resilient liners, Tensile strength.

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In-Vitro Colour Stability of Two Indirect Zirconium Silicate Composite Restorative Materials

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Objectives: To compare the color stability of Ceramage and Duo-Tech Ceramage indirect composite material (Shofu Inc., Kyoto) using a thermocycling-stain-challenge model to simulate the complex effects of staining foods in the oral environment. **Methodology:** 10 discs each from shade A1 subtypes (Body, Incisal, HVT) of Ceramage and 10 discs each from shade A1 subtypes (Body, Incisal, HVT) of Duo-Tech Ceramage were subjected to thermocycling-stain-challenge in soy sauce (Habhals, Malaysia) and ice-tea (Lipton Lemon Ice tea, Australia) at 500 cycles followed by 10 minutes of ultrasonic cleaning. L*, a* and b* color coordinates were measured spectrophotometrically (Konica Minolta, Europe) and the color changes (ΔE) at different time-points were measured and compared using repeated measure ANOVA. **Results:** Ceramage showed greater stain retention compared to Duo-Tech Ceramage. There was a significant difference in color changes at all time-points ($F=107.351^b$, $p<0.0001$) and the mean (ΔE) for Ceramage does not overlap with the corresponding confidence interval of the Duo-Tech Ceramage. **Conclusion:** Duo-Tech Ceramage showed significantly greater color stability compared to Ceramage indirect composite.

Keywords: indirect composite, restorative materials, thermocycling, stain challenge, color stability.

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Management of Class III Malocclusion in Universiti Teknologi MARA (UiTM): A Survey

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Objectives: The purpose of this study was to investigate the types of treatment provided for Class III malocclusion in UiTM. **Materials and Methods:** Dental records of orthodontic patients treated by orthodontic specialists and post-graduate students from year 2006 to 2017 in Faculty of Dentistry, UiTM were reviewed. The cases of Class III malocclusion were identified. The age, gender, race and type of treatment provided were recorded. **Results:** A total of 929 patient records were reviewed and 208 patients (22%) were of Class III malocclusion out of which 135 were predominantly females (64.9%) and 204 out of all the Class III cases were Malays (98%). Most of the patients with Class III malocclusion were between the age of 19-25 years old (59.2%). From the treatment provision point of view, 202 patients (96%) were treated with fixed appliances, while only 6 patients (3%) were treated with removable appliances. The remaining 4 patients (2%) were treated with a combination of orthodontic treatment and orthognathic surgery. **Conclusion:** Between 2006 and 2017, Class III malocclusion in UiTM were predominantly treated with fixed appliances, followed by removable appliances and orthognathic surgery.

Keywords: Class III malocclusion, Treatment modalities

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Prevalence of Dry Socket Following Dental Extraction in Faculty of Dentistry, UiTM

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Objective: To investigate the prevalence of dry socket following dental extraction in Faculty of Dentistry, UiTM from September 2013 to September 2016. **Methods:** This retrospective cross-sectional study was performed in Faculty of Dentistry, UiTM Campus Sungai Buloh. Data was extracted from patient record and was analysed. A proforma was utilized for data collection. **Results:** There were 1114 extractions case out of 636 patients from approximately 5000 patients' records were analysed. The overall prevalence of dry socket was 0.3%. Management of dry socket at Faculty of Dentistry, UiTM were similar to previous reports in the literature. **Conclusion:** The prevalence of dry socket was 0.3%. This study, due to the short period of time and the relatively small sample of patients, did not identify significant risk factors in the development of dry socket.

Keywords: Alveolar osteitis. Delayed healing after extraction. Dry socket. Foul odour after a few days of extraction.

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Research Integrated Dental curriculum: A paradigm shift

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The undergraduate research experience is one of several experiences that can impact the future career choices of students. In 2005, the Council of Undergraduate Research and the National Conference on Undergraduate Research (US) issued a joint statement acknowledging undergraduate research as "the pedagogy for the 21st century" where an enquiry-based model is nurtured within a collaborative enterprise between mentee and mentor. It summarizes that undergraduate research should be: faculty-driven, student-centred, and institutionally supported. Students need to be mentored in the entire research process. The best way for this to happen is to place students in a position to become a research assistant and be truly useful to the research program. Undergraduate research allows students to develop professionally and personally in ways not possible through traditional lecture and laboratory courses. Research is an important theme that threads its way through the undergraduate experience from the first year through to graduation. It gives an opportunity to gain a deeper knowledge of the subject, apply classroom learning in real-world contexts, explore academic literature, and form meaningful relationships with faculty members and professional researchers. **Objectives:** In Indian scenario the need of the hour is to bridge the gap between mere theory knowledge and innovative learning through promoting scientific research attitude among undergraduate students. **Materials and methods:** Review of literature was done from Pubmed-NCBI. **Conclusion:** This paper will attempt to highlight the importance of research in the undergraduate curriculum in specific contexts of the Indian subcontinent and also the author owns personal experiences as members of the student research forum.

Keywords: Undergraduate, Research, Dental curriculum, Student Research Forum

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Assessing the Micro-hardness of Bulk-fill Composite Resin in Tunnel Restoration Technique

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Objectives: Bulk-fill composite resin (BCR) was introduced with the advantage of 4-5mm depth of cured, thus an applicable material for a deep tunnel restoration. The study aimed to assess the polymerization of BCR with different marginal ridge thickness in tunnel restoration technique. **Methods:** Fifteen extracted molar teeth were categorized into; G1=conventional proximal restoration (n:5), G2=tunnel 1.5mm marginal ridge thickness (n:5) and G3=tunnel 3.0mm marginal ridge thickness (n:5). All samples received the designated cavity preparation design and restored with BCR. Samples were then embedded in resin and sectioned into halves. Each sample was tested with Vickers microhardness at the top, middle and bottom part. Data were statistically analyzed with 1-way ANOVA to compare means between groups and repeated-measure ANOVA to compare means between the different areas within group. **Results:** The mean Vickers hardness (HV) value for top part (TP) was G1=79.1, G2=77.3 and G3=74.9.; middle part (MP) was G1=79.0, G2=73.3 and G3=74.9 and bottom part (BP) was G1=71.1, G2=64.4 and G3=62.7. A decrease pattern of HV TP>MP>BP were noted. 1-way ANOVA found no significant difference ($p>0.05$) HV for all groups for TP. For MP, significant difference ($p<0.05$) noted among the 3 groups and for BP, significant differences ($p<0.05$) between G1 to G2 and G3. No significant differences ($p<0.05$) between G2 and G3. **Conclusion:** The thickness of marginal ridge did affect the polymerization of BCR within the recommended depth, however the HV ratio of above 80% in all areas indicate that the material did receive adequate polymerization and clinically acceptable to be used.

Keywords: Micro-hardness, Bulk-fill, Tunnel restoration, Polymerization shrinkage, Enamel thickness.

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PLATELET RICH CONCENTRATES: AN ASSET TO DENTISTRY

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The introduction and development of Platelet concentrate as a biomaterial has set in motion an exciting and promising era in the advancement of tissue healing and regeneration in the field of dentistry. **Objectives:** The purpose of this comprehensive review is to analyse the available scientific literature on Platelet concentrate in dentistry. This presentation will high light on its: (i) definition and purpose in the clinical environment; (ii) development and classification of platelet concentrate biomaterials; (iii) biological characteristics and composition and the function of key elements; (iv) preparation technique, optimizing quality and benefits; (v) its clinical applications in various specialisations of dentistry such as implant dentistry, periodontics, oral surgery and regenerative endodontics. **Materials and methods:** An electronic MEDLINE (PubMed) and Google Scholar search was performed for various articles on Platelet concentrates such as PRF and PRP in various fields of dentistry. The search was limited to the published work. **Results:** This material has shown promising results in dental procedures. These materials release various growth factors for several days which is helpful in healing of the tissues. **Conclusion:** PRP and PRF is a simple and inexpensive technique for the successful periodontal regeneration. It has also shown promising results in other field of dentistry such as sinus lift procedure, apicectomy, endodontic defects and Periodontal accelerated osteogenic orthodontics (PAOO). These concentrates have their own advantages and disadvantages. More clinical researches are needed to prove their application in clinical scenarios.

Key words: Platelet concentrate, PRF, PRP

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Objectives: The relationship between dental caries and vitamin D deficiency in children is controversial. This meta-analysis aimed to systematically evaluate published evidence on the association between dental caries and vitamin D deficiency in children. **Methods:** Science Direct, PubMed/Medline and Scopus databases were searched up to Jan 2018 for relevant studies using search terms including “vitamin D”; “dental caries” and “children”. Case-control and cross-sectional studies investigating the relationship between dental caries and vitamin D deficiency in children were included. Meta-analysis was done using RStudio version 0.97.551-2009-2012 RStudio, Inc. software. Odds ratios (ORs) with 95% confidence intervals (CIs) were pooled using random effect models. Heterogeneity was assessed by calculating I-square (I²). **Results:** Five studies met the inclusion criteria. There was no significant association between vitamin D deficiency and dental caries in children, the overall OR and 95% CI was 0.99 (0.82-1.17) with a Chi-Square (χ²) statistic for heterogeneity of 2.09 and four degree of freedom (P>0.05). The heterogeneity across studies was not significant (I²=0.01 %). Funnel plot and the Egger regression test revealed the absence of a publication bias. **Conclusions:** This meta-analysis indicated that dental caries is not associated with vitamin D deficiency in children. Further studies are required to assess such association in the future.

Keywords: Vitamin D, dental caries, children, meta-analysis

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Objectives: This study was performed to assess the effectiveness and comfort of novel intraoral digital radiographic receptor devices/holder in obtaining digital intraoral images. **Methods:** A total of 60 patients undergoing anterior intraoral periapical radiographs were single-blindly recruited. The imaging procedure was performed by two calibrated undergraduate clinical dental students of Faculty of Dentistry, Universiti Teknologi MARA. The novel holder group (Bisector©) was prospectively compared to the conventional group, RINN® (gold standard) by taking thirty radiographic images, respectively. All patients were randomly segregated into different groups using block randomization method. The effectiveness of both holders was quantified based on the repeat rate percentage and quality of the images. The Mann-Whitney U test (alpha = 0.05) was applied to compare the repeat rate of different types of imaging receptor holder. The comfort study was enumerated using the Horizontal Visual Analogue Scale 100mm (HVAS). **Results:** The repeat rate percentage for novel intraoral holder was lower (18.9%) than the conventional holder (28.6%), although the difference was not statistically significant (p>0.05). The median range of the “comfort data” according to conventional and novel intraoral radiographic receptor holder was 16 mm to 57 mm and 15 mm to 58 mm, respectively. No patients scored more than 74 mm. **Conclusion:** Both conventional and novel intraoral digital radiographic receptor devices exhibited equal effectiveness and did not cause major discomfort (mild-moderate pain). The use of novel intraoral radiographic receptor holder is however recommended to optimize the repeat rate.

Keywords: Radiography, Intraoral holder, Effectiveness, Comfort score



Postgraduate
ABSTRACTS

1

In Vitro Cytotoxicity Test of Green Denture Adhesive using Alamar Blue Assay

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Objectives: Green denture adhesive is a new formulation for denture adhesive developed from starch. The aim of this study was to estimate the cytotoxicity potential from 4 different types of starch used in Green denture adhesive.

Methods: 4 types of starch that was used in this cytotoxicity test are Native Tapioca Starch (NTS), Modified Tapioca Starch (MTS), Native Corn Starch (NCS), and Modified Corn Starch (MCS). The human gingival fibroblast (HGF) cells were cultured using extraction solutions of the Green denture adhesives. The cytotoxicity property of Green denture adhesive was estimated by using Alamar Blue (AB) assay with low concentration and high concentration of the tested denture adhesive dissolution material. **Results:** No significant cytotoxicity was observed in all types of starch used in the Green denture adhesives extractions. The trend for 1 mg/ml are consistent from Day 1 to 14. It can be seen that the NCS and NTS showed higher cell viability compared to the MCS and MTS. **Conclusions:** No Green denture adhesive extractions showed any evidence of cytotoxicity. Therefore, the low level of the cytotoxicity property of the Green denture adhesives extractions was confirmed in this in vitro test.

Keywords: Green denture adhesive, starch, cytotoxicity

2

Bimaxillary Dental Proclination Index Development Through Dental Cast Analysis

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Objective: The aims of this study were to identify the prevalence of bimaxillary proclination among orthodontic patients and to categorise the severity and develop an index specific to bimaxillary proclination. **Materials and methods:** A pilot study was performed among Malaysian Malays to obtain prevalence data of bimaxillary proclination. 100 orthodontic profile photographs randomly taken from Orthodontic Clinic, UiTM were analysed by 2 operators for its bimaxillary proclination features. An additional 259 orthodontic photographs were analysed by 4 calibrated assessors for sample recruitment. 160 study casts of bimaxillary proclination cases were selected and coded. The upper and lower incisors inclination, overbite and overjet measurement were evaluated and its severity graded into 4 main categories of B1, B2, B3 and B4. Subdivision were introduced into the index to indicate the inclination towards different malocclusions, i.e: Class II,III (ie: B2/II, B2/III, B3/II, B3/III, B4/II, B4/III). Calibration exercises were carried out by 4 assessors with 2 assessors assessed again on 2 separate occasions of 2 weeks interval to test for its validity. Statistical analysis using kappa score was performed to assess the agreement between 4 assessors using SPSS (version 23) and Stata (version 13). **Results:** Out of 100 orthodontic patients 37% were bimaxillary proclination cases. Up to half of the 259 patients exhibited a dental Class I bimaxillary proclination. Whilst the remaining 50% were distributed in Class II and Class III. Calibration and validation of index showed good agreement for Bimaxillary Dental Proclination Index with the score of 0.74 for intra-reliability and 0.73 for inter-reliability whilst treatment need score also demonstrated good agreement for intra-reliability and inter-reliability with the score of 0.75 and 0.69 respectively. 28.1% were in B2 (III) category followed by B3 (II) with 21.9%. **Conclusion:** Bimaxillary Dental Proclination Index development aids in case selection, prioritization orthodontic treatment need and delivery among bimaxillary protrusive patients.

3

Immediate Natural Tooth Pontic: An Option for Periodontally Involved Teeth (A Case Report)

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Title: Immediate Natural Tooth Pontic: An Option for Periodontally Involved Teeth (A Case Report) **Introduction:** When a periodontally compromised tooth in the anterior region is planned for extraction, the primary concern of the patient is of aesthetics. Thus, an immediate aesthetic replacement of the tooth will be required, and this can be in the form of temporary, provisional, or permanent treatment on the basis of duration and purpose. **Case Description:** This case report details the case selection, procedure with follow-up of a case where using the patient's extracted tooth as natural tooth pontic to replace missing anterior tooth. The splinting was done with glass fiber reinforcement composite resin. **Discussion:** The rationale of splinting is based primarily upon the intended purpose. Other considerations include whether or not the periodontium is healthy or diseased and whether there is a need to prevent mobility or drifting. By using fiber reinforced composite material for periodontal splinting, it can easily be removed when splinting is no longer considered necessary and eased the patient to control the oral hygiene practices. **Conclusion/clinical significance:** Using the natural tooth as pontic offers the advantages of being the right shape, size, and color with the added benefit of periodontal stabilization.

Keywords: Natural tooth pontic; Periodontal therapy; Splinting

4

Management Of Intrinsic Tooth Discoloration With High Aesthetic Demand: A Case Report.

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Introduction: Tooth discoloration presence with aesthetic challenges especially when confined to a single or limited number of teeth. The present case depicts a conservative treatment modality with the objectives of resolving tooth discoloration and improving the general anterior esthetics of the patient's front teeth. **Case Description:** A 27-years old male patient was referred to the postgraduate prosthodontic clinic for the management of a discolored maxillary central incisor. The patient had a history of trauma of his front teeth around 15-years ago. Root canal treatment was done 3-years ago. Patient was highly concerned regarding his appearance. Clinically, tooth-21 presented with fractured incisal edge and brown-black intrinsic discoloration. The root canal treatment presented with a favorable outcome. Tooth-22 presented with incisal fracture. No other signs and symptoms were noted. The case was managed with combined non-vital (Opalescence Endo, Ultradent, USA) and vital bleaching (CoreWhite, Beyond, USA) followed by direct composite veneers (ceram.x SphereTEC™, Dentsply, USA). Superior esthetics was achieved despite the conservative nature of this treatment modality. **Discussion:** There are multiple options for the treatment of discolored teeth, ranging from scaling and polishing at the simplest and at the most complex involves crowning of the teeth. It is recommended to start with the most feasible conservative treatment option. **Conclusions:** Management of such problem requires careful planning and execution, especially in patients with a high esthetic demand. Conservative treatment that preserves teeth structure yet able to achieve acceptable aesthetics is preferred and is well served by direct composite veneer chosen with the patient.

Keywords: intrinsic discoloration, non-vital bleaching, vital bleaching, direct composite veneer.

5

A COMPARISON OF THREE METHODS OF ANCHORAGE: A PROSPECTIVE STUDY

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Objectives: To compare the effectiveness of three methods of anchorage; transpalatal arch (TPA), modified TPA-Nance, mini-implant (MIA) for anchorage reinforcement in the treatment of patients with malocclusions that required maximum anchorage. **Methods:** Orthodontic patients aged between 18 and 30 year-old who required anchorage regime were recruited. The primary outcome of this study was mesial molar movement or anchorage loss during the period of canine retraction. The secondary outcomes were duration of treatment and patients' acceptance towards the anchorage supplementation. All the subjects received the allocated anchorage regime and subsequently, extractions of the maxillary first premolars were carried out, followed by provision of upper and lower fixed appliances. Patients' acceptance was measured using OHIP-14 questionnaires and the clinical end point was when the canines were in Class I relationship. **Results:** Thirty-six subjects were equally divided into three groups, which comprised of 28 females and 8 males. The baseline characteristics were similar in all groups. There was statistically and clinically significant difference in anchorage loss between the three anchorage groups. However, the mean difference in anchorage loss between TPA and modified TPA-Nance was 0.97mm and 1.0mm on the right and left molar respectively. Meanwhile, the anchorage loss between modified TPA-Nance and MIA was 0.89mm on the right and 1.14mm on the left molar. On the other hand, anchorage loss was vastly noted between the TPA and MIA where the values were 1.86mm on the right and 2.14 on the left. The treatment duration was significantly reduced with MIA with mean 11.9 months (± 1.8 months) to achieve canine Class I relationship. The OHIP-14 questionnaire analysis showed comfort levels upon placement of the anchorage regimes were similar. **Conclusions:** All the anchorage regimes are effective for reinforcing orthodontic anchorage. However, MIA might be the preferred method.

Keywords: Orthodontic anchorage, transpalatal arch, modified TPA-Nance appliance, mini-implant, anchorage loss.

6

3D TECA Hydrogel Modulates the Inflammatory Induced Telomere Dysfunction in Human Periodontal Ligament Fibroblasts

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Objective: This study was designed to investigate the effect of 3D TECA hydrogel on the inflammatory induced telomere length shortening associated with DNA damage response (DDR) in the human periodontal ligament fibroblasts (HPDLFs). **Methods:** HPDLFs samples were treated with 10ng/ml TNF- α for 14 days in the presence or absence of the optimal concentration 20 μ g/ml TECA hydrogel. The gel effect on the inflammatory induced telomeres length shortening or DDR was investigated by chemiluminescent assay. Proliferation marker EdU stain was used to assess the newly formed DNA in fibroblasts. Data were analysed by One-Way ANOVA. **Results:** Telomeres were significantly longer in TECA treated samples (20.36 kbp) than the non-treated control cells (15.67 kbp). Proliferation marker EdU which marks the newly formed DNA was found only in TECA treated samples that signified the high DNA damage response in the non-treated samples. **Conclusion:** The new formula of 3D TECA suppressed the inflammatory mediated DNA damage response. It may be used to preserve the telomere length and rescue tissues regeneration potential during periodontal inflammation. Hence, 3D TECA may play a role in healing of periodontal structures.

Keywords: Periodontal ligament fibroblast; periodontitis; telomere shortening; cell cycle arrest

7

Fabrication of Concentrated Growth Factors (CGF) using any Common Laboratory Centrifuge: A proof of concept

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Introduction: Concentrated Growth Factors (CGF) is the latest type of platelet concentrates developed by Sacco in 2009 and it is widely used in periodontics and regenerative dentistry. The advantages of the CGF are in their preparation protocols and its interesting clinical properties. It is a fully autologous technology without any additive, spun in a vacuum glass coated tube using a special centrifuge called Medifuge (Silfradent, Italy). **Methodology:** The purpose of this study was to prove that any common laboratory centrifuge should be able to produce CGF by using the Sacco protocol. The Medifuge is capable to alternate the speed and duration in a single centrifuged cycle. Intravenous blood drawn from the patient was spun at four different speeds and durations to form the CGF. Intravenous blood drawn from a single subject and spun using both Kubota 2420 centrifuge (Kubota, Japan) which was set and spun four times at different speeds and durations. The buffy coat formed was separated from the tube and prepared for Scanning Electron Microscope (SEM). Both buffy coats were compared macro and morphologically, in terms of content and cells distribution under magnification of 5000X and 10,000X SEM (FGE, Japan). **Discussion:** The results showed similar physical and mechanical properties of both buffy coats especially the strength and elasticity when formed into membrane. They also showed similar complex fibrin architecture with thick and thin strands trapping clusters of platelet and scattered leukocytes under SEM. **Conclusion/clinical significant:** This study will open a new gate of innovation and opportunity for all health facility equipped with a centrifuge machine, especially to adopt this technology in their surgical and regenerative surgery.

Keyword: Concentrated Growth Factors (CGF), Laboratory Centrifuge, SEM

8

Pain Experience during Initial Orthodontic Alignment with Micro-osteoperforations: A Randomized Controlled Clinical Trial

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Objectives: The aim of this study was to compare the difference in the pain experience during the week following the initial placement of conventional preadjusted edgewise orthodontic bracket system with and without accelerated orthodontic tooth movement procedure by micro-osteoperforations (MOP). **Methods:** Fourteen consecutive adult patients with maxillary arch moderate crowding of 5 to 8mm indicated extraction of first premolars were treated with conventional appliance (Victory Series) and randomly allocated with sequentially numbered opaque envelope whether to undergo adjunctive minimally invasive surgical procedure of micro-osteoperforations or as control. After appliance placement and engagement of a 0.014" nickel-titanium archwire, MOP group undergone micro-osteoperforations of 3mm deep by using Propel device (PROPEL Ortho Singapore) in between upper right to left canine under local anesthesia, then both groups recorded their pain experience after the procedure, 24, and 72 hours and after 7 days with the use of a 100mm visual analog scale (VAS). Repeated measures ANOVA (time-treatment interaction) was used to analyze the data. **Results:** The subjects comprised of 12 females and 2 males (mean age, 23.36; SD, ± 3.80 years) with seven subjects in each group. MOP had no influence on pain experience with no significant difference at post-procedure (MOP group =Mean, 5.857; 95% CI, 3.413, 8.301; Control group= Mean, 4.857; 95% CI, 2.413, 7.301), 24 hours (MOP group= Mean, 3.286; 95% CI, 1.077, 5.494; Control group= Mean, 5.143; 95% CI, 2.935,7.315), 72 hours (MOP group= Mean, 2.143; 95% CI, 0.047,4.239; Control group=Mean, 3.857; 95% CI, 1.761, 5.953) and 7 days (MOP group=Mean, 1.00; 95% CI, -0.770, 2.770; Control group=Mean, 2.714; 95% CI, 0.944, 4.484).

Keywords: Micro-osteoperforations, accelerated tooth movement, pain

9

Classical features of Cleft Lip and Palate: How they affect prosthodontics rehabilitation.

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Introduction : Cleft lip and palate (CLP) patients presented with a variety of features depending on the type and severity of the anomalies. They may complicate the function and treatment outcome. **Case Description:** A 22 years old Malay male with hypernasal speech was referred for speech prosthesis rehabilitation presented with unrepaired cleft palate. He had Class III malocclusion complicated with left maxillary ectopic canine and right paramolar tooth. He also had anterior alveolar bone defect with constricted hard palate and articulation error due to his severely crowded anterior teeth. Treatment was initiated with maxillary impressions covering the defective area followed by surveying the cast to design the prosthesis. An interim palatal lift prosthesis was prescribed to address his velopharyngeal inadequacy (VPI) prior to alveolar bone grafting surgery and orthodontic correction. **Discussion :** The VPI caused nasal air emission which affect patient's speech. His severe gag reflex and constricted palate complicated the impression making and assessing the defect area. Gaining retention with misaligned teeth was demanding and inter-arch space was limited for the palatal plate. Although the protocol suggested to initially attend his alveolar defect and malocclusion, providing him with interim prosthesis resolved his priority concern. This was aimed to improve his psychological well-being leading to better quality of life. **Conclusion :** Prosthodontics rehabilitation of CLP patients is extremely puzzling. There is no absolute design of palatal lift prostheses for CLP. Therefore, providing personal adapted treatment and prostheses making are suggested.

Keywords: Palatal lift prostheses, cleft lip and palate, malocclusion

10

Bimaxillary Protrusion in Malaysian Malay: Calibration of Cephalometric Classification of Skeletal and Dental Components

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Objectives: The aim of this study is to analyze, classify and calibrate its cephalometric classification of skeletal and dental components of bimaxillary protrusion in Malaysian Malay patients attending Orthodontic Clinic at UITM. **Methods:** This cross-sectional study involved tracings and analysis of 116 lateral cephalometric radiographs using Dolphin Imaging software. Thirty radiographs were randomly selected, traced, digitized, calibrated and repeated within 2 weeks interval to assess measurement error. Eight angular and eight linear parameters were measured. Skeletal and dental values were analyzed and classified into mild, moderate and severe to grade the severity of protrusion. Tracings were matched to the profile photos and numerically arranged for further grading by four assessors on two occasions of 2 weeks interval. Calibration were tested among 18 assessors including subjective scoring without cephalometric values. Descriptive statistics were used to assess the dentoskeletal characteristics and Kappa coefficient to measure the assessors' agreement. **Results:** Inter-rater and intra-rater reliability were analyzed for 30 radiographs and showed excellent correlation (ICC: 0.831). Agreement on classification between 4 assessors were found to be good in skeletal (0.8007) and very good in dental components (0.853). Further calibration similarly showed good agreement in skeletal (0.7368) and dental (0.7505), whereas subjective scoring displayed poor agreement in both variables (0.2506, 0.2079). Regards its severity, 61% of the subjects exhibited moderate, 24% of mild and 15% of severe protrusion. Significant bidental proclination of incisors were also observed (UIA: 125.48°; LIA: 102.56°) with acute interincisal angle (102.73°). Majority of subjects had moderate (71%) and 26% with severe proclination. **Conclusions:** Bimaxillary protrusion mainly presented in wide range of protrusion from mild, moderate to severe protrusion. Subjective perception had shown different thoughts among trained and untrained assessors. This systematic categorization aids easy identification, guided evaluation and proper treatment delivery.

11

Adjunctive Azithromycin to Non-Surgical Periodontal Treatment in Generalized Aggressive Periodontitis: A Case Report

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Title: Adjunctive Azithromycin to Non-Surgical Periodontal Treatment in Generalized Aggressive Periodontitis: A Case Report. **Introduction:** The intricate etiology and aesthetic considerations brands aggressive periodontitis control to be less predictable as compared to chronic periodontitis. This report focuses on the use of antibiotic adjunct in addition full mouth scaling and root planning to manage and arrest the disease whilst sustaining remaining tooth and aesthetic aspect. **Case Description:** A 30-year-old male patient was referred to the periodontology department for complaining of generalized tooth mobility. Intraorally patient presented with comprehensive gingival inflammation coupled with multiple periodontal abscesses. Radiographs showed extensive horizontal bone loss generally. **Discussion:** This case report presents the successful management of Generalized Aggressive Periodontitis. Specific interest was the improvement to prognosis effected through management. **Conclusion/clinical significance:** The treatment provided was evidence based, included a combined antibiotic adjunct approach with Azitromycin in conjunction with conventional therapies and subsequent maintenance care

Keywords: Aggressive Periodontitis, Antibiotic Adjunct, Non Surgical Periodontal Therapy

12

Part 1: Development of Index of Malocclusion in the Mixed Dentition for a Malaysian Population. A Pilot Study.

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Aim: To assess the feasibility of the main study methodology and to tabulate the various patterns of malocclusion and the discrepancy of occlusion in the mixed dentition children attending the Paediatric Dental Clinic, Universiti Teknologi MARA. **Methodology:** A sample of 10 children between 9 and 11 years were selected using convenience sampling. Orthodontic assessments were carried out and impression was taken for a thorough assessment of malocclusion for the development of index of malocclusion in the mixed dentition children. **Results:** The prevalence of malocclusion was evaluated according to the 'British Standard Institute' classification. The result showed that 50% of the subjects are Class II and Class III incisor relationship with 40% and 10% respectively and the other 50% presented with Class I incisor relationship. Various types of occlusion discrepancy were tabulated, and the results showed that 30% of the subjects had increased overjet while 20% of them had increased overbite. Other common discrepancy found were reversed overjet, anterior crossbite and midline shift which accounted for 10%, 20% and 10% respectively. **Discussion:** Little need for orthodontic treatment was found in 60% of the subjects and 30% of them were in a moderate need for orthodontic treatment. A great need for orthodontic treatment were reported in 10% of the subjects. **Conclusion:** This study methodology was appropriate to be carried out. Mixed dentition children may present with a various kind of malocclusion and they may need early interventional treatment.

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Created by:

Dzulfakhrul Najwan bin Mat Daud (2015292158)

Acknowledgement

Puthisastra University, Cambodia
Coorg International Dental School, India
Manipal College of Dental Sciences, Mangalore, India

JUDGES

Assoc. Prof. Datuk Dr Khairiyah Abdul Mutalin (SEGI)
Prof. Dr Fouad Hussain Al-Bayati (UiTM)
Assoc. Prof Dr Zaini Mohd Zain (UiTM)
Dr Zamirah Zainal Abidin (UKM)
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