UNIVERSITI SAINS MALAYSIA

POSTGRADUATE RESEARCH DAY 2024

in conjunction with

RACDS INTERNATIONAL COMMITTEE'S 3RD ANNUAL SCIENTIFIC MEETING

RESEARCH FOR HEALTH SUSTAINABILITY

PROGRAM & ABSTRACT BOOK

2 & 3 JULY 2024

ORGANISER:
SCHOOL OF DENTAL SCIENCES
UNIVERSITI SAINS MALAYSIA HEALTH CAMPUS
KELANTAN, MALAYSIA

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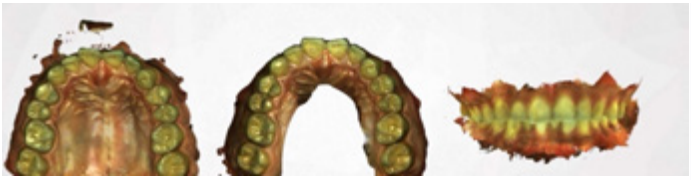

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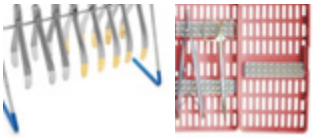

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PGRD 2024

4th POSTGRADUATE RESEARCH DAY
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3rd ANNUAL SCIENTIFIC MEETING

2 & 3 July 2024

Theme:
Research for Health Sustainability

Organized by
School of Dental Sciences
Universiti Sains Malaysia

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Message from the Dean

Assalamu'alaikum warahmatullahi wabarakatuh dan salam sejahtera.

The School of Dental Sciences proudly welcomes all speakers, participants, and attendees to the 4th Postgraduate Research Day 2024. This event is not just a research day gathering but a unique opportunity for us all, as it marks our first on-site gathering after the challenging times of the COVID-19 pandemic. We are excited to have you all here to make this event successful.

This event, a testament to our commitment to postgraduate education, serves as a platform for you to learn and experience before you are exposed to the bigger stage, such as at big conferences throughout Malaysia and worldwide. Your participation is appreciated.

We warmly welcome the plenary speakers, who are willing to spend some of their valuable time sharing their experiences and thoughts with the participants. Your contributions are invaluable and greatly treasured.

This year's theme is 'Research for Health Sustainability', which speaks volumes about our need to focus on health sustainability. Our focus should extend beyond treatments and technologies, where we should enhance resource efficiency and minimise environmental impacts.

This research day is also marked as a progress evaluation of our registered research mode postgraduate students. This evaluation is part of MQA requirements for a continuous quality assurance process.

In our dental school, this commitment translates into developing eco-friendly dental materials, implementing energy-efficient practices in our clinics, and promoting comprehensive preventive care programs. We aim to build a healthcare ecosystem that prioritises patient well-being and environmental stewardship by fostering collaborations among researchers, policymakers, and industry leaders. This sustainable approach ensures that future generations can benefit from advanced healthcare without compromising the health of our planet.

Best wishes,

Assoc. Prof Dr Mohd Fadhli Khamis

Message from the Deputy Dean of Postgraduate and International Affairs

Assalamualaikum,

On behalf of the Postgraduate and International Affairs Office, I am honoured to welcome you to Postgraduate Research Day 2024. As the Deputy Dean, I am delighted to see such a vibrant group of scholars gathered to share their research, exchange ideas, and inspire one another.

This research day celebrates the hard work and dedication that define our postgraduate community. It provides a platform to present your findings, engage in meaningful dialogue, and foster collaborations that transcend academic disciplines. Each presentation reflects the innovation and intellectual work that are the hallmarks of our journey.

I extend my deepest gratitude to our distinguished guests, keynote speakers, and esteemed faculty members for their invaluable contributions. Your presence and participation denote the significance of this event, making it a truly enriching experience for all attendees.

I would also like to express my heartfelt thanks to the organising committee for their meticulous planning and unwavering commitment to excellence. Their efforts have been instrumental in bringing this event to realisation.

As you immerse yourselves in the sessions over the coming days, I encourage you to embrace the opportunities for learning and networking. Let this conference be a catalyst for your research journey, sparking new ideas and opening doors to future collaborations locally and internationally.

May this event inspire you, challenge you, and propel you towards greater achievements in your academic and professional endeavours.

Welcome once again, and best wishes for a successful and rewarding postgraduate research day.

Warm regards,

Dr Yanti Johari

Associate Professor (Prosthodontics)

Message from the Chairperson

Assalamu'alaikum warahmatullahi wabarakatuh,

I would like to welcome all to the Postgraduate Research Day 2024 at the School of Dental Sciences, Universiti Sains Malaysia Health Campus.

Thank you to the participants for making a point to join and making this research day part of your commitment. I am mostly indebted to the plenary speakers for agreeing to talk at this event. Last but not least, to the committee members who have helped and understand the need to work together as a team in making this event successful, I appreciated it very much.

Dear postgraduates, friends, and colleagues, as we stand on the ledge of the past and advance to the future, whether we like it or not, time moves forward but never backwards. Therefore, we choose this year's theme 'Research for Health Sustainability', to remind ourselves that our research today should have a role for tomorrow. And we shall never forget that sustainability means that whatever we have now shall go on forever to the next generation.

Preventive healthcare, environmental health, sustainable healthcare systems, and research and innovation are some of the big agendas for the future. In short, health sustainability aims to balance current health needs with the ability of future generations to meet theirs, requiring collaboration across healthcare, environmental science, policymaking, and community organisations to build a healthier and sustainable future.

I hope you can enjoy this event that we have prepared and hopefully, while learning one or two things, don't forget to make new friends.

All the best!

Best regards,

Assoc. Prof Ts Dr Azlina Ahmad

Postgraduate Research Day 2024
SCIENTIFIC PROGRAMME

Concurrent Sessions:

i) Public Health: 11.00 am - 5.00 pm (Lecture Hall 1)
ii) Clinical Sciences: 11.00 am -1.00 pm (Lecture Hall 2)
iii) Biomaterials: 2.00 pm - 5.00 pm (Lecture Hall 2)
iv) Basic Sciences: 11.00 am - 5.00 pm (Conference Room)

Day 1: 2nd July 2024 (Tuesday)

8.00 am	Registration
8.30 am	National Anthem/ USM Song/ Doa Recital - Lecture Hall 1
8.45 am	Welcoming address: Assoc. Prof. Dr. Yanti Johari Deputy Dean Postgraduate and International, School of Dental Sciences, USM - Lecture Hall 1
9.00 am	Opening ceremony: Assoc. Prof. Dr. Mohd Fadhli Khamis Dean, School of Dental Sciences, USM - Lecture Hall 1
9.15 am	Plenary Talk 1 : *Investigating the Modulatory Effects of Thicapa on Familial Alzheimer's Disease Pathogenesis Using Fibroblast Cell Lines* Prof. Dr. Shaharum Shamsuddin Deputy Vice-Chancellor, (Student Development Affairs and Alumni), USM - Online Webex
10.15 am	Photography session and coffee break
11.00 am	Three-min pitching (Concurrent Session 1)
12.30 pm	Lunch break
2.15 – 5.00 pm	Three-min pitching (Concurrent Session 2)

Day 2: 3rd July 2024 (Wednesday)

8.30 am	Registration
9.00 am	Plenary Talk 2: *Stem Cell for Sustainable Health: A Hope or Nope* Prof. Rosline Hassan, School of Medical Sciences, USM - Lecture Hall 1
10.00 am	Coffee break
10.30 am	Plenary Talk 3: *Leveraging On Networking for Academic Excellence and Research Collaborations* Prof. Dr. Noor Hayaty Abu Kasim, University of Malaya **This lecture is in conjunction with RACDS International Committee Annual Scientific Meeting*
11.30 am	Prize distribution and closing ceremony
1.00 pm	Lunch
	End of session

UPDATE: 30 Jun 2024

Invited Speaker - Plenary Talk 1

Prof. Dr. Shaharum Shamsuddin, *D. Phil. (Oxon.),* P.M.K. has been appointed as the Deputy Vice-Chancellor (Student Development Affairs & Alumni), Universiti Sains Malaysia on the 1st of Dec 2023. Previously, he was the USM's Health Campus Director, Kubang Kerian, Kelantan since 2022. He served the School of Health Sciences as the Deputy Dean from 2007-2014 and the Chairman of Biomedicine Programme from 2015 until 2017. He was also appointed as the Coordinator for URICAS (USM-RIKEN Interdisciplinary Collaboration in Advance Sciences) and the person in charge of Disabled Cluster USM at the Health Campus where he inspired the establishment of *Pusat Transformasi OKU* (PTO) team at USM Health Campus under the financial support of *Majlis Agama Islam & Adat Istiadat Melayu* Kelantan (MAIK). In 2019, he tabled the paper work to the University for the establishment of Cyberdyne-HUSM ROBO Rehabilitation services—the first teaching Hospital in Malaysia that uses artificial-intelligence cybernetics based robotic treatment for patient rehabilitation. He is very active in research and his research fields are molecular biology and nanomedicine. He had produced 8 PhD and 7 MSc research students as main supervisor throughout his career in USM. He has to his credit thirteen research grants (MOHE & MOSTI) completed as the Principal Investigator. He is also a Senate member of USM and associate member of Malaysian Health Sciences Dean's Council. Before joining USM in 2003, he was a research officer at the National Institute for Animal Biotechnology (NIAB), Jerantut, Pahang since 1992. At NIAB, he established the cytogenetics & molecular biology techniques to assist the National Breeding Policy for MAFRIWAL. He has been an external evaluator for the positions of Associate Professor/Professor for various local universities. Additionally, he has served as an internal and external examiner for postgraduate locally and internationally. He is also the consultant for various local agencies (molecular & cellular biology), reviewer of many scientific journals and has many publications in peer reviewed journals at the local and international level.

Lecture Synopsis:

Investigating the Modulatory Effects of Thicapa on Familial Alzheimer's Disease Pathogenesis Using Fibroblast Cell Lines

Danesh Tangeswaran[1], Venugopal Balakrishnan[1], Shaharum Shamsuddin[2]
[1] Institute for Research in Molecular Medicine (INFORMM) USM
[2] School of Health Sciences, Health Campus, USM

Familial Alzheimer's disease (fAD) is a hereditary and irreversible neurological disorder. The toxic amyloid-beta (Aβ) deposition is one of the hallmarks of fAD. The prevalence of fAD is alarming, and there are no therapeutics available to cure this disease. THICAPA is a novel compound belonging to the tetrahydroisoquinoline group of amines. Previous THICAPA studies have been reported to exhibit neuroprotective effects in the transgenic *Drosophila* model. In this study, we have investigated the modulatory effect of THICAPA on the amyloid precursor protein (APP) processing pathway using the fAD patient skin-derived fibroblast cell line (AG06840). THICAPA cytotoxicity assay revealed a non-significant effect of toxicity towards AG06840 and healthy skin-derived fibroblasts (GM05879). However, the Aβ42 scavenging assay revealed THICAPA possessed a potent Aβ42 oligomers scavenging effect at 50 μM in GM05879. On the other hand, we investigated the effect of THICAPA on the expression of genes and proteins associated with both amyloidogenic and non-amyloidogenic processing of the APP using qRT-PCR and western blot. The gene and protein expression analysis of APP revealed that THICAPA reduced the mature and immature APP protein expression ratio. Besides, gene and protein expression of BACE1 and PSEN1 in the amyloidogenic pathway has reduced, signifying downregulated activity of β- and γ-secretase, respectively. Furthermore, ADAM10 gene and protein expressions were increased signifying upregulated activity of α-secretase in the non-amyloidogenic pathway. Quantification of proteins produced from the APP processing pathway has revealed a significant reduction of sAPPβ, CTFβ, Aβ40, and Aβ42 from the amyloidogenic pathway, and elevated sAPPα from the non-amyloidogenic pathway. Moreover, reactive oxidative species (ROS) detection indicated that THICAPA reduced ROS production in fAD fibroblasts by 41.63%. Together, our data reveal that THICAPA possesses therapeutic potential to further develop as a targeted therapy for AD.

Invited Speaker - Plenary Talk 2

Prof. Rosline Hassan is a highly respected Hematopathologist with a strong leadership and professional track record. She is currently a Senior Consultant in the Department of Hematology, School of Medical Sciences, Universiti Sains Malaysia. She was formerly Deputy Dean of Research and Head of Department of Hematology both for nine consecutive years. Dr Rosline has been appointed as Fellow of the Academy of Medicine Malaysia (FAMM), Affiliate Fellow for Royal College of Australasia and a member of the National Specialist Registry in Hematology. Her primary interest is in the molecular aspect of hematological disorders such as leukemias and myeloproliferative disorders, cell culture studies and stem cell studies, as well as red cell disorders including thalassaemia. She has written numerous publications both locally and internationally and has received several national accolades for her presentation at many scientific conferences. Apart from her involvement in School of Medical Science, Dr Rosline is a visiting Professor of Mahasarakham University, Thailand and hold appointment as Specialty Education Subcommittee (SSC-EDU) for Medical Genetic Subspecialty, Malaysian Medical Council, Malaysia, and Panel Accreditation for Postgraduate Master of Medicine, Malaysian Medical Council. She has been actively involved as expert panel for three Technical Working groups; SC 2.1 Molecular testing, STR 2.8 Cytogenetic testing and STR2.4 Hematology for MS ISO 15189 , Department of Standard Malaysia, MOSTI and panel assessor for both USM and National Grant under Ministry of Higher Education. Currently she has been appointed as committee for the revision of new edition on *Malaysian Guidelines on the Use of Human Biological Samples for Research.*

Lecture Synopsis:

Stem Cell for Sustainable Health: A Hope or Nope

Stem cells are a special undifferentiated type of cells that has the ability to develop into other specialised cell types. Stem cell are present in human, animal & plants. These cells promote tissue regeneration through induction of their stem cells or differentiation. Tissue regeneration is a guided approach for renewal and growth to replace or repair tissue that is damaged. Stem cells have great application value in regenerative medicine. Stem cell therapy, a type of regenerative medicine, utilizes stem cells or their derivatives to stimulate the body's own healing processes and repair damaged, diseased or injured tissue. Plant stem cells do not undergo the process of ageing but through a process called senescence. It involves all the changes occurring in plants causing the death of tissues, cells and the entire plant body. Plant stem cells are totipotent, they undergo differentiation to form specialized and unspecialized cells and capable of reverting to their original state without any external manipulation. Plants undertake a natural reprogramming process in order to replenish their stem cells. Such cells have various commercial uses, wherein cosmetic manufacture involving stem cell derivatives is the most promising field at present. In human, the sources of stem cells are usually obtained from three basic sources. The main sources are (1) embryonic tissue, (2) fetal tissues, such as fetus, placenta (i.e., amnion and chorion), amniotic fluid and umbilical cord (Wharton jelly, blood), (3) specific locations in the adult organism, e.g. fat, bone marrow, skeletal muscle, skin or blood. All stem cells, regardless of their origin, have three characteristics that distinguish them from other cell types: (i) they are undifferentiated and non-specialized cells; (ii) are able to divide and renew themselves indefinitely; and (iii) are able to differentiate into specialized cells. Those cells can be classified, according to their origin or their differentiation capacity, into embryonic and non-embryonic stem cells that can be pluripotent or multipotent, respectively. The advancement in regenerative medicine benefits human health, and it has great prospects in the medical field. They can be regarded as ideal seed cells for genetic engineering, able to the repair damaged tissues and organs and to overcome immune rejection.

Invited Speaker- Plenary Talk 3

Prof. Dr Noor Hayaty Abu Kasim obtained her BDS, (Malaya) MSc in Conservative Dentistry (London) and PhD in Dental Materials (Newcastle) in 1984, 1987 and 1995 respectively. Her 37 years of clinical practice has been interspersed by teaching and learning, research and management roles. She is currently a contract professor at the Faculty of Dentistry, University of Malaya. Formerly she served as the Director of National Cheng Kung University Overseas Hub (NCKU-OH) from July 2020 to Dec 2023 and Dean, Faculty of Dentistry, Universiti Kebangsaan Malaysia, from April 2020 to April 2022.

She served University of Malaya (UM) for 33 years where she was the Head of Department of Conservative Dentistry and Deputy Dean (Development; Research and Innovation) at the Faculty of Dentistry and in 2013 she was appointed as the Dean of Health and Well-being Research Cluster, where she facilitates an interdisciplinary network of UM researchers in a broad range of research areas and innovation. Her research interests include biomaterials, regenerative dentistry and dental education. She has published more than 100 papers in refereed journals and H-index of 25.

She also contributed towards promoting dental research through International Association for Dental Research (IADR) Regional Development Program in countries such as Indonesia, Philippines, Vietnam, Myanmar and Cambodia in her capacity as Secretary, President Elect, President and Immediate Past President of the IADR Southeast Asian Division. Dr. Noor Hayaty was a member of the curriculum review committee and experienced MQA panel for dental program accreditation at both undergraduate and postgraduate levels. She was the Chairman for the specialty training for Prosthodontics, council member of the Malaysian Dental Council (MDC 2018-2019) and currently she serves the MDC as a member of the Dental Professional Qualifying Examination and Dental Specialists Evaluation Committee.

Lecture Synopsis:

Leveraging On Networking for Academic Excellence and Research Collaborations

Networking occurs continuously and in various settings, often without conscious recognition. It manifests both formally and informally. The simplest method to broaden one's network is by strengthening existing relationships with acquaintances such as family, friends, and colleagues. It is important to realise that networking that extends beyond casual socializing; functions as a potent mechanism for exchanging knowledge, sharing resources, and fostering professional development. While developing good and effective networking skills is not an easy task since it requires time and effort and it involves risk and failure. For early career academics, this is made more daunting with their need to navigate through new tasks in academia, feeling like a small fish in a big pond. It is normal to see young academics struggling to grow and build network that will lead to effective collaboration as their energies are channelled elsewhere. Having a well-established network has become an important part of my academic life for the last 37 years. I have gain significant benefits from being involved in well-positioned academic and research networks. This lecture will provide insights into harnessing networking opportunities to enhance your academic journeys, forge meaningful collaborations, and contribute to the collective advancement of knowledge and scholarship. Highlights on how building links and networks in research and academia has unlocked many opportunities and how it has enriched my life professionally and personally. Additionally, the importance of interdisciplinary connections in driving innovative research and advancing scholarly pursuits will also be discussed. It is hoped that by embracing the principles of strategic networking, participants can unlock new avenues for academic success and impactful research endeavours.

THREE-MINUTE PITCH SCHEDULE

BASIC SCIENCES
Venue: **Conference Room**

No.	Presenter / Authors	Title	Time
BS-01	Siti Nuriah Mohd Noor, Ahmad Azlina, Marahaini Musa, Siew Hua Gan, Kannan Thirumulu Ponnuraj	Role of Honey Polyphenols in Influencing Telomere Length for Cell Senescence Inhibition	11.05 am
BS-02	Mohadese Mozafari, Siti Nurnasihah Md Hashim, Khairul Bariah Ahmad Amin Noordin, Siti Aishah Zainal, Ahmad Azlina	Molecular Angiogenic and NFAT Profiles of Endothelial Differentiated-Dental Stem Cell Treated with VEGF and Cultured on Human Amniotic Membrane	11.15 am
BS-03	Michelle Hui Ling Tiong, Wan Norlina Wan Azman, Anani Aila Mat Zin, Zamzuri Idris, Wan Nur Syuhaila Mat Desa, Maulidiani M	Optimizing Amino Acid Standard Material Protocol Utilizing Gas Chromatography-Mass Spectrometry: A Research Value	11.25 am
BS-04	Siti Nurnasihah Md Hashim, Sarahani Harun, Ahmad Sukari Halim, Suzina Sheikh Abdul Hamid, Thirumulu Ponnuraj Kannan, Khairul Bariah Ahmad Amin Noordin, Nazia Abdul Majid, Ahmad Azlina	TGFB Pathway Negatively Regulated the Differentiation of Glandular Epithelial-Like Cells in Co-Cultured SHED	11.35 am
BS-05	Aina Akmal Mohd Noor, Maryam Azlan, Norhanani Mohd Redzwan	Elucidating The Role of B Cells in the Skin of Imiquimod (IMQ)-Induced Psoriasis-Like Mouse Model	11.45 am
BS-06	Mohamad Ezany Yusoff, Ruhil Hayati Hamdan, Haslina Taib, Tan Li Peng, Maizan Mohamed, Rumaizi Shaari, Mohamad Arif Awang Nawi	Exploring Antibacterial Activity of Human Amniotic Membrane on Oral Gram-Positive Bacteria	11.55 pm
BS-07	Syaima' Farhani Sukeri, Naser Mahmoud Ahmed, Fatanah M Suhaimi, Haslina Taib, Ahmad Azlina, Siti Aishah Zainal	Effect of 660 nm Light-Emitting Diode Irradiation on the Proliferation and Migration of Fibroblast Cell Line in an *In-Vitro* Wound Healing Model	12.05 pm
BS-08	Xu Ming, Rozita Hassan, Suharni Mohamad, Wan Nazatul Shima Shahidan	Efficacy of Oxy-Ionic Solutions with Varying pH Levels Against *Streptococcus Mutans* and *Candida Albicans In Vitro*	12.15 pm

LUNCH BREAK			
BS-09	Norlihayana Rosli, Ahzad Hadi Ahmad, Anis Farhan Kamaruddin	Detection of Novel Mutation in Non-Syndromic Mandibular Prognathism in Malay Population: A Genetic Study	2.20 pm
BS-10	Nurul Syamimi Othman, Huwaina Abd Ghani, Suharni Mohamad, Wan Nazatul Shima Shahidan, Nur Fatiha Ghazalli	Antibacterial and Cytotoxic Effect of Calcium Hydroxide Nanoparticles Incorporated with Copper Oxide as a Root Canal Medicament	2.30 pm
BS-11	Nora Azirah Mohd Zayi, Muhammad Lutfi Mohamed Halim, Ahmad Fahmi Harun Ismail, Mohd Yusof Mohamad	Fish to Finish: *In Vivo* Evaluation of Nano Antibiotics Loaded Fish-Derived Scaffolds for Periodontal Bone Regeneration	2.40 pm
BS-12	Fatin Syamimi Sabri, Haslina Taib, Zurairah Berahim, Azlina Ahmad, Suzina Sheikh Ab Hamid	Evaluation of Periodontal Cell Growth on Human Amniotic Membrane Impregnated Honey	2.50 pm
BS-13	Gokulakannan Venkatesan, Wan Nazatul Shima Shahidan, Salfarina Iberahim, Edinur Hisham Atan, Azura Hussin, Norliana Ghazali, Wan Suriana Wan Ab Rahman	Identification of Diagnostic Biomarkers for Bleeding Manifestations in Dengue Using Microarray and Bioinformatics Techniques	3.00 pm
BS-14	Diveyaa Sivakumar, Rosmaliza Ramli	The GABAergic System During Chronic Pulpitis: Gene and Protein Expression Analysis	3.10 pm
BS-15	Nurul Husna Azizul, Hermizi Hapidin, Hasmah Abdullah, Maryam Azlan, Ahmad Azlina, Ima Nirwana Soelaiman	Combination of Tannic Acid and Pamidronate Enhances Bone Mineralisation in Human Osteoblast/Osteoclast Co-Culture Model	3.20 pm
BS-16	Fatmawati Lambuk, Rohimah Mohamud, Asmahan Mohamed Ismail, Wan Syamimee Wan Ghazali, Ramlah Kadir, Nurul Khaiza Yahya	Elucidating the Effect of Gold Nanoparticles on TNFR2 Expression in Peripheral Blood Mononuclear of Rheumatoid Arthritis Patients	3.30 pm
BS-17	Norhidayah Abu, Norhafizah Saari, Jaafar Abdullah, Rafidah Hanim Shueb	Conjugation of Quantum Dots with Hepatitis B Surface Antigen for Screening Test Applications	3.40 pm

BS-18	Wan Mohd Norsyam, Anis Nabilah Mohammad Naser, Shazlin Shaharudin, Amirah Azmi, Musfirah Zulkurnain, Yong Foo Wong, Azim Patar	D-Galactose-Induced Cognitive Deficits in 8-Week-Old Swiss Albino Mice: A Six Week Study	3.50 pm
BS-19	Lastry Ruth Maya T.M. Padang, Ahmad Syaify, Vinsensia Maria Karina	Effect of Kecombrang Flower (Etlingera Elatior) Ethanolic Extract on Interleukin-1β Expression in Rattus Novergicus Model of Periodontitis and Type 2 Diabetes	4.00 pm

CLINICAL SCIENCES
Venue: **Lecture Hall 2 (DK2)**

No.	Presenter / Authors	Title	Time
CS-01	Ali Azhar Dawasaz, Rafi Ahmad Togoo, Zuliani Mahmood, Ahmad Azlina, Kannan Thirumulu Ponnuraj	Effect of Paediatric Obesity on Dentinal Remineralisation Potential of Commercially Available P11-4 Self Assembling Peptide	11.05 am
CS-02	Melissa Wan Yun Ooi, Saleem Dadapeer Makandar, Wan Zaripah Wan Bakar, Mohamad Arif Awang Nawi	Comparative Evaluation of Fracture Resistance Between Sound and Endodontically Treated Human Maxillary Premolars with Different Number of Remaining Wall(S): An *In Vitro* Study	11.15 am
CS-03	Wan Amirul Asraf Wan Mohammad Noor, Mohd Noor Norhayati, Imran Ahmad, Razlina Abdul Rahman	Effect Of Chia Seeds (*Salvia Hispanica L.*) as an Adjunct for Glycaemic Control and Weight Reduction in Patients with Type 2 Diabetes Mellitus: A Systematic Review and Meta-Analysis	11.25 am
CS-04	Zhong Zheng Koo, Wei Cheong Ngeow	The Effect of Hydration on Egg Membrane Perforation in Simulated Sinus Lift Surgery	11.35 am
CS-05	MD Nur Al Amin, Johari Yap Abdullah	Degenerative Alterations of Mandibular Condyle in Bangladeshi Population Revealed by Cone Bean Computed Tomography – A Pilot Study	11.45 am
CS-06	Wan Mohd Saifuhisam Wan Zain, Wan Norlina Wan Azman, Fashihah Sherina Abdul Hadi Sabri, Siti Noria Mansor, Lydia Michael Ijang, Ahmad Ezam Zainan	An Evaluation of Specimen Rejection Rates in Central Diagnostic Laboratory: The Causes and its Implications	11.55 am

CS-07	Wan NorSyafiqah W Yaacob, Ramiza Ramza Ramli, Norasnieda Md Shukri, Sakinah Mohamad, Mohd Jazman Che Rahim, Wong Bao Ling	Understanding the Association Between Chronic Rhinosinusitis and Bronchial Asthma Using Nasal Nitric Oxide	12.05 pm
CS-08	Ashwini M Madawana, Fadzlinda Baharin, Noraida Mamat, Haslina Taib, Fatimah Suhaily Abdul Rahman, Mohamad Arif Awang Nawi	Effect of Enzyme-Containing Mouth Spray on Oral Health Status of Children Attending Hospital Universiti Sains Malaysia, Kelantan	12.15 pm
CS-09	Arif Rahman Setyawan, Sri Kuswandari, Anrizandy Narwidina	Malocclusion in Primary Dentition: Early Detection of Oral Habits Contribution	12.25 pm

BIOMATERIALS
Venue: **Lecture Hall 2 (DK2)**

No.	**Presenter** / Authors	Title	Time
BM-01	Tian Shih Lin, Mohamad Syahrizal Halim, Zuryati Ab Ghani, Adam Husein, Khairul Anuar Shariff	Investigating the Low-Temperature Degradation of Zirconia Via a Novel Custom-Built Steam Chamber	2.20 pm
BM-02	Yee Mun Ho, Rabihah Alawi, Nor Aidaniza Abdul Muttlib, Yanti Johari	Evaluation of Polymerization Shrinkage and Hardness of Nanohybrid Composite Resin from Rice Husk Silica Reinforced with Kenaf Cellulose Nanocrystals	2.30 pm
BM-03	Althamin Shahad, Sarliza Yasmin Sanusi, Aimi Kamarudin, Dasmawati Mohamad, Yanti Johari	Evaluation of Degree of Conversion, Vickers Hardness, and Surface Roughness of Fissure Sealant Reinforced with Rice Husk-Derived Nanohybrid Silica	2.40 pm
BM-04	Sura Saleem Khalid, Zuryati Ab-Ghani, Khairul Anuar Shariff, Mohamad Syahrizal Halim, Siti Noor Fazliah Mohd Noor	Synthesis and Characterization of Sol Gel Derived 45s5 Bioactive Glass for Dental Application	2.50 pm
BM-05	Mohammed Mahdi Salih, Noor Huda Ismail, Raja Azman Raja Awang	Theoretical Analysis of Surface Treatment Techniques for Improving Metal-Porcelain Bonding in Prosthodontics: A Comprehensive Review	3.00 pm

BM-06	Sahar Suliman, Kasmawati Mokhtar	The Influence of Staining Media on the Color Stability and Translucency of Two Veneer Composites	3.10 pm
BM-07	Mohammed Mahdi Salih, Noor Huda Ismail, Raja Azman Raja Awang	Effect Of Bonding Agent and Surface Treatment on Metal-Ceramic Bond Strength Between Co-Cr Fabricated: A Review	3.20 pm
BM-08	Nor Ain Fatihah Azlisham, Yanti Johari, Dasmawati Mohamad, Mohd Firdaus Yhaya, Zuliani Mahmood	Flexural Strength of Newly Developed Flowable Composite Derived from Rice Husk at Different Levels of Flowability	3.30 pm
BM-09	Mohammed Mahdi Salih, Noor Huda Ismail, Raja Azman Raja Awang	A Comparison of the Casting Ability of Non-Precious Alloys	3.40 pm
BM-10	Fayez Hussain Niazi, Norhayati Luddin, Masitah Hayati Harun, Arshad Hasan, Thirumulu Ponnuraj Kannan, Suharni Mohamad, Amer Mahmood	Dentin–Pulp Complex Response in Molars of Rats After Occlusal and Cervical Restorations with Conventional Glass Ionomer Cement and Nano-Hydroxyapatite Silica Glass Ionomer Cement	3.50 pm

PUBLIC HEALTH
Venue: **Lecture Hall 1 (DK1)**

No.	Presenter / Authors	Title	Time
PH-02	Saidah Adilah Mohamed Yusof, Tengku Alina Tengku Ismail, Kamarul Imran Musa, Hasmaryanti Kamaruzzaman	Believing for Better: Predicting Health-Promoting Behaviors in Kelantan's Single Mothers	11.05 am
PH-03	Nor Azlina Abdullah, Wan Mohd Zahiruddin Wan Mohammad, Ahmad Filza Ismail, Aziah Ismail	Farmers in Focus: Assessing Melioidosis Knowledge, Attitude and Practice in Kelantan's Agricultural Workers	11.15 am
PH-04	Noor Khairin Nazifa Khalid, Noraida Mamat @ Mohd Yusuff, Fadzlinda Baharin, Norsarwany Mohamad, Khuzaimah Kamarazaman	Dental Education Impact Among Caregivers and Oral Health of Paediatric Oncology Patients Undergoing Cancer Treatment	11.25 am
PH-05	Nurul Asniza Abas, Munirah Mohd Adnan, Normastura Abd Rahman	Knowledge, Attitudes, and Practices in Infection Control Among Dental Assistants: A Cross-Sectional Study of Kelantan's Private Dental Clinics	11.35 am

PH-06	Daphne Wong Li Shien, Munirah Mohd Adnan, Normastura Abd Rahman, Muhammad Nazmi Abdul Majid	Prevalence And Susceptibility of Electronic Cigarette Use Among Adolescents in Kota Bharu, Kelantan	11.45 am
PH-07	Muhammad Iqbal Haji Mukhti, Mohd Ismail Ibrahim, Tengku Alina Tengku Ismail, Najib Majdi Yaacob	Unraveling Predictors of Men's Health Behaviors: Insights from Public Servants in Kelantan	11.55 pm
PH-08	Norhidayu Ginon, Zainab Mat Yudin, Wan Muhamad Amir Wan Ahmad, Erinna Mohammad Zon, Norhayati Mohd Noor, Azidah Abdul Kadir, Norsiah Ali	Knowledge and Attitude of Covid-19 Infection and Vaccination and its Associated Factors Among Pregnant Women in Malaysia	12.05 pm
PH-09	Raja Mohamed Zulzaim Raja Husni, Khuzaimah Kamarazaman, Norkhafizah Saddki, Norazlina Mat Nawi	Assessment of Health-Related Quality of Life Among Cancer Patients Attending Hospital Universiti Sains Malaysia	12.15 pm
LUNCH BREAK			
PH-10	Noorul Afiqah Kamarul Zaman, Normastura Abd Rahman, Munirah Mohd Adnan, Muhammad Nazmi Abdul Majid	Facilitating Factors and Barriers of Toothbrushing Among Primary Caregivers Towards Oral Healthcare of Their Children with Cerebral Palsy in Kelantan	2.20 pm
PH-11	Nurul Solehah Ismail, Normastura Abd Rahman, Munirah Mohd Adnan, Muhammad Nazmi Abdul Majid	Accessibility to Oral Health Care Services Among Children with Cerebral Palsy in Kelantan	2.30 pm
PH-12	Nor Aida Abdul Malik, Norkhafizah Saddki, Zuliani Mahmood	Provision of Anticipatory Guidance on Early Childhood Oral Healthcare for Caregivers/Parents of Infants and Toddlers Among the Ministry Of Health Dental Therapists	2.40 pm
PH-13	Harathi Dorairaja, Mohd Zulkarnain Sinor, Azzirawani Ariffin, Basaruddin Ahmad	Exploring the Factors Associated with the Acceptance of Virtual Dental Clinic, its Capability, Usefulness and Challenges Among Public Dental Practitioners in Malaysia	2.50 pm
PH-14	Esther Ang, Zurairah Berahim, Normastura Abdul Rahman, Siti Lailatul Akmar Zainuddin, Akram Hassan	Prevalence of Peri-Implantitis and Assessment of Oral Health-Related Quality of Life Among Patients with Dental Implants in Hospital Universiti Sains Malaysia	3.00 pm

PH-15	Nizamuddin Pardan, Ruhaya Hasan, Norkhafizah Saddki, Intan Farahana Abdul Rani	What Are the Factors Influencing Intention to Hold Toothbrushing Activities in Preschool Environment Among Preschool Teachers?	3.10 pm

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BS-01

ROLE OF HONEY POLYPHENOLS IN INFLUENCING TELOMERE LENGTH FOR CELL SENESCENCE INHIBITION

Siti Nuriah Mohd Noor[1], Ahmad Azlina[1], Marahaini Musa[2], Siew Hua Gan[3], Kannan Thirumulu Ponnuraj[1,2]

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Introduction: Ageing is a physiological process which includes cellular senescence caused by the shortening of telomeres. Telomere shortening attributes to many forms of diseases which originates from oxidative stress caused by the accumulation of 8-hydroxy-2-deoxyguanosine (8-oxodG) in cells. There is dearth of information on the regulation of telomeres using honey polyphenols.

Objective: This research aims to elucidate the mechanism by which the Malaysian Kelulut honey (KH) polyphenols influence the telomere length on human fibroblasts.

Methods: Isolation of polyphenols from KH will be performed using solid phase extraction (SPE) and quantified using high performance liquid chromatography (HPLC). These isolated polyphenols will be tested for cell proliferation using cell counting kit 8 (CCK8) assay, determine the telomere length variation, measure the level of oxidative stress marker, 8-oxodG and determine the cell senescence on human fibroblasts.

Expected Results: This study will throw light on the effect of KH polyphenols in increasing telomere length, thus in improving the longevity of life.

Significance of Contribution: This research will highlight on the potential values of natural honey as a nutritive agent for increasing the longevity of life by exploring its biological properties.

Keywords: ageing, antioxidants, oxidative stress, kelulut polyphenols, telomere length

BS-02

MOLECULAR ANGIOGENIC AND NFAT PROFILES OF ENDOTHELIAL DIFFERENTIATED-DENTAL STEM CELL TREATED WITH VEGF AND CULTURED ON HUMAN AMNIOTIC MEMBRANE

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Introduction: Angiogenesis is involves in endothelial cell migration, growth, and differentiation. Vascular endothelial growth factor (VEGF) plays an important role in this process. This study focuses on stem cell-endothelial differentiation by VEGF and investigates the involvement of the nuclear factor of the activated T cells (NFAT) pathway in this differentiation.

Objective: To investigate the molecular profiles of stem cells from human exfoliated deciduous teeth (SHED) differentiated into endothelial when treated with VEGF and cultured on the human amniotic membrane (HAM), with and without Cyclosporin A (CsA), an NFAT inhibitor.

Methods: Three categorised groups: untreated SHED (SH), SHED treated with VEGF (SVH), and SHED treated with VEGF and CsA (SVCH) were harvested on days 1, 3, 7 and 14 for RNA extraction. The samples were subjected to real-time qPCR to analyse gene expression related to NFAT pathway (*NFATc1, RCAN1-4*) and angiogenic genes (*VEGFR-2*, *CD31*, *COX-2*).

Results: Endothelial differentiation of SHED on HAM started on day 1, since *VEGFR-2* and *CD31* overexpressed in the SVH group compared to controls ($P<0.05$). *COX-2* was significantly expressed on day 7 and 14 ($P<0.05$). *NFATc1* overexpresed in SVH compared to the respective control group on day 1 ($P<0.05$). *RCAN1-4* in SVCH day 14 was highly expressed indicating positive feedback of CsA ($P<0.05$). Results indicated angiogenic and NFAT gene profiles of SHED cultured on HAM and treated with VEGF were affected by CsA.

Conclusion: The molecular profile indicated NFAT pathway might involve in the angiogenesis of SHED when cultured on a HAM scaffold treated with VEGF.

Keywords: NFAT pathway, VEGF, stem cells from human exfoliated deciduous teeth, human amniotic membrane, angiogenesis

BS-03

OPTIMIZING AMINO ACID STANDARD MATERIAL PROTOCOL UTILIZING GAS CHROMATOGRAPHY-MASS SPECTROMETRY: A RESEARCH VALUE

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Introduction: Gas chromatography-mass spectrometry (GC-MS) is a valuable tool for analyzing complex biological samples. Chemical derivatization is required to accurately measure amino acids through GC-MS. This process transforms the amino acids into derivatives that are more volatile, thermally stable, and responsive to mass spectrometry.

Objective: The objective of this study was to optimise the measurement of amino acids profiles using GC-MS. This approach utilises *in situ* preparation of amino acids standards.

Methods: Amino acids standard solution purchased from Sigma-Aldrich with Lot: SLCJ4452 was subjected to use in this assay. The solution was first evaporated till dry in a freeze-drying vacuum concentrator for at least 2 hours at -50 °C. The result dry residue was derivatized to promote volatility and enable GC-MS analysis.

Results: Several amino acids were successfully detected by GC-MS using amino acid standard material. The protocol for amino acid analysis from amino acid standard solution was successfully optimized. This optimized analytical method demonstrated high accuracy and precision in detecting and quantifying these specific amino acids. These findings have important implications for various fields, including cancer research, biochemistry, biotechnology, and pharmaceuticals.

Conclusion: Establishing an optimised protocol for amino acid standard material in GC-MS analysis has proven to be an effective means of ensuring the accuracy and reliability of experimental results, which is critical for advancing scientific knowledge and developing innovative technologies.

Keywords: gas chromatography-mass spectrometry, amino acid, standard

BS-04

TGFB PATHWAY NEGATIVELY REGULATED THE DIFFERENTIATION OF GLANDULAR EPITHELIAL-LIKE CELLS IN CO-CULTURED SHED

Siti Nurnasihah Md Hashim[1], Sarahani Harun[2], Ahmad Sukari Halim[3], Suzina Sheikh Abdul Hamid[4], Thirumulu Ponnuraj Kannan[1,5], Khairul Bariah Ahmad Amin Noordin[1], Nazia Abdul Majid[6], Ahmad Azlina[1,4,5]

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Introduction: Cells and tissues that line the cavities and cover the surfaces of the body constitute epithelium. In the endocrine system, epithelial cells, such as beta cells in the pancreas, are necessary to maintain glucose levels by producing insulin. Failure to properly differentiate beta cells can lead to insulin dysregulation, resulting in diabetes.

Objective: The effect of A83-01, a TGFB pathway inhibitor, on the regulation of epithelial differentiation in stem cells from human exfoliated deciduous teeth (SHED) was investigated using a co-culture model.

Methods: SHED were grown in an epithelial microenvironment. The cells were co-cultured with human epidermal keratinocytes (HEK001) in an induction medium known as keratinocyte serum-free medium (KSFM). The concentration of A83-01 was optimised, and 1 µM was used to treat the co-cultured SHED. The results were then analysed using an inverted microscope, reverse transcriptase real-time PCR (RT-qPCR), and immunocytochemistry.

Results: The inhibition study showed morphological changes in co-cultured SHED, where the cells exhibited cell deposition at the membrane periphery. Besides, gene markers associated with glandular epithelial cells, such as *SUSD2, GGT5, PPARG,* and *COL6A2*, and protein markers, such as Mucin 1, were expressed.

Conclusion: The TGFB pathway negatively regulated glandular epithelial differentiation. Our study holds promise for epithelial tissue regeneration.

Keywords: A83-01 inhibitor, co-culture, epithelial differentiation, stem cells from human exfoliated deciduous teeth, TGFB pathway

BS-05

ELUCIDATING THE ROLE OF B CELLS IN THE SKIN OF IMIQUIMOD (IMQ)-INDUCED PSORIASIS-LIKE MOUSE MODEL

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Introduction: Psoriasis is commonly considered a T cell-mediated autoimmune disease depicted by demarcated red skin lesions. However, recent studies suggest that B cells may also play a significant and fundamental role in its pathogenesis.

Objective: To investigate the role of B cells in the skin of IMQ-induced psoriasis-like mouse model.

Methods: Two groups of BALB/c mice: Control and IMQ-induced (n=6 each), were treated with topical IMQ cream to induce psoriasis-like skin inflammation. Skin samples were harvested at 3, 5, and 7 days, and were subjected to flow cytometry analysis ($CD19^+CD38^+$). Serum levels of B cell-activating factor (BAFF) and IL-10 were quantified using ELISA assays. RT-PCR was performed on skin samples to measure the expression of BAFF and IL-10.

Results: An increase in $CD19^+CD38^+$ B cells in the IMQ-treated mice compared to Control; Day-3 (p=0.994), Day-5 (p=0.012), Day-7 (p<0.001) was observed. ELISA results demonstrated elevated BAFF [Day-3 (p=0.082), Day-5 (p=0.002), Day-7 (p=0.001)] and decreased IL-10 [Day-3 (p=0.503), Day-5 (p=0.002), Day-7 (p=0.009)] in the serum samples of IMQ-induced mice compared to Controls. These findings were consistent with elevated gene expression of BAFF [Day-3 (p=0.221), Day-5 (p=0.098), Day-7 (p=0.015)] and decreased IL-10 [Day-3 (p=0.019), Day-5 (p=0.028), Day-7 (p=0.471)].

Conclusion: B cells may involve in the pathogenesis of psoriasis-like inflammation in the IMQ-induced mouse model. Increased BAFF which might be secreted by B cells is essential for its maturation, differentiation, and survival to mitigate the inflammation. Decreased IL-10 indicate an imbalance in cytokine levels and that anti-inflammatory cytokines had declined in an inflammatory condition.

Keywords: psoriasis**,** B cell, autoimmune, imiquimod, skin lesions

BS-06

EXPLORING ANTIBACTERIAL ACTIVITY OF HUMAN AMNIOTIC MEMBRANE ON ORAL GRAM-POSITIVE BACTERIA

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Introduction: Human amniotic membrane (HAM) derived from human placenta shows great potential for oral applications. The antimicrobial activity of this membrane is crucial for its effectiveness as a scaffold in oral tissue regeneration.

Objective: This study aims to evaluate the antibacterial activity of HAM against selected Gram-positive facultative anaerobic oral bacteria, specifically *Streptococcus mutans* (*S. mutans*), *Streptococcus sobrinus* (*S. sobrinus*), and *Enterococcus faecalis* (*E. faecalis*).

Methods: Glycerol-preserved HAM was cut into 1 cm² pieces, placed on agar plates inoculated with the bacteria, and incubated for 24 hours at 37°C in 5% CO_2 to assess the inhibition zones. To determine bacteriostatic or bactericidal activity, swabs were taken from the agar surface adjacent to the HAM and within the inhibition zone for re-culture on BHI agar plates, followed by a 24-hour incubation at 37°C in 5% CO_2.

Results: Results indicated that HAM inhibited the growth of *S. mutans* and *S. sobrinus* but not for *E. faecalis*. Furthermore, HAM demonstrated bactericidal efficacy against *S. mutans* and *S. sobrinus*.

Conclusion: This study confirms the antibacterial activity of HAM against specific streptococcal species. Further investigation into the antibacterial properties of HAM against other oral bacteria is recommended for a more comprehensive understanding.

Keywords: antibacterial, human amniotic membrane, scaffold, tissue regeneration

BS-07

EFFECT OF 660 NM LIGHT-EMITTING DIODE IRRADIATION ON THE PROLIFERATION AND MIGRATION OF FIBROBLAST CELL LINE IN AN *IN-VITRO* WOUND HEALING MODEL

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Introduction: Low-level light therapy (LLLT) is a treatment method that utilizes visible light exposure to tissues or cells. LLLT uses a laser or a light-emitting diode (LED) at a specific wavelength to stimulate, rejuvenate, and revive wounded cells.

Objective: The objective of this study is to assess the effect of irradiation of a 660 nm LED on the cell proliferation and migration of human gingival fibroblast cell line (HGnF) in an *in-vitro* wound healing model.

Methods: Fibroblast cells (HGnF) will be cultured in a 6-well plate. The treatment group will be exposed to 660 nm LED with 24 mW/cm^2 power for 240, 480, and 960 seconds, which will deliver 5.76, 11.52, and 23.04 J/cm^2 radiant exposure (dose) respectively, while the control will remain untreated. After 24- and 48-hour post-irradiations, the cell proliferation and viability will be determined using MTT assay, flow cytometry, and manual cell count. A 2D scratch assay will be performed to assess the cell migration. Cells will be scratched using a sterile tip and marked. The treated group will be illuminated with the LED with a similar time of exposure and observed the migration of cells for both treated and untreated groups.

Expected Outcomes: The utilization of 660 nm of LED light therapy will increase the proliferation rate of fibroblast cells thus decreasing the healing time and increasing the migration of the cells after scratch assay being implied. This approach is expected to enhance cell proliferation, migration, and differentiation, leading to accelerated wound healing.

Keywords: Light Emitting Diode (LED), wound healing, fibroblast cells, 660 nm

BS-08

EFFICACY OF OXY-IONIC SOLUTIONS WITH VARYING PH LEVELS AGAINST *STREPTOCOCCUS MUTANS* AND *CANDIDA ALBICANS* IN VITRO

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Introduction: Chlorhexidine (CHX) is a widely used antimicrobial agent known for its ability to inhibit cariogenic bacteria, reduce plaque formation, neutralize acidity, and promote remineralization. However, the efficacy of oxy-ionic solutions at different pH levels as an alternative antimicrobial treatment requires further exploration.

Objective: The objective of this study was to assess the antimicrobial efficacy of oxy-ionic solutions with varying pH levels against *Streptococcus mutans* and *Candida albicans* in comparison to CHX and fluoride.

Methods: This study employed disc diffusion tests to measure the inhibition zone diameters of each solution and broth dilution assays to determine the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC).

Results: The inhibition zone diameters for *S. mutans* were 10.14±0.24 mm (pH 3), 12.63±0.18 mm (pH 5), 7.45±0.10 mm (pH 7), 27.30±0.08 mm (CHX), and 7.30±0.04 mm (fluoride). For *C. albicans*, the inhibition zones were 16.41±0.33 mm (pH 3), 31.94±0.22 mm (pH 5), 7.27±0.25 mm (pH 7), 14.81±0.14 mm (CHX), and 8.61±0.22 mm (fluoride). MIC and MBC values indicated better antimicrobial activity of oxy-ionic solutions at lower pH levels.

Conclusion: While CHX remained highly effective against cariogenic bacteria, oxy-ionic solutions, particularly at pH 5, offered a promising alternative. The antimicrobial efficacy of oxy-ionic solutions was influenced by their pH levels. Further research is recommended to explore long-term effects and clinical applications of oxy-ionic solutions in maintaining oral health and preventing disease.

Keywords: dental care, mouthwash, electrolytic water, antimicrobial

BS-09

DETECTION OF NOVEL MUTATION IN NON-SYNDROMIC MANDIBULAR PROGNATHISM IN MALAY POPULATION: A GENETIC STUDY

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Introduction: Mandibular prognathism, characterized by a prominent lower jaw and concave facial profile, affects aesthetics, bite alignment, and speech. Genetic analyses suggest unique mutations and inheritance patterns for non-syndromic mandibular prognathism in different population. Further research is needed to identify the specific genetic cause in the Malay population.

Objective: This study aims to identify novel genetic mutations contributing to non-syndromic mandibular prognathism in the Malay population and understand its inheritance patterns.

Methods: Malay patients from AMDI Dental Clinic with mandibular prognathism were selected and diagnosed using cephalometric analysis. Five key patients and their affected family members were identified, resulting in 22 participants (11 affected, 11 unaffected) for genetic analysis. Whole Exome Sequencing (WES) identified ten genes, including three previously known (C1orf167, DUSP6, COL2A1) and seven novels (ZNF17, GEM, CYP26B1, LYSMD4, KAZALD1, FYCO1, CCDC110). Mutations were validated using Sanger Sequencing.

Results: Six novel single nucleotide polymorphisms (SNPs) linked to mandibular prognathism in Malay population were found: ZNF17 (rs2014827) at locus 19q13.43, GEM (rs2170363) at locus 8q22.1, CYP26B1 (rs2241057) at locus 2p13.2, LYSMD4 (rs72760587) at locus 15q26.3, KAZALD1 (rs807037) at locus 10q24.31, and FYCO1 (rs117543659) at locus 3p21.31. Additionally, three SNPs in C1orf167, COL2A1, and DUSP6 were found in both affected and unaffected individuals, suggesting they might not be directly causative. Pedigree analysis in one affected family indicated autosomal dominant inheritance.

Conclusion: Six novel SNPs associated with mandibular prognathism in the Malay population were observed, confirming unique genetic mutations. Further studies are essential to elucidate these genes' roles in mandibular development.

Keywords: mandibular prognathism, genetics study, novel mutation, inheritance pattern

BS-10

ANTIBACTERIAL AND CYTOTOXIC EFFECT OF CALCIUM HYDROXIDE NANOPARTICLES INCORPORATED WITH COPPER OXIDE AS A ROOT CANAL MEDICAMENT

Nurul Syamimi Othman, Huwaina Abd Ghani, Suharni Mohamad, Wan Nazatul Shima Shahidan, Nur Fatiha Ghazalli

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Introduction: Endodontic treatment is vital for reducing bacterial load within root canal systems and promoting healing. Nanoparticle-based approaches hold promise in overcoming limitations such as microbial resistance associated with current root canal medicaments.
Objective: To investigate the antibacterial and cytotoxic effects of a novel root canal medicament. Specifically, we will explore the potential of biosynthesised copper oxide (CuO) nanoparticles from *Piper betle* (PB) leaf extract as a liquid vehicle for calcium hydroxide (CaOH) against *Enterococcus faecalis* (*E. faecalis*) infections, and assess its cytotoxicity effect on gingival fibroblast cell lines.

Methods: The study involves biosynthesising CuO nanoparticles (CuONPs) from PB leaf extract and incorporating them into CaOH. The chemical functional groups of CaOH/CuONPs will be analysed by Fourier-transform infrared spectroscopy. A spectrophotometer will be used to measure the amount of Ca^{2+} released. The antibacterial activity (MIC assay) of the composite will be evaluated against *E. faecalis*. Additionally, cytotoxic effects on the gingival fibroblast cell line will be assessed via MTT assay.

Expected Results: The successful synthesis and characterisation of the CaOH-loaded CuO nanoparticle composite, demonstration of its potent antibacterial efficacy against *E. faecalis*, and its cytotoxic effects on the gingival fibroblast cell line are poised to advance the creation of natural-based endodontic treatment with promising clinical applications.

Significance of Research: The findings from this study will advance our understanding of the antibacterial properties of CuONPs combined with CaOH, offering valuable insights into their potential as an alternative root canal medicament.

Keywords: endodontic, *piper betle*, root canal treatment, root canal dressing, natural product

BS-11

FISH TO FINISH: *IN VIVO* EVALUATION OF NANO ANTIBIOTICS LOADED FISH-DERIVED SCAFFOLDS FOR PERIODONTAL BONE REGENERATION

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Introduction: Bone loss due to periodontal disease, trauma, or anatomical factors poses challenges in periodontology. Guided bone regeneration (GBR) is often used to restore lost bone tissue. However, the use of non-resorbable scaffolds can lead to bacterial colonization, hindering tissue regeneration and compromising GBR success. Additionally, scaffolds derived from non-halal sources raise religious concerns, particularly among Muslims.
Objective: This study aimed to develop a biodegradable fish-derived collagen-chitosan scaffold loaded with metronidazole nano-antibiotics to enhance periodontal regeneration and provide alternative to non halal scaffold.

Methods: A novel fish derived collagen-chitosan scaffold loaded with metronidazole nano-antibiotics was developed and throughly characterized through extensive analysis and *in vitro* studies. Eighteen male Sprague-Dawley rats were divided into three groups: one with untreated defects, one with defects covered by a hydrated collagen-chitosan scaffold, and one with defects covered by the scaffold loaded with nano-antibiotics. After 4 weeks, bone regeneration was assessed using x-ray imaging and histological analysis with Hematoxylin and Eosin (H&E) staining.

Results: Radiographic analysis showed complete bone regeneration in scaffold-treated groups, while the untreated group exhibited moderate regeneration. The untreated group had a 29.37% increase in bone regeneration, while both scaffold-treated groups achieved 100% bone healing. Histological analysis confimed well-integrated, mature bone in scaffold-treated groups, contrasting with less pronounced regeneration in the untreated group.

Conclusion: The fish-derived collagen-chitosan scaffold loaded with metronidazole nano-antibiotics effectively addresses scaffold biodegradation issues and promotes full bone healing in periodontal defects. It offers a halal alternative to non-halal scaffolds, thereby addressing concerns among Muslim communities.

Keywords: periodontal disease, guided bone regeneration, halal scaffolds, metronidazole nano-antibiotic, bone regeneration

BS-12

EVALUATION OF PERIODONTAL CELL GROWTH ON HUMAN AMNIOTIC MEMBRANE IMPREGNATED HONEY

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Introduction: Human amniotic membrane (HAM) has gained interest as a promising scaffold for periodontal regeneration. It provides suitable surface for cell attachment and proliferation, has low immunigenicity, rich in extracellular matrix (ECM) components, and exhibits anti-inflammatory properties. Meanwhile, honey has been found to play significant role in aiding periodontal regeneration due to its antibacterial, anti-inflammatory and wound healing properties.
Objective: The objective of this study was to elucidate the growth of human periodontal ligament fibroblast (HPDLF) cell on the human amniotic membrane (HAM) impregnated with Tualang honey.

Methods: HAM was soaked in 0.02% and 0.3% concentration of Tualang honey and incubated for 24 hours. HPDLF cell was seeded onto HAM with honey and its proliferation was analysed by using Presto blue reagent for day 1, 3, 7, 14, 21 and 28. HAM samples of day 1 and 28 was selected and prepared for scanning electron microscopy analysis. HAM without honey was used as a control.

Results: Cell proliferation of HPDLF on HAM with Tualang honey and without honey (control) are increasing from day 1 until day 28. However, cell proliferation of HPDLF seeded on HAM with Tualang honey are higher than HAM without honey. Meanwhile, cell morphology of HPDLF shows an increase in size and overlapping on day 28 compared to day 1.

Conclusion: The combination of HAM with Tualang honey gives better result in HPDLF cell growth and cell morphology. This combination has potential to be used as periodontal biomaterial in treating periodontitis.

Keywords: periodontitis, human amniotic membrane, Tualang honey, scaffold, periodontal regeneration

BS-13

IDENTIFICATION OF DIAGNOSTIC BIOMARKERS FOR BLEEDING MANIFESTATIONS IN DENGUE USING MICROARRAY AND BIOINFORMATICS TECHNIQUES

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Background: Dengue virus infection is one of the most significant mosquito-borne human diseases of the 21st century. It presents clinically as either a moderate febrile illness or a life-threatening condition known as dengue hemorrhagic fever. Currently, there are no predictive diagnostic markers for identifying individuals at risk of bleeding manifestations from this infection.

Objective: To investigate the potential of exosomal microRNAs to predict bleeding tendencies in dengue infection.

Methods: A total of 52 blood plasma exosome samples were analyzed, comprising 26 samples from patients with dengue without warning signs and 26 from those with warning signs. Total RNA was isolated from these samples. Small RNA analysis and microarray-based expression profiling were conducted to determine the miRNA profile of plasma exosomes, to identify predictive biomarkers for bleeding manifestations in patients with warning signs compared to those without. Predicted target genes were identified using TargetScan and miRDB. A protein- protein interaction (PPI) network was constructed and analyzed in Cytoscape to pinpoint hub genes to understand the potential regulatory roles of miRNAs and their associated genes in cellular processes.

Results: Microarray profiling revealed that 24 miRNAs were upregulated in the plasma-derived exosome miRNA in the dengue patients with warning signs. Functional analysis of target genes of these miRNAs in silico indicated their involvement in bleeding manifestation in dengue infection.

Conclusion: This study highlights hsa-miR-107 and hsa-miR-6879-5p as promising biomarkers for predicting bleeding in dengue fever. Further exploration of their clinical implications could pave the way for improved diagnostic strategies in dengue-infected individuals.

Keywords: biomarker, dengue bleeding manifestations, profiling, miRNA, exosomes

BS-14

THE GABAERGIC SYSTEM DURING CHRONIC PULPITIS: GENE & PROTEIN EXPRESSION ANALYSIS

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Introduction: Pulpitis, inflammation of the dental pulp, manifests primarily with dental pain as the main symptom. However, the exact pain mechanisms involved in pulpitis-related pain remain unclear, complicating the development of effective pain management strategies.
Objective: To determine and compare the expression level and patterns of the various genes and proteins involved in the GABAergic system, including the gamma-aminobutyric acid (GABA) neurotransmitter, glutamic acid decarboxylase enzymes (GAD 65 and GAD 67), vesicular GABA transporter (VGAT), GABA transporter (GAT) 1-3 and GABAA receptor subunits (GABRA1 and GABRB2), between healthy and chronic pulpitis human dental pulp.

Methods: Twenty six tooth samples will be obtained from individuals referred for orthodontic treatment. Total RNA will be isolated from the pulp of six healthy and six chronic pulpitis samples and real time-polymerase chain reaction will be performed to compare the gene expression levels. The remaining seven healthy and seven chronic pulpitis samples will be subjected to aptahistochemistry for visualization and comparison of the protein expression levels.

Expected Results: The expression of genes and proteins involved in the GABAergic system are expected to be significantly elevated in the chronic pulpitis samples compared to healthy samples. This upregulation is expected due to enhanced GABAergic signaling in response to inflammation, which may contribute to the pain experienced during chronic pulpitis.

Significance of Contribution: These findings will provide valuable insights into the role of GABAergic machineries involved in pain signalling of the inflammed dental pulp and could aid in the development of targeted therapeutic strategies for dental pain management.

Keywords: chronic pulpitis, gamma-aminobutyric acid, dental pain, pain signalling

BS-15

COMBINATION OF TANNIC ACID AND PAMIDRONATE ENHANCES BONE MINERALISATION IN HUMAN OSTEOBLAST/OSTEOCLAST CO-CULTURE MODEL

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Introduction: Osteoblasts (OB) work in balance with osteoclasts (OC) to maintain bone remodeling process. OB is responsible for the formation of new bone by secreting and mineralising the bone matrix. Pamidronate (PAM), tannic acid (TA) and their combination were able to increase the mineralisation of human foetal osteoblast (hFOB) 1.19 cells, but their effects on a co-culture model of OB/OC have yet to be determined.

Objective: To investigate the effects of TA, PAM, and their combination on OB mineralisation in OB/OC co-culture model.

Methods: hFOB 1.19/human peripheral mononuclear cell (PBMC) co-cultures (2OB:1OC) were maintained for 11 days. The cells were treated with PAM (1.351 µg/mL), TA (0.004 µg/mL), or a 50:50 combination of TA and PAM (0.007 µg/mL). Alkaline phosphatase (ALP) activity, as well as calcium and phosphate deposition, were analysed on days 1, 3, and 7. ALP activity was detected using an ALP staining kit (Red), while mineralised calcium and phosphate were assessed via Alizarin Red S and Von Kossa staining, respectively.

Results: On day 7, all treated cells exhibited higher levels of ALP, calcium, and phosphate production compared to the negative control group. On day 3, cells treated with TA and PAM alone showed enhanced calcium production. Throughout all time points, phosphate deposition was highest in the combination treatment group compared to the other groups.

Conclusion: TA, PAM, and their combination enhanced osteoblast mineralisation, as indicated by increased calcium phosphate deposition. The increased mineralisation of osteoblast observed on day 7, is likely due to elevated ALP production.

Keywords: osteoblast, osteoclast, co-culture, bone mineralisation, alkaline phosphatase

BS-16

ELUCIDATING THE EFFECT OF GOLD NANOPARTICLES ON TNFR2 EXPRESSION IN PERIPHERAL BLOOD MONONUCLEAR OF RHEUMATOID ARTHRITIS PATIENTS

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Introduction: Rheumatoid arthritis (RA) is an inflammatory disorder characterised by joint inflammation. Regulatory T (Treg) cells play a crucial role in maintaining immune system homeostasis. Previous studies have shown that TNFR2+ Treg cells are specifically suppressed during RA inflammation. In order to address this issue, gold nanoparticles (GNPs) may have the potential to impact the immunological responses in order to increase the generation of TNFR2+ Treg cells.

Objective: The aim of this study is to elucidate the interaction between GNPs and TNFR2+ Treg cells.

Methods: The peripheral blood mononuclear cell (PBMC) from RA patients were cultured into different media supplied with lipopolysaccharide (LPS), GNPs, etanercept and tumor necrosis factor-alpha (TNF-α) for 48 hrs at 37°C in 5% CO_2. The PBMC were harvested and stained with Treg markers: CD4, CD25, CD127, Foxp3, TNFR1 and TNFR2. The phenotyping of the cells was evaluated using flow cytometer and analysis was performed by FlowJo software.

Results: The proliferation of TNFR2+ Treg cells induced with GNPs is comparable to LPS, etanercept and in TNF-α. Our findings indicate that GNPs have the ability to enhance the expression of TNFR2 in Treg cells.

Conclusion: This study offers valuable insights to the understanding of the immunomodulatory impacts of GNPs on TNFR2+ Treg cells and emphasize the possibility of their applications in the field of immunotherapy and the management in RA disease.

Keywords: TNFR2, rheumatoid arthritis, nanoparticles, autoimmune disease, inflammatory disorder

BS-17

CONJUGATION OF QUANTUM DOTS WITH HEPATITIS B SURFACE ANTIGEN FOR SCREENING TEST APPLICATIONS

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Introduction: HBsAg, the first virological marker to be found on the viral surface, indicates an acute HBV infection. Quantum dots can be employed as fluorescent markers conjugated with antibodies targeting HBsAg, facilitating detection through the emission of measurable light upon binding of these quantum dot-antibody complexes to HBsAg in a sample.

Objective: The objective is to bioconjugate quantum dots with antibodies specific to HBsAg for the detection and measurement of recombinant HBsAg.

Methods: In this research, we employed bioconjugation to covalently attach HBsAg to QDs using carbodiimide chemistry. Following conjugation, the QD-HBsAg conjugates were purified and characterized. The screening strip was prepared by lining the test and control antibodies on the membrane, and the conjugated quantum dot-antibody on the conjugate pad. The test strip was tested by immobilizing the samples on the sample pad. The tested strips were visualized under UV light for confirmation of conjugation. The sensitivity of the strip was determined using recombinant antigen with a concentration range from 15.0 µg/mL to 0 µg/mL.

Results: The quantum dot was bioconjugated to HBsAg and has been proved by gel electrophoresis. It also shows great sensitivity and high specificity when tested against HCV, HIV, and negative HBsAg virus.

Conclusion: The quantum dots have been successfully conjugated to hepatitis B surface antigen and are a promising approach for developing next-generation screening tests for HBV.

Keywords: quantum dots, hepatitis B virus, screening test, accuracy, sensitivity

BS-18

D-GALACTOSE-INDUCED COGNITIVE DEFICITS IN 8-WEEK-OLD SWISS ALBINO MICE: A SIX WEEK STUDY

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Introduction: Animal models are widely used to study aging, dementia, and neurodegenerative disorders, yet the rationale for choosing specific models and methods is often unclear. This study employs D-galactose-induced aging model in eight-week-old Swiss albino mice.

Objective: To identify the optimal dosage for inducing a reliable aging phenotype, providing a robust model for future research and therapeutic testing.

Methods: Twenty-eight male Swiss albino mice were randomly divided into four groups: control group receiving normal saline and three experimental groups receiving subcutaneous injections of D-galactose at doses of 50mg/kg, 200mg/kg and 500mg/kg for six weeks. Behavioral analysis was conducted using novel object recognition test at the end of intervention. Later, all mice were euthanized. Blood samples were collected for biochemical analysis, and the brain tissues were harvested for histological examination.

Results: Significant differences were observed in behavioral tests between the three dosages of D-galactose administrations ($p<0.05$). There were significant alterations in the levels of inflammatory markers including IL-2, IL-6, IFN-γ & TNF-α across all three dosages ($p<0.05$). Histological analysis revealed the presence of the amyloid plagues in brain tissues was detected, indicating the presence of protein aggregates following six weeks of intervention.

Conclusion: Administration of D-galactose via subcutaneous injection in 8-week-old Swiss albino mice demonstrates the potential to model aging and dementia-related conditions. The 500mg/kg dosage resulted in significant behavioral alterations, changes in inflammatory marker levels, and brain histology, compared to 50mg/kg and 200mg/kg dosages. Further research into underlying mechanisms may contribute to the development of effective therapies for combating dementia.

Keywords: D-galactose, dosage, mice model, neurodegenerative disease, Swiss albino

BS-19

EFFECT OF KECOMBRANG FLOWER (*ETLINGERA ELATIOR*) ETHANOLIC EXTRACT ON INTERLEUKIN-1β EXPRESSION IN *RATTUS NOVERGICUS* MODEL OF PERIODONTITIS AND TYPE 2 DIABETES

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Introduction: Interleukin-1β (IL-1β) is one of the common cytokines that links the pathogenesis of the bidirectional relationship between periodontitis and type 2 diabetes (T2D). Kecombrang's substantial compounds have therapeutic effects as antioxidants, anti-inflammatory, and anti-hyperglycemia.

Objective: The purpose of this study was to discover the effect of Kecombrang flowers ethanolic extract on the expression of IL-1β cytokines observed from the gingival tissue of periodontitis and T2D-induced Rattus novergicus which has been injected with Kecombrang flowers ethanolic extract and saline as control.

Methods: A total of 32 paraffin blocks of gingival tissue of periodontitis and T2D-induced Rattus novergicus were divided into 2 groups, namely Kecombrang and saline, which were observed on days 1, 3, 5, and 7. Immunohistochemical staining was carried out, the number of immunopositive cells expressing IL-1β was counted, and data analysis was performed.

Results: The results showed the highest IL-1β expression on day 1 and the lowest on day 7 in the Kecombrang group. There was a significant decrease ($p<0.05$) in the amount of IL-1β expression in the Kecombrang group from day 1 to day 3, day 5, and day 7. In contrast, IL-1β expression in the saline group showed a significant increase ($p>0.05$) on day 5 and 7.

Conclusion: Kecombrang flowers (Etlingera elatior) ethanolic extract was effective in decreasing IL-1β expression in periodontitis and T2D-induced Rattus novergicus model. These findings suggest that Kecombrang flowers has potential as dual therapy agent with a specific target in treating periodontitis and T2D.

Keywords: *Etlingera elatior*, interleukin-1β, cytokines, periodontitis, type 2 diabetes

CS-01

EFFECT OF PAEDIATRIC OBESITY ON DENTINAL REMINERALISATION POTENTIAL OF COMMERCIALLY AVAILABLE P11-4 SELF ASSEMBLING PEPTIDE

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Introduction: Obesity, a multisystem condition develops due to excessive energy intake, physical inactivity and genetic susceptibility. An increase in body mass index (BMI) lead to increased susceptibility to dental caries.

Objective: To assess the effect of saliva of obese and non-obese children aged 10 to 17 years having high dental caries on remineralisation of dentine using commercially available P11-4 self-assembling peptide (Curodont Repair®).

Methods: This study will be carried out in two stages. Twenty pediatric patients with DMFT>5 will be selected and divided equally into two groups; (1) The experimental group comprising obese children (BMI≥ +2SD); (2) control group comprising normal weight children (BMI≤ +1SD). Saliva will be collected from each child and stored at -80°C. Twenty dentinal discs (5 x 3mm) from another set of extracted natural human teeth will be prepared and subjected to three P11-4 self-assembling peptide applications followed by surface characterisation using scanning electron microscopy (SEM). Next, these discs will be immersed in the saliva of paediatric patients collected earlier for 28 days with 48 hrs cycle. SEM analyses will be carried out at 7th and 28th day of saliva immersion. SEM analyses will be done to assess the number of open tubules.

Expected Results: There will be a significant difference between the numbers of open dentinal tubules in dentine discs immersed in the saliva of obese children compared to normal weight children.

Clinical Significance: This will ensure the prolongation of clinical longevity and betterment of treatment regime for dentinal caries.

Keywords: paediatric, obesity, dental caries, self-assembling peptide, SEM

CS-02

COMPARATIVE EVALUATION OF FRACTURE RESISTANCE BETWEEN SOUND AND ENDODONTICALLY TREATED HUMAN MAXILLARY PREMOLARS WITH DIFFERENT NUMBER OF REMAINING WALL(S): AN *IN VITRO* STUDY

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Introduction: Human teeth are subjected to occlusal stresses during daily oral functions. Endodontic treatment is an alternative treatment for tooth which otherwise need to be extracted and can be done electively for restorative purposes. It is believed that the number of remaining walls of tooth and endodontic treatment would significantly affect the fracture resistance of tooth.

Objective: To compare the fracture resistance of sound and endodontically treated human maxillary premolars with different number of remaining wall(s)

Methods: A total of 70 sound human maxillary premolars were randomly distributed into 7 groups. Group 1 as control group, Group 2, 3 and 4 were the study groups with 3-, 2- and 1 wall(s) remaining respectively. Group 5, 6 and 7 were study groups with 3-, 2-, and 1 wall(s) remaining respectively and were endodontically treated. All study group samples were restored with resin composite and all samples were subjected to 500 cycles of thermocycling before being tested for fracture resistance (N) with Universal Testing Machine. Two-way ANOVA was used to compare fracture resistance among all groups.

Results: Only Group 5 and Group 7 showed significant difference in their fracture resistance. Group 7 (1163.88±232.38N) with only 1 wall remaining had higher mean of fracture resistance compared to Group 5 (843.87±266.8N). The fracture resistance of Group 1 (control) was 1007.42±258.89N.

Conclusion: Endodontic treatment did not have significant effect on fracture resistance. Contrarily, remaining wall(s) affects fracture resistance significantly. However, fracture resistance did not reduce with the reduction of remaining wall(s).

Keywords: fracture resistance, endodontically treated, remaining walls, maxillary premolars, root canal treatment

CS-03

EFFECT OF CHIA SEEDS (*SALVIA HISPANICA L.*) AS AN ADJUNCT FOR GLYCAEMIC CONTROL AND WEIGHT REDUCTION IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: The prevalence of diabetes has increased rapidly worldwide, and evidence suggests that chia seeds can help with insulin resistance, abnormal lipid profiles, glucose tolerance, and obesity.

Objective: This study aimed to determine the effectiveness of chia seeds (Salvia Hispanica L.) as an adjunct for glycaemic control and weight reduction in patients with type 2 diabetes mellitus (T2DM).

Methods: Four randomized clinical trials were sourced from the Cochrane Central Register of Controlled Trials CENTRAL and PUBMED (1985 to January 2022). Random effect models estimated continuous outcomes and mean differences (MDs) with 95% confidence intervals (CIs). Data were assessed for risk of bias, heterogeneity, sensitivity, reporting bias, and quality of evidence.

Results: Four studies with 184 participants were included. For the first comparison between chia seed and control, chia seed reduced HbA1c (MD -0.20, 95% CI -0.25 to -0.15; $I^2 = 0$; $P < 0.001$; three trials, 140 participants) and fasting blood glucose (MD -0.68, 95% CI -1.45 to 3.13; $I^2 = 30\%$; $P = 0.03$; three trials, 140 participants). Chia seed also reduced waist circumference (MD -3.00, 95% CI -3.41 to -2.59; $I^2 = 0\%$; $P < 0.001$; 58 participants). For the second comparison between polyherbal preparation containing chia seed and control, polyherbal reduced HbA1c (MD -0.27, 95% CI -0.31 to -0.23; $P < 0.001$; 87 participants) and fasting blood sugar (MD 0.13, 95% CI 0.02 to 0.24; $P = 0.02$; 87 participants).

Conclusion: Chia seed improves HbA1c, fasting blood sugar, and reduces waist circumference in T2DM patients.

Keywords: chia seeds, type 2 diabetes mellitus, glycaemic control

CS-04

THE EFFECT OF HYDRATION ON EGG MEMBRANE PERFORATION IN SIMULATED SINUS LIFT SURGERY

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Introduction: Maxillary sinus membrane perforation is one of the most common complications of sinus lift surgery. Hydrating the membrane prior to lifting has been suggested to reduce the chance of membrane perforation.

Objective: To assess the effect of hydration when performing sinus lift surgery.

Methods: To simulate sinus surgery, a square shaped window was created on 84 eggs (n = 84) using ultrasonic tip, then they were divided into 7 groups (n = 12 each) where the exposed membrane was either left non-hydrated or being hydrated with normal saline, oxygen-based mouthwash, hyaluronic solution or 2 versions of its gel, and a saliva substitute, for 3 minutes. Non-hydrated group of eggs were soaked in water bath at 35°C to simulate body temperature while all the hydrating solutions and gels were kept at 40°C prior to usage. The egg lining that simulates sinus membrane was thereafter lifted using ultrasonic tip.

Results: Membrane hydration prior to lifting reduces the rate of membrane perforation; results showing X^2 (2, N = 84) = 13.02, p = 0.015, meaning significantly lower membrane perforation rates were found in hydrated groups (2.78% - 11.11%) compared to non-hydrated group (41.67%). Finding also showed there was no significant difference on the success rate between different types of hydration materials (successful sinus lift between 83.33% - 100%).

Conclusion: Hydrated membrane reduces the incidence of membrane perforation. There was no significant difference on the success rate using different types of material to hydrate the membrane.

Keywords: sinus lift surgery, sinus membrane perforation, hydration, eggshell membrane

CS-05

DEGENERATIVE ALTERATIONS OF MANDIBULAR CONDYLE IN BANGLADESHI POPULATION REVEALED BY CONE BEAN COMPUTED TOMOGRAPHY–A PILOT STUDY

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Introduction: Temporomandibular disorders (TMDs) possess a complicated etiology that is associated with various predisposing factors. Degenerative changes in the mandibular condyle are commonly observed in patients with TMDs.
Objective: This study was conducted to explore degenerative alterations of the mandibular condylar and their correlation with gender, age, and side (left/right) by using cone beam computed tomography (CBCT).

Methods: This case-control pilot study was executed for 60 temporomandibular joints (TMJs) in 30 patients with 15 symptomatic (case) and 15 asymptomatic (control). Condylar bony changes like osteophyte, erosion, flattening, subcortical sclerosis, and subcortical pseudocyst were analyzed.

Results: There were statistically significant differences in bony changes between the case and control groups; erosion ($p < 0.05$), osteophytes ($p < 0.05$), subcortical pseudocyst ($p < 0.05$), flattening ($p > 0.05$), and subcortical sclerosis ($p > 0.05$). The most prevalent type of bone alteration for the case group was erosion (93.3%), whereas the least prevalent change was observed (43.3%) for osteophytes and subcortical pseudocyst.

Conclusion: Based on this study, the left-sided condyle was more affected than the right side. Additionally, the control group also poses few degenerative changes.

Keywords: temporomandibular disorders, degenerative alterations, cone beam computed tomography, CBCT, Bangladeshi population

CS-06

AN EVALUATION OF SPECIMEN REJECTION RATES IN CENTRAL DIAGNOSTIC LABORATORY: THE CAUSES AND ITS IMPLICATIONS

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Introduction: Pre-analytical errors play a crucial role in the reliability of diagnostic tests and can significantly impact patient safety and treatment decisions.
Objective: This study aims to ascertain the frequency of specimen rejection at the Central Diagnostic Laboratory (CDL) Hospital USM from August 2023 until April 2024.

Methods: A retrospective study was conducted. The criteria for the rejection of specimens include: (1) absence of a requisition in the Laboratory Information System (LIS), (2) incorrect identification of the patient or mislabeling of specimens, (3) missing specimens or forms, (4) erroneous test requests, (5) non-adherence to laboratory procedures, (6) specimens were sent to the wrong destination and (7) other miscellaneous reasons. The cost associated with preparing a single specimen is calculated as RM47.21.

Results: During this period, 653 (0.24%) out of 269,334 specimens were rejected. The cost attributed to each rejected specimen during this timeframe was RM 30,828.13. The predominant reason for specimen rejection was the absence of a requisition in the LIS, with 234 (35.83%), followed by failure to adhere to established laboratory procedures 150 (22.97%). Nonetheless, rectification strategies significantly reduced requisition absences in the LIS from 53-80 instances in August and September 2023 to one instance in April 2024.

Conclusion: The primary cause of specimen rejection at our laboratory is the absence of a LIS requisition. Implementing targeted interventions backed by interdisciplinary collaboration serves to improve the rejection rate. This, in turn, enhances patient care and safety while concurrently diminishing hospital costs.

Keywords: specimen rejection, pre-analytical error, cost, laboratory

CS-07

UNDERSTANDING THE ASSOCIATION BETWEEN CHRONIC RHINOSINUSITIS AND BRONCHIAL ASTHMA USING NASAL NITRIC OXIDE

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Introduction: Nasal nitric oxide (nNO) has been extensively researched as a promising clinical indicator of inflammation in the upper airways. It is useful for screening and treating individuals with chronic rhinosinusitis (CRS), allergic rhinitis, cystic fibrosis, and primary ciliary dyskinesia.
Objective: To establish the average nNO levels in patients with CRS and asthma, and assess its relationship with nasal symptom scores.

Methods: This is a case-controlled study involving a total of 52 participants categorized equally into two groups which comprised CRS patients only and CRS patients with asthma. Sino-nasal Outcome Test (SNOT-22) questionnaires were used. The nNO levels were measured using NIOX Vero device. Statistical analysis included independent T-tests and Mann-Whitney tests to compare mean nNO values between those two groups. Spearman's Rho correlation analysis was employed to assess the relationship between nNO levels and SNOT-22 scores.

Results: The nNO levels were significantly lower in CRS group with asthma compared to the group without asthma. A significant negative correlation was identified between nNO and nasal congestion. However, there was no statistically significant difference in SNOT-22 scores between those groups. The optimal cut-off point for distinguishing between CRS with and without asthma was determined to be 175.5 parts per billion, with a sensitivity of 65.4% and a specificity of 69.2%.

Conclusion: The study revealed a statistically significant difference in nasal nNO levels between patients with CRS only and those having both CRS and asthma. Hence, nNO levels can be used as a diagnostic tool to differentiate between those two groups.

Keywords: nitric oxide, rhinosinusitis, asthma, nasal obstruction

CS-08

EFFECT OF ENZYME-CONTAINING MOUTH SPRAY ON ORAL HEALTH STATUS OF CHILDREN ATTENDING HOSPITAL UNIVERSITI SAINS MALAYSIA, KELANTAN

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Introduction: Ensuring proper oral hygiene in young children is particularly difficult due to their growing motor skills and immature swallowing ability. Mouth sprays that control plaque chemically provide a promising additional approach to cleaning teeth mechanically.

Objective: This study aimed to assess the efficacy of Oral7 mouth sprays, composed of naturally existing salivary enzymes, in improving dental health in physically fit and healthy children between the ages of 4 and 7.

Methods: This randomized, double-blind, placebo-controlled trial was conducted at Hospital Universiti Sains Malaysia, Kelantan. Fifty-two children with dental caries received Oral7 mouth spray or a placebo and oral hygiene advice. Paired T-tests evaluated plaque, gingival, and salivary bacterial counts at baseline and after 4 weeks.

Results: The intervention group had significantly lower plaque and gingival scores from 0.758 (SD=0.355) to 0.304 (SD=0.318) and 0.319 (SD=0.294) to 0.065 (SD=0.185), respectively. The control group had less significant changes, with plaque score changing from 0.758 (SD=0.379) to 0.631 (SD=0.381) (p=0.001*) and gingival score changing from 0.469 (SD=0.345) to 0.431 (SD=0.369) (p=0.153). In the intervention group, the mean bacterial count decreased (p=0.026*); in the control group, it did not (p=0.284).

Conclusion: When used with standard oral hygiene practices, Oral7 mouth spray significantly reduces plaque and gingival scores, as well as saliva bacteria count, indicating improved oral health in young children.

Keywords: enzymatic-spray, plaque control, gingival health, salivary bacteria, children

CS-09

MALOCCLUSION IN PRIMARY DENTITION: EARLY DETECTION OF ORAL HABITS CONTRIBUTION

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Introduction: Malocclusion is an abnormality that often occurs in children, and the prevalence of malocclusion in Indonesia is still quite high at about 80%. In the primary dentition period, the tendency for malocclusion that has begun to appear can be detected. Oral habits are contributing factors that may lead to malocclusion directly and indirectly. Data on the incidence of malocclusion and oral habits in children are important as a guide for early intervention; however, in Yogyakarta City, there is no data on the prevalence of malocclusion and oral habits in children.

Objective: To identify the occlusal characteristics and oral habits of children in Yogyakarta City by conducting a study on kindergarten children.

Methods: This is a cross-sectional study with a study population of kindergarten children in Yogyakarta City. Schools will be selected based on the representation of each district. Malocclusion and oral habits will be evaluated in children at an early stage and subsequent examinations will be conducted for children with oral habits.

Expected Results: The results are expected to identify the characteristics of malocclusion and oral habits in children where the relationship between oral habits and malocclusion will be analysed. This study is expected to create an early detection technology and guidelines for managing malocclusion.

Significance of Research: Early detection of malocclusion caused by oral habits is important for determining an early intervention that will prevent the malocclusion from worsening comprehensively.

Keywords: oral habits, malocclusion, children, preschool, primary dentition

BM-01

INVESTIGATING THE LOW-TEMPERATURE DEGRADATION OF ZIRCONIA VIA A NOVEL CUSTOM-BUILT STEAM CHAMBER

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Introduction: Zirconia's susceptibility to low-temperature degradation (LTD) poses challenges to its structural reliability. Stabilizing oxides are used to prevent catastrophic cracking, but ageing in humid oral environment can still compromise mechanical stability. This necessitates precise ageing protocols to understand and mitigate these challenges effectively.

Objective: To investigate the effect of LTD via accelerated ageing on the characteristics of the novel calcia-stabilised zirconia prepared by sol-gel method (Ca-SZ) and commercially available zirconia of Y-TZP type (CEREC).

Methods: LTD was simulated in a custom-built steam chamber, where experimental variables such as temperature, pressure of water vapor, and elapsed time could be controlled. The parameters were set at 134 °C, pressure of ≥ 2 bar, and a period of over 20 hours. The effect of ageing on the characteristics and flexural strength of Ca-SZ and CEREC was determined.

Results: The surface morphology of the Ca-SZ showed cracks and agglomeration of particles with irregular shapes and sizes after ageing. Agglomeration of particles can also be observed on the surface of CEREC. A statistically significant difference was observed on the flexural strength of Ca-SZ after ageing, from 53.89 MPa to 4.64 MPa. However, there were no statistically significant differences in the effect of ageing on the flexural strength of CEREC, which remained relatively stable at 388.32 MPa to 402.31 MPa after ageing.

Conclusion: The custom-built steam chamber successfully aged both zirconia samples according to the ageing protocol, resulting in an impact on the flexural strength of the Ca-SZ sample.

Keywords: ageing, low-temperature degradation, zirconia, Y-TZP

BM-02

EVALUATION OF POLYMERIZATION SHRINKAGE AND HARDNESS OF NANOHYBRID COMPOSITE RESIN FROM RICE HUSK SILICA REINFORCED WITH KENAF CELLULOSE NANOCRYSTALS

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Introduction: The use of fiber reinforced composite in dentistry is growing due to excellent biomechanical properties. Natural products incorporated into composite resin to develop bio-composites has begun to gain popularity among researchers.

Objective: This study aimed to evaluate the polymerization shrinkage (PS) and hardness of experimental nanohybrid composite resin (ENC) from rice husk silica reinforced with kenaf cellulose nanocrystals (CNC).

Methods: A total of 126 samples were used for PS and hardness test and equally divided into 7 groups; Nanohybrid composite resin without kenaf CNC (Group 1), ENC reinforced with 2% kenaf CNC treated with different ratio of coupling agent γ- methacryloxypropyltrimethoxysilane (γ-MPS) and tetraethyl orthosilicate (TEOS): 0:1, 1:1, 1:2, 1:3 (Groups 2, 3, 4, and 5 respectively), Ever-X Posterior (GC Corporation, Tokyo, Japan) (Group 6), and NexComp (Meta Biomed, Chungbuk, Korea) (Group 7). Buoyancy method was used to test for PS, and samples were weighed in both air and water to obtain shrinkage value. Vickers hardness test was used to test the hardness of the samples.

Results: All ENC exhibited comparable PS ($p>0.05$) to commercialized fiber reinforced and nanohybrid composite. ENC reinforced with kenaf CNC treated with 1:2 and 1:3 ratio of coupling agent γ-MPS: TEOS showed comparable hardness that was akin ($p>0.05$) to that of commercial products.

Conclusion: ENC demonstrated comparable PS to commercial composites tested and acceptable hardness value. ENC reinforced with kenaf CNC can be the alternative composite resin derived from agricultural bio-waste.

Keywords: nanohybrid composite resin, rice husk silica, kenaf cellulose nanocrystals, polymerization shrinkage, hardness

BM-03

EVALUATION OF DEGREE OF CONVERSION, VICKERS HARDNESS, AND SURFACE ROUGHNESS OF FISSURE SEALANT REINFORCED WITH RICE HUSK-DERIVED NANOHYBRID SILICA

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Introduction: Recently rice husk silica is investigated as a promising biocompatible filler material for dental composite materials.

Objective: To investigate the potentisal of rice husk-derived nanohybrid silica as a material for fissure sealants, focusing on its impact on mechanical properties and degree of conversion (DC).

Methods: As control, commercially available fissure sealant (Clinpro™) was used (n=5). Experimental group comprised fissure sealants with three different filler loading of rice husk nano-hybrid silica and nano-hybrid hydroxyapatite. These groups were mixed with two different methods (manually and sonication), and examined in two different curing times (10 and 20 seconds) (n=5/group). DC was measured using Fourier Transform Infrared (FTIR) spectroscopy. Profilometry evaluated surface roughness. Statistical analyses included one-way ANOVA and paired t-tests.

Results: Experimental groups showed acceptable DC values however, these values were lower than the control. Experimental groups showed no significant difference in DC with different filler loading, mixing methods, or curing time. Vickers hardness demonstrated highest values in sonicated groups followed by manually mixed then control groups. Additionally, a higher rice husk nano silica content appeared to enhance material hardness with 20 seconds curing time. Surface roughness was unaffected by mixing methods and filler ratios. However, curing time showed a statistically significant effect, with slightly lower roughness for 10-second cured samples.

Conclusion: This study suggests that mixing techniques and curing time significantly impact the mechanical properties of fissure sealants reinforced with rice husk-derived nanohybrid silica. Further research might be necessary to determine the impact of these factors on different processing parameters.

Keywords: fissure sealant, rice husk nanohybrid silica, nanohydroxyapatite

BM-04

SYNTHESIS AND CHARACTERIZATION OF SOL GEL DERIVED 45S5 BIOACTIVE GLASS FOR DENTAL APPLICATION

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Introduction: In our previous study, nano calcia partially stabilized zirconia (Ca-PSZ) was developed by mixing nano calcium oxide (CaO) derived from cockle shells with commercial zirconia oxide. However, this newly developed nano Ca-PSZ is opaque. To further enhance the aesthetic properties, zirconia reinforced glass will be developed. Glass materials have a molecular structure of irregular and liquid-like (non-crystalline), and it can provide an adequate aesthetic appearance similar to that of a natural tooth.

Objective: To synthesize and characterize the physical features of the 45S5 bioactive glass based on Design of Experiment (DOE) method through sol-gel technique which will be incorporated in the Ca-PSZ.

Methods: A 45S5 bioactive glass was synthesized through the sol-gel technique which includes mixing, gelation, aging, drying and calcination. The sample was then characterized using a field emission scanning electron microscope (FESEM), an energy dispersive X-ray analyzer (EDX), X-ray diffraction (XRD), X-ray Fluorescence (XRF) and Fourier Transform Infrared (FTIR).

Results: The particles of the 45S5 bioactive glass showed nanorod-like in FESEM image, and EDX analysis confirms the presence of Si, Na, Ca, P, O and C in the sample. XRD analysis of the sample showed the crystalline peaks. XRF and FTIR analysis also confirm the formation bioactive glass particle.

Conclusion: The 45S5 bioactive glass synthesized in the current study could be incorporated in Ca-PSZ to improve the aesthetic properties of the dental material.

Keywords: aesthetic, bioactive glass, biomaterials, dental material, sol-gel

BM-05

THEORETICAL ANALYSIS OF SURFACE TREATMENT TECHNIQUES FOR IMPROVING METAL-PORCELAIN BONDING IN PROSTHODONTICS: A COMPREHENSIVE REVIEW

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Introduction: In prosthodontics, surface treatment procedures significantly enhance the bond strength between metal and porcelain. Sandblasting roughens the metal substructure's surface, promoting better retention for porcelain adhesion. Chemical etching creates micro-irregularities on the metal surface, facilitating mechanical interaction between the metal and porcelain.

Objectives: To conduct a review on theoretical analysis of surface treatment techniques for improving metal-porcelain bonding in prosthodontics

Methods: When Google Scholar was searched, 124 scientific research emerged, and with filtration of the results from 2019 to 2024, the results were reduced to 41 scientific research. When more keywords were restricted to more appropriate results, only 5 scientific research were selected, and systematic review analysis and comparison were made.

Results: All five research studies investigated metal surface properties following various processing techniques. Laser processing notably improved bonding strength with ceramics. Additionally, techniques such as melt-blown laser manufacturing and multi-metal printing reduced marginal gaps. Furthermore, selective laser melting of sub-metal in dental crowns enhanced resistance under static and dynamic loads. While no single best method for metal surface treatment exists, these studies provide valuable insights into different techniques and their effects.

Conclusion: In prosthodontics, successful bonding hinges on meticulous surface preparation, material selection, and production techniques. Sandblasting and chemical etching enhance surface robustness for porcelain adherence. Bonding materials like resin cement and dental adhesives significantly impact strength and longevity. Selective laser melting shows promise for enhancing mechanical properties in metal-porcelain restorations, but long-term effectiveness requires further study. In essence, optimal outcomes depend on understanding surface treatment procedures.

Keywords: metal surface treatment, laser treatment, dental crowns, marginal gap, bond strength

BM-06

THE INFLUENCE OF STAINING MEDIA ON THE COLOR STABILITY AND TRANSLUCENCY OF TWO VENEER COMPOSITES

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Introduction: Discoloration in resin composite dental materials can lead to failure and replacement, primarily due to dietary stains adsorption.

Objective: To evaluate the effect of staining solutions on the color stability and translucency of two types of resin composite dental materials.

Methods: In total, 52 specimens from each 3M™ Filtek™ One Bulk Fill Restorative (Material I) and a nano-hybrid composite 3M™ Filtek™ Z350 XT Universal Restorative (Material II) were prepared and evaluated for color stability and translucency. Specimens were subdivided into 4 subgroups (n = 13) based on the staining used: coffee, black tea, orange juice and distilled water (control). (ΔE) and (ΔTP) measured using a digital spectrophotometer at baseline and after 15 days of immersion in the staining solutions. Data were collected and analyzed using t-test, Two-Way (ANOVA) and Tukey's HSD test.

Results: Both materials demonstrated similar significant color changes in staining solutions with mean ± SD ΔE values as follows (material I, material II): orange juice [(2.57 ± 1.94), (2.73 ± 2.22)], black tea [23.30 ± 4.70), (20.26 ± 2.61)] and coffee [(26.20 ± 4.86), (27.31 ± 4.22)]. Additionally, both materials showed similar significant changes in TP values (material I, material II): coffee [(1.34 ± 0.88), (1.08 ± 0.67)], black tea [(1.45 ± 1.55), (1.69 ± 2.52)] and orange juice [(2.71 ± 0.89), (2.22± 0.89)]. Control specimens showed no significant changes in ΔE or ΔTP.

Conclusion: Both composite restorative materials showed similar color stability and translucency changes when immersed in staining solutions.

Keywords: color stability, translucency parameter, staining solutions

BM-07

EFFECT OF BONDING AGENT AND SURFACE TREATMENT ON METAL-CERAMIC BOND STRENGTH BETWEEN CO-CR FABRICATED: A REVIEW

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Introduction: Cobalt-chromium (Co-Cr) alloy is commonly used as a base material for fixed dental prostheses. Various manufacturing techniques (casting, subtractive, or additive) can create these restorations. Selective laser melting (SLM) is a laser-based additive manufacturing technology that has gained much attention in recent years.

Objectives: To determine the effect of bonding agent and surface treatments on metal-ceramic bond strength between Co-Cr fabricated, and to compare the mechanical properties, strength of metal-ceramic bonds, and microstructures of specimens produced by casting, milling, and SLM of a single composition of a Co-Cr alloy.

Methods: A systematic review was conducted to evaluate the metal-ceramic bond strength for previous studies, bonding agent and surface treatments on metal-ceramic bond strength are compared for samples made by milling, casting, and SLM of a single composition of Co-Cr alloy.

Results: SLM Co-Cr alloys show improved mechanical properties and equivalent metal-ceramic bond strength when compared to casting and milling processes. Moreover, it is expected from the results of our review that SLM may be a better method for producing fixed dental restorations than traditional methods.

Conclusion: CAD/CAM milled sintered Co-Cr alloys surpass traditional casting alloys in bond strength. Co-Cr alloy samples produced via SLM exhibit mechanical properties similar to the metal-ceramic bond, and ISO authorization supports SLM technology for dental crown and bridge fabrication. For fixed dental restorations, SLM is considered as a superior approach. SLM samples have finer-grained particles due to production methods affecting Co-Cr alloy microstructure, and enhance ceramic binding with a bonding agent.

Keywords: cobalt-chromium (Co-Cr) alloy, bond strength, selective laser melting (SLM), metal bonding agent, dental prostheses

BM-08

FLEXURAL STRENGTH OF NEWLY DEVELOPED FLOWABLE COMPOSITE DERIVED FROM RICE HUSK AT DIFFERENT LEVELS OF FLOWABILITY

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Introduction: An ideal flowable composite (FC) requires good mechanical properties to serve effectively as a durable and efficacious dental restorative material, with these properties influenced by different levels of flowability.

Objective: The study aimed to evaluate the flexural strength of the newly developed FCs derived from rice husk at different levels of flowability.

Methods: The newly developed FC used nanohybrid silica derived from rice husk and zirconia as fillers. The monomer ratios of urethane dimethacrylate to triethylene glycol dimethacrylate (UDMA:TEGDMA) were set at 20:80 and 30:70 (high flow), 50:50 and 60:40 (medium flow), and 80:20 and 90:10 (low flow). Filtek Z350 Flowable Composite, Revolution Formula 2 and G-aenial Universal Flo served as control groups. The flexural strength was assessed using a universal testing machine, with seven samples prepared per group. The data were statistically analyzed using one-way ANOVA with post-hoc Bonferroni test to compare significant differences between the newly developed FCs and the control groups.

Results: The higher the ratio of UDMA in the newly developed FCs, the higher the flexural strength. The flexural strength values at medium and low flow levels were comparable to the control groups and passed the minimum requirement of 80 MPa set by the International Organization for Standardization 4049.

Conclusion: The different levels of flowability affect the flexural strength of the newly developed FCs. The improved flexural strength at medium and low flow levels suggests that these newly developed FCs could potentially serve as sustainable and competitive dental restorative materials, subjected to further investigations.

Keywords: flexural strength, flowable composite, nanohybrid silica

BM-09

A COMPARISON OF THE CASTING ABILITY OF NON-PRECIOUS ALLOYS

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Introduction: Castability value is assessed by analyzing the composition of each alloy after different treatment procedures. Complete segments of a cast alloy grid are counted. Test results indicate no significant differences between the two types of Ni/Cr alloys. When remelting is necessary for any dental alloy, it should be done with the addition of 50% new alloy by weight in a single remelting procedure to enhance castability performance.

Objective: To evaluate the castability of two types of Ni/Cr alloys commonly used in fixed dental prostheses and determine the effect of remelting with the addition of 50% new alloy by weight on castability.

Methods: Two varieties of Ni/Cr alloys were investigated, each Ni/Cr alloy underwent two generations of remelting, including those used in ceramic fused to metal restorations and those utilized in traditional crown and bridge cast restorations, first remelting without adding any new metal, and then remelting 50% of the weight of the resulting alloy.

Results: After adding 50% of the new alloy, the situation much improved showed bond strengths. The bond strength percentages for non-treated decreased steadily, and overall castability increased with the addition of 50% new alloy.

Conclusion: For base metal alloys (specifically nickel-chromium), the initial remelting should be performed with the addition of 50% new alloy by weight to enhance castability. Any alloy to be reduced should be mixed with new alloy in proportions of at least an equal weight.

Keywords: comparison, base metal, casting alloy, nickel-chromium, fixed prosthesis

BM-10

DENTIN–PULP COMPLEX RESPONSE IN MOLARS OF RATS AFTER OCCLUSAL AND CERVICAL RESTORATIONS WITH CONVENTIONAL GLASS IONOMER CEMENT AND NANO-HYDROXYAPATITE SILICA GLASS IONOMER CEMENT

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Introduction: Despite promising results for the mechanical, chemical, and *in vitro* evaluations of nano-HA-SiO_2-GIC, to our knowledge, no *in-vivo* study to compare the biocompatibility of nano-hydroxyapatite silica glass ionomer cement (nano-HA-SiO_2-GIC) and conventional glass ionomer cement (c-GIC) in terms of the dentin–pulp complex response has been performed.

Objective: The purpose of this *in vivo* study was to compare the dentin–pulp complex response following occlusal and cervical restorations in rat molars restored with nano-HA-SiO_2-GIC and c-GIC.

Methods: In total, 64 maxillary first molars of 32 male Wistar rats were restored using Fuji IX (c-GIC) and nano-HA-SiO_2-GIC using a split-mouth design. Half of them were reserved for the occlusal type of restoration while the other half was for cervical restorations. The rats were euthanized at one week and one-month intervals, and the teeth were prepared for histological examination. Parameters such as disorganization of the pulp tissue, inflammatory cell infiltration, bacterial detection, and tertiary dentin deposition were measured.

Results: At one week, the odontoblastic layer was disrupted, and moderate inflammation was observed for both types of restorations. Nano-HA-SiO_2-GIC showed significantly superior properties when assessed based on tertiary dentin formation. At one month, there was no evidence of odontoblast layer disruption in both groups. In terms of inflammation, the pulp tissue recovered in almost all cases but several from the nano-HA-SiO_2-GIC group displayed mild-to-moderate inflammatory reactions.

Conclusion: Both c-GIC and nano-HA-SiO2-GIC exhibited favorable responses in terms of biocompatibility. Nano-HA-SiO_2-GIC exerted more inflammation but encouraged better tertiary dentin formation compared to c-GIC.

Keywords: dentin–pulp complex, nano-HA-SiO_2-GIC, conventional GIC, tertiary dentin deposition

PH-02

BELIEVING FOR BETTER: PREDICTING HEALTH-PROMOTING BEHAVIORS IN KELANTAN'S SINGLE MOTHERS

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Introduction: Health-promoting behaviours (HPB) are crucial in upholding and enhancing overall health.

Objective: This study aimed to ascertain the average HPB scores among single mothers in Kelantan and explore the relationships between sociodemographic characteristics, clinical profiles, health beliefs, perceptions of social support, and HPB.

Methods: Employing a comprehensive cross-sectional approach, 242 single mothers from Kelantan were selected through proportional stratified sampling. Data collection utilised questionnaires covering sociodemographic characteristics, the Health-Promoting Lifestyle Profile-II (HPLP-II), the Malay Version of Health Beliefs Related to Cardiovascular Disease (HBCVD-M), and Multidimensional Perceived Social Support (MPSS). The relationship between the dependent variable (HPB) and independent variables was analysed using a multivariable linear regression mode.

Results: Respondents attained a total HPB score of 118.03 (19.2), with the highest mean (SD) scores seen in spiritual growth (22.46 [3.70]) and interpersonal relationships (22.05 [3.67]), while physical activity scored the lowest at 15.09 (4.62). Notably, perceived severity (adjusted $\beta = 1.60$; 95% CI: 0.68, 2.53; $p < 0.001$) and perceived social support (adjusted $\beta = 0.63$; 95% CI: 0.37, 0.90; $p < 0.001$) exhibited positive associations with HPB. Moreover, educational level (adjusted $\beta = -10.36$; 95% CI: -16.06, -4.67; $p < 0.001$) and perceived benefits (adjusted $\beta = -1.43$; 95% CI: -2.37, -0.48; $p < 0.001$) showed negative relationships with HPB.

Conclusion: The study underscores the significance of health beliefs, social support, and modifiable variables (sociodemographic) in shaping HPB among single mothers. Community health programs targeting this group should tailor strategies to enhance individuals' health beliefs.

Keywords: health-promoting behaviour, health beliefs, social support, cardiovascular disease, single mothers

PH-03

FARMERS IN FOCUS: ASSESSING MELIOIDOSIS KNOWLEDGE, ATTITUDE AND PRACTICE IN KELANTAN'S AGRICULTURAL WORKERS

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Introduction: Melioidosis, a potentially fatal infectious disease caused by the bacterium *Burkholderia pseudomallei*, endemic in tropical regions like Southeast Asia. This soil-borne illness primarily affects individuals exposed to contaminated soil and water, making farmers a high-risk population.

Objective: To evaluate the knowledge, attitudes, and practices (KAP) regarding melioidosis among farmers in Kelantan and identify factors influencing these KAP scores.

Methodology: A cross-sectional study was conducted involving 392 farmers in Kelantan. Data were collected using a validated questionnaire. Descriptive analysis determined the KAP level, and multiple linear regression identified factors associated with KAP scores.

Results: Farmers demonstrated low knowledge scores but high attitude and practice scores toward melioidosis. Higher knowledge scores were associated with female gender (adjusted *b* = 3.84, 95%CI: 0.82-6.86, p=0.013) and having close contacts with a history of melioidosis (adjusted *b* = 7.20, 95%CI: 1.91-12.49, p=0.008). Conversely, working in non-paddy crop cultivation was linked to lower knowledge (adjusted *b* = -6.17, 95%CI: -8.29 to -4.05, p<0.001). Lower attitude scores were associated with smoking (adjusted *b* = -1.69, 95%CI: -2.93 to -0.44, p=0.008) and working in non-paddy crops (adjusted *b* = 1.67, 95%CI: 0.45-2.88, p=0.007). Lower practice scores were related to higher educational levels (adjusted *b* = -1.56, 95% CI: -2.76 to -0.36, p=0.011) and multiple job scopes (adjusted *b* = -1.58, 95%CI: -2.45 to -0.72, p< 0.001).

Conclusion: This study highlights substantial knowledge gap regarding melioidosis among agricultural farmers in Kelantan. Targeted educational interventions are crucial to enhance their understanding and preventive measures against this potentially fatal disease.

Keywords: melioidosis, Knowledge-Attitude-Practice (KAP), agricultural farmers, Kelantan, *Burkholderia pseudomallei*

PH-04

DENTAL EDUCATION IMPACT AMONG CAREGIVERS & ORAL HEALTH OF PAEDIATRIC ONCOLOGY PATIENTS UNDERGOING CANCER TREATMENT

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Introduction: Oral health care is crucial for children diagnosed with cancer as cancer therapy can lead to significant adverse effects in the oral cavity. Caregivers play a crucial role in the oral health care of paediatric oncology patients, necessitating appropriate oral health knowledge.

Objective: To assess the oral health status of paediatric oncology patients undergoing treatment and to evaluate changes in the knowledge, attitude, and practice (KAP) of caregivers towards oral health of the paediatric oncology patients following oral health care education.

Methods: A pre-post non-controlled study was conducted at Hospital Universiti Sains Malaysia, Kelantan, involving paediatric oncology patients aged 4 to 17 years, and their caregivers. Data were obtained through clinical examination of the patients and administration of oral health KAP questionnaire to the caregivers before and after receiving oral health care education in three weeks interval.

Results: Nineteen paediatric oncology patients with their caregivers participated. Caries experience (dmft) averaged 3.05 (SD 3.47), and (DMFT) was 2.53 (SD 4.07). Plaque score averaged 1.03 (SD 0.32), and modified gingival score was 0.44 (SD 0.30). Repeated measures MANOVA revealed a statistically significant improvement in caregiver's oral health knowledge and attitude following the delivery of oral health care education. However, no significant change was observed in the oral health practices of the caregivers.

Conclusion: While caregivers showed improvements in oral health knowledge and attitude following education, there was a gap in translating them into practice. Strengthening oral health awareness among caregivers is crucial for enhancing the oral health of paediatric oncology patients.

Keywords: paediatric oncology, oral health, knowledge, attitude

PH-05

KNOWLEDGE, ATTITUDES, AND PRACTICES IN INFECTION CONTROL AMONG DENTAL ASSISTANTS: A CROSS-SECTIONAL STUDY OF KELANTAN'S PRIVATE DENTAL CLINICS

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Introduction: Infection control measures are crucial for preventing the spread of infections in dental clinics. Dental assistants play a vital role in ensuring effective infection control, yet inconsistencies in their training may lead to varied knowledge, attitudes, and practices.

Objective: The objective of this study was to investigate the correlation between knowledge, attitude and practice (KAP) towards infection control among dental assistants working in private dental clinics in Kelantan.

Methods: A cross-sectional study was conducted involving 89 dental assistants from 70 private dental clinics across all districts of Kelantan. Data were collected using a structured, self-administered questionnaire that assessed KAP regarding infection control. Descriptive statistics and Pearson correlation analyses were performed to determine the relationships between KAP variables.

Results: The majority of participants were female (96.6%), with a mean age of 28.7 years (SD = 6.98). The mean (SD) scores of KAP were 25.4 (3.10) out of 33, 18.0 (2.25) out of 20, and 129.2 (14.75) out of 168. There were statistically significant correlations between knowledge and practice ($r=0.283$, $p<0.05$) and between attitudes and practices ($r=0.415$, $p<0.05$). However, there was no statistically significant correlation between knowledge and attitudes ($r=0.2$, $p>0.05$).

Conclusion: The study found weak but significant correlations between knowledge-practice and attitude-practice, suggesting that improved knowledge and positive attitudes towards infection control can enhance practices among dental assistants. Enhancing formal education and continuous professional training for dental assistants could potentially improve infection control practices in private dental clinics.

Keywords: dental assistants, infection control, knowledge, attitude, practice

PH-06

PREVALENCE AND SUSCEPTIBILITY OF ELECTRONIC CIGARETTE USE AMONG ADOLESCENTS IN KOTA BHARU, KELANTAN

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Introduction: National Health and Morbidity Survey (NHMS) in 2022 reported that while conventional cigarette smoking had declined among Malaysian adolescents, electronic cigarette (e-cigarette) use has emerged as a popular alternative habit with the highest prevalence of 14.9% among all current tobacco product use in Malaysia.

Objective: To determine the prevalence of e-cigarette use and the prevalence of susceptibility to initiate e-cigarette use among adolescents in Kota Bharu, Kelantan.

Methods: A cross-sectional study was conducted among 411 adolescents in Kota Bharu, Kelantan using a three-stage stratified sampling design and self-administered questionnaire in Bahasa Malaysia. Descriptive analysis was then carried out.

Results: Majority (99.8%) of the participants were Malays with 100% Muslims. The mean age of the adolescents was 14.6 years (SD = 1.12), while the sex distribution was nearly balanced with 48.9% males and 51.1% females. The prevalence of ever user of e-cigarettes was 13.1%; higher in males at 21.9% than females (4.8%), while the mean age of initiation of e-cigarette use was 12.8 years (SD = 1.75). The prevalence of susceptibility to initiate e-cigarette use among never-users of the adolescents in this study was 11.8%; 21.0% males and 4.5% females. Highest prevalence was shown among the 15-year-old age groups at 16.1%, followed by adolescents aged 14 years (15.3%), 16 years (8.0%) and 13 years (7.1%).

Conclusion: This study showed a considerably high prevalence of e-cigarette use and at a young age of initiation. The prevalence of susceptibility to initiate e-cigarette use was also comparatively higher in males than females.

Keywords: electronic cigarette, adolescents, susceptibility, e-cigarettes, age of initiation

PH-07

UNRAVELING PREDICTORS OF MEN'S HEALTH BEHAVIORS: INSIGHTS FROM PUBLIC SERVANTS IN KELANTAN

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Introduction: Men often face a high incidence of non-communicable diseases (NCDs) due to unhealthy lifestyles and risky behaviors. These health behaviors not only affect their well-being but extensively encompass their families and communities. Various factors contribute to men's lower engagement in preventive health measures compared to women.

Objective: Therefore, this study aimed to determine predictors of health behaviors among male public servants in Kelantan.

Methods: This cross-sectional study, conducted from October 2023 to December 2023, included 257 male public servants from Kelantan's uniformed forces, selected via simple random sampling across districts and agencies. Participants completed a proforma established on Andersen's Behavioral Model of Health Service Use and the validated Malay version of the Health Behavior Inventory-Short Form (HBI-SF) questionnaire. Data was analyzed using SPSS software version 26.

Results: Multiple logistic regression revealed five significant predictors, three of which were risk factors: never seeking treatment at public healthcare facilities (AOR: 8.939, 95% CI: 0.968-82.532, p=0.049), parental influence (AOR: 5.536, 95% CI: 1.737-17.638, p=0.004), and leisure time (AOR: 4.704, 95% CI: 1.429-15.486, p=0.011). While, friends/colleagues (AOR: 0.190, 95% CI: 0.051-0.712) and transportation support (AOR: 0.223, 95% CI: 0.063-0.792) offer protection. The model met good criteria; no multicollinearity, VIF <10, Tolerance >0.1, standard errors smaller than coefficient, no interaction terms, insignificant Hosmer and Lemeshow test (p=0.984), overall percentage correct of 91.8%, and adequate ROC curve of 0.788 (95% CI: 0.691-0.885, p<0.001).

Conclusion: Public health interventions should comprehensively target social support to effectively enhance men's health behaviors, and ultimately, their health outcomes.

Keywords: predictors, men's health behaviors, public servants, Andersen's Behavioral Model of Health Service Use, Malay version of the Health Behavior Inventory-Short Form (HBI-SF)

PH-08

KNOWLEDGE AND ATTITUDE OF COVID-19 INFECTION AND VACCINATION AND ITS ASSOCIATED FACTORS AMONG PREGNANT WOMEN IN MALAYSIA

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Introduction: In the era of the COVID-19 pandemic, pregnant women were at high risk for severe infection, leading to increased morbidity and mortality. Good knowledge and attitude are important in shaping the acceptance of preventive measures.

Objective: This study aims to assess the level of knowledge and attitudes towards the infection and vaccination of COVID-19 among pregnant women in Malaysia.

Methods: A cross-sectional study was conducted among pregnant women at ten antenatal clinics across five Malaysian zones, using a mixed non-proportionate stratified multistage cluster random sampling method. Participants were given a self-administered questionnaire in Bahasa Melayu, available both online and in hard copy. The questionnaire included items from the validated Pregnancy Vaccine Hesitancy Scale (pVHS), known for its high reliability (Cronbach's Alpha = 0.94). Eligible participants were Malaysian citizens aged 18 and above who could read Bahasa Malaysia, excluding those with acute labor symptoms or unstable conditions. Data were analyzed using IBM SPSS Statistics 29 for descriptive analysis.

Results: A total of 594 pregnant women participated, achieving a 99% response rate. Their average age was 29.9 years (SD 5.21), and gestational age was 25.8 weeks (SD 8.62). Less than half had correct knowledge about risks, symptoms, impact, and vaccination in pregnancy, but most displayed positive attitudes. Approximately 38% were afraid of vaccination during pregnancy, and 27% were unsure.

Conclusion: Increasing knowledge and promoting positive attitudes towards the COVID-19 infection and vaccination among pregnant women requires consistent efforts from all stakeholders to ensure their women's health remains a priority.

Keywords: attitude, COVID-19, knowledge

PH-09

ASSESSMENT OF HEALTH-RELATED QUALITY OF LIFE AMONG CANCER PATIENTS ATTENDING HOSPITAL UNIVERSITI SAINS MALAYSIA

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Introduction: Cancer treatment modalities considerably impact patients' quality of life (QOL).

Objective: The purpose of this study was to assess the health-related quality of life (HRQOL) of cancer patients receiving chemotherapy (CTx) and head and neck radiotherapy (H&N RT) at Hospital Universiti Sains Malaysia (Hospital USM).

Methods: A cross-sectional study was conducted among 58 adult cancer patients receiving at least day 3 of CTx, and/or H&N RT at Hospital USM. The validated Malay version of The Functional Assessment of Cancer Therapy-Head and Neck (FACT-H&N) version 4.0 was used to determine QOL dimensions including physical well-being, social/family well-being, emotional well-being, functional well-being, head and neck subscale, and Malaysia added questions (MAQ) subscale, with "0" indicating "very much affected" up to "4" indicating "not at all affected".

Results: The most affected QOL dimension was functional well-being (mean 1.6, SD 1.02), followed by physical well-being (mean 1.9, SD 1.35), emotional well-being (mean 2.8, SD 1.03), MAQ subscales (mean 3.0, SD 0.766), and head & neck subscale (mean 3.2, SD 0.61). Social/family well-being was the least affected with mean score 42.7 (SD 64.12). The total range of FACT H&N score was 74 to 178 (mean score 55.1, SD 65.01) (95% CI: 38.01, 72.20). The higher score indicates better QOL.

Conclusion: Most cancer patients receiving CTx and/or H&N RT in this study had at least one dimension of QOL affected. These findings can offer valuable insights to clinicians, assisting them in their treatment planning and decision-making for both treatment modalities.

Keywords: cancer, health-related quality of life, chemotherapy, head and neck radiotherapy

PH-10

FACILITATING FACTORS AND BARRIERS OF TOOTHBRUSHING AMONG PRIMARY CAREGIVERS TOWARDS ORAL HEALTHCARE OF THEIR CHILDREN WITH CEREBRAL PALSY IN KELANTAN

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Introduction: Children with cerebral palsy (CP) are highly dependent on their caregivers to perform daily tasks, including brushing their teeth. The primary caregivers faced challenges in maintainig the oral hygiene of their children.

Objective: To determine the facilitating factors and barriers towards toothbrushing among primary caregivers of children with CP

Methods: A cross sectional study was conducted on 81 eligible primary caregivers of children with CP aged 17 years and above at Community Rehabilitation Centres in Kelantan from April to May 2024. A self-administered questionnaire was used to obtain sociodemographic profiles of the caregivers and their children with CP, facilitating factors, and barriers towards toothbrushing. Data were analysed using SPSS 24.0.

Results: Most of the caregivers were females (85.2%) at the mean (SD) age of 43.30 (9.34) year-old. The mean (SD) age of the children was 10.27 (3.98) year-old and majority classified as diplegia (44.4%) and quadriplegia (29.6%). Most of the primary caregivers (91.4%) toothbrushed their children with CP. The facilitating factors towards toothbrushing that were agreed by the primary caregivers were fear of poor oral health (97.6%), family support (92.6%) and toothbrushing can prevent oral health problems (92.6%). Meanwhile, barriers to toothbrushing were recognized as child's bad mood (56.8%) and forceful brushing by parents (38.3%).

Conclusion: Majority of primary caregivers brush the teeth of their children with CP, with notable facilitating factors and barriers during toothbrushing. Identifying the facilitating factors and barriers towards toohbrushing will help in planning effective and customised oral healthcare interventions for this disadvantaged group.

Keywords: cerebral palsy, toothbrushing, facilitating factors, barriers

PH-11

ACCESSIBILITY TO ORAL HEALTH CARE SERVICES AMONG CHILDREN WITH CEREBRAL PALSY IN KELANTAN

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Introduction: Children with cerebral palsy (CP) are highly dependent on their caregivers to access to oral healthcare services due to their physical disability.

Objective: To determine accessibility to oral health care services score among children with CP.

Methods: A cross-sectional study was conducted on 81 children with CP and their primary caregivers registered at the Community Based Rehabilitation Centers in Kelantan from April - May 2024. The questionnaire of accessibility of children with CP to oral health care services (CP2OHS) was used. The CP2OHS questionnaire involved domains of 'ability to perceive', 'ability to engage', 'ability to seek', 'ability to pay', and 'ability to reach'. The sociodemographic profiles of the children and their caregivers were obtained. The mobility of children was assessed using gross motor classification system (GMGCS). Data were analysed using SPSS 28.

Results: Most of the children with CP were males (63.0%) at the mean(SD) age of 10.3(3.93) years with GMFCS type V. The primary caregivers were mostly female (85.2%) aged 43.6(9.34)-year-old. Mean(SD) for 'ability to perceive', 'ability to engage', 'ability to seek', 'ability to pay', and 'ability to reach' were 12.07(3.80), 11.88(5.70), 2.0(1.86), 1.77(1.8), and 1.95(2.47) respectively. The total mean(SD) score was high at 29.67(10.81) of the range score of -56 to 56.

Conclusion: The high score indicates the better accessibility of children with CP to oral health care services. The good accessibility to oral health services reflecting less barriers for them to seek for optimum oral healthcare towards their better oral health-related quality of life.

Keywords: accessibility, oral health care services, cerebral palsy, primary caregivers

PH-12

PROVISION OF ANTICIPATORY GUIDANCE ON EARLY CHILDHOOD ORAL HEALTHCARE FOR CAREGIVERS/PARENTS OF INFANTS AND TODDLERS AMONG THE MINISTRY OF HEALTH DENTAL THERAPISTS

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Introduction: Anticipatory guidance (AG) plays a crucial role in promoting children's oral health, and the Ministry of Health (MOH) Dental Therapists (DTs) are at the forefront of oral healthcare delivery to children in Malaysia.

Objective: To determine the provision of AG on early childhood oral healthcare for caregivers/parents of infants and toddlers among the MOH DTs.

Methods: A total of 248 DTs sampled from dental clinics that provide primary oral health care services in Malaysia participated in this cross-sectional study. A self-administered questionnaire was used to measure the frequency of discussing with caregivers/parents the importance of scheduling child's first dental visit by 12 months of age, carbohydrate intake (including juice), digital (finger/thumb sucking) and pacifier habits, and practice of cleaning mouth or brushing teeth. The response options given were "Never", "Rarely", "Frequently", "Usually", "Often" and "Always". The content validity and face validity of the questionnaire were established prior to its use.

Results: All MOH DTs discussed the importance of scheduling a child's first dental visit by 12 months of age, digital (finger/thumb sucking) and pacifier habits, and oral hygiene care or toothbrushing with caregivers/parents of infants and toddlers at varying frequency. In addition, while most had discussed carbohydrate intake (including juice), one respondent, admitted to never discussing the practice with caregivers/parents.The most common frequency of providing the guidance were "Usually", "Often" and "Always".

Conclusion: Most MOH DTs provide AG on early childhood oral healthcare to caregivers/parents of infants and toddlers.

Keywords: anticipatory guidance, oral health, dental therapists, infants, toddlers

PH-13

EXPLORING THE FACTORS ASSOCIATED WITH THE ACCEPTANCE OF VIRTUAL DENTAL CLINIC, ITS CAPABILITY, USEFULNESS AND CHALLENGES AMONG PUBLIC DENTAL PRACTITIONERS IN MALAYSIA

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Introduction: The "Virtual Dental Clinic" (VDC) a tele-dentistry initiative launched as a pilot project by the Ministry of Health, Malaysia during the COVID-19 pandemic, aims to address limited healthcare access, long waiting times, clinic congestion, and the need for safer, distanced environments. However, its post-pandemic success is uncertain due to unclear acceptance by public dental practitioners (PDP).

Objective: The study objective is to determine the factors influencing the acceptance of VDC among Malaysian PDPs.

Method: This cross-sectional study conducted online in April 2024 used chain-referral sampling to recruit participants via email and social media. The Google Form link was distributed through the researcher's PDP contacts, and recipients re-distributed it to theirs. After consent, participants completed a five-minute questionnaire on sociodemographic, knowledge, experience, VDC acceptance, perceived capabilities, usefulness for dental practice and patients, and challenges. Associations were examined using logistic regression at a 5% significance level.

Results: A total of 563 Malaysian PDPs participated, mostly female (83.3%), general dental practitioners (89.5%), and aged 24-34 (65.1%). Only 25.4% had prior VDC knowledge, but 52.7% accepted it. VDC acceptance was significantly associated with PDP's qualification (OR:0.44), perception of VDC's capabilities (OR:1.3), usefulness for practice (OR:1.2) and patients (OR:1.1), and usage challenges (OR:1.3) with $p<0.05$.

Conclusion: Malaysian PDP's acceptance of VDC is influenced by its potential to improve dental service in most areas (communication, education, accessibility, time, and healthcare cost) except equipment feasibility, diagnosis accuracy, data entry errors, and patient acceptance.

Keywords: tele-dentistry, public dental practitioners, oral health, healthcare accessibility, technology acceptance

PH-14

PREVALENCE OF PERI-IMPLANTITIS AND ASSESSMENT OF ORAL HEALTH-RELATED QUALITY OF LIFE AMONG PATIENTS WITH DENTAL IMPLANTS IN HOSPITAL UNIVERSITI SAINS MALAYSIA

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Introduction: Patient-reported outcomes about peri-implantitis is lacking among the Malaysian population, which may aid in patient communication, obtaining informed consent and clinical decision-making in dental implant therapy.

Objective: This study aimed to determine the prevalence of peri-implantitis among Malaysian adults, and assess the impact of peri-implantitis on oral health-related quality of life (OHRQoL)

Methods: This is a cross-sectional study using the S-OHIP(M) questionnaire conducted in School of Dental Sciences, USM, Kelantan. Participants were chosen by randomized sampling from a list of patients with dental implants registered in Hospital USM dental clinic up till year 2021. Participants who fulfill all the inclusion criteria were invited for a single-visit clinical examination of their dental implants along with the completion of the S-OHIP(M) questionnaire. Data analysis was carried out using the independent t-test. Mann-Whitney U test was used when the observations were not normally distributed.

Results: A total of 105 subjects with 265 implants were examined. The prevalence of peri-implantitis is 20.95% (95% CI 13.17–28.74) at patient level and 11.7% (95% CI 7.83–15.57) at implant level. There was no statistically significant difference ($p > 0.05$) in total S-OHIP(M) scores between patients with and without peri-implantitis.

Conclusion: Based on the results, it can be concluded that approximately 21% of participants at Hospital USM dental clinic experienced peri-implantitis. The findings suggest that peri-implantitis does not significantly impact the overall oral health-related quality of life as measured by the S-OHIP(M) questionnaire.

Keywords: peri-implantitis, prevalence, OHIP-14, OHRQoL

PH-15

WHAT ARE THE FACTORS INFLUENCING INTENTION TO HOLD TOOTHBRUSHING ACTIVITIES IN PRESCHOOL ENVIRONMENT AMONG PRESCHOOL TEACHERS?

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Introduction: Toothbrushing activity in preschool environment is an effort to instill oral hygiene practices among children towards dental caries prevention. However, factors influencing intention to hold toothbrushing activities are not clear.

Objective: This study aimed to explore the influence of attitude, perceived control over behavior, and social norms on the teachers' intention in conducting toothbrushing activities.

Methods: Thirty-one preschool teachers in Kota Bharu selected by purposive sampling were divided into 4 Focus Group Discussion (FGD) groups. FGD protocol based on Theory of Planned Behavior (TPB) was used. Thematic analysis was conducted using ATLAS.ti version 23.

Results: Themes and sub-themes on factors influencing teachers' intention in conducting toothbrushing activities at school according to TPB constructs were as follows: *Perceived behavioral control:* Resources issues (time feasibility, manpower constraints, provision of oral hygiene tools and dentifrices), lack of knowledge on oral hygiene care (toothbrush and toothpaste selection, unfamiliarity to current recommendations), children's behavior (behavioral adjustment,separation anxiety, different levels of cognitive milestones); *Social norms:* Cooperation of other people (assistant teacher readiness, dental therapists' expectations, parental involvement); *Attitude toward the behavior:* Health beliefs (toothbrushing promotes quality of life), belonging (teacher responsibility, teacher as role model, behavioural modelling). Policy and advocacy need to take multitude factors into account to fuel voluntary actions and sustainable promotion oral health in the preschool settings.

Conclusion: Factors influencing intention towards behavior of conducting toothbrushing activities include resources issues, children's behavior, cooperation of other people, health beliefs, and belonging.

Keywords: school teachers, preschool children, toothbrushing, Theory of Planned Behavior, qualitative research

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