Universiti Kebangsaan Malaysia
The National University of Malaysia

15th International Symposium of Health Sciences

i-SIHAT 2026

in conjunction with the

3RD AUAP INTERNATIONAL HEALTH SCIENCE CONFERENCE

Advancing Health Frontiers: Innovation and Global Partnerships

PROGRAMME & ABSTRACT BOOK

23-24 JUNE 2026

BERJAYA TIMES SQUARE HOTEL, KUALA LUMPUR

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http://www.ukm.my/i-sihat/

WELCOMING MESSAGES

PROF. DATO' DR. SUFIAN JUSOH

VICE-CHANCELLOR
UNIVERSITI KEBANGSAAN MALAYSIA

Assalamualaikum wbt. and greetings,

It is my great pleasure to welcome all distinguished delegates, researchers, healthcare professionals, industry partners, and students to the 15th International Symposium of Health Sciences (i-SIHAT 2026). This symposium is organised in conjunction with the 3rd AUAP International Health Science Conference. It is hosted by the Faculty of Health Sciences, Universiti Kebangsaan Malaysia (UKM), in collaboration with the Association of Universities of Asia and the Pacific (AUAP).

This year's theme, "Advancing Health Frontiers: Innovation and Global Partnerships" highlights the importance of innovation, research excellence, and international collaboration in addressing complex and evolving health challenges, while strengthening global health outcomes.

The symposium serves as a platform for the exchange of knowledge, research findings. and innovative ideas among experts and emerging scholars, fostering meaningful collaborations and impactful contributions to health sciences.

UKM remains committed to excellence in education, research, and societal impact, and continues to support initiatives that promote global engagement and knowledge exchange.

I extend my sincere appreciation to all partners, the organizing committee, speakers, sponsors, and participants for their valuable contributions in making this symposium
a success.

I wish all participants a productive, enriching, and inspiring symposium.

Thank you.

PROF. DR. SUZANA SHAHAR

DEAN
FACULTY OF HEALTH SCIENCES
UNIVERSITI KEBANGSAAN MALAYSIA

Assalamualaikum and Greetings,

I am pleased to extend a warm welcome to all distinguished delegates, researchers, healthcare professionals, industry partners, and students to the 15th International Symposium of Health Sciences (i-SIHAT 2026), held in collaboration with the 3rd AUAP International Health Science Conference. This joint event is hosted by the Faculty of Health Sciences, UKM, with the support of the Association of Universities of Asia and the Pacific (AUAP).

As we gather for this meaningful milestone, it is truly encouraging to see participants from diverse disciplines and regions coming together to share knowledge, exchange ideas, and build meaningful academic and professional connections. This spirit of collaboration reflects the very essence of this symposium.

This year's theme, "Advancing Health Frontiers: Innovation and Global Partnerships," highlights the growing importance of innovation, interdisciplinary approaches, and strategic collaboration in addressing today's complex health challenges. It reminds us that progress in health sciences depends not only on scientific discovery, but also on strong partnerships across borders and disciplines.

i-SIHAT 2026 provides an important platform for researchers and practitioners to present their work, engage in scholarly discussion, and explore new ideas. More importantly, it creates opportunities for networking and collaboration that can extend beyond this event, leading to future research and impactful initiatives.

On behalf of the Faculty of Health Sciences, I would like to express my sincere appreciation to all university partners, speakers, presenters, sponsors, participants, and members of the organizing committee for your dedication and contributions in making this symposium a success. Your support is deeply valued and greatly appreciated.

I wish all participants a productive, enriching, and inspiring symposium. May the interactions and discussions during i-SIHAT 2026 lead to meaningful collaborations and lasting contributions to the advancement of health sciences.

Thank you, and I look forward to an engaging and successful symposium.

Dear Colleagues, Distinguished Guests, Researchers, and Students,

It is with great pleasure that I welcome you to the 15th International Symposium of Health Sciences (I-SIHAT 2026), held in collaboration with the 3rd AUAP International Health Science Conference.

As we celebrate the 15th edition of I-SIHAT, we continue a proud tradition of bringing together scholars, researchers, practitioners, and students committed to advancing health sciences through research, innovation, and collaboration.

Guided by the theme "Advancing Health Frontiers: Innovation and Global Partnerships," I-SIHAT 2026 provides a platform for advancing knowledge, fostering interdisciplinary collaboration, and strengthening international partnerships in health sciences. As we navigate a rapidly evolving global health landscape marked by population ageing, environmental challenges, technological transformation, and persistent health inequities, innovation and collective action remain essential to improving health outcomes for communities worldwide.

Over the course of these two days, participants will engage in a rich scientific programme featuring keynote address, six (6) plenary sessions, 80 oral and 62 poster presentations, and interactive discussions spanning a wide range of health science disciplines. These sessions are designed to showcase emerging discoveries, innovative practices, and evidence-based solutions that address contemporary health challenges while fostering meaningful exchange among researchers, practitioners, educators, students, and policymakers.

This symposium brings together a vibrant and diverse community from across Asia, the Asia-Pacific region, and beyond. We hope that the interactions and collaborations forged during this conference will inspire new ideas, strengthen existing partnerships, and create opportunities for future research and innovation that transcend institutional and geographical boundaries.

I would like to express my sincere appreciation to all authors, speakers, reviewers, sponsors, partners, and members of the organising committee whose dedication and contributions have made I-SIHAT 2026 possible.

Thank you for being part of this important gathering. May your participation be intellectually enriching, professionally rewarding, and personally inspiring.

I wish you a successful and memorable I-SIHAT 2026.

ASSOC. PROF. DR.
MOHD RAZIF SHAHRIL
CHAIRPERSON
I-SIHAT 2026
FACULTY OF HEALTH SCIENCES
UNIVERSITI KEBANGSAAN
MALAYSIA (UKM)

PROF. DR. ANOOP SWARUP

ASSOCIATION OF UNIVERSITIES OF ASIA AND THE PACIFIC (AUAP)

A warm welcome to the distinguished guests, esteemed colleagues, and dear friends,

It is my great honor and pleasure to welcome you all to the 3rd AUAP International Health Science Conference, held in conjunction with the 15th International Symposium of Health Sciences here at Universiti Kebangsaan Malaysia in Kuala Lumpur. This gathering brings together innovative minds and passionate professionals committed to advancing health sciences through collaboration, research, and shared knowledge. Your presence here signifies a collective dedication to tackling some of the most pressing health challenges facing our societies today.

Over the course of these two days, we will engage in a diverse range of sessions, from keynote speeches by leading experts to interactive workshops and lively panel discussions. The theme, "Advancing Health Frontiers: Innovation and Global Partnerships," underscores our shared belief that progress in health sciences depends on dynamic collaboration—across disciplines, borders, and sectors. We are thrilled to host this vibrant community of scholars, practitioners, students, and industry leaders who are eager to exchange ideas, present groundbreaking research, and establish meaningful partnerships that can translate knowledge into real-world impact.

This conference also offers a special opportunity for the next generation of health professionals. We encourage participating institutions to nominate students to showcase their research and innovative ideas, inspiring young minds to become leaders and changemakers in the field. Together, through dialogue, discovery, and collaboration, we can foster a healthier, more sustainable future for all. Let us seize this moment to learn from one another, build lasting relationships, and push the boundaries of what is possible in health sciences. Thank you all for being part of this important journey—welcome, and let's make these days memorable and impactful.

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Day 1

PROGRAMME

23rd June 2026

Registration
Time : 8.00am - 9.00am

Plenary 1 - Prof. Dr. Karen Chen (National Taiwan University) - online session
From Longitudinal Ageing Research to Dementia Prevention: Translating Multisystem Biomarkers into Population Action
Venue : Manhattan 1
Time : 9.00am - 9.30am
Chairperson : Prof. Dr. Nor Fadilah Rajab

Plenary 2 - Prof. Dr. Judi Porter (Deakin University, Australia)
Transforming Nutrition in Healthcare: Innovation and Evidence to Improve Outcomes
Venue : Manhattan 1
Time : 9.30am - 10.00am
Chairperson : Dr. Nurul Huda Razalli

Networking Break & Exhibition Viewing / Poster Viewing & Judging
Time : 10.00am - 10.30am

Opening Ceremony by Honorable Dato Hajjah Hanifah Hajar Taib, Deputy Minister of Health for Malaysia
Venue : Manhattan 1
Time : 10.30am - 11.30am

Keynote Address - Dr Rabindra Abeyasinghe (WHO Representative to Malaysia, Brunei Darussalam and Singapore)
The Role of WHO in Advancing Health Frontiers: Innovation and Global Partnerships
Venue : Manhattan 1
Time : 11.30am - 12.10pm
Chairperson : Prof. Dr. Noraziah Mohamad Zin

12.10pm - 12.30pm
Silver Sponsor Talk : Premier Integrated Labs
Speaker: Mr. Ikhwan bin Ismail (Development Manager, Lifespin GmbH Business)
Topic: From Metabolites to Prevention

12.30pm - 12.50pm
Silver Sponsor Talk : Enfrasys Solutions Sdn. Bhd.

Exhibition Viewing / Poster Viewing & Judging
Time : 12.10pm - 2.00pm

Invited speaker **Beyond Digital Literacy: Modeling the Mediating Role of Self-Efficacy in Physiotherapists' Transition to Biopsychosocial Pain Management** **Mr. Manikandan Pachampalayam Chokkappan - University of Cyberjaya** **Venue : Manhattan 1** **Time : 2.00pm - 2.20pm** **Chairperson : Prof. Dr. Nor Fadilah Rajab**		**Young Investigator** **Venue : Manhattan 8** **Time : 2.00pm - 3.30pm**
		A3 : Nurturing the Next Generation of Ageing Researchers
Track A - Translating Ageing Research for Longevity **Venue : Manhattan 1** **Time : 2.30pm - 3.30pm**	**Track B - Integrative Toxicology for Human & Planetary Health** **Venue : Manhattan 7** **Time : 2.30pm - 3.30pm**	YI009 : Knowledge, Attitude and Practice of Healthcare Providers Toward Multidomain Lifestyle Intervention for Dementia Prevention: A Preliminary Needs Assessment Syafiy Binti A.Azman - Malaysia
A1 : Decoding the Biology of Ageing: From Cells to Systems	B1 : Advancing Toxicology in disease prevention, diagnosis and treatment	YI025 : NMR-based Metabolomics Profiling and Bioactivity Evaluation of Selected Malaysian Herbs for Radical Scavenging and Senotherapeutic Properties Nor Muhammad Hilmi Hussin - Malaysia
OR045: Elucidating The Framework of Herbal and Dietary Supplement Consumption Among Elderly People Dr. Nur Ain Mahat - Malaysia	OR046: Neuroprotective effects of intermittent fasting against inflammatory markers in the rat's hippocampus and prefrontal cortex Abubakar Habibu Bunza - Malaysia	YI018 : From Regression to Machine Learning: Improving Prediction of Accelerated Ageing in Breast Cancer Survivors Nur Afifah Mursyida Binti Zaujan - Malaysia

PROGRAMME

Day 1

OR039: Plant Predominant Dietary Patterns and Cognitive Resilience in Breast Cancer Survivors: Translating Nutritional Science into Healthy Longevity Assoc. Prof. Dr. Mohd. Razif Shahril - Malaysia	OR019: Preliminary Histological Evaluation of Oral Pterostilbene in UVB-Induced Skin Photoaging Model in BALB/c Mice Muhammad Haikal Bin Ahmad - Malaysia	YI017 : Longitudinal Determinants of Intrinsic Capacity Trajectories Among Community-Dwelling Older Adults in Malaysia Dr. Nurul Hidayah Md Fadzil - Malaysia
OR026: Development and Validation of a Questionnaire to Assess Nutritional Knowledge Related to Cognitive Function Among Malaysian Older Adults Assoc. Prof. Dr. Hanis Mastura Yahya - Malaysia	OR043: Maternal Genetic Diversity of the Minangkabau Population Revealed by Targeted Mitochondrial Sequencing and Its Forensic Implications Taufik Hidayat - Malaysia	YI010 : Combination Exercise Preserves Muscle Mass and Strength While Reducing Adiposity in a Neurodegenerative Rat Model: Preliminary Findings Nur Aisyah Anuar - Malaysia
OR044: Association Between Upper Limb Coordination and Grip Strength in Older Adults: A Cross-Sectional Study Assoc. Prof. Dr. Waroonnapa Srisoparb - Thailand	OR013: Cardiac Microenvironment Communication Under Hypoxic Stress Potentially Mediated by Cardiomyocyte-derived Exosome Delivery of Angiogenic Regulators Dr. Jia Zheng - Malaysia	YI008 : Muscle Strength Following Critical Illness: The Relative Role Of Protein Delivery And Organ Dysfunction Trajectory Nur Shazleen Nisha Binti Rozali - Malaysia
Plenary 3 - Prof. Dr. Chua Chee Wai (Shanghai Jiao Tong University) **The potential of luminal progenitors as the cells-of-origin for different subtypes of castration-resistant prostate cancer** **Venue : Manhattan 1** **Time : 3.30pm - 4.00pm** **Chairperson : Assoc. Prof. Dr. Asmah Hamid**		
Track C - Advancing Community Health through Research, Innovation and Partnerships **Venue : Manhattan 1** **Time : 4.00pm - 5.00pm**	**Track C - Advancing Community Health through Research, Innovation and Partnerships** **Venue : Manhattan 7** **Time : 4.00pm - 5.15pm**	**Young Investigator** **Venue : Manhattan 8** **Time : 4.00pm - 5.15pm**
C2 : Strengthening Community–Academia–Industry Partnerships For Health Impact	C2 : Strengthening Community–Academia–Industry Partnerships For Health Impact	B3 : Young Minds for Planetary Health Solutions: Research and Innovation for Future Sustainability
OR047 : The Impact of Eating Behaviours on Dietary Intake among Children with Autism Spectrum Disorder (ASD) Dr Nur Hana Hamzaid	OR006: Sleeping In on Weekends: Prevalence and Associations with Anthropometric Status and Academic Performance among Primary School Children in Selangor Dhanasriy Sathiabalan - Malaysia	YI023 : Monsoon Variability of Bacterial Communities in Airborne Particulate Matters of Kuala Lumpur, Malaysia Nurul Tasha Binti Zulkifle - Malaysia
OR038: From Awareness to Action: Sexual Health Knowledge, Attitudes and Practices Among Undergraduates at Universiti Kebangsaan Malaysia Dr. Vanitha Mariappan - Malaysia	OR033: Food insecurity among adults with Type 2 diabetes in Malaysia: the role of socioeconomic determinants Dr. Harvinder Kaur A/P Gilcharan Singh - Malaysia	YI011 : Breaking the Silence: From Nutrition KAP Assessment to the Development of a Sign Language Healthy Eating Video for Deaf Adults in Malaysia Dr. You Yee Xing - Malaysia
OR022: Nutrient density of commonly consumed foods: A Malaysian perspective Ruhaya Binti Salleh - Malaysia	OR007: Dietary management of Disorders of Gut Brain Interactions: Knowledge, attitudes, and practices among gastroenterologists and dietitians in Asia Dr. Shanthi Krishnasamy - UKM	YI004: Clinician-Informed Usability And Design Guidelines For Home-Based Rehabilitation Mobile Applications Gloria Chong Ying Le - Malaysia
OR041: Protecting Vulnerable Workers in a Warming Climate: A Community Health Perspective on Occupational Heat Stress in Malaysia Dr. Dayana Hazwani Mohd Suadi Nata - Malaysia	OR008: Sleep Patterns, Social Jetlag, Screen Time and Their Associations with School Attendance and Academic Performance among Primary School Children in Selangor, Malaysia Nur'ain Mardhiyah Binti Harun - Malaysia	YI024 : Mosquito Magnet: An Innovative Solution to an Old Problem in Entomological Surveillance for Zoonotic Malaria Dr. Nantha Kumar Jeyaprakasam - Malaysia
	OR023: Circadian Misalignment and Its Associated Factors in Malaysian Adults: Results from the Nationwide MYLIFERHYTHM Online Survey Prof. Dr. Zahara Abdul Manaf - Malaysia	YI026 : Chemical Profiling and Persistence of Gasoline Residues on Natural and Synthetic Porous Substrates under Tropical Weathering Conditions Suvitraa A/P Paramasivam - Malaysia
Gala Dinner **8.00pm - 10.00pm**		

Day 2

PROGRAMME

24th June 2026

Track C - Advancing Community Health through Research, Innovation and Partnerships Venue : Manhattan 1 Time : 8.45am - 9.45am	Track D - Digital Innovations in Rehabilitation & Health Sciences Venue : Manhattan 7 Time : 8.45am - 9.30am	Young Investigator Venue : Manhattan 8 Time : 8.45am - 9.45am
C1 : Digital Solutions and Emerging Technologies for Community and Clinical Health Monitoring	D1 : Digital Breakthroughs in Rehabilitation Science	C3 : Health Promotion, Clinical Intervention and Behavioural Change for Sustainable Well-being
RP005 : From Affection to Connection: The Pivotal Role of Maternal Openness and Interdependence in Predicting Emerging Adults' Psychological Well-being Dr. Novi Qonitatin - Indonesia	OR018: Cochlear Implant – Parental Support scale: A pilot study Lim Tang Zhi - Malaysia	YI002: Caring for the Caregivers: The Evaluation of a Psychological Intervention Program for Caregivers of Childhood Cancer Dr. Agnes Chong Shu Sze - Malaysia
RP017 : Factors Influencing Water Scarcity Preparedness In Urban Slums Of Padang City: A Community Health Perspective Azyyati Ridha Alfian - Indonesia	OR010: Translational Potential and Explainability of Artificial Intelligence Decision Support for Adults in Intensive Care: A Scoping Review Yodha Pranata - Indonesia	YI006: Mapping Theory-Based Game Mechanics of "Wabak X" to Empower Outbreak Preparedness among the Orang Asli Dr. Ameerah Su'Ad Binti Abdul Shakor - Malaysia
RP018 : Predictors Of Self-Reported Practice In Ventilator-Associated Pneumonia (VAP) Prevention Among Critical Care Nurses In Sarawak Public Hospitals Tan Jia Hui - Malaysia	OR004: Fear of Falling and Self-Efficacy for Physical Activity Among Stroke Survivors with Home-Based Physiotherapy Experience Nitya A/P Letchumanan - Malaysia	E3 : Emerging Research in Diagnostic and Investigative Sciences
RP024 : From Food Waste to Food Acceptance: The Teddy Breakfast Project for Hospitalised Children Dr. Nurul Huda Binti Razalli - Malaysia		YI014: Differential Topographical Mapping of the OFF Visual Pathway in Myopic and Emmetropic Peripheral Retinas Chong Jia Yi - Malaysia
RP040 : Low Calorie Sweeteners Consumption: Associations with Caloric Compensation and Appetite-Regulating Hormones Dr. Wan Fathin Fariza Binti Wan Mahmood - Malaysia		
RP041 : Capturing the Patient's Experience in Virtual Care: Development and Validation of the MPEQ-VC for Malaysian Primary Healthcare Dr. Nasim Muhammad Bin Abdul Kuthoose - Malaysia		
RP043 : Development and Content Validation of the STAR Parenting Module to Improve Socio-Emotional Development for School Readiness of Children with Cochlear Implants Geh Cha Long - Malaysia		
RP048 : Policy and Institutional Perspectives on the Use of Schools as Temporary Evacuation Centres during Floods in Southeast Asia Dr. Aziemah Binti Zulkifli - Malaysia		
RP045 : A Comprehensive Predictive Model for Cardiovascular Disease: Integrating Logistic Regression and CART for Early Risk Evaluation Azah Sumaiyah Abdul Aziz - Malaysia		
RP046 : Factors and Associated Health Outcomes of Food Insecurity Among Patients with Cancer Samihah Aslamiah Binti Ahmad Najdi - Malaysia		
RP047 : Assessing the Effectiveness of the DemensiaKITA Mobile Health Intervention on Caregiver Knowledge, Attitude, Practice, and Burden in Selangor, Malaysia Dr. Nurulizzah Binti Mahfar - Malaysia		
RP019 : Development, Content Validation, and Usability Testing of the Mobile Application for VRT in Adults with Vestibular Problem Nur Dini Izzati Khairol Anur - Malaysia		YI015: Associations between Donning and Doffing Difficulty, Body Mass Index, and Wearing Comfort of Pressure Garments among Healthy Adults Lee Jia Min - Malaysia

PROGRAMME

Day 2

RP049 : Effects of Blue and UV Filtering Eye Drops on Contact Lens Light Transmittance Sadeq Naeem Ajeena - Malaysia RP002 : Development of the Malay version of the Multidimensional Fall Efficacy Scale (MdFES): translation, cultural adaptation and preliminary validation Lee Miao Zhuang - Malaysia RP028 : Psychologically Informed Practice in Tinnitus Management: Audiologist Perceived Barriers, Facilitators, and Preparedness in Malaysian Government Hospitals Mohamad Azmeer Sadali - Malaysia	RP037 : Toward Integrated Microstructural and Hemodynamic Brain Imaging with IVIM Imaging at 3T MRI Dr. Kingkarn Aphiwatthanasumet -Thailand RP011 : Efficacy of fungal beta-glucan 1,3/1,6 on health-related outcomes among adults: A systematic review Mushavia Ashraf - Malaysia RP016 : miR-155 Modulation Induces Apoptosis and Regulates MARCH7/PTEN Signalling in Breast Cancer-Derived Cell Lines Dr. Chen Xiaohua - Malaysia	RP053 : Association of Sociodemographic and Environmental Factors of Tuberculosis Cases from 2014 to 2023 in Malaysia Dr. Nur Adibah Binti Mohidem - Malaysia RP010 : DNMT3A/DNMT3B-Mediated Epigenetic Regulation of TRPV4 Drives Extracellular Matrix Stiffening in Lung Squamous Cell Carcinoma Khairunnisa Binti Mohd Kamal - Malaysia RP027 : Mechanism of FODMAP Restriction in Functional Gastrointestinal Disorder Patients: Preliminary Data from a Randomised Controlled Trial Jaysrina Mahalinga Moorthy - Malaysia
Poster Viewing & Judging **10.00am - 10.15am**		
Plenary 4 - Prof. Dr. Anoop Swarup (The Association of Universities of Asia and the Pacific AUAP) **AI Innovations for a Global Health Care Revolution** **Venue : Manhattan 1** **Time : 10.15am - 10.45am** **Chairperson : Assoc. Prof. Dr. Noor Hazfalinda Hamzah**		
Networking Break & Exhibition Viewing / Poster Viewing & Judging **Time : 10.45am - 11.15am**		
Plenary 5 - Prof. Dr. Anthony Pak-Hin Kong (The University of Hong Kong) **Transforming Neurorehabilitation of Aphasia with Digital Innovation: AI, Apps, and in Action** **Venue : Manhattan 1** **Time : 11.15am - 11.45am** **Chairperson : Mejar Bersekutu (PA) Dr. Badrulzaman Abdul Hamid**		
Invited speaker **From Awareness to Empowerment: Reimagining Breast Health Education Through Human-Centric AI** **Prof. Ts. Dr. Norhayati Mohd Zain - KPJ University** **Venue : Manhattan 1** **Time : 11.45am - 12.05pm** **Chairperson : Dr. Siti Hajar Zuber**		
Track C - Advancing Community Health through Research, Innovation and Partnerships **Venue : Manhattan 1** **Time : 12.05pm - 1.05pm**	**Track E - Innovative Diagnostic, Therapeutic and Investigative** **Venue : Manhattan 7** **Time : 12.05pm - 12.50pm**	**Young Investigator** **Venue : Manhattan 8** **Time : 12.05pm - 1.05pm**
C2 : Strengthening Community–Academia–Industry Partnerships for Health Impact	E1 : Translational and Precision Research in Diagnostic and Therapeutic Sciences	D3 : Next-Gen Digital Health: Ideas, Pilots, and Innovations
OR009: Developmental Eye Movement (DEM) Test Scores Among Chinese Children In Klang Valley Dr. Sumithira Narayanasamy - Malaysia	OR020 : Metabolite Association And Pathway Analysis Of Covid-19 Vaccine Via LC-MS-Based Metabolomics Dr. Hamza Ahmed Pantami - Nigeria	YI016: MINDCARE: An Artificial Intelligence-Driven Digital Application Incorporating Malaysian-MIND (MY-MINDD©) Diet Scores for Predicting Mild Cognitive Impairment Among Malaysian Older Adults
OR025: Improving Readiness to Change Among Indigenous Risky Drinkers: A Single-Arm Trial of Culturally Adapted Brief Motivational Interviewing Dr. Rifhan Bin Rasuli - Malaysia	OR042: Integrated Manual and Automated Image Analysis for Correlation Dielectrophoretic Quantification of Bacteria Against Plate Count Enumeration Arash Zulkarnain Bin Ahmad Rozaini - Malaysia	YI022: Artificial Intelligence and Mobile Health Technologies in the Assessment and Management of Voice Disorders: A Systematic Review Muhammad Safwan Bin Yusof - Malaysia
OR024: Measuring How Students Perceive Their Physical Health: Evidence of Validity and Reliability Assoc. Prof. Dr. Dinie Ratri Desiningrum - Indonesia	OR030: Associations between Working Memory Performance and Prefrontal Activation in White Noise among Adolescents with Internet Gaming Addiction Noor Fadzliyana Binti Mohd Fadil - Malaysia	YI005: Effectiveness of a Structured Physiotherapy Intervention on Motor Performance and Behavioural Outcomes in Children with Autism Spectrum Disorder: A Randomized Controlled Trial
OR017: Social Determinants of Cardiovascular Health: A Systematic Review and Meta-analysis of Psychosocial Support on Treatment Adherence Reni Afriana - Indonesia		YI013: Subclinical Cardiac Dysfunction in Young Adults with Hypertension: Insights from Speckle Tracking Echocardiography Lyana Shahirah Mohamad Yamin - Malaysia
Lunch **Exhibition Viewing / Poster Viewing & Judging** **Time : 1.15pm - 2.15pm**		

PROGRAMME

Day 2

Track D - Digital Innovations in Rehabilitation & Health Sciences Venue : Manhattan 1 Time : 2.15pm - 3.00pm	Track E - Innovative Diagnostic, Therapeutic and Investigative Venue : Manhattan 7 2.15pm - 3.15pm	Oral Presentation : Rapid Fire Session Venue : Manhattan 8 3.15pm - 3.40pm
D2 : Technology-enabled Solutions for Better Health Outcomes	E2 : Standardisation, Technology Integration, and Global Research in Forensic Science	RP012 : Pilot Study: Adaptation of resilience-building Intervention among youth with Adverse Childhood Experience in Malaysia Ng Jun Kiat - Malaysia RP021 : The Use Of Aac By Children With Autism In Special Education Classrooms In Malaysia: Perspective Of Special Education Teachers And Parents Hazel Cheah Bee Leng - Malaysia RP020 : The Impact of Orthokeratology on Ocular Dimensions and Peripheral Eye Length in myopic children: A 3D Magnetic Resonance Imaging (MRI) 12 months Study Dr. Low Yu Chen - Malaysia RP033 : Association of Short-Term and Working Memory Capacity with Brain Activation among Adolescents with Internet Gaming Addiction Symptom: A Preliminary Finding Zati Amalina Binti Mohd Abdul Ghafar - Malaysia RP008 : Determinants Of Return To Work After Stroke In Asia: A Scoping Review Alifsafar Ali Bin Zohor Ali - Indonesia
OR003: Watch, Learn, Improve: Video-Based Slit-Lamp Training Enhances Immediate Test Performance and Highlights the Role of Learning Motivation Khadija Dayah Abdullahi - Malaysia	OR016: Verification of GATE Modeling and Simulation for Clinac IX Linear Accelerator at 6 MV Photon Dr. Siti Hajar Zuber - Malaysia	
OR011: Cross-Linguistic Acoustic Markers of Hearing Impairment: A Review of Vowel Production and Formant Centralisation Assoc. Prof. Dr. Wan Aslynn Wan Ahmad - Malaysia	OR012: Karanjin Exerts Anti-Neuroinflammatory Activity in Lipopolysaccharide-Induced BV-2 Microglial Cells by Reducing Nitric Oxide Production and Targeting Key Inflammatory Mediators Aziatul Munirah Binti Shafie - Malaysia	
OR040: Simulation-Based Technologies for Patient Education in Medical Imaging and Radiotherapy: A Systematic Review Nur Anis Izzati Che Mut - Malaysia	OR014: Acceptable Quality Dose in Pediatric Abdominal CT: A Multicenter Study Benchmarking Against Diagnostic Reference Levels in Malaysia. Mohd Shahril Bin Mohd Shamsul - Malaysia	
	OR021: Bio-Based *Rhizophora spp*. Particleboard for Tissue-Equivalent Radiotherapy Phantom Applications Saadiatul Nur Aqilah Binti Mohd Zakaria - Malaysia	
Plenary 6 - Assoc. Prof. Dr. Ahmad Nazlim Yusof (Universiti Kebangsaan Malaysia) **Functional magnetic resonance imaging of human brain: From scans to stats** **Venue : Manhattan 1** **Time : 3.45pm - 4.15pm** **Chairperson : Assoc. Prof. Dr. Izatus Shima Taib**		
Closing Ceremony **Venue : Manhattan 1** **Time : 4.15pm - 5.00pm**		

KEYNOTE SPEAKERS

Biography

DR. RABINDRA ABEYASINGHE

REPRESENTATIVE TO MALAYSIA, BRUNEI DARUSSALAM, AND SINGAPORE, WORLD HEALTH ORGANISATION (WHO),

Dr. Rabindra Abeyasinghe is a distinguished public health leader with over 30 years of experience in global health strategy and emergency response. Since 2022, he has headed the WHO Country Office in Kuala Lumpur, following a pivotal tenure as the WHO Representative to the Philippines and a lead architect of the Western Pacific's COVID-19 response.

A specialist in communicable diseases and health security, Dr. Rabi has held high-level roles within the WHO Western Pacific Regional Office (WPRO) and recently served on the Director-General's Action for Results Group. He holds an MD in Community Medicine and advanced degrees from the London School of Hygiene & Tropical Medicine.

PLENARY SPEAKERS

PROF. DR. ANOOP SWARUP
THE ASSOCIATION OF UNIVERSITIES OF ASIA AND THE PACIFIC (AUAP)

Biography

Dr. Anoop Swarup is a world-renowned futurist, social entrepreneur, and civil servant with over 40 years of experience spanning education, peace activism, and life sciences. A recipient of the Hiroshima Peace Award and the Presidential Award of India, Dr. Swarup has held prestigious leadership roles, including Vice Chancellor and United Nations Representative (appointed by Ban Ki-moon in 2007).

His career is a unique blend of high-level governance and humanitarian work. He served as a Commissioner in the Indian Revenue Service and Executive Director of the world's largest youth organization (NYKS). A contributor to the Nobel Peace Prize-winning IPCC report (2007), he is also a prolific author of scientific texts and poetry. Dr. Swarup remains a leading global voice in non-violence, environmental sustainability, and economic integrity.

Biography

Professor Anthony Pak-Hin Kong is the Head of the Academic Unit of Human Communication, Learning, & Development (HCLD) and the Director of the Aphasia Research & Therapy (ART) Laboratory at The University of Hong Kong. His primary expertise is in teaching and research in speech-language pathology, with a special focus on aphasia. He is a Fellow of the American Speech-Language-Hearing Association and the Academy of Aphasia.

In 2025, he was recognized as one of the World's Top 2% Scientists by Stanford University and Elsevier. Prof. Kong was the founding editor-in-chief of Cogent Gerontology (Taylor & Francis) and currently serves as editor-in-chief of Languages (MDPI). "Advancing Speech-Language-Hearing Practice in the Asian Context" (Routledge Taylor & Francis Group Publishing) is his most recent published textbook.

PROF. DR. ANTHONY PAK-HIN KONG
THE UNIVERSITY OF HONG KONG

PLENARY SPEAKERS

PROF. DR. KAREN CHEN

NATIONAL TAIWAN UNIVERSITY

Biography

Yen-Ching Karen Chen, ScD, is a Professor at the Institute of Epidemiology and Preventive Medicine at National Taiwan University. Trained at the Harvard School of Public Health, she is an internationally recognized leader in cognitive aging and dementia epidemiology.

She leads the TIGER cohort (Taiwan Initiative for Geriatric Epidemiological Research), a large-scale longitudinal population study integrating retinal imaging, vascular biomarkers, inflammation, genomics, and environmental exposures to elucidate multisystem pathways of cognitive decline. By linking biological mechanisms with population-level determinants, her research advances early detection strategies and informs sustainable approaches to healthy aging in rapidly aging societies across the Asia-Pacific region. Professor Chen serves as Associate Editor of the Journal of Alzheimer's Disease and contributes to global collaborative networks in dementia and neuroimaging research. Her work bridges scientific discovery, population-based prevention, and health system integration to advance scalable strategies for dementia prevention globally.

Biography

Professor Judi Porter has had an extensive career working as a clinical dietitian, health service manager and university academic, both in Australia and the United Kingdom. At Deakin University she is Discipline Lead for the Master of Dietetics and she is the international representative on the Board of Studies for the Postgraduate Diploma in Dietetics at Universiti Kebangsaan Malaysia.

Her specialist areas of research include metabolism in older adults, hospital foodservices, and clinical management of overweight and obesity across the lifespan. For the past 8 years Judi has been Editor-in-Chief of Nutrition & Dietetics; she is also Life Member of Dietitians Australia.

PROF. DR. JUDI PORTER

DEAKIN UNIVERSITY

PLENARY SPEAKERS

PROF. DR. CHUA CHEE WAI

SHANGHAI JIAO TONG UNIVERSITY, CHINA

Biography

Prof. Dr. Chua Chee Wai is a Professor and Principal Investigator at the Shanghai Cancer Institute and a Group Leader at the State Key Laboratory of Systems Medicine for Cancer, Shanghai Jiao Tong University School of Medicine, Renji Hospital, China. He obtained his Bachelor's degree from Universiti Kebangsaan Malaysia, a PhD in Cancer Biology from the University of Hong Kong, and completed postdoctoral training at Columbia University.

With over 20 years of experience in prostate stem cell biology and urological cancers, he is internationally recognised for developing a widely used prostate organoid culture system that has advanced translational cancer research. Prof. Chua serves on the Editorial Board of Cancer Letters, actively mentors young scientists, and promotes international research collaboration, particularly between China and Malaysia. He was awarded the Huaxia Medical Science and Technology Award – International Cooperation Promotion Award in 2025.

Biography

Ahmad Nazlim Yusoff is a Physicist and a Researcher at the Centre for Diagnostic, Therapeutic and Investigative Studies (CODTIS), Faculty of Health Science, UKM. He completed his study in 2000 and was awarded a Ph.D in Physics by UKM. His Ph.D. thesis was about the interaction of magnetic and dielectric materials with magnetic and microwave fields with a special focus on energy absorption by using a specular reflection method.

Since 2000 until the present time, he had allocated his time and devoted his space and energy in understanding the interaction between human rain and magnetic fields by using functional magnetic resonance imaging (fMRI) from which the data were then analysed in statistical parametric mapping (SPM) and dynamic causal modelling (DCM) frameworks. His is currently investigating the effects of internet gaming addiction (IGA) on auditory working memory (AWM) and how this cognitive ability could be modulated and aroused by the presence of background noise via stochastic facilitation (SF).

ASSOCIATE PROF. DR. AHMAD NAZLIM YUSOFF

UNIVERSITI KEBANGSAAN MALAYSIA

LIST OF YOUNG INVESTIGATORS

TRACK A: Translating Ageing Research for Longevity

TRACK B: Integrative Toxicology for Human & Planetary Health

TRACK C: Advancing Community Health through Research, Innovation and Partnerships

LIST OF YOUNG INVESTIGATORS

TRACK D: Digital Innovations in Rehabilitation & Health Sciences

TRACK E: Innovative Diagnostic, Therapeutic and Investigative

TRACK E: Innovative Diagnostic, Therapeutic and Investigative

LIST OF RAPID FIRE PRESENTERS

TRACK A: Translating Ageing Research for Longevity

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LIST OF ORAL PRESENTERS

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TRACK E: Innovative Diagnostic, Therapeutic and Investigative

LIST OF POSTER PARTICIPANTS

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TRACK E: Innovative Diagnostic, Therapeutic and Investigative

LIST OF POSTER PARTICIPANTS

TRACK E: Innovative Diagnostic, Therapeutic and Investigative

ABSTRACTS OF YOUNG INVESTIGATOR PRESENTATIONS

YI002 Caring for the Caregivers: The Evaluation of a Psychological Intervention Program for Caregivers of Childhood Cancer

Agnes Chong Shu Sze[1*], Mahadir Ahmad [1], Hamidah Alias[2], Rizuana Iqbal Hussain [3], Afifi Lateh[4], Caryn Mei Hsien Chan [1]

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[2] Department of Paediatrics, Faculty of Medicine UKM, Cheras, Kuala Lumpur
[3] Department of Radiology, Faculty of Medicine UKM, Cheras, Kuala Lumpur
[4] Department of Educational Evaluation and Research, Faculty of Education, Prince of Songkla University, Pattani Campus Thailand

Caregivers of children with Acute Lymphoblastic Leukaemia (ALL) often report high levels of psychological distress impacting their psychological well-being and indirectly, their child's outcomes. Despite this, interventions targeting caregiver mental health remain limited. Therefore, the aim of this study was to evaluate a psychological intervention program designed to address traumatic stress, depression, and anxiety among caregivers. In this randomized controlled trial (RCT), 59 caregivers were assigned to either the intervention group (n = 29) or treatment-as-usual (TAU) control group (n = 30) using the sequentially numbered, opaque, sealed envelopes (SNOSE) method. The intervention consisted of a 2-week psychosocial self-help guidebook. Psychological outcomes were assessed at baseline, post-intervention, and 1-month follow-up using validated measures namely the Posttraumatic Stress Disorder Checklist (PCL-5), Beck Depression Inventory (BDI), and Beck Anxiety Inventory (BAI). Results indicated a statistically significant reduction in post-traumatic stress symptoms in the intervention group at post-intervention ($F(1, 57) = 5.760$, $p = .020$, $np2 = 0.093$). While there was no statistical difference in terms of depression and anxiety symptoms, a close to medium effect size was observed at 1-month follow-up. The psychosocial module developed and tested in this study shows potential to improve traumatic stress and depressive symptoms among caregivers of children with ALL, and suggests potential to benefit caregivers with higher baseline distress.

Keywords: caregiver; cancer; traumatic stress; depression; anxiety

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YI004 Clinician-informed Usability and Design Guidelines for Home-based Rehabilitation Mobile Applications

Lai Ngan Kuen [1*], Gloria Chong Ying Le [1,2], Ts. Muhammad Nur Affendy Nor'a [1], Jeffery Jeselee Sijore [1], Chen Wei Yang [1], Timothy Cheng Tsin Jien [3]

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[2] Johor Matriculation College
[3] Department of Orthopaedic, Hospital Duchess of Kent, Sandakan

Patients recovering from trauma injuries require continuous rehabilitation; however, conventional rehabilitation often relies on passive instructions, standardised protocols, and limited interactivity, making it less suitable for home-based settings. Although home-based rehabilitation mobile applications exist, many lack rigorous investigative foundations, clinician input, and affordability considerations. This study aims to derive clinician-validated usability and design guidelines for an interactive home-based rehabilitation mobile application. A qualitative approach was employed using face-to-face semi-structured interviews with 23 healthcare professionals from two Malaysian hospitals conducted over five months. A storyboard prototype was presented to facilitate discussion. Interviews were transcribed verbatim and analysed using NVivo to identify emerging themes based on thematic coding frequency, with data saturation achieved at 23 participants. Findings indicate that System Functionalities and Content (29%) were the most critical requirements, followed by Usefulness (21%), Positive User Experience (16%), Accessibility (14%), Affordability (12%), and Ease of Use (8%). Participants emphasised features such as posture guidance, strength monitoring, motivational feedback, and exercise tracking to support functional recovery and pain reduction. The study provides clinician-informed design guidelines for developing clinically reliable, user-friendly, affordable, and context-sensitive home rehabilitation applications tailored to Malaysia's linguistic, cultural, and infrastructural environment. The findings are limited to clinician perspectives within two hospitals and may not fully capture patient-specific usability challenges.

Keywords: Home-based rehabilitation, mobile health, patient-centred care, rehabilitation technology, usability design

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YI005 Effectiveness of a Structured Physiotherapy Intervention on Motor Performance and Behavioural Outcomes in Children with Autism Spectrum Disorder: A Randomized Controlled Trial

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[2] Clinical Psychology Programme, Centre for Community Health Studies, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300, Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur, Malaysia

Motor impairments and behavioral difficulties are highly prevalent among children with Autism Spectrum Disorder (ASD), significantly limiting functional performance and participation. Although exercise-based interventions have demonstrated benefits, many are implemented as recreational or activity-based programs rather than being systematically structured within a therapeutic framework. Consequently, these approaches remain heterogeneous and lack structured physiotherapy interventions grounded in clinical principles, limiting reproducibility and clinical translation. Therefore, this study aimed to evaluate the effectiveness of a structured physiotherapy intervention on motor performance and behavioral outcomes among children with mild-to-moderate ASD. A single-blinded, parallel randomized controlled trial included 64 children aged 6–10 years with mild-to-moderate ASD, classified using the Gilliam Autism Rating Scale, Third Edition (GARS-3). Participants were randomly allocated (1:1) to either the intervention or control group. Both groups received standardized usual care therapy. In addition, the intervention group underwent a structured physiotherapy program integrating coordination, balance, strength, and endurance training, delivered twice weekly in 60-minute sessions over 12 weeks, guided by progressive training principles. Outcomes were assessed at baseline and post-intervention using the Bruininks–Oseretsky Test of Motor Proficiency, Second Edition Short Form (BOT-2 SF) for motor performance and the Child Behavior Checklist (CBCL) for behavioral outcomes. Data were analyzed using a mixed-design ANOVA. The intervention group demonstrated significantly greater improvements compared to the control group. Motor performance improved across key domains, including balance and coordination, with statistically significant group × time interaction effects ($p < 0.05$). Behavioral outcomes also showed significant reductions in behavioral problems ($p < 0.05$), indicating meaningful functional gains. In conclusion, a structured, progressive physiotherapy intervention significantly enhances both motor performance and behavioral outcomes in children with ASD. These findings provide evidence supporting the integration of structured physiotherapy interventions within multidisciplinary rehabilitation to improve functional and behavioral outcomes.

Keywords: Autism spectrum disorder; behavioral outcomes; motor performance; physiotherapy

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YI006 Mapping Theory-Based Game Mechanics of "Wabak X" to Empower Outbreak Preparedness among the Orang Asli

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Orang Asli communities are highly vulnerable to outbreaks, often resulting in severe outcomes including death. Low health awareness, socioeconomic challenges, and reliance on deforested environments increase their exposure to emerging pathogens, including Disease X. Despite low levels of preparedness, they also show limited interest in current preparedness initiatives. This highlights the need for innovative, engaging, and culturally appropriate strategies to address this gap. This study presents "Wabak X", a card-based serious game that applies game-based learning to deliver outbreak preparedness education through theory-aligned gameplay. The game is structured around the Health Belief Model (HBM) to achieve five learning objectives: helping players remember items needed in an outbreak preparedness kit; raising awareness that Disease X and outbreaks can occur at any time; informing players that animals can transmit Disease X to humans; highlighting that infectious diseases can spread through close contact; and demonstrating that preparedness can protect against outbreaks. Stakeholder input, including from the Department of Orang Asli Development and community members, informed culturally appropriate visual elements, while veterinary and public health experts guided the appropriate depiction of animals and disease transmission. To ensure that learning is embedded within player interactions, game mechanics are explicitly aligned with these objectives and mapped to key HBM constructs: perceived susceptibility, perceived severity, perceived benefits, and self-efficacy. The game design comprises four card types: item, preparedness, event, and action cards. Item and preparedness cards work together through a kit-building mechanic to strengthen self-efficacy and perceived benefits. Event cards simulate unpredictable zoonotic outbreaks and close-contact transmission, reinforcing perceived susceptibility and severity. Action cards regulate player interactions by triggering or mitigating events, illustrating disease dynamics while reinforcing the value of preventive behaviors. In conclusion, "Wabak X" translates complex outbreak concepts into accessible and practical knowledge, demonstrating how theory-driven game mechanics can support community-level preparedness.

Keywords: Game-Based Learning; Health Education; Indigenous Health; Outbreak Preparedness

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YI008 Muscle Strength Following Critical Illness: The Relative Role of Protein Delivery and Organ Dysfunction Trajectory

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Muscle weakness is a prevalent long-term consequence of critical illness and is associated with slow recovery and physical activity limitations. While protein provision remains foundational for muscle mass preservation, illness severity may exert an independent effect on functional muscle strength. The aim of this study was to assess the association between demographics and nutritional factors with handgrip strength in critically ill patients prior intensive care unit discharge, and to determine whether illness severity provides additional explanatory value. A prospective observational cohort study was conducted among adult mechanically ventilated ICU patients. Average protein adequacy via enteral and/or parenteral nutrition was calculated as percentage of protein delivered over protein target. Daily Sequential Organ Failure Assessment (SOFA) score was utilized to represent the trajectory of illness severity. Patients performed handgrip strength assessment prior ICU discharge, after weaning from mechanical ventilation. To assess the independent contribution of protein adequacy and admission SOFA score onto muscle strength, a hierarchical linear regression was conducted with adjustment for age and sex. In the final model, 65 patients with a mean age of 63 years (IQR 55.8 – 70.0) were included. Sex (B = -0.38, p = 0.001), average protein adequacy (B = -0.28, p = 0.013), and admission SOFA score (B = -0.25, p = 0.040) were associated with handgrip muscle strength, and altogether explained 29.4% variance in the final model. The hierarchical linear regression analysis revealed that the average protein adequacy and admission SOFA score significantly explained an additional 7.2% and 5.1% of the variance in handgrip strength respectively. Men, lower average protein adequacy, and lower organ failure score were significantly associated with higher handgrip muscle strength. Admission SOFA score was independently associated with handgrip strength, even after controlling for demographic and nutritional factors. This factor should be considered alongside individualized nutrition strategies for the critically ill patients.

Keywords: Critical illness; hand strength; nutritional support; organ dysfunction scores

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YI009 Knowledge, Attitude and Practice of Healthcare Providers Toward Multidomain Lifestyle Intervention for Dementia Prevention: A Preliminary Needs Assessment

Syafiy A. Azman [1*], Suzana Shahar [1], Devinder Kaur Ajit Singh [1], Arimi Fitri Mat Ludin [1], Ponnusamy Subramaniam [1], Nurul Hidayah Md Fadzil [1]

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Multidomain lifestyle interventions have increasingly been recognized as an effective approach for dementia prevention by addressing modifiable risk factors across physical exercise, cognitive, nutrition, vascular and psychosocial domains. As part of an ongoing research project titled "Implementation and Integration of a Multidomain Lifestyle Intervention for Dementia Prevention Framework in Healthcare Settings", Phase 1 focuses on adapting, harmonizing and preparing the intervention module for implementation through structured training of healthcare professionals. These preliminary needs assessment aimed to explore the knowledge, attitude, and practice (KAP) of healthcare providers regarding the delivery of a multidomain lifestyle intervention for older adults. A pre- and post-workshop survey was conducted among seven healthcare providers from a healthcare institution selected for future program implementation. Participants were recruited using purposive sampling and completed a self-designed questionnaire before and after the training to assess sociodemographic characteristics and self-confidence related to delivering intervention components including exercise, cognitive stimulation, nutrition, vascular risk management and psychosocial engagement. Descriptive statistics were used to summarize participant characteristics and scores, while paired sample t tests were used to examine changes following the training. All participants were female healthcare professionals from multidisciplinary backgrounds. The mean confidence score increased from 3.49 ± 0.66 at baseline to 4.53 ± 0.50 following the workshop. A statistically significant improvement was observed after the training ($t(6) = -7.92$, $p < 0.001$), indicating increased readiness among participants to deliver the multidomain intervention. Overall, the findings suggest that healthcare providers demonstrated acceptable knowledge and confidence following the training. These results support the feasibility of implementing the multidomain lifestyle intervention in healthcare settings and highlight the importance of capacity building among healthcare professionals in preparation for the subsequent phases of the ongoing implementation study.

Keywords: Dementia prevention; healthy ageing; healthcare providers; multidomain intervention; training of trainers

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YI010 Combination Exercise Preserves Muscle Mass and Strength While Reducing Adiposity in a Neurodegenerative Rat Model: Preliminary Findings

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Neurodegeneration leads to progressive declines in muscle function, while increased visceral adiposity has been associated with impaired brain health. Aerobic and resistance exercise selectively improve metabolic and neuromuscular outcomes, respectively, reducing adiposity and enhancing muscle function. This suggests that combination exercise may be a promising strategy to simultaneously target multiple pathways affected in neurodegeneration. This study aimed to investigate the effects of an alternate-day combination exercise protocol on muscle and adiposity in a neurodegenerative rat model. Fifty male Wistar rats were assigned to Sham, Control, Aerobic+Al, Resistance+Al, or Combination+Al groups. Neurodegeneration was induced using 200 mg/kg body weight aluminum chloride ($AlCl_3$) for 8 weeks. Exercise began at week 4 until week 8 where aerobic (30 min/session, 5 days/week) and resistance exercise (14–16 reps/session, weekly load increment, 3 days/week) while alternate days for combined exercise (5 days/week). Grip strength were assessed at three time points and analysed using repeated-measures two-way ANOVA whilst adiposity and muscle mass were measured post-intervention and analysed using two-way univariate ANOVA. Four weeks of aluminum exposure significantly reduced grip strength compared with baseline and controls (both $p < 0.001$). Exercise training improved grip strength across all modalities versus Control (all $p < 0.001$), with resistance training producing the greatest strength gains. However, modality-specific differences emerged in body composition. Resistance training induced divergent muscle adaptations, showing the lowest soleus but highest gastrocnemius mass ($p < 0.05$), and was associated with the highest adiposity among intervention groups ($p < 0.001$). In contrast, aerobic and combination training significantly reduced adiposity compared with Control, with aerobic showing the lowest fat accumulation. In a neurodegenerative rat model, the combination exercise protocol preserved neuromuscular function while maintaining lower adiposity, despite a total weekly dose below standard exercise recommendation. Notably, the combination intervention outcomes consistently showing effects closer to aerobic exercise while not fully achieve resistance-specific benefits. These findings suggest that exercise distribution may be a key determinant of training efficacy and warrant further investigation on the exercise dose.

Keywords: Adiposity; Combined exercise; Neurodegeneration; Resistance exercise; Skeletal muscle.

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YI011 Breaking the Silence: From Nutrition KAP Assessment to the Development of a Sign Language Healthy Eating Video for Deaf Adults in Malaysia

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In Malaysia, about 1.6 million adults (7.6%) have a hearing disability, according to the 2019 National Health and Morbidity Survey. Deaf adults often face challenges accessing nutrition education due to communication barriers and a lack of education materials in sign language. While studies abroad have found that people with hearing disabilities are more likely to be overweight or obese, however there is limited study in Malaysia. This study aimed to determine the nutrition-related knowledge, attitudes and practices (KAP) of healthy eating among deaf adults and subsequently develop and validate a sign language healthy eating video. This cross-sectional study involved 120 deaf adults from three community centres in Klang Valley, Negeri Sembilan, and Malacca, chosen using purposive sampling. Sociodemographic characteristics and nutrition-related knowledge, attitudes, and practices were collected using validated questionnaires. Height, weight and body mass index (BMI) were measured. Based on the identified knowledge gaps, an educational video on healthy eating was developed using Malaysian Sign Language, visual graphics and captions to enhance comprehension among deaf audiences. Dietitians, nutritionists, and sign language interpreters reviewed the video to assess its content validity. The video's understandability and actionability were measured with the Patient Education Materials Assessment Tool Audiovisual (PEMAT-AV). Of those who took part, 35.8% were overweight and 22.5% were obese. Mean scores for nutrition-related KAP were 53.1±17.5, 4.2±1.7, and 7.4±2.2, respectively. The video achieved a content validity index of at least 0.83. PEMAT results showed high scores for understandability (92%) and actionability (88%), indicating that participants found the material clear and easy to act on. This project highlights the need for nutrition education that is accessible to deaf adults and introduces the first locally developed sign language healthy eating video in Malaysia, which could help make health promotion more inclusive.

Keywords: Deaf adults, healthy eating, sign language, audio-visual, nutrition education

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YI013 Subclinical Cardiac Dysfunction in Young Adults with Hypertension: Insights from Speckle Tracking Echocardiography

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Young adults with hypertension represent a critical window for early cardiac intervention, yet subclinical myocardial dysfunction is frequently missed by conventional echocardiography. This cross-sectional study aimed to compare cardiac structure, systolic and diastolic function, and speckle tracking echocardiography (STE) strain parameters among 132 young adults aged 18–39. Participants were divided into three groups: normotensive controls (NT, n=58), non-medicated hypertensives (HT-NonMeds, n=37), and medicated hypertensives (HT-Meds, n=37). Bonferroni correction was applied for post-hoc multiple comparisons. Both HT groups demonstrated concentric LV remodelling versus NT, with increased LV mass index (HT-NonMeds 86.27±16.01; HT-Meds 92.76±17.02 vs NT 71.53±15.12 g/m^2; both $p < .001$), relative wall thickness (HT-nM 0.48±0.10; HT-M 0.51±0.10 vs NT 0.41±0.07; both $p < .001$), alongside diastolic dysfunction with progressively impaired septal e' velocity (NT 10.97±1.97, HT-NonMeds 9.28±1.95, HT-Meds 8.12±1.97 cm/s; all $p < .001$) and elevated E/e' (both $p < .001$ vs NT). Despite preserved ejection fraction ($p = .067$), LVGLS was significantly impaired in HT-NonMeds (−16.74 [−18.72 to −14.14]%) and HT-Meds (−16.70 [−18.67 to −14.90]%) versus NT (−20.33 [−22.81 to −19.11]%), both $p < .001$. LA conduit strain was reduced in both HT groups compared with NT (both $p < .003$), and LA reservoir strain was impaired only in HT-Meds ($p = .006$). HT-NonMeds and HT-Meds did not differ significantly for most parameters. Hierarchical regression identified hypertensive status ($\beta = .379$), BMI ($\beta = .313$), and female sex ($\beta = -.253$) as independent predictors of LVGLS ($R^2 = .463$, $p < .001$). Adding septal e' velocity as a functional predictor further improved the model ($\Delta R^2 = .026$, $p = .013$), with the final model explaining 48.9% of the variance in LVGLS. These findings demonstrate that STE reveals subclinical myocardial dysfunction in young hypertensive adults undetected by ejection fraction or diastolic grading, supporting its routine integration into echocardiographic surveillance for earlier risk stratification.

Keywords: Hypertension; young adults; global longitudinal strain; left atrial strain; speckle tracking echocardiography

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YI014 Differential Topographical Mapping of the OFF Visual Pathway in Myopic and Emmetropic Peripheral Retinas

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The ON and OFF visual pathways are specialised for processing light increments and decrements, respectively. While the OFF pathway has been linked to myopia progression, its functional distribution across the peripheral retina remains underexplored. This study compared the topographical performance of these pathways between myopic and emmetropic adults. A custom experimental paradigm was developed in PsychoPy to isolate and evaluate the reaction time and accuracy of the ON and OFF visual pathways. Participants included nine myopic and ten emmetropic (control group) adults aged 18 to 28 years. The experiment was conducted across seven horizontal retinal eccentricities (fovea to 30° nasal and temporal). A performance index was calculated as the product of accuracy and the inverse of reaction time. Both pathways showed a significant main effect of eccentricity ($p < 0.001$), with performance declining (lower accuracy and longer reaction time) toward the periphery. However, the OFF pathway exhibited greater robustness at higher eccentricities compared to the ON pathway. Crucially, a significant interaction was found between eccentricity and refractive status for the OFF pathway performance index ($p = 0.033$). This indicates that the functional efficiency of the OFF pathway across the peripheral retina follows a distinct profile in myopic individuals compared to emmetropic controls. The findings reveal that myopic eyes process peripheral OFF pathway information differently from emmetropic eyes. This topographical divergence suggests that the peripheral retina's sensitivity to dark-increment stimuli may be a factor in refractive development, providing a baseline for future targeted myopia control interventions.

Keywords: ON-OFF Visual Pathways; Retinal Eccentricity; Myopia; Psychophysics

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YI015 Associations between Donning and Doffing Difficulty, Body Mass Index, and Wearing Comfort of Pressure Garments among Healthy Adults

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Pressure garments are customized, tight-fitting garments commonly used in rehabilitation. Donning and doffing difficulty of pressure garments, Body Mass Index (BMI) and wearing comfort of wearers may play important roles in ensuring therapeutic outcomes and wearers' adherence. This cross-sectional study established baseline utility of pressure garments by investigating their associations. Twenty healthy adult participants (mean age = 26.35 ± 1.26), fitted with a customized long-glove pressure garment with warp orientation, were asked to perform a functional task. A 0 - 10 numeric rating scale was used to measure donning and doffing difficulty, and wearing comfort. Difficulty scores between the donning and doffing phases were compared using a Wilcoxon Signed-Rank test. Associations were assessed using Spearman's rho (ρ) for donning, and Pearson's correlations (r) for doffing and BMI with bias-adjusted 95% confidence intervals (CI). Participants, with a mean BMI of 22.67 ± 0.79 kg/m2, reported a mean wearing comfort of 4.95 ± 0.37. Donning (mean = 6.40 ± 0.55) was found to be significantly more difficult than doffing (mean = 3.90 ± 0.47) ($z = 2.92$; $p < 0.01$). Analysis revealed moderate negative associations between wearing comfort and BMI ($r = -0.38$; $p = 0.10$; 95%CI = -0.70 - 0.09) as well as donning difficulty ($\rho = -0.35$; $p = 0.13$; 95%CI = -0.69 - 0.12). Doffing difficulty exhibited a weaker negative association with wearing comfort ($r = -0.23$; $p = 0.34$; 95%CI = -0.60 - 0.25). Although the confidence intervals included zero, the consistent trends suggest that the initial donning phase and BMI were associated with poorer wearing comfort. Although the findings were non-significant, the results suggest that clinical focus should be placed on specialized donning techniques and garment design. Future large-scale studies are warranted to further confirm these variables as predictors of wearers' adherence in clinical populations.

Keywords: Pressure garment, wearing comfort, donning difficulty, doffing difficulty, Body Mass Index

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YI016 MINDCARETM: An Artificial Intelligence-Driven Digital Application Incorporating Malaysian-MIND (MY-MINDD©) Diet Scores for Predicting Mild Cognitive Impairment Among Malaysian Older Adults

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Mild cognitive impairment (MCI) represents an intermediate stage between normal cognitive ageing and dementia, where early identification is crucial for timely preventive strategies. Advances in Artificial Intelligence (AI) provide opportunities to analyse complex interactions between multiple risk factors. Among these, adherence to the Malaysian adaptation of the Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet, known as Malaysian-MIND (MY-MINDD©) diet, has shown potential protective effects on cognitive health. This study aimed to develop and AI-driven digital application for MCI prediction by integrating MY-MINDD© scores among Malaysian older adults. Data from 1368 participants of the Long-Term Research Grant Scheme-Towards Useful Ageing (LRGS-TUA) cohort with five-year follow-up were analysed. Multiple machine learning algorithms were trained and evaluated using an 80:20 training-testing split, with model performance assessed using accuracy, area-under-curve (AUC), precision, sensitivity, specificity, and F1-score. Model interpretability was further examined using feature importance plot and Shapley Additive Explanations (SHAP). The Gradient Boosting Machine demonstrated the best predictive performance, achieving an accuracy of 91.97%, AUC of 0.9714, precision of 92.59%, sensitivity of 91.24%, specificity of 92.70%, and F1-score of 91.90%. MY-MINDD© diet scores emerged as the most influential predictor with an importance score of 0.4502. SHAP analysis indicating a transition threshold around scores of 5-6 where predicted MCI risk changes substantially. Following this model, an AI-driven digital application known as MINDCARETM was developed and subsequently evaluated for usability among 105 older adults in both rural and urban settings using the Malay version of the mHealth Application Usability Questionnaire (M-MAUQ), yielding a high overall usability score of 6.29±0.80 out of a maximum score of seven. These findings demonstrated the integration of diet and AI for early MCI screening and highlight the potential of MINDCARETM as culturally relevant digital solution for clinical and community-based screening to support early intervention and preventive strategies among Malaysian older adults.

Keywords: Cognitive impairment; older adult; prediction; machine learning; Malaysian-MIND diet

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YI017 Longitudinal Determinants of Intrinsic Capacity Trajectories Among Community-Dwelling Older Adults in Malaysia

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Intrinsic capacity (IC), defined as the composite of an individual's physical and mental abilities, plays a crucial role in sustaining independence in later life. This research aimed to identify factors associated with IC trajectories among community-dwelling Malaysian older adults. Data were gathered from the Long-term Research Grant Scheme Towards Useful Ageing (LRGS TUA) longitudinal cohort conducted between 2015 and 2020. As baseline, 2322 participants were recruited and 983 completed the five-year follow-up for trajectory analysis. Multinomial logistic regression was applied to determine associations between baseline determinants such as sociodemographic characteristics, biomarkers, body composition, physical fitness and cognitive outcome with IC trajectory categories (stable, improved or declined). Over 5-years period, almost half of the participants experienced a decline in IC (49.6%), 31.1% remained stable and 19.2% indicated improvement. The greatest deterioration was observed in the sensory domain, followed by cognitive, psychosocial, locomotor and vitality functions. No significant determinants were identified for IC improvement. However, IC decline was significantly associated with female gender [Odd ratio (OR) = 1.69, 95% Confidence Interval (CI): 1.28–2.24), older age (OR = 1.09, 95% CI: 1.06–1.12), older age (OR = 1.85, 95% CI: 1.33–2.57) and being single or divorced (OR = 1.85, 95% CI: 1.33–2.57). Lower educational attainment (OR = 0.941, 95% CI: 0.909–0.974) and poorer body composition indicators, including mid-upper arm circumference (MUAC) (OR = 0.942, 95% CI: 0.896–0.978), calf circumference (CC) (OR = 0.954, 95% CI: 0.918–0.992), and skeletal muscle mass (SMM) (OR = 0.940, 95% CI: 0.911–0.969) were also significant predictors. In addition, poorer cognitive performance (VR II) (OR = 0.961, 95% CI: 0.940–0.983), weaker handgrip strength (OR = 0.960, 95% CI: 0.942–0.979), and reduced functional status (OR = 0.904, 95% CI: 0.836–0.977) were linked to IC decline. These findings indicate that IC trajectories in Malaysian older adults are influenced by modifiable social, educational, and health factors. The results support implementing the World Health Organization's Integrated Care for Older People (ICOPE) framework, with comprehensive IC assessment and targeted interventions to promote healthy ageing.

Keywords: Intrinsic capacity; healthy ageing; longitudinal cohort; ICOPE; older adults

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YI018 From Regression to Machine Learning: Improving Prediction of Accelerated Ageing in Breast Cancer Survivors

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Breast cancer survivors may experience accelerated ageing due to cancer pathology and treatment-related physiological stress. This study compared the predictive accuracy of a Multivariable Linear Regression (MLR) model and a machine learning approach to identify the optimal model for accelerated ageing prediction. A cross-sectional study was conducted among 262 breast cancer survivors and 262 cancer-free controls recruited through purposive sampling at Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia as part of Cancer Survivors' Trajectories of Ageing Research (C*STAR) project. Ageing phenotypes and behavioural determinants were assessed using validated instruments, including cognitive assessments, anthropometric measurements, physical fitness tests, the Pittsburgh Sleep Quality Index, the Instrumental Activities of Daily Living, the Food Frequency Questionnaire, the International Physical Activity Questionnaire, and the Perceived Stress Scale-10. Telomere length was used as the biomarker of accelerated ageing. For the MLR model, key assumptions were evaluated, including normality (histograms and P–P plots), multicollinearity (Tolerance and variance inflation factor), and linearity (scatterplots). For the machine learning approach, Extreme Gradient Boosting (XGBoost) models were developed using training, validation, and testing split (60:20:20). An XGBoost model integrated with the Synthetic Minority Over-sampling Technique for Regression with Gaussian Noise (SMOGN) was further optimised using Particle Swarm Optimisation. Model performance was evaluated using Mean Absolute Error (MAE). The MLR model met the assumptions of normality and multicollinearity but violated the assumptions of linearity and homoscedasticity, indicating potential limitations in modelling complex non-linear relationships. The XGBoost-SMOGN model demonstrated better predictive performance compared with both the MLR and standard XGBoost models in breast cancer survivors (MAE: 0.007 vs. 201.961 vs. 0.1785) and controls (MAE: 0.0074 vs. 185.768 vs. 0.1592). In conclusion, the optimised XGBoost-SMOGN model showed better accuracy in predicting accelerated ageing, highlighting the utility of machine learning for identifying modifiable determinants to support precision healthy ageing strategies among breast cancer survivors.

Keywords: Age acceleration; ageing phenotypes; behavioural determinants of health; machine learning; multivariable linear regression

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YI022 Formulation of a Facial Cleanser Based on Black Seed (*Nigella sativa*) and Olive Oil (*Olea europaea*) for the Treatment of Acne and Hyperpigmentation from the Perspective of Prophetic Medicine

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Digital health technologies are transforming the assessment and rehabilitation of voice disorders by improving accessibility, remote monitoring, and personalized care. This systematic review evaluated the role of artificial intelligence (AI), mobile health (mHealth), and digital therapeutics in voice disorder management. This systematic review was conducted in accordance with PRISMA guidelines. A literature search identified 754 records from PubMed (n=134), Scopus (n=375), and Web of Science (n=245). After duplicate removal and eligibility screening, 34 studies were included in the final analysis. AI and machine learning models, particularly Convolutional Neural Networks, Random Forests, and Support Vector Machines, demonstrated high accuracy in detecting, classifying, and grading vocal pathologies, often matching or surpassing clinical specialists. In contrast, generic Large Language Models showed limited reliability for auditory-perceptual voice assessment. mHealth applications enabled effective ambulatory monitoring and point-of-care screening through smartphone-based extraction of acoustic markers such as the Acoustic Voice Quality Index, Voice Wellness Index, and Cepstral Peak Prominence, with strong agreement against gold-standard tools like Praat and studio microphones. However, performance declined in severely dysphonic voices. Mobile-based voice therapy improved adherence, self-efficacy, and vocal outcomes comparable to in-person rehabilitation. Serious games, covert public practice simulations, smartphone-adapted high-speed digital imaging, and computer vision tools further supported accessible therapy and objective vocal fold analysis. mHealth and AI technologies offer accessible, low-cost, and reliable solutions for voice screening, remote rehabilitation, and longitudinal monitoring. These tools show strong clinical utility as adjuncts to, rather than replacements for, comprehensive clinical voice evaluation. Future work should improve accuracy for severe dysphonia, strengthen data privacy, and integrate multimodal clinical data for personalized voice care.

Keywords: Voice disorders; artificial intelligence; mobile health; voice rehabilitation; digital therapeutics

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YI023 Monsoon Variability of Bacterial Communities in Airborne Particulate Matters of Kuala Lumpur, Malaysia

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Airborne particulate matter (PM) carries diverse microbial communities that can influence atmospheric processes and public health. In Malaysia, monsoon driven environmental changes may affect the distribution and composition of airborne bacteria, yet their relationships across monsoon cycles remain incompletely understood. This study investigated the bacterial community in PM across four monsoon periods including Southwest Monsoon (SW), Intermonsoon II (IM II), Northeast Monsoon (NE) and Intermonsoon I (IM I). PM2.5 and PM10 samples were collected using high and low volume samplers followed by shotgun metagenomic sequencing to characterize taxonomic composition. The effects of monsoon-related environmental factors on bacterial community structure were also evaluated. Bacteria dominated the biological fraction of airborne PM. The bacterial community composition exhibited pronounced seasonal variation associated with monsoon periods, with *Bacillus* and *Staphylococcus* consistently dominating across all four monsoon phases and accounting for up to 90% of the relative abundance. Other genera, including *Pseudomonas*, *Ralstonia*, *Enterococcus* and *Clostridium* displayed seasonal variations, indicating environmental influences on airborne bacterial distribution. Strong correlations between environmental variables and bacterial composition were observed ($r > 0.80$, $p < 0.05$), indicating that environmental factors play a key role in shaping community structure. Overall, these findings demonstrate that monsoon-associated environmental factors significantly shape the composition and seasonal variation of airborne bacterial communities in Malaysia.

Keywords: Airborne particulate matter; Bacterial community; Environmental drivers; Monsoon variability

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YI024 Mosquito Magnet: An Innovative Solution to an Old Problem in Entomological Surveillance for Zoonotic Malaria

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Vector surveillance is essential for determining the geographical distribution of mosquito vectors and for understanding the dynamics of malaria transmission. In Malaysia, while human-only malaria species have been largely eliminated, cases of zoonotic knowlesi malaria in humans continue to increase. Thus, it necessitates intensive vector studies using safer trapping methods that are both field-efficient and capable of attracting local vector populations. This study evaluated the ability of Mosquito Magnet to serve as an alternative tool for collecting *Anopheles* mosquitoes, vectors of zoonotic malaria. A randomised 4 x 4 Latin-square designed experiment was conducted to compare the efficiency of the Mosquito Magnet against human landing catch (HLC), CDC light trap, and human-baited trap (HBT). A Latin-square designed experiment showed that HLC caught the greatest number of Anopheles mosquitoes (n=321) compared to HBT (n=87), Mosquito Magnet (n=58), and CDC light trap (n=13). The GLMMs analysis showed that the HLC method caught significantly higher numbers of *Anopheles* mosquitoes compared to the Mosquito Magnet (P=0.049). However, there was no significant difference in mean nightly catch of *Anopheles* mosquitoes between Mosquito Magnet and the other two trapping methods: HBT (P=0.646) and CDC light traps (P=0.197). On the other hand, the mean nightly catch for both An. introlatus (9.33±4.341) and An. cracens (4.00±2.273) caught using HLC was higher than those caught using Mosquito Magnet, though the differences were not statistically significant (P>0.05). This is in contrast with the mean nightly catch of *An. sinensis* (15.75±5.640) and *An. maculatus* (15.78±3.479), where HLC showed a significantly higher number of mosquito catches compared to Mosquito Magnet (P<0.05). Mosquito Magnet has a promising ability to catch *An. introlatus* and *An. cracens*, the important vectors of knownlesi malaria in Peninsular Malaysia. Mosquito Magnet's ability to catch some *Anopheles* species is comparable to HLC, making it an ethical and safer alternative.

Keywords: Malaria; Mosquito Magnet; Surveillance; Zoonotic.

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YI025 NMR-based Metabolomics Profiling and Bioactivity Evaluation of Selected Malaysian Herbs for Radical Scavenging and Senotherapeutic Properties

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Inflammaging, a chronic, low-grade inflammation is a shared mechanism of aging and age-related pathologies. Malaysian medicinal plants are traditionally known and used for their therapeutic effects to treat numerous diseases, including aging and related conditions. this study aimed to assess the biological activity of six selected Malaysian herbs with focus on their anti-oxidant and anti-aging potential. Following this preliminary screening, we aimed to evaluate the metabolite variations of selected three most active plants or herbs using proton nuclear magnetic resonance (1HNMR) and correlate them with radical scavenging activity and anti-aging properties. Ethanolic extracts (50%, 80% and 100%) of Polygonum Minus, Centella Asiatica, Astragalus Membranecous, Cosmos Caudatus, Momordica Charantia and Morinda citrifolia were screened for Total Phenolic Content (TPC), DPPH radical scavenging, Ferric Reducing Antioxidant Power (FRAP), and ABTS. The top three most active herbs were further analyzed using 1H-NMR metabolomics coupled with multivariate data analysis (MVDA) to correlate specific metabolites with bioactivities. The 80% ethanolic extracts of P. Minus, C. Caudatus, and M. citrifolia demonstrated the highest TPC, radical scavenging activity (DPPH and ABTS) and FRAP values, indicating robust antioxidant capacity. Metabolomics profiling using partial least squares (PLS) biplot, revealed the presence of potent metabolites of these herbs and those of responsible for antioxidant and anti inflammatory or senomorphic effects such as quercetin, quercetin-3-O-rhamnoside (quercitrin), myricetin derivatives, catechin, isorhamnetin, astragalin and apigenin. Eighty percent ethanolic extract of P. Minus, C. Caudatus, and M. citrifolia can be considered promising sources of anti-aging ingredients and effective free radical eradicators. Therefore, these findings will offer a comprehensive overview of medicinal ingredients applicable in senotherapeutic food and product development.

Keywords: Inflammaging; Radical scavenging; Metabolomics; Antioxidant; NMR metabolomics, Malaysian medicinal herbs

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YI026 Chemical Profiling and Persistence of Gasoline Residues on Natural and Synthetic Porous Substrates under Tropical Weathering Conditions

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Understanding the persistence of gasoline residues on porous substrates is fundamental to arson investigations, providing critical evidence of malicious intent through the identification of ignitable liquid residues (ILRs). In forensic practice, delays between fire suppression and evidence collection frequently result in the recovery of weathered debris, where volatile organic compounds (VOCs) have been significantly depleted by environmental factors. In tropical regions such as Malaysia, high ambient temperatures and relative humidity are hypothesised to accelerate this evaporation process, potentially hindering residue recovery. This study evaluates the retention and chemical profiling of gasoline residues on natural (100% cotton) and synthetic (100% polyester) substrates subjected to outdoor tropical weathering. Following controlled ignition and suppression, samples were exposed to environmental conditions for durations ranging from 30 minutes to 960 minutes (16 hours). Residues were extracted via passive headspace adsorption and analysed using gas chromatography–mass spectrometry (GC–MS) in strict accordance with ASTM E1618-19 standards. Nine diagnostic target compounds, including critical alkylbenzenes and indane, were consistently identified using the National Institute of Standards and Technology (NIST) library with a minimum match quality of 85%. The findings demonstrated that both natural and synthetic substrates successfully retained identifiable gasoline residues throughout the 960-minute exposure period, despite the aggressive tropical environment. This confirms a viable window for short-term ILR recovery in warm, humid climates and underscores the significance of substrate-environment interactions in environmental forensic investigations.

Keywords: Exposure duration; fire investigation; substrate-liquid interaction; tropical weathering; ASTM E1618-19.

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ABSTRACTS OF RAPID FIRE PRESENTATIONS

RP002 Protecting Vulnerable Workers of the Multidimensional Fall Efficacy Scale (MdFES): translation, cultural adaptation and preliminary validation

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Falls remain a major public health concern among older adults, with fear of falling often under-recognised despite its substantial impact on function and participation. Most existing instruments primarily assess negative emotional responses to falling, while commonly used fall-related self-efficacy scales are largely unidimensional and do not capture confidence across the full fall process. The Multidimensional Fall Efficacy Scale (MdFES) was developed to address this gap by evaluating confidence across four stages of the fall continuum. In this study, we aimed to translate, culturally adapt, and establish preliminary validity (content and face validity) of the Malay version of the MdFES for community-dwelling older adults in Malaysia. Phase 1 involved forward–backward translation and cultural adaptation with AI-assisted translation support and expert panel review. Phase 2 evaluated preliminary validity. Content validity was assessed by six experts (n=6) using the Item-Level Content Validity Index (I-CVI) and Scale-Level Content Validity Index (S-CVI/Ave). Face validity will be examined among 30 community-dwelling older adults (n=30) using the Item-Level Face Validity Index (I-FVI) and Scale-Level Face Validity Index (S-FVI/Ave). Preliminary results showed that the Malay-MdFES demonstrated acceptable content validity, with I-CVI values ranging from 0.83 to 1.00 and S-CVI/Ave of 0.98, indicating excellent content validity and expert agreement. The Malay-MdFES is expected to be relevant, clear, and culturally appropriate for Malaysian older adults. Its availability may help healthcare providers accurately identify older adults with reduced confidence at specific stages, enabling effective and targeted interventions that promote healthy ageing.

Keywords: Content Validity; Cultural Adaptation; Malay Version; Multidimensional Fall Efficacy Scale; Older Adults

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RP005 From Affection to Connection: The Pivotal Role of Maternal Openness and Interdependence in Predicting Emerging Adults' Psychological Well-being

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In collectivist cultures such as Indonesia, the transition to adulthood necessitates a complex renegotiation of the mother-child relationship, which remains pivotal to mental health. This study seeks to investigate the impact of maternal togetherness, warmth, openness, and interdependence on the psychological well-being (PWB) of emerging adults. Data were gathered from 312 university students (N=312, ages 18–29) in Semarang, Indonesia, employing a predictive correlational methodology. Participants completed four validated mother-specific relational scales: Togetherness (13 items, α=0.936), Warmth (32 items, α=0.969), Openness (22 items, α =0.949), and Interdependence (18 items, α=0.919), along with the modified Psychological Well-being Scale (25 items, α =0.936). The findings from multiple linear regression analysis indicated that psychological well-being was significantly predicted by maternal relational dynamics ($F=6.503$, $p<0.001$), explaining 7.8% of the variance ($R2=0.078$\$). Notably, Warmth and Togetherness, traditionally emotive variables, were not significant predictors in this model, as revealed by a partial analysis. Conversely, Maternal Openness ($\beta=0.151$, $p<0.05$) and Interdependence ($\beta =0.150$, $p<0.05$) emerged as the only significant positive predictors. These findings align with the autonomous-relatedness paradigm, suggesting a societal shift where egalitarian communication and functional support are more crucial for psychological well-being than mere physical presence or attachment. Consequently, family interventions for this demographic should prioritize fostering open communication and supportive interdependence, rather than solely emphasizing closeness.

Keywords: Emerging Adulthood; Psychological Well-being; Maternal Interdependence; Mother-Child Communication; Openness; Indonesian Culture.

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RP008 Determinants of Return to Work After Stroke in Asia: A Scoping Review

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Return to work (RTW) after stroke represents a critical milestone in functional recovery, economic productivity and long-term social participation among working-age survivors. Although determinants of RTW have been widely studied, existing evidence is predominantly derived from Western populations, limiting contextual relevance to Asian countries undergoing rapid demographic ageing and labour market transitions. This scoping review aimed to synthesise evidence on facilitators and barriers to RTW among stroke survivors in Asia and to classify identified factors according to the International Classification of Functioning, Disability and Health (ICF) framework. A systematic search of electronic databases identified quantitative studies examining factors associated with RTW after stroke. Extracted data included study characteristics, operational definitions of RTW and statistically significant associated variables. Six studies met the inclusion criteria. Consistent facilitators included younger age, lower stroke severity, better functional mobility and preserved cognitive performance. Frequently reported barriers comprised severe physical impairment and cognitive deficits, with psychological factors also emerging in several studies. Environmental and occupational determinants, including job demands and workplace accommodation, were comparatively underexplored. These findings underscore the multidimensional and context-sensitive nature of workforce reintegration following stroke in Asian settings. Greater emphasis on environmental and policy-level determinants is required to support sustainable vocational rehabilitation strategies and inform culturally responsive workforce reintegration frameworks in Malaysia and the wider Asia-Pacific region.

Keywords: Return to work, Stroke, Working age, Asia, International Classification of Functioning, Disability and Health.

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RP010 DNMT3A/DNMT3B-Mediated Epigenetic Regulation of TRPV4 Drives Extracellular Matrix Stiffening in Lung Squamous Cell Carcinoma

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Extracellular matrix (ECM) stiffening is a key biomechanical hallmark of lung squamous cell carcinoma (SCC) that actively contributes to the tumour microenvironment (TME). However, the epigenetic mechanisms orchestrating mechanotransduction during multistage tumour progression remain incompletely understood. This study provides the first multistage in vivo mechanistic mapping of a DNMT3A/DNMT3B-TRPV4 epigenetic-mechanobiological axis in an NTCU-induced lung SCC model, uncovering evidence of early pre-malignant epigenetic priming. Female Balb/C mice were exposed to NTCU for 15 weeks (pre-malignant stage) or 30 weeks (malignant stage), and mice treated with 70% acetone comprised the control group. The expression levels of two DNA-methylating proteins, DNMT3A and DNMT3B, and TRPV4 were analysed by immunohistochemistry, ECM remodelling by Sirius Red staining, and TRPV4 promoter methylation by methylation-specific PCR. We found that DNMT3A was significantly upregulated at both stages ($p<0.05$), with higher expression at the pre-malignant stage, indicating early de novo methylation activity preceding overt malignancy. DNMT3B exhibited moderate induction. Correspondingly, MSP detected TRPV4 amplification predominantly in the unmethylated reaction; however, reduced unmethylated band intensity in NTCU-treated tissues indicates a relative shift in promoter methylation. These stage-dependent methylation changes were associated with altered TRPV4 expression, supporting epigenetic modulation rather than complete silencing. The significantly elevated TRPV4 expression at the pre-malignant stage ($p<0.05$), followed by a marked reduction in malignant lesions ($p<0.05$). These molecular alterations coincided with significant collagen accumulation in NTCU-treated lungs at both stages ($p<0.05$), with malignant lesions demonstrating greater deposition than pre-malignant tissues, reflecting progressive ECM stiffening and suggesting dynamic recalibration of mechanosensory signalling across tumour evolution. Collectively, these findings identify early DNMT3A/DNMT3B-mediated epigenetic priming as a potential upstream driver of mechanotransduction rewiring and progressive ECM stiffening, providing a novel mechanistic framework for lung SCC evolution and early intervention strategies.

Keywords: Extracellular matrix (ECM); transient receptor potential vanilloid 4 (TRPV4); epigenetic regulation; mechanotransduction; lung squamous cell carcinoma (SCC)

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RP011 Efficacy of Beta-glucan 1,3/1,6 on Health-related Outcomes Among Adults: A Systematic Reviewand Dose-Response Meta-Analysis Of Randomised Conntrolled Trials

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Beta-glucan, a polysaccharide derived from the cell walls of yeast species and fruiting bodies of mushrooms, has gained significant attention in various clinical and experimental settings in recent years due to its potential immunomodulatory, anti-inflammatory, and antioxidant therapeutic effects on human health. This systematic review and meta-analysis aim to determine the therapeutic effects of consuming beta-(1,3/1,6)-D-glucan on health outcomes. A comprehensive literature search was performed in three electronic databases to retrieve studies from 2013 to 2025 that applied open-source randomised controlled trials to investigate the impact of exclusive oral administration of fungal beta-glucan in any form and at any dosage to adult subjects or patients. A total of 31 RCTs of the 1431 records retrieved and met the eligibility criteria, thus included in the present review. The dosage of the supplementation ranged from 1mg to 8000mg daily for up to 252 days. The physiological outcome of the majority of the interventions was immunomodulation at both low dose (<250 mg/d) and medium dose (250-750 mg/d), but medium dose had a more consistent effect, which resulted in a) enhanced the immune system with SMD = -0.26 (95% CI: -0.41 to -0.12), I^2 = 24%), leading to a decrease in the occurrence and severity of colds, flu, and other respiratory infections and alleviated allergic symptoms; b) contributed to an overall improvement in Quality-of-Life at medium dose (250-750 mg/d) with SMD = -0.74 (95% CI: -1.14 to -0.34); c) Improvement in the clinical outcomes such as URTI episodes, lipid profile, and weight reduction at high dose (>750 mg/d) with SMD = -0.32 (95% CI: -0.63 to -0.01); however, heterogeneity (I^2 = 93-84%) was high. Participants who received beta-glucans reported elevated mood states and a general sense of well-being. At the same time, it might also be useful as a complementary agent to patients undergoing cancer therapies and decrease comorbid conditions associated with obesity and osteoarthritis. Adverse effects (mild GI discomfort) were minimal, supporting the safety profile of beta-glucans. Supplementation with fungal beta-glucan is safe, well-tolerated, and shows promising immunomodulatory effects, such as enhanced immune defence, improved QoL, and clinical outcomes. However, significant heterogeneity and variability in sources of beta-glucan and study populations highlight the need for more high-quality research.

Keywords: Fungal Beta-Glucans, Clinical Trial, Health Outcomes, Systematic Review

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RP012 Pilot Study: Adaptation of Resilience-Building Intervention Among Youth with Adverse Childhood Experience in Malaysia

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As child abuse cases are reported throughout the world, their impact on a person's life is pervasive. Adverse childhood experiences are associated with obesity, cancer, difficulties with self-regulation, and emotion regulation. Hence, this study adapted and modified a resilience-fostering intervention among individuals with adverse childhood experiences in Malaysia. This intervention study was designed based on Ungar's model and modified accordingly to the context of Malaysia by using a biopsychosocial-ecological model. For this study, it is a pilot study evaluating the feasibility of the adapted intervention study as part of the ADPTT framework. 10 participants were recruited and randomized into control group and intervention group. The intervention was conducted in both Malay and English languages..Non parametric tests were conducted to calculate resilience and surrogate resilience measures. For between control and intervention group comparison analysis, adult resilience,patient health and well-being are found to be significantly different. The results provide insight for the clinical study.

Keywords: pilot study, adverse childhood experience, resilience, resilience-building intervention, youth

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RP016 miR-155 Modulation Induces Apoptosis and Regulates PTEN/MARCH7 Signalling in Breast Cancer-Derived Cell Lines

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Breast cancer (BC) progression is governed by intricate microRNA regulatory networks that modulate cellular processes, including survival, cell cycle progression, and metastasis. This study focuses on the functional role of microRNA-155 (miR-155) in BC-derived cell lines (MCF-10A, MCF-7, and MDA-MB-231). Cells were transfected with miR-155 mimics and inhibitors to evaluate the effects of over-expression and inhibition, respectively. Cell viability was assessed using MTT assays at 24, 48, and 72-hour intervals. Apoptosis and cell-cycle distribution were analysed by flow cytometry. In addition, the expression of selected genes and proteins, including PTEN, MARCH7, Akt, and Caspase-3, was evaluated using RT-qPCR and Western blotting to provide preliminary insights into potential regulatory pathways. The results revealed that miR-155 plays a context-dependent role in BC cells. Gain-of-function assays demonstrated that miR-155 overexpression via mimics significantly induces apoptosis and suppresses BC cell survival in a time-dependent manner, with the most pronounced inhibitory effects observed at 48 and 72 hours. Cell cycle analysis revealed no significant G1 or G2/M arrest, indicating that miR-155 does not primarily inhibit cell growth through classical cell-cycle checkpoint regulation. Conversely, treatment with miR-155 inhibitors exhibited modest anti-apoptotic effects, partially preserving cell viability. Mechanistically, inhibition of miR-155 resulted in upregulation of MARCH7 and downregulation of PTEN, supporting their roles as downstream targets of miR-155. Furthermore, alteration of this signaling axis was associated with changes in cellular migratory and invasive behavior, suggesting that miR-155 may contribute to the metastatic processes in BC cells. However, a primary limitation of this study is the reliance on in vitro 2D cell culture models, which may not fully replicate the complexity of the tumor microenvironment. These findings highlight a context-dependent and non-canonical role of miR-155 in BC cells, contrasting with its widely reported oncogenic function. This supports its potential as both a biomarker and a therapeutic target for strategies aimed at modulating tumour growth and metastatic progression.

Keywords: Breast cancer; miR-155; PTEN; MARCH7; Apoptosis

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RP017 Factors Influencing Water Scarcity Preparedness in Urban Slums of Padang City: A Community Health Perspective

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Indonesia faces a growing water crisis driven by rapid population growth, uneven resource distribution, and the escalating impacts of climate change. Despite government initiatives, access to safe drinking water remains limited, with only 11.9% of households having water that meets quality standards. In urban slums, particularly in Padang City, reliance on unsafe sources such as shallow wells increase the risk of contamination and waterborne diseases, posing significant public health challenges. Infrastructure gaps, limited community awareness, and inadequate supervision further exacerbate household vulnerability to water scarcity. Aligned with the theme Advancing Community Health through Research, Innovation, and Partnership, this study investigates the determinants of water scarcity preparedness among households in urban slum areas of Padang City. The research employs a cross-sectional design involving 102 households selected through proportional random sampling from three risk categories across nine urban villages. Data were collected between December 2022 and July 2023 using structured questionnaires and secondary data from local government reports. The findings reveal that education level ($p = 0.011$), availability of facilities and infrastructure ($p = 0.023$), and supervision ($p = 0.034$) significantly influence community preparedness. These results underscore the critical role of community-based health education, infrastructure innovation, and strengthened monitoring systems in building resilience against water scarcity. This study highlights how evidence-based research can inform innovative public health interventions, such as community-led water safety planning, low-cost water treatment technologies, and integrated surveillance systems. Furthermore, it emphasizes the importance of multi-sectoral partnerships among local government, public health institutions, community organizations, and academic stakeholders to enhance sustainable water management. By integrating research, innovation, and collaborative action, this work contributes to advancing community health resilience and improving equitable access to safe water in vulnerable urban populations.

Keywords: Water scarcity; urban slums; community health; preparedness; padang city

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RP018 Predictors of Self-Reported Practice in Ventilator-Associated Pneumonia (VAP) Prevention Among Critical Care Nurses In Sarawak Public Hospitals

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Ventilator-associated pneumonia (VAP) remains one of the most difficult infections to control in intensive care settings and continues to pose a serious threat to patient safety. As healthcare systems move toward greater innovation and international collaboration, it is increasingly important to understand how nurses apply evidence-based VAP prevention strategies in daily practice. This study assesses the level of knowledge, self-reported practices, barriers, and predictors of VAP prevention among critical care nurses in Sarawak, Malaysia. A cross-sectional survey involving 298 nurses from four public hospitals was conducted using a structured questionnaire that captured demographics, VAP-related knowledge, self-reported practices, and identify barriers related to VAP prevention. Hierarchical multiple regression was used to determine the key predictors of practice. Although most nurses reported a high level of compliance with VAP prevention measures (76.5%), two-thirds demonstrated poor knowledge. Knowledge and practice were only weakly correlated ($p < 0.001$). Practice was significantly influenced by the type of unit, bed capacity, nurse-to-patient ratio, and knowledge level, while the most frequently reported barriers included staffing shortages, forgetting certain steps, and the lack of written protocols. These findings highlight a clear gap between what nurses know and what is practiced at the bedside. Strengthening VAP prevention efforts will require not only education, but also better staffing support, clearer protocols, and stronger institutional commitment. Such improvements are essential for advancing patient safety and are consistent with the broader I-SIHAT 2026 emphasis on health innovation and global partnerships.

Keywords: ventilator-associated pneumonia, critical care nursing, evidence-based practice, infection prevention, Malaysia

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RP019 Development, Content Validation, and Usability Testing of the Mobile Application for VRT in Adults with Vestibular Problem

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Vestibular disorders commonly cause dizziness, imbalance, and increased risk of falls, significantly affecting daily functioning and quality of life. Although vestibular rehabilitation therapy (VRT) is an evidence-based intervention, access to structured rehabilitation programs remains limited due to reliance on supervised clinical sessions and resource constraints. Digital health technologies offer an opportunity to improve accessibility by enabling home-based rehabilitation supported by remote clinical monitoring. This study aimed to develop and evaluate the Malaysian Adult Vestibular Rehabilitation Therapy (MAVeRT) application as a digital platform and demonstrate the feasibility of translating conventional vestibular rehabilitation into a technology-enabled system. The MAVeRT application was developed from scratch through a structured multi-phase research process. Initially, a VRT exercise module was adapted and produced as guided instructional videos tailored for home-based practice. The validity of the MAVeRT scripts and videos was evaluated by an expert panel comprising audiologists and physiotherapists, with a mean age of 39.17 years (SD = 4.13) and an average professional experience of 13.33 years (SD = 7.94). Content validation demonstrated strong agreement among experts, with Item Content Validity Index (I-CVI) values ranging from 0.83 to 1.00 for both script and video components, while the Scale Content Validity Index average (S-CVI/Ave) was 0.96 for the scripts and 1.00 for the videos, exceeding the recommended validity thresholds. Subsequently, a MAVeRT prototype application integrating the validated exercise videos and a digital diary was developed and evaluated for usability among pilot participants. The usability assessment yielded a mean Skala Kebolehgunaan Aplikasi Mudah Alih (SKAMA) score of 71.25 (SD = 19.63), exceeding the recommended benchmark of 68, indicating good usability for the MAVeRT prototype. Following the usability evaluation, the prototype was further enhanced into a fully functional digital platform integrated with a clinician dashboard to enable remote monitoring of patient engagement and rehabilitation progress. Preliminary piloting among patients with vestibular-related symptoms and healthcare professionals suggests that the MAVeRT platform is feasible and practical for delivering digital vestibular rehabilitation. Overall, the MAVeRT platform demonstrates the potential to support the digitalization of vestibular rehabilitation and to facilitate accessible, patient-centered, clinician-monitored rehabilitation services.

Keywords: digital health; vestibular rehabilitation therapy; tele-rehabilitation; mobile health application

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RP020 The Impact of Orthokeratology on Ocular Dimensions and Peripheral Eye Length in Myopic Children: A 3D Magnetic Resonance Imaging (MRI) 12 months Study

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This study investigated 12-month changes in peripheral eye length (PEL), axial length (AL), and three-dimensional ocular dimensions (longitudinal axial length (LAL), horizontal width (HW), and vertical height (VH)) in myopic children undergoing Orthokeratology (Ortho-K) treatment compared to single-vision spectacle (SVS) wearers using 3-Tesla Magnetic Resonance Imaging (MRI). 70 myopic Chinese schoolchildren aged 8–9 years old (Ortho-K, n=45 and SVS, n=25) were recruited. While the SVS group exhibited significant axial elongation and a shift towards peripheral hyperopic defocus, the Ortho-K group demonstrated significantly less elongation in axial length (AL) and PEL across most eccentricities ($p < 0.05$), and a shift towards myopic defocus from 10°-30° in nasal and temporal. LAL was significantly shorter in the Ortho-K group compared to SVS ($P < 0.05$). While individual HW, VW did not reach significance within eyeball shape of each group, repeated measures ANOVA confirmed significant between-group differences in global eyeball shape over 12 months ($P < 0.05$). Notably, Ortho-K induced a comprehensive reduction in global ocular geometry across LAL, HW, and VH dimensions. Correlation analysis revealed that SE significantly correlated with LAL in the SVS group ($P < 0.05$); however, the Ortho-K group demonstrated a "decoupling" effect, where SE showed no significant correlation with ocular dimensions ($P > 0.05$), while FK correlated significantly with all dimensional changes ($P < 0.05$). These findings highlight that while myopic progression in the SVS group is primarily driven by axial elongation, refractive changes in the Ortho-K group are attributed to corneal reshaping. Over 12 months, Ortho-K wear modifies ocular dimensions and inhibits AL elongation more significantly than SVS. Hence, providing a structural basis for its efficacy in controlling myopic progression.

Keywords: Orthokeratology; MRI; Axial Length; Ocular Dimension; myopia

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RP021 The Use of AAC By Children with Autism in Special Education Classrooms in Malaysia: Perspective of Special Education Teachers and Parents

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Many children with autism (CwA) remain non-verbal for extended periods and were introduced to Augmentative and Alternative Communication (AAC) to facilitate their communication. In Malaysia, many CwA who attend the Integrated Special Education Program (PPKI) struggle with the use of AAC in the classroom. This paper explores the perspectives of parents and special education teachers on AAC implementation in the classroom settings. A total of four focus group discussions were conducted with 12 parents and 15 special education teachers. Data were transcribed and analyzed using the qualitative content analysis outlined by Graneheim & Lundman (2004). Several challenges were identified. These included limited knowledge and skills, misconceptions about AAC, student-related challenges such as low motivation, and AAC system issues like limited vocabulary or device safety and maintenance. Teachers also highlighted workplace challenges such as a large number of students in a class, limited funding, and restrictive school policies. Despite these challenges, both parents and special education teachers acknowledged the benefits of AAC, including increased vocabulary, improved two-way communication, and reduced challenging behaviors. Their shared perspectives emphasized the importance of collaboration between teachers, families, and professionals for the effective implementation of AAC in school settings.

Keywords: augmentative and alternative communication, special education teachers, autism spectrum disorder, speech-language pathologist, Malaysia

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RP024 From Food Waste to Food Acceptance: The Teddy Breakfast Project for Hospitalised Children

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Plate waste is frequently observed among hospitalised children and may limit dietary intake while contributing to avoidable food disposal. Reducing food waste is consistent with Sustainable Development Goal (SDG) 12, which promotes responsible consumption. To address low acceptance of the existing bread-based breakfast (French toast served with baked beans), Teddy Breakfast was introduced at the Specialist Children's Hospital, Universiti Kebangsaan Malaysia, as an alternative child-friendly option aimed at improving meal acceptance and reducing plate waste. The meal consists of white bread with peanut butter and chocolate spread, decorated with raisins and banana slices to resemble a teddy bear. A two-phase study was conducted to examine sensory acceptance and changes in plate waste. Phase 1 (February–July 2024) involved baseline plate waste measurement using the Comstock visual estimation method, followed by product development, nutrient analysis, and sensory evaluation. Phase 2 (February–July 2025) involved serving the Teddy Breakfast in place of the existing menu and reassessing plate waste using the same method. The intervention achieved high overall acceptance (acceptance index 82.6%; mean score 4.1). Average plate waste decreased significantly from 77.34% at baseline to 55.5% after the introduction of the new menu ($p < 0.01$), with similar reductions across both age groups. The findings suggest that simple, child-oriented meal presentation strategies can improve food acceptance and reduce waste in paediatric hospital settings, with potential application in other child-focused food service environments such as preschools and primary schools.

Keywords: Plate waste; paediatric nutrition; sensory acceptance

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RP027 Mechanism of FODMAP Restriction in Functional Gastrointestinal Disorder Patients: Preliminary Data from a Randomised Controlled Trial

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Functional Gastrointestinal Disorders (FGIDs), including irritable bowel syndrome (IBS) and functional dyspepsia (FD) are frequently managed with restriction of fermentable carbohydrates (FODMAPs). FGID patients often present with diminished quality of life (QoL), increased food avoidance behaviours and have been linked with orthorexia nervosa, a pathological preoccupation with "healthy eating". A parallel-group randomised controlled trial was conducted to determine the effectiveness of diets with varying FODMAPs and their impact on FGID patients. Eligible subjects are screened at baseline and randomly assigned to one of three diet intervention arms: Low FODMAP diet, Gentle FODMAP diet, and Traditional Dietary Advice, which they were required to follow for two weeks. Baseline and post-intervention assessments included the IBS-Severity Scoring System (IBS-SSS), Gastrointestinal Symptom Rating Scale (GSRS), European QoL 5 Dimensions 5 Level (EQ-5D-5L), 4-day food diaries (nutrient analysis), Hospital Anxiety and Depression Scale (HADS), Orthorexia-Nervosa questionnaire (ORTHO-15), and the Avoidant/Restrictive Food-intake disorder scales (NIAS). The preliminary data was analysed to determine the effect of FODMAP restriction on these outcomes. Continuous variables were analysed using mixed ANOVA, while categorical variables were compared using chi-square tests. Based on the pre-post data obtained from 24 participants, symptom severity improved from baseline to post-intervention regardless of type of diet, indicating all three dietary approaches were beneficial ($p<0.05$). The mobility ($p=0.016$) and usual activities ($p=0.031$) parameters from EQ-5D-5L were presented with significant arm-to-arm interactions. Energy intake fell markedly ($p=0.007$) together with fat intake ($p<0.001$) and iron intake ($p=0.039$). ORTHO-15 scores improved significantly ($p=0.004$) with the low FODMAP diet showing the largest estimated marginal-mean rise, indicating the biggest improvement in reducing orthorexia-related eating behaviour score ($p=0.016$) which may be attributed to symptom improvement associated with the intervention. Descriptive analyses demonstrated shifts towards normal level in anxiety and depression categories, with heightened picky eating and fear post-intervention as expected. Preliminary findings suggest that dietary interventions, particularly the low FODMAP diet may improve gastrointestinal symptoms, QoL and eating-related behaviours in FGID patients.

Keywords: Functional Gastrointestinal Disorder, Irritable Bowel Syndrome, Functional Dyspepsia, FODMAP Restriction, Food Avoidance

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RP028 Psychologically Informed Practice in Tinnitus Management: Audiologist Perceived Barriers, Facilitators, and Preparedness in Malaysian Government Hospitals

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Psychologically informed practice sits between traditional biomedical care and specialist mental health services, where healthcare practitioners address the psychological aspects of chronic physical conditions. First developed in physiotherapy, this approach has increasingly been adopted by audiologists for managing tinnitus disorder, especially in the UK and the USA. With limited evidence from Southeast Asia, this study aimed to identify gaps in implementing psychologically informed tinnitus management by examining audiologists' perceived barriers, facilitators, and preparedness. A cross-sectional survey was conducted among audiologists in Malaysian government hospitals across multiple regions (n = 104) who reported working with adults presenting with tinnitus as part of their clinical practice. The survey collected information on current practices, experiences in managing tinnitus, and perspectives on psychologically informed approaches. Most participants reported at least one barrier to discussing mental health when caring for patients with tinnitus (98.1%), with the most common being insufficient knowledge or training in psychological approaches (83.7%). Interpreted using the COM-B model of behaviour change, barriers were primarily related to capability and opportunity factors, including limited confidence in identifying distress and insufficient consultation time or workplace support for these discussions. In contrast, motivational factors appeared to act as facilitators, with most audiologists recognising the importance of mental health in tinnitus management and agreeing that counselling falls within their scope of practice. Many participants also reported preparedness to incorporate psychologically informed interventions, particularly structured referral protocols for psychological services (76.9%). Overall, audiologists in Malaysian government hospitals demonstrated strong motivation to incorporate psychologically informed approaches into tinnitus management; however, capability-related limitations and organisational constraints may hinder their implementation. These findings highlight key targets for future efforts in training, service development, and policy support to facilitate the integration of psychologically informed tinnitus interventions within Malaysian audiology services.

Keywords: Psychologically informed practice; tinnitus management; audiologists; COM-B model; implementation research

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RP033 Association of Short-Term and Working Memory Capacity with Brain Activation among Adolescents with Internet Gaming Addiction Symptom: A Preliminary Finding

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Internet Gaming Addiction (IGA) has become a growing public health concern. Studies showed that moderate gaming can enhance cognition but excessive gaming may detrimentally impact memories. This study investigated brain activation patterns during auditory short-term (STM) and working memory (AWM) tasks among adolescents with IGA symptoms. Nine participants with IGA symptoms and twelve controls participated in this study. All participants took a STM test using the Malay Version of Auditory Learning Test (MVAVLT) while AWM capacity was assessed using the digit span test (DST) and backward word repeat test (BWRT) during an fMRI scan. MVAVLT and DST data were analyzed using SPSS while the fMRI data were analyzed using SPM12 for neural activation. Spatial activation from eight regions of interest (ROI) i.e. superior temporal gyrus (STG), precuneus (PRE), posterior cingulate cortex (PCC), anterior cingulate cortex (ACC), inferior frontal gyrus (IFG), dorsolateral prefrontal cortex (dlPFC), primary auditory cortex (PAC) and orbitofrontal cortex (OFC) were recorded. The Man-Whitney U test showed that there is no significant difference ($p > 0.05$) in the cognitive performance and brain activation between addicted and control groups. The highest average brain activations were found at STG and PRE. In the control group, Spearman's correlations revealed that A6 MVAVLT scores was negatively correlated with IFG activation ($\rho = -0.446$, $p = 0.043$) while DST scores were negatively correlated with PRE activation ($\rho = -0.459$, $p = 0.036$). In the IGA group, MVAVLT and DST scores were strongly negatively correlated with STG, PCC, dl-PFC and PAC activation. Simple linear regression also showed that MVAVLT, BWRT, and Digit Span scores were poor predictors of both cognitive performance and brain activation across all eight regions ($r2 < 0.10$). Consequently, the relationship between IGA and STM/AWM remains inconclusive. Future studies should utilize larger sample sizes to assess the impact of IGA on neurocognitive development.

Keywords: Activation, addiction, adolescent, brain, gaming

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RP037 Toward Integrated Microstructural and Hemodynamic Brain Imaging with IVIM Imaging at 3T MRI

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Conventional diffusion-weighted imaging (DWI) provides valuable insights into brain tissue microstructure but is limited in separating true diffusion from perfusion-related signal components. Intravoxel incoherent motion (IVIM) imaging enables simultaneous, non-contrast assessment of both diffusion and microvascular perfusion, offering potential advantages in characterizing brain tumors. This study aimed to evaluate the utility of IVIM imaging at 3T MRI for differentiating normal brain tissue and gliomas of varying WHO grades II–IV, with a focus on microstructural and hemodynamic characterization. IVIM MRI was performed on a 3T clinical system using a multi-b-value DWI sequence. The dataset used in this study was obtained from the OpenNeuro database, including 3D T1 TFE, 3D FLAIR, and 2D multi-echo multi-shell HARDI diffusion-weighted imaging with TE=85 ms, 1.5 mm isotropic voxel size, FOV=160x160x96 mm^3, and 40 b-values (including 0, 400, 800, 1600, and 3200 s/mm^2). Quantitative parameters, including the true diffusion coefficient (D), pseudo-diffusion coefficient (D*), and perfusion fraction (f), were estimated using a bi-exponential model. Regions of interest were defined in healthy brain tissue and in histopathologically confirmed gliomas. Comparative analysis of IVIM parameters across groups was conducted to assess their diagnostic performance. IVIM-derived parameters demonstrated distinct patterns between healthy tissue and gliomas of different grades (II–IV). The diffusion coefficient (D) showed a decreasing trend with increasing tumor grade, reflecting higher cellularity in high-grade gliomas. In contrast, perfusion-related parameters (D* and f) tended to increase in higher-grade tumors, consistent with enhanced microvascular proliferation and angiogenesis. These findings suggest that IVIM imaging provides complementary information on both tissue microstructure and tumor vascularity. In conclusion, IVIM imaging at 3T MRI offers a promising, non-invasive approach for simultaneous assessment of brain microstructure and hemodynamics. It enables differentiation between healthy tissue and gliomas of different grades (II–IV), potentially supporting tumor grading and improving diagnostic accuracy without the need for contrast agents.

Keywords: IVIM imaging; diffusion MRI; brain microstructure; glioma

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RP040 Low calorie sweeteners consumption: Associations with caloric compensation and appetite-regulating hormones

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The efficacy of low-calorie sweeteners (LCS) in achieving caloric reduction is frequently debated due to concerns over potential compensatory energy intake and disruption of appetite regulation. This cross-over, single-blind clinical study investigated the acute effects of sugar, stevia, and aspartame preloads on subsequent food intake and the concentrations of appetite-regulating hormones in 21 healthy adult subjects. Subjects completed three non-consecutive test days, consuming composite preloads sweetened with sugar, stevia, or aspartame, followed by an ad libitum test meal. Total energy intake (preload + lunch) was significantly lower in meals preceded by LCS compared to sugar meals (e.g., aspartame meals were 8.4% lower than sugar, $p = 0.035$). Subjects demonstrated incomplete energy compensation for the reduced calories in LCS preloads (stevia: 45.6%; aspartame: 54.1%), confirming no caloric overcompensation. In terms of appetite-regulating hormones, the sugar preload resulted in a significantly higher total area under the curve (AUC) for leptin ($p < 0.001$) and a significantly lower total AUC for ghrelin ($p = 0.029$ for stevia vs. sugar) compared to both LCS preloads. Insulin AUC was not statistically significant between groups, but leptin levels correlated positively with body fat across all sweeteners ($p < 0.001$). These findings indicate that replacing sugar with LCS (stevia or aspartame) successfully reduces total energy intake without inducing compensatory overeating or negatively impacting subjective appetite responses. This supports the use of LCS as a beneficial tool in a calorie-deficient food intake.

Keywords: Low-calorie sweeteners; Stevia; Energy compensation; Leptin; Ghrelin

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RP041 Capturing the Patient's Experience in Virtual Care: Development and Validation of the MPEQ-VC for Malaysian Primary Health Clinics

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Virtual consultation services have expanded rapidly across Malaysian health clinics, with over 230 facilities now offering this modality of care to community-based primary care patients. However, no validated, culturally appropriate Malay-language instrument has been available to assess patient experience with these services, leaving the voices of Malaysian primary care patients systematically underrepresented in the evaluation of digital health innovations. This study aimed to develop and validate the Malay Version of the Patient Experience Questionnaire for Virtual Consultation Services (MPEQ-VC) for use in the government health clinics of Malaysia. A two-phase sequential design was adopted, guided by the Boateng et al. (2018) instrument development framework and the COSMIN reporting guidelines. Phase 1 comprised item generation in Malay, content validation by a nine-member multidisciplinary expert panel, and face validation by ten experienced patients. Phase 2 involved exploratory factor analysis on 211 respondents, internal consistency and test-retest reliability assessment, and confirmatory factor analysis on an independent sample of 113 respondents recruited from eight government health clinics across four districts in Selangor stratified by urbanicity. The final 25-item MPEQ-VC demonstrated a refined and validated three-domain structure comprising Ease of Use, Patient-Centered Care, and Involvement of Family Members. Confirmatory factor analysis confirmed acceptable model fit (CFI = 0.912; TLI = 0.900; RMSEA = 0.093). Composite Reliability was 0.890, Average Variance Extracted was 0.731, and Cronbach's alpha exceeded 0.93 across all domains. Discriminant validity was clearly established across all domain pairs. The MPEQ-VC is the first psychometrically validated Malay-language patient experience instrument for virtual consultation services in Malaysian primary care, offering a culturally grounded tool to amplify patient voices and inform community health quality improvement. Additionally, it serves as a guide for healthcare workers to gain a deeper understanding of the dimensions of patient experience within a screen-mediated platform, which is crucial for their service delivery.

Keywords: Patient Experience; Questionnaire; Development; Validation; Primary Healthcare

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RP043 Development and Content Validation of the STAR Parenting Module to Improve Socio-Emotional Development for School Readiness of Children with Cochlear Implants

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Parents of children with cochlear implants (CIs) face unique challenges in fostering their children's socio-emotional development, a critical component of school readiness. There is a recognized lack of culturally adapted, evidence-based interventions to support these parents effectively. This study aimed to develop and validate a psycho-educational module, the "Socio-emotional Teaching and Raising (STAR) Parenting" module, designed to enhance the socio-emotional school readiness skills of preschool children with CIs in Malaysia. The module was constructed using Sidek's (2001) Module Development Model, comprising two phases: (1) module draft construction and (2) module evaluation. The content was based on an earlier study on needs analysis and empirical literature, structured into six sessions covering parenting knowledge, facilitator roles, and practical workshop strategies. Content validity was assessed by a panel of five experts (audiologists, a speech-language pathologist, a clinical psychologist, and a special education teacher) using a 92-item Content Validity Questionnaire rated on a 5-point Likert scale. The Item-Content Validity Index (I-CVI) and Scale-Content Validity Index (S-CVI) were calculated. The STAR Parenting module demonstrated high content validity. The overall content validity percentage was 86.1%. The I-CVI scores ranged from 0.80 to 1.00. The S-CVI/Ave was 0.88, exceeding the acceptable threshold of 0.80. The inter-rater reliability (ICC(2,k)) was 0.65, indicating moderate consistency among experts. Feedback was incorporated to refine the module's language, clarity, and cultural relevance. The STAR Parenting module is a valid and reliable psycho-educational tool. It is ready for pilot implementation and holds promise for empowering parents in Malaysia to better support the socio-emotional development and school readiness of their children with CIs.

Keywords: Parenting Module; Socio-emotional Development; Children with Cochlear Implants

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RP045 A Comprehensive Predictive Model for Cardiovascular Disease: Integrating Logistic Regression and CART for Early Risk Evaluation

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Cardiovascular disease (CVD) remains a leading cause of global mortality, placing a continuous burden on healthcare systems and requiring more efficient predictive models for early detection. This study aims to identify key health and lifestyle factors associated with cardiovascular disease (CVD) and to develop an effective risk classification model using a thorough statistical approach. The analysis employed secondary data from Kaggle, encompassing over 60,000 individuals aged 40 and older in Russia. Russia was chosen because of its extensive, high-quality dataset and significant prevalence of cardiovascular disease, rendering it suitable for multivariate modeling and risk assessment. Descriptive statistics were initially utilized to analyze the distribution of cardiovascular disease among demographic groups. Binary logistic regression was employed to evaluate the influence of health and lifestyle risk factors on the likelihood of cardiovascular disease (CVD). A decision tree approach using the Classification and Regression Tree (CART) algorithm was implemented to enhance predictive accuracy and interpretability by classifying individuals into distinct risk categories. The findings indicate that systolic and diastolic blood pressure, cholesterol levels, body mass index (BMI), age, and alcohol consumption are significant predictors of cardiovascular disease (CVD), while physical activity offers a protective advantage. Glucose level was recognized as a confounding variable, indicating that its influence on cardiovascular disease is mediated by other primary predictors. The CART model designated systolic blood pressure as the primary splitting variable, followed by cholesterol level, enabling the efficient categorization of individuals into high-risk groups. This study demonstrates that integrating logistic regression with CART provides a robust and practical framework for predicting cardiovascular risk. The proposed hybrid approach improves classification accuracy and promotes interpretability, providing useful insights for early intervention methods and evidence-based public health policy development.

Keywords: Cardiovascular Disease (CVD); Logistic Regression; Classification and Regression Tree (CART); Risk Prediction; Risk Factors.

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RP046 Factors and Associated Health Outcomes of Food Insecurity Among Patients with Cancer

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Food insecurity is a critical yet often overlooked challenge for vulnerable populations, including patients with cancer, impacting their health and well-being. This study aimed to identify the sociodemographic and clinical factors associated with food insecurity among patients with cancer. A cross-sectional, multi-centre study using convenience sampling employed non-parametric tests, primarily the Kruskal-Wallis H test and Chi-square test, to analyse food insecurity (measured using the 8-item Food Insecurity Experience Scale [FIES]) among patients with cancer. Significant findings revealed that household income was a key factor, with patients in the B40 population (earning below RM4,849) demonstrating a statistically significant difference ($H(2) = 9.07$, $p = .011$). Findings also suggested higher food insecurity among rural participants ($p = .063$), those with lower education levels, individuals not working or retired, and patients with head and neck or skin cancers, though these were not statistically significant. Importantly, a moderate, statistically significant correlation between food insecurity and financial toxicity ($\rho = -.460$, $p < .001$) was observed, with a highly significant Chi-square association ($p < .001$) confirming that greater financial toxicity is associated with greater food insecurity. Furthermore, food insecurity was significantly associated with higher levels of anxiety ($\rho = .195$, $p = .008$; χ^2 $p = .040$) and depression ($\rho = .331$, $p < .001$; χ^2 $p < .001$). These findings underscore that financial vulnerability is a significant driver of food insecurity among patients with cancer, which in turn exacerbates financial toxicity and negatively impacts psychological well-being. Therefore, comprehensive screening and targeted support programs are crucial to mitigate food insecurity and its debilitating consequences in this vulnerable patient population.

Keywords: food insecurity; health outcomes; cancer

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RP047 Assessing the Effectiveness of the DemensiaKITA Mobile Health Application on Caregiver Knowledge, Attitude, Practice, and Burden in Selangor, Malaysia

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Dementia is an increasing public health concern globally and in Malaysia, driven by rapid population ageing. In Malaysia, care is largely provided by informal caregivers who often experience high burden and gaps in knowledge, attitudes, and practices (KAP). Mobile health (mHealth) applications offer a promising approach for caregiver support; however, evidence on their effectiveness remains limited. The objective was to evaluate the effectiveness of the DemensiaKITA mHealth application in improving caregivers' KAP and reducing caregiver burden among dementia caregivers in Selangor, Malaysia. A non-randomised controlled trial was conducted in four public hospitals in Selangor, Malaysia. A total of 100 informal dementia caregivers were allocated into intervention (n = 50) and control (n = 50) groups and assessed at baseline, 1 month, and 3 months. Data were analysed using descriptive statistics and the Generalised Estimating Equations (GEE) model. The mean age was comparable between groups (intervention: 50.84 ± 14.01; control: 48.44 ± 11.72), with no significant difference ($t(98) = 0.929$, $p = 0.355$). Most participants were female, Malay, married, and children of people living with dementia. The intervention significantly improved knowledge, with group × time interactions at 1 month ($B = 1.640$, $p = 0.006$) and 3 months ($B = 2.340$, $p = 0.027$). Practice (caregiving difficulty) also improved significantly, with interaction effects at 1 month ($B = -2.440$, $p = 0.003$) and 3 months ($B = -2.320$, $p = 0.005$). Caregiver burden decreased significantly, with interaction effects at 1 month ($B = -2.580$, $p = 0.025$) and 3 months ($B = -3.860$, $p < 0.001$). No significant changes were observed in attitude ($p > 0.05$). The DemensiaKITA mHealth application is a promising and effective intervention for improving knowledge, enhancing caregiving practice, and reducing caregiver burden, although it did not significantly influence attitudes in the 3-month study period. It has a strong potential to support dementia caregivers in Malaysia.

Keywords: Dementia; Caregivers; Mobile Applications; Health Knowledge, Attitudes, Practice; Caregiver Burden.

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RP048 Policy and Institutional Perspectives on the Use of Schools as Temporary Evacuation Centres during Floods in Southeast Asia

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Southeast Asia's high flood vulnerability frequently necessitates repurposing schools as temporary evacuation centres (TECs). However, balancing emergency response with educational continuity remains a challenge. This research aims to examine existing policies on schools as TECs, identify institutional roles and challenges, and propose recommendations for improved coordination. Using a qualitative comparative case study of Malaysia, Thailand, and Indonesia, this study reviewed government decrees, disaster guidelines, and academic literature. Key documents included Malaysia's NADMA Directive No. 1 and MKN No. 20, Thailand's OBEC disaster management and school safety guidelines, and Indonesia's Law No. 24 of 2007, BNPB Regulation No. 4 (2012), Ministerial Circular Letter No. 70a/MPN/SE/2010, and SNI 7937:2013. Findings indicate that school activation is governed by layered administrative frameworks rather than clear statutory instruments, leading to regulatory ambiguity. While Malaysia and Thailand rely on institutional directives, Indonesia has the most integrated framework, incorporating disaster risk reduction into educational governance. Despite these structures, all three countries face common challenges, including a lack of explicit school designation, limited teacher capacity, financial constraints, and inadequate planning for educational continuity. Significant regulatory gaps remain in managing the dual-use function of schools. Strengthening statutory designations, inter-agency coordination, and continuity planning is essential to support more resilient school-based disaster management.

Keywords: floods; disaster management; schools; temporary evacuation centres

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RP049 Effects of Blue and UV Filtering Eye Drops on Contact Lens Light Transmittance

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Blue and UV light can cause oxidative stress and visual fatigue in the eyes. Contact lenses (CLs) with blue and UV light filters can mitigate the effects of high-energy radiation. Filtered eye drops may provide additional protection. The filtered eye drop Miren® can be used concurrently with the CLs. The effect on blue and UV light transmittance by this combination has not been evaluated. This study investigated the effectiveness of the combination of filtered eye drops with different types of CL. An in vitro experiment evaluated the impact of blue and UV light transmittance of a combination of filtered eye drops (Miren®) with various CLs. Six commercially available soft CLs were tested: two clear contact lenses (CCLs), two blue light filtered contact lenses (BLCLs), and two UV filtered contact lenses (UVCLs). Transmitted light intensity was measured using the MK350S Premium spectrometer. Blue light was emitted using a 6.7- inch mobile device, while UV light was generated using a Smile Shark torch light. Baseline intensity was recorded prior to which the intensity was measured separately through each CL. The process was repeated after applying the filtered eye drops. Descriptive statistics, paired-sample t-test, and one-way ANOVA were used to analyse the data. The application of filtered eye drops significantly reduced blue and UV light transmittance across all tested CLs ($p < 0.001$). Under BL, no significant differences were observed between lens types after drop application ($p = 0.17$), whereas a significant difference was detected under UV light ($p = 0.028$). The magnitude of attenuation varied by lens type and light source. CCLs combined with drops showed the greatest additional reduction in transmittance (9.2%–10.3% under BL; 7.0%–8.2% under UV light). BLCLs combined with drops showed the greatest enhancement in overall filtering efficacy (26.2% total reduction), with the smallest incremental attenuation (4.9%–6.8% under BL; 6.6%–7.0% under UV light). UVCLs exhibited moderate attenuation, ranging from (7.4%–8.4% under BL), and (6.4%–7.8% under UV light). Filtered eye drops significantly enhance the light-filtering capabilities of CLs, with the magnitude of improvement depending on the lens type and light source, with greatest effect observed with BLCLs. This approach is particularly effective with clear lenses, suggesting a promising strategy for improving ocular protection against blue and UV light.

Keywords: Filtering Eye Drop; Contact Lens; Light Transmittance; Blue Light; UV Light

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RP053 Association of Sociodemographic and Environmental Factors of Tuberculosis Cases from 2014 to 2023 in Malaysia

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Tuberculosis (TB) is a major public health issue globally, and it remains one of the deadliest infectious diseases in Malaysia. This cross-sectional study aimed to determine the spatiotemporal distribution of TB cases with the association of sociodemographic and environmental factors in Malaysia. The sociodemographic data of 301,822 TB cases such as age, gender, nationality, country of origin, race, educational level, healthcare worker status, smoking status, and drug consumption from 1st January 2014 to 31st December 2023 in Malaysia district were collected from the Tuberculosis Information System (TBIS) database. Environmental data such as sulphur dioxide (SO2), particulate matter 10 (PM10), ozone (O3), nitrogen dioxide (NO2), carbon monoxide (CO), wind speed, relative humidity, temperature, rainfall, and atmospheric pressure were obtained from the Department of Environment Malaysia and Malaysia Meteorological Department. Ordinary least squares (OLS) and geographically weighted regression (GWR) models were employed to determine the spatial association of sociodemographic and environmental factors with the TB cases across districts in the country. Sociodemographic factors such as being aged less than 14 years old, country of origin from Nepal, country of origin from Thailand, Chinese racial, Indian racial, primary educational level, and tertiary educational level, as well as the environmental factor which is PM10, were associated with TB cases ($p<0.05$). The GWR model based solely on the sociodemographic factor i.e. GWR1 was the best model to determine the spatial distribution of TB cases based on the highest R2 value i.e. 0.99. The maps of estimated local coefficients in GWR models reflected the spatial variability of sociodemographic and environmental factors on TB cases. This study concluded that the spatial analysis is crucial for identifying regions with a high TB burden based on characteristics related to the disease.

Keywords: Environment; geographically weighted regression; sociodemographic; spatial; tuberculosis

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ABSTRACTS OF ORAL PRESENTATIONS

OR003 Watch, Learn, Improve: Video-Based Slit-Lamp Training Enhances Immediate Test Performance and Reveals High Instructional Motivation

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Digital video-based learning (VBL) has become a core innovation in rehabilitation and health sciences education, enabling scalable and standardized delivery of clinical skills training. However, empirical evidence supporting its effectiveness in optometry education and the role of learner motivation in digital environments remains limited. This study evaluated the effectiveness of slit-lamp VBL in enhancing immediate knowledge acquisition and explored the role of instructional motivation, measured using the Reduced Instructional Materials Motivation Survey (RIMMS), among undergraduate optometry students. Forty-four Year 3 Optometry students completed a written pre-test before engaging with digital slit-lamp instructional videos, followed by an immediate post-test and the RIMMS. Descriptive statistics, Wilcoxon signed-rank test, Hake normalized learning gains, Spearman's correlation, simple linear regression, and hierarchical multiple regression were performed to evaluate learning outcomes and the contribution of instructional motivation. Post-test scores (80.30 ± 14.55) were significantly higher than pre-test scores (63.13 ± 12.63; $Z = -5.051$, $p < .001$), demonstrating substantial immediate learning gains with a large effect size ($r = 0.76$) and standardized mean difference ($d = 1.27$). Under the Hake framework, 63.6% of students achieved medium-to-high normalized gains. Baseline pre-test scores did not significantly correlate with normalized gains ($\rho = -0.033$, $p = .833$; regression $p = .784$), indicating VBL was similarly effective across varying student baseline competency levels. Homogeneous, elevated instructional motivation scores were reported (mean = 4.4/5.0). However, RIMMS scores did not significantly correlate with normalized gains ($\rho = -0.09$, $p = .558$), or predict post-test performance when controlling for baseline knowledge ($\Delta R^2 = .001$, $p = 0.890$). Digital video-based slit-lamp instruction significantly enhances immediate clinical knowledge acquisition in optometry training, and appears to be an equitable preclinical learning strategy with high reported learning motivation. These findings support the integration of digital motivation-sensitive instructional design to optimise clinical skills development in rehabilitation and health sciences education
.

Keywords: video-based learning, optometry education, RIMMS, learning motivation, clinical skills training

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OR004 Fear of Falling and Self-Efficacy for Physical Activity Among Stroke Survivors with Home-Based Physiotherapy Experience

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Despite physical recovery after stroke, fear of falling (FOF) continues to shape survivors' perceived capability to engage in physical activity. The perceived capability is reflected in self-efficacy for physical activity (SEPA), which influences independence. However, limited evidence has examined the prevalence of FOF and its association with SEPA among community-dwelling stroke survivors who underwent home-based physiotherapy. Therefore, this study aimed to determine the prevalence of FOF and SEPA and examine their association among stroke survivors. A cross-sectional study was conducted among 102 community-dwelling stroke survivors in the Klang Valley with prior experience of home-based physiotherapy, aged 41-79 years (mean 57.33 ± 8.68), with 69.6% males and 30.4% females. FOF and SEPA were assessed using self-administered Falls Efficacy Scale-International (FES-I) (scores: 16-19 low, 20-27 moderate, 28-64 high) and the Stroke Self-Efficacy Questionnaire (SSEQ), respectively, during the period from June 2025 to January 2026. FOF prevalence and SEPA scores were summarised using descriptive statistics, and the association between FOF and SEPA was analysed using Spearman's rank correlation analysis, with statistical significance determined at $p < 0.05$. The study showed that home-based physiotherapy stroke survivors were predominantly ischaemic (66.7%) and 54.9% reported at least one fall. High FOF was most prevalent (72.5%; FES-I 44.54 ± 9.82), followed by moderate FOF (22.5%; FES-I 23.61 ± 2.52) and low FOF (4.9%; FES-I 17.40 ± 1.52). SEPA showed marked variability (83.17 ± 30.99), suggesting differences in confidence to be physically active. FOF and SEPA were statistically associated, with a strong inverse relationship ($r_s = -0.666$, $p < 0.001$), indicating that greater concern about falling is linked to lower physical activity confidence. These findings highlight the need to address FOF alongside physical training in home-based and community stroke rehabilitation practice to support functional independence among stroke survivors.

Keywords: stroke; fear of falling; self-efficacy; physical activity; home-based physiotherapy

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OR006 Sleeping In on Weekends: Prevalence and Associations with Anthropometric Status and Academic Performance Among Primary School Children in Selangor

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Sleep deprivation is increasingly common in the modern world, leading to sleep extension on weekends to compensate for accumulated weekday sleep debt. This cross-sectional study aims to determine the prevalence of weekend catch-up sleep (WCUS) and its associations with anthropometric status and academic performance among primary school children in Selangor. This study involved 559 children recruited from urban and rural schools between June and August 2025. Data on sociodemographic characteristics, sleep parameters, screen time, physical activity, school attendance, cognitive performance, and classroom-based assessment (PBD) scores were collected. Anthropometric status was assessed using body mass index-for-age (BMI-for-age) and height-for-age indicators. Logistic and multiple linear regression analyses were performed to examine the associations between WCUS duration, anthropometric status, and academic performance. Overall, 75.7% (n=423) of children extended their sleep on non-school days. Among WCUS practitioners, 26.7% reported >0–1 hour, 20.1% >1–2 hours, 18.9% >2–3 hours, and 34.3% ≥3 hours. Children reporting >2–3 hours of WCUS had significantly higher odds of having a normal BMI-for-age compared with those reporting ≤0 hours of WCUS (OR = 2.33; 95% CI: 1.02–5.31; p = 0.044). However, no significant association was observed between WCUS and height-for-age. Regarding academic performance, WCUS of <1 hour was significantly associated with higher Malay language PBD scores (β = 0.619; 95% CI: 0.244–0.993; p = 0.001), whereas WCUS of 1–2 hours was linked to higher Mathematics PBD scores (β = 0.401; 95% CI: 0.124–0.678; p = 0.005), compared with WCUS ≥3 hours. Furthermore, shorter WCUS durations (<2 hours) were significantly associated with higher school attendance compared with WCUS ≥3 hours. In conclusion, WCUS is highly prevalent among primary school children in Selangor. The associations vary by duration, emphasising the role of sleep patterns in supporting child health and academic performance.

Keywords: weekend catch-up sleep, sleep extension, body weight, academic performance, children

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OR007 Dietary Management of Disorders of Gut Brain Interactions: Knowledge, Attitudes, and Practices Among Gastroenterologists and Dietitians in Asia

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Dietary management of disorders of gut-brain interaction (DGBI), particularly irritable bowel syndrome and functional dyspepsia, is complex. Since the implementation of evidence-based dietary therapies for DGBI has not been extensively studied in Asia, this study aimed to evaluate the knowledge, attitudes, practices, and perceived barriers among Asian gastroenterologists and dietitians regarding the dietary management of patients with DGBI. A cross-sectional face to face and online survey was conducted among gastroenterologists and dietitians across 8 Asian countries through websites, conferences, social media platforms and dietetic networks using convenience sampling. Data was analysed using SPSS version 27 with results presented as frequencies and means, and Spearman correlation analysis was used to determine correlation between knowledge and attitudes. A total of 110 dietitians and 54 gastroenterologists with an average age of 36.00 ± 6.134 and 39.18 ± 6.886 years, completed the survey. Moderate knowledge was observed in 53.3% of dietitians, while 46.2% of gastroenterologists had unsatisfactory knowledge. Positive attitudes towards dietary interventions for DGBI were noted in 75.0% of dietitians and 60.4% of gastroenterologists. Although a large number of participants were aware of evidence-based dietary management for DGBI, this was not reflected in their practice. The primary barrier identified was a lack of resources and guidelines. No significant relationship was found between years of clinical experience and knowledge or attitudes ($P>0.05$). Despite limited knowledge in managing DGBI, most dietitians and gastroenterologists have a positive attitude towards the importance of dietary intervention. However, the implementation of dietary management was not according to evidence-based practice. Addressing identified barriers is essential to improving dietary management. Further research is needed on Asian DGBI treatment strategies. Moving forward, there is a strong need for culturally tailored guidelines, enhanced professional training, and greater international collaboration to improve dietary management of DGBI in Asian populations.

Keywords: irritable bowel syndrome; functional dyspepsia; dietary management; low FODMAP diet

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OR008 Sleep Patterns, Social Jetlag, Screen Time and Their Associations with School Attendance and Academic Performance Among Primary School Children in Selangor, Malaysia

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Sleep deficiency has become a growing global health concern among school-aged children, estimated 25% to 50% of children fail to achieve the recommended 9-11 hours of sleep per night globally. Beyond sleep duration, sleep-wake timing and digital screen exposure influence circadian alignment—the synchronisation of behavioural patterns with the body's internal biological clock. This study aimed to examine sleep-wake patterns during school and non-school days, daytime sleepiness and screen time, and their associations with academic performance and attendance among primary school children in Selangor, Malaysia. A cross-sectional study was conducted among 559 children aged 10-12 years old (54.7% boys; 81.8% Malay; 52.1% from urban schools). Data on sociodemographic characteristics, sleep patterns, daytime sleepiness, screen time, school attendance, and classroom-based assessment (PBD) scores were collected using structured questionnaires and school records. The average weekly sleep duration was 8.10±0.57 hours, below recommended levels. Children reported significantly later sleep onset (23:19 vs 22:20, $p<0.001$), sleep offset (08:34 vs 06:04, $p<0.001$) and midpoint of sleep (03:18 vs 02:12, $p<0.001$) during non-school days compared with school days, alongside longer sleep duration on non-school days (9.15 vs 7.44 hours, $p<0.001$). Approximately 40.3% of children experienced more than 2 hours of social jetlag, while 46.9% reported high daytime sleepiness. Screen time was also significantly longer on non-school days compared with school days (6.15 vs 3.46 hours, $p<0.001$). Greater social jetlag was associated with lower school attendance ($r=-0.10$, $p=0.015$) and lower Malay language PBD scores ($r=-0.12$, $p=0.004$). Higher daytime sleepiness score and longer screen time were associated with lower Math PBD scores ($r=-0.10$, $p=0.018$; $r=-0.133$, $p=0.002$). These findings suggest that sleep patterns and digital behaviours are important lifestyle factors linked to school engagement and academic performance. In modern societies, promoting healthy sleep habits and responsible screen use are important strategies to support children's learning and well-being.

Keywords: sleep; social jetlag; screen time; academic performance; school children

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OR009 Developmental Eye Movement (DEM) Test Scores Among Chinese Children in Klang Valley

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Developmental Eye Movement (DEM) test is one of the most common tests that can be used to evaluate the oculomotor skills quantitatively and screen for reading problems. Previous studies have shown that DEM test scores are influenced by differences in languages and culture. Currently, there is lack of research on the impact of bilingual or multilingual on the DEM test scores. This study was aimed to explore the DEM performance among Chinese children in Klang Valley and investigate the differences in DEM test performance among Chinese children in three languages, which are Mandarin, Malay and English. Besides, the scoring of the DEM test of Malaysian Chinese children were compared with the normative data of other populations. The relationship between DEM test score and reading was also determined in this study. A total of 102 Chinese children in Klang Valley aged from 7- 11 years old were recruited. The scores for vertical, adjusted horizontal and ratio components were computed. The results showed there were significant difference of the DEM scores in three languages and populations from other countries. The results showed most similar with Italian and followed by American English, China and Hong Kong. These showed that DEM scores may be affected by differences in languages, culture and educational systems among various populations. Adjusted horizontal scores and reading speed were positively correlated. This shows that DEM test can be used to screen children with reading problems. Further investigation of norms of DEM scores for Chinese children in Malaysia is needed.

Keywords: Developmental Eye Movement (DEM) test, oculomotor, reading performance, Chinese children

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OR010 Translational Potential and Explainability of Artificial Intelligence Decision Support for Adults in Intensive Care: A Scoping Review

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The intensive care unit (ICU) demands rapid, high-stakes decision-making. Although artificial intelligence (AI) offers superior predictive accuracy over traditional scoring, its "black-box" nature remains a barrier to clinical adoption. This scoping review systematically maps the translational potential and the characteristics of explainable artificial intelligence (XAI) strategies in AI/ML-based clinical decision support tools for adult ICU settings. The review followed the PRISMA-ScR guidelines. We conducted systematic searches of Web of Science, PubMed, Scopus, and EBSCOhost for studies published up to January 2026. Data were synthesized using a narrative, descriptive approach with thematic mapping to characterize model architectures, XAI strategies, translational potential, and proposed clinical utility. A total of 808 records were identified, and 30 studies met the inclusion criteria. Most studies (83.3%) used tree-based ensemble models, with Shapley Additive exPlanations (SHAP) as the predominant XAI strategy (86.7%). A geographic imbalance was observed: 73.3% of studies originated from Asia (predominantly China), yet 80% relied heavily on North American public datasets (MIMIC/eICU). Translational outputs most commonly took the form of web-based prototypes (66.7%), whereas integration into electronic health record (EHR) workflows was reported in only 16.7% of the studies. AI in adult ICU decision support is shifting from “black-box” prediction toward more transparent, clinician-centered systems. Web-based prototypes facilitate early access and usability testing, but full integration into routine clinical workflows remains a key challenge. Future research should prioritize automated data pipelines and prospective validation to enable reliable, real-world implementation of AI-driven predictions in everyday critical care practice.

Keywords: artificial intelligence; explainable AI; intensive care unit; clinical decision support; translational research

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OR011 Cross-Linguistic Acoustic Markers of Hearing Impairment: A Review of Vowel Production and Formant Centralisation

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Vowel production serves as a critical acoustic indicator of speech development and auditory feedback efficiency. International literature consistently reports that individuals with hearing impairment exhibit reduced vowel space area, centralized formant patterns, and weakened articulatory contrast compared to typical hearing peers. These acoustic measures, specifically the first (F1) and second (F2) formants are increasingly utilised as objective markers of speech clarity and rehabilitation outcomes. This review synthesizes global findings on vowel acoustics in hearing-impaired populations, focusing on the universal phonetic shifts observed across various linguistic systems. A synthesis of global comparative studies reveals that hearing impairment leads to systematic formant centralization in Indo-European and Sinitic languages, this is characterised by a significant compression of the F2 range, representing restricted horizontal tongue movement, and a reduced F1 range, reflecting limited vertical articulatory displacement. While normal-hearing populations exhibit distinct F1/F2 clusters that vary by gender due to vocal tract anatomy, hearing-impaired populations show a universal trend toward a "neutralized" acoustic space. Although F1 and F2 acoustic markers are well-documented in Western and East Asian phonetic systems, a critical gap remains in the standardisation of these measures for the Malay language. This research void is particularly significant for clinical practice in Malaysia, where the lack of normative data prevents a precise comparison between typical-hearing individuals and the hearing-impaired population. Given the compact nature of the Malay six-vowel system, existing international benchmarks may not accurately detect the specific patterns of formant overlap and vowel centralisation unique to Malay-speaking patients. Therefore, establishing Malay-specific acoustic baselines is a vital prerequisite for conducting meaningful comparative studies, ensuring diagnostic accuracy, and optimising objective speech rehabilitation outcomes for the hearing-impaired community.

Keywords: speech science, vowel acoustics, hearing impairment, clinical rehabilitation, phonetic gap

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OR012 Karanjin Exerts Anti-Neuroinflammatory Activity in Lipopolysaccharide-Induced BV-2 Microglial Cells by Reducing Nitric Oxide Production and Targeting Key Inflammatory Mediators

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Alzheimer's disease (AD) is a neurodegenerative disorder marked by amyloid-beta plaque and neurofibrillary tangle accumulation, leading to neuronal damage via neuroinflammation. Neuroinflammation involves elevated pro-inflammatory cytokines such as interleukin-6 (IL-6) and tumour necrosis factor alpha (TNF-α), along with mediators including nucleotide-binding domain leucine-rich repeat pyrin domain-containing protein 3 (NLRP3), inducible nitric oxide synthase (iNOS), and beta-site APP cleaving enzyme 1 (BACE1). Current AD drugs show limited efficacy and high toxicity, highlighting the need for effective and safer alternatives. Natural products are promising due to their abundance and lower toxicity. Karanjin, a furan flavonoid from Pongamia pinnata seeds, has been reported to exhibit anti-inflammatory properties, but its neuroprotective potential remains underexplored. This study aimed to evaluate the effects of karanjin on lipopolysaccharide (LPS)-induced neuroinflammation in BV-2 microglial cells using in vitro and in silico approaches. Cell viability assessment via MTT assay revealed that karanjin was non-cytotoxic to BV-2 cells at concentrations up to 12.5 μM, with a slight reduction in viability at higher doses. Nitrite assay showed that LPS significantly increased nitrite levels (7.8563 μM) compared to untreated controls (3.8625 μM, $p < 0.05$). Interestingly, pretreatment with karanjin reduced nitrite production in a dose-dependent manner, with the highest inhibition at 50 μM (4.0188 μM; 48.85% inhibition), indicating suppression of nitric oxide synthesis. Molecular docking studies further supported these findings, revealing strong binding affinities of karanjin to key inflammatory mediators, including iNOS (PDB: 4CX7), NLRP3 (PDB: 7ALV), and BACE1 (PDB: 4DJU), with docking scores of -10.64, -9.13, and -8.64 kcal/mol, respectively. These interactions suggest that karanjin may directly modulate inflammatory pathways relevant to neurodegeneration. Collectively, karanjin demonstrated significant anti-neuroinflammatory effects by inhibiting nitric oxide production and interacting with molecular targets implicated in neuroinflammation, thereby supporting its potential as a natural therapeutic agent for AD that warrants further investigation.

Keywords: Alzheimer's disease; neuroinflammation; karanjin

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OR013 Cardiac Microenvironment Communication Under Hypoxic Stress Potentially Mediated by Cardiomyocyte-derived Exosome Delivery of Angiogenic Regulators

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Myocardial ischemia triggers complex intercellular communication that coordinates angiogenic responses within the cardiac microenvironment. However, the way by which cardiomyocytes (CMs) regulate endothelial cell behaviour under hypoxic conditions, particularly through exosome-mediated signalling, remains insufficiently understood. This study investigated whether cardiomyocyte-derived exosomes (CM-exos) modulate angiogenic activity in cardiac microvascular endothelial cells (CMECs) and whether hypoxia enhances this communication through the delivery of angiogenesis-related genetic cargo. A hypoxic CMs model was established in H9C2 cells using cobalt chloride (600 μM, 24 h). Exos were isolated and characterized, and their effects on CMECs were examined through two experimental systems: (i) CMs/CMECs co-culture and (ii) CMECs direct treatment with isolated CM-exos. Five experimental groups were established in each level, including normoxic or hypoxic CMs/exos with or without GW4869 (the exos secretion inhibitor). Exos uptake was evaluated by immunofluorescence (CD81), while RT-qPCR quantified angiogenesis-related regulators (MALAT1, Klotho, FGF23) and downstream markers (ET-1, NO, vWF, Ang-II). Functional effects on CMECs were assessed using CCK-8 proliferation, flow cytometry, scratch assay, transwell migration assays, and tube formation assays. Both normoxic and hypoxic CM-exos were efficiently endocytosed by CMECs, whereas GW4869 markedly reduced exos uptake. Exposure to CMs or CM-exos significantly increased the expression of MALAT1, FGF23, ET-1, NO, vWF, and Ang-II while suppressing Klotho expression ($p < 0.05$). Functionally, CM-exos enhanced CMECs' viability, migration, and angiogenic tube formation, with hypoxia-derived exos exhibiting stronger pro-angiogenic effects. These responses were consistently attenuated following inhibitor treatment, indicating that exosome-mediated signalling is a key driver of the observed endothelial responses. Collectively, these findings reveal that CMs communicate with CMECs through exos-dependent delivery of angiogenic regulatory molecules, thereby promoting endothelial migration and vascular network formation under hypoxic conditions. This exos-mediated signalling pathway may represent a critical mechanism for adaptive angiogenesis during myocardial ischemic stress and could provide a potential therapeutic target for coronary artery disease.

Keywords: angiogenesis; coronary artery disease; exosome; hypoxia; intercellular communication

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OR014 Acceptable Quality Dose in Pediatric Abdominal CT: A Multicenter Study Benchmarking Against Diagnostic Reference Levels in Malaysia

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Radiation dose optimisation in paediatric computed tomography (CT) is crucial to maintain diagnostic image quality while minimising radiation exposure. The Acceptable Quality Dose (AQD) has been proposed as an approach to balance image quality and radiation dose by linking radiation metrics with clinically acceptable image quality. This multicentre retrospective study analysed paediatric patients who underwent abdominal CT examinations. CT dose index (CTDI) and dose length product (DLP) were collected together with image quality assessments. Patients were divided into: neonates (0–30 days), infants (1 month–4 years), toddlers (4–10 years), childhood (10–14 years), and adolescents (14–18 years). Image quality was evaluated using the Image Quality Scoring Criteria (IQSC). The AQD was determined based on examinations that achieved diagnostically acceptable image quality, defined as an IQSC score of 3. A total of 120 paediatric abdominal CTs were evaluated using IQSC and the results showed score 3 (75.8%, n=91), followed by score 4 (21.7%, n=26), score 2 (2.5%, n=3), and score 1 (0). Among the IQSC score 3 (n=91), the distribution across age groups was as follows: neonates 4 (4.4%), infants 9 (9.9%), toddlers 23 (25.3%), children 30 (33.0%), and adolescents 25 (27.5%). Comparison of CTDI (mGy) and DLP (mGy·cm) between AQD (IQSC score 3) and DRLs (75th percentile) demonstrated lower dose values across all age groups: neonates (2.2 and 24 vs 2.2 and 24), infants (1.9 and 103.7 vs 2.3 and 108.3), toddlers (2.9 and 168.3 vs 3.7 and 241), childhood (6.7 and 443.2 vs 7.7 and 444.2), and adolescents (10.3 and 491 vs 12 and 528.2), respectively. The findings demonstrate that diagnostically acceptable image quality in paediatric abdominal CT can be achieved at radiation dose levels below the DRL method, supporting the utility of the AQD approach for optimising paediatric CT imaging protocols.

Keywords: pediatric abdominal CT, acceptable quality dose, diagnostic reference levels, radiation dose optimization, multicenter study

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OR016 Verification of GATE Modeling and Simulation for Clinac IX Linear Accelerator at 6 MV Photon

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Radiotherapy treatment planning relies heavily on accurate treatment planning to ensure precise delivery of radiation doses to cancerous tissues while minimizing harm to healthy organs. This research aims to investigate the efficacy of the Geant4 Application for Tomographic Emission (GATE) in modelling and simulating the Clinac iX linear accelerator for radiotherapy treatment planning, particularly focusing on percentage depth dose (PDD) measurements. This research explored the potential of Monte Carlo GATE as a validation tool in the treatment planning of radiotherapy, establish the geometry of the Clinac iX linear accelerator in GATE, measure the PDD of a 6 MV photon beam, and compare the simulated and measured PDD at 6 MV photon. It was determined that an electron beam energy of 6.4 MeV provides the optimal modelling for the 6 MV photon beam of the Clinac iX linear accelerator. The PDD curve obtained from GATE simulations accurately reproduced the experimental dose distribution, demonstrating excellent agreement with measured data. GATE simulation achieved a 98% passing rate under the 3%/3 mm gamma index criterion, demonstrating its accuracy in dose verification. This research lays the groundwork for investigating the potential of GATE modelling and simulation in radiotherapy treatment planning, with the goal of improving treatment accuracy and patient outcomes.

Keywords: Monte Carlo simulation; GATE; Clinac iX; radiotherapy; percentage depth dose

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OR017 Social Determinants of Cardiovascular Health: A Systematic Review and Meta-Analysis of Psychosocial Support on Treatment Adherence

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Hypertension remains a critical global health challenge, with treatment failure frequently driven by poor medication adherence. Addressing social determinants of health, specifically through psychosocial and community support, is recognised as a vital strategy for advancing community health. This study aims to systematically evaluate the impact of psychosocial support on medication adherence among adult hypertensive patients. Guided by the PRISMA framework, a systematic search was conducted across PubMed, Scopus, and EBSCOhost for primary studies published over the last five years. Studies involving adults (≥18 years) with primary hypertension that evaluated psychosocial interventions, such as family, peer, or community support, were included. Quality assessment was conducted using the Risk of Bias tool. Statistical synthesis was performed using Review Manager 5.4, utilising the generic inverse variance method and a random-effects model. A total of 20 studies encompassing over 25,000 participants across diverse geographical settings met the inclusion criteria. The meta-analysis demonstrated that patients receiving strong psychosocial support had significantly higher odds of medication adherence compared to those with low or no support (Pooled Odds Ratio = 2.16; 95% CI: 1.34 – 3.48; p = 0.002). Substantial heterogeneity (I^2 = 92%, p < 0.00001) was observed, reflecting diverse cultural contexts and intervention types. Psychosocial support acts as a crucial social determinant that significantly enhances medication adherence, doubling the odds of compliance. Integrating family and community-based partnerships into standard cardiovascular care is essential for optimising long-term health outcomes.

Keywords: hypertension; medication adherence, psychosocial support, social determinants of health, meta-analysis

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OR018 Cochlear Implant – Parental Support scale: A pilot study

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There is a lack of condition-specific instruments to assess contextual factors among parents of children who are cochlear implant (CI) users or candidates (CIc). Existing measures primarily focus on child outcomes, while parental assessments are typically generic and may not capture the unique challenges of the CI rehabilitation journey. This study aimed to validate a newly developed condition-specific instrument, the Cochlear Implants – Parental Support (CIPS) scale, designed to assist CI team professionals in evaluating parents' psychological well-being (Parental Psychological Status; PPS) and ecological support systems (ESS). Using purposive sampling, parents of children with CI or CIc completed an online questionnaire comprising the CIPS (PPS and ESS subscales), the Parenting Stress Index-Short Form (PSI-SF), the Family Support Scale (FSS), and the Parenting Stress-Cochlear Implant (PSCI). Internal consistency was examined using Cronbach's alpha, while Pearson's correlations and inferential analyses assessed convergent, divergent, and known-group validity. The CIPS demonstrated excellent internal consistency (PPS: $\alpha = .97$; ESS: $\alpha = .91$). ESS was insignificantly correlated with PPS ($r = -.03$, $p > .05$), supporting divergent validity. PPS was significantly correlated with PSI-SF ($r = .70$, $p < .001$) and PSCI ($r = .63$, $p < .001$), while ESS was significantly correlated with FSS ($r = .73$, $p < .001$), supporting convergent validity. For known-group validity, parents with high parenting stress on PSI-SF reported significantly higher PPS scores than those within the normal range (t-value = -2.68, $p < .05$). No significant differences in PPS or ESS were found across demographic or child-related variables ($p > .05$). Despite the limited sample size, findings provide preliminary evidence supporting the reliability and validity of the CIPS. Future research should focus on item reduction to shorten the CIPS scale, reduce clinical administrative burden, and enhance its integration into routine CI services.

Keywords: parental support, cochlear implants, psychological well-being, social support

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OR019 Preliminary Histological Evaluation of Oral Pterostilbene in UVB-Induced Skin Photoaging Model in BALB/c Mice

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Ultraviolet B (UVB) radiation is a major environmental factor contributing to skin photoaging, leading to structural and pigmentary alterations in the skin. Chronic UVB exposure can induce epidermal thickening, collagen degradation, and increased melanin deposition, which are commonly used histological indicators of photoaging. Natural polyphenolic compounds such as pterostilbene have attracted increasing attention due to their potential antioxidant and photoprotective properties. However, the histological effects of orally administered pterostilbene on UVB-induced skin damage remain insufficiently characterised. This study aimed to perform a preliminary histological evaluation of skin changes in UVB-induced BALB/c mice following oral administration of pterostilbene. BALB/c mice were divided into four experimental groups: a normal control group, a UVB-exposed group, and two UVB-exposed groups treated with low-dose and high-dose pterostilbene, respectively. Following treatment, skin samples were collected and prepared for histological examination. Hematoxylin and Eosin (H&E) staining was used to evaluate general skin morphology, including epidermal thickness and structural alterations, while Fontana–Masson staining was performed to assess melanin deposition within the epidermal layer. Preliminary H&E observations revealed marked histological alterations in the UVB-exposed group, including increased epidermal thickness and disruption of normal skin architecture compared with the control group. In contrast, mice receiving oral pterostilbene showed observable differences in epidermal morphology relative to the UVB-exposed group, suggesting a potential protective effect against UVB-induced skin damage. Fontana–Masson staining also indicated variations in melanin distribution among the experimental groups. These preliminary findings suggest that orally administered pterostilbene may modulate histological features associated with UVB-induced skin photoaging. Further studies involving molecular and biochemical analyses are ongoing to elucidate the mechanisms underlying the potential photoprotective effects of pterostilbene.

Keywords: UVB, photoaging, pterostilbene, Balb/C mice, histological analysis

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OR020 Metabolite Association and Pathway Analysis of COVID-19 Vaccine via LC-MS-Based Metabolomics

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The COVID-19 pandemic marked a turning point in global health, driving unprecedented advances in vaccine development. This study examines the immune responses at molecular level triggered by COVID-19 vaccine using rat models. Eighteen rats were randomly assigned to two groups, with three replicates each: a control group (C) and a vaccinated group (VC). Both groups were maintained under identical conditions for four weeks, except for the vaccination received by VC group, after which blood samples were collected for analysis. Serum biochemical parameters, including globulin (GLB), total protein (TP), albumin (ALB), and aspartate aminotransferase (AST) were evaluated. To further characterize the vaccine, ^{1}H NMR and LC-MS analysis were conducted to analyze the metabolites present in the vaccine. LC-MS-based metabolomics was employed for the variation between control and vaccinated rats. Multivariate statistical models, including PCA and PLS-DA, effectively discriminated the metabolic profiles of the control and vaccinated groups. Results revealed no significant differences in TP, GLB and ALB levels between the control and vaccinated groups, suggesting no adverse systemic effects post vaccination. However, AST levels were Metabolite Association and significantly elevated in the vaccinated group, indicating localized metabolic activity without systemic toxicity. Variable importance in projection (VIP) scores identified key metabolites driving group separation. Pathway analysis and heatmap visualization revealed that arachidonic acid, adenosine, stearic acid, oleic acid, and linoleic acid metabolites were upregulated in vaccinated rats, with arachidonic acid, adenosine, and stearic acid showing the most significant increase. These findings suggest these metabolites play critical roles in the vaccine-induced immune response. Conversely, metabolites such as lactate, palmitoleic acid, oleoyl glycine, sphingomyelin, oleamide, and prostaglandin D2 were higher in the control group, indicating downregulation post vaccination. These shifts point to potential metabolic pathways perturbed by the vaccination contributing to a comprehensive understanding of its immune responses.

Keywords: COVID-19, metabolomics, NMR; LC-MS, biochemical test, VIP values, immune response.

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OR021 Bio-Based *Rhizophora* spp. Particleboard for Tissue-Equivalent Radiotherapy Phantom Applications

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Three different sizes of *Rhizophora spp.* powder (0 to 104 µm, 105 to 210 µm, and 211 to 500 µm) were used to create particleboards with three different percentages of lignin and sodium alginate (0%, 3%, and 6%) as adhesives. The goal of this study is to investigate the physical characteristics, morphology, chemical composition, and effective atomic number, Zeff, of Rhizophora spp. particleboards that have been incorporated with lignin and sodium alginate. Thickness swelling, water absorption, and the gravimetric method were used to study the physical properties of particleboards. The results showed that the produced particleboards have suitable radiological and physical properties for tissue-equivalent phantoms applications. In contrast, samples with a higher adhesive content and smaller particle sizes displayed less water absorption and thickness swelling. There was good agreement between the density readings and the required requirements. Increased adhesive content reduced the development of voids in the particleboard structure. Higher sodium alginate consumption was correlated with an increase in sodium content, and the calculated effective number further validated the suitability of the material. With a particle range of 0 to 104 µm and 6% adhesive, sample A6 demonstrated significant potential for use in the fabrication of tissue-equivalent phantom.

Keywords: *Rhizophora spp.*, particleboard, physical properties, alginate-lignin adhesive, radiotherapy

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OR022 Nutrient density of commonly consumed foods: A Malaysian perspective

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Food-based dietary guidelines promote the consumption of a variety of nutritious foods to achieve optimal health and prevent chronic diseases. This study aimed to determine the nutrient density of the commonly consumed foods by adults in Malaysia and identify foods that provide the best nutritional value within each food group. A total of 130 food items frequently consumed were included in the analysis. The Nutrient-rich food (NRF) score was used to assess the nutrient density. This model considers foods based on ten nutrients to encourage (protein, calcium, iron, potassium, vitamin A, vitamin C, thiamine, riboflavin, niacin, fibre) and three nutrients to limit (total fat, total sugar, and sodium). Nutrient composition data were obtained and standardised per 100 kcal. The NRF score was calculated by summing the percentage of daily recommended values for the encouraging nutrients and subtracting the three nutrients to limit. Foods were then ranked within each food group. Overall, vegetables were the most nutrient-dense group, with ulam raja (60.39), sweet potato shoots (51.55), and bitter gourd (49.72) showing the highest scores. Among the fruits, papaya (26.95), star fruit (25.97), and guava (22.16) were the most nutrient-dense. In the legumes group, dhal showed high nutrient density. For milk and milk products, chocolate milk (15.9) had the highest score. Meat and poultry such as chicken liver (38.34) and chicken eggs (14.87) were highly nutrient-dense. Indian mackerel (14.81) and hairtail scad fish (13.9) ranked highest for the fish and seafood group. Wholemeal bread (14.93) and brown rice (11.51) were the most nutrient-dense grains. Fast foods like chicken burger (-7.46) and anchovies (-2.15) were among the least nutrient-dense. Confectionery, processed, and high-sodium foods scored the lowest in the NRF (0.27, -18.87) analysis. This study provides valuable information that can support nutrition policy, dietary guidelines, and public health interventions to promote healthier food choices among Malaysians.

Keywords: nutrient density, nutrient-rich food, nutritional assessment, Malaysia

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OR023 Circadian Misalignment and Its Associated Factors in Malaysian Adults: Results from the Nationwide MYLIFERHYTHM Online Survey

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Circadian rhythms regulate essential physiological processes over a 24-hour cycle. Disruptions such as circadian misalignment, also known as social jetlag represent a mismatch between biological timing and social obligations, and are associated with increased risks of cardiometabolic disorders and impaired mental health. Despite growing global concern, nationwide data regarding the prevalence of circadian misalignment and its specific associated factors in Malaysia remains limited. This nationwide cross-sectional study of 1,118 non-shift working Malaysian adults (mean age 33.9 ± 8.9 years) aimed to establish population-specific chronotypes, quantify circadian misalignment, and identify their associated factors. Participants were recruited via a web-based survey aimed at reflecting national population density. Sleep patterns and chronotypes were assessed using a culturally validated Malay version of the Munich Chronotype Questionnaire (MCTQ). Findings revealed an average sleep-debt corrected midpoint of sleep (MSFsc) of 03:24 ± 0:53. Most participants were intermediate chronotypes (68.3%), followed by evening (16.3%) and morning types (15.4%). While a significant proportion (33.9%) experienced circadian misalignment of one hour or more. Furthermore, the mean daily sleep duration was 6.54 ± 1.09 hours, falling below the internationally recommended minimum of 7 hours per night. Multivariate logistic regression identified obesity as the strongest associated factors of circadian misalignment (AOR: 1.85; 95% CI: 1.036–3.289; p = .038). Other significant factors included younger age (p = .049), being female (p = .002), and non-Malay ethnicity (p = .005). This study identifies a high prevalence of circadian misalignment and insufficient sleep among Malaysian adults, with obesity emerging as the strongest associated factor alongside younger age, female gender, and non-Malay ethnicity. These findings underscore an urgent need for targeted public health interventions and flexible social policies to mitigate the associated cardiometabolic and mental health risks associated with disrupted circadian rhythms.

Keywords: social jetlag, circadian misalignment, chronotype, Malaysian adult

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OR024 Measuring How Students Perceive Their Physical Health: Evidence of Validity and Reliability

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Physical health perception refers to individuals' subjective evaluations of their bodily condition and functional capacity, which play a critical role in health behaviors, psychological well-being, and adjustment during the transition to university life. Despite its importance, validated instruments assessing physical health perception among Indonesian university students remain limited. Objective: This study aimed to examine the validity and reliability of the Physical Health Perception Scale (PHP) among first-year university students. A cross-sectional survey was conducted with 1,250 first-year students at a public university in Indonesia. The PHP scale was developed based on Kulsum and Jauhar's framework, comprising three dimensions: evaluation, potential, and activity. Confirmatory Factor Analysis (CFA) using LISREL 8.8 was employed to assess construct validity. Reliability was evaluated using Composite Reliability (CR) and Average Variance Extracted (AVE). Six items with factor loadings below 0.50 were removed. The refined model demonstrated satisfactory psychometric properties, with all remaining items showing factor loadings above 0.50. CR values ranged from 0.770 to 0.808, and AVE values ranged from 0.504 to 0.529, indicating adequate convergent validity and internal consistency. Conclusion: The PHP scale is a valid and reliable instrument for assessing physical health perception among university freshmen. Implications: This scale can support early screening, research on student well-being, and the development of campus-based health promotion and preventive intervention programs.

Keywords: physical health perception, scale validation, confirmatory factor analysis, university students, psychometrics

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OR025 Improving Readiness to Change Among Indigenous Risky Drinkers: A Single-Arm Trial of Culturally Adapted Brief Motivational Interviewing

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Risky drinking remains a major public health challenge globally, with research indicating its disproportionate impacts on Indigenous communities. This study evaluated the preliminary efficacy of a culturally adapted brief motivational interviewing (MI) intervention – a collaborative, goal-oriented counselling approach designed to evoke motivation for change and resolve ambivalence – in addressing risky drinking among Indigenous adults in Malaysia. This single-arm trial involved 40 participants with Alcohol Use Disorders Identification Test (AUDIT-10) scores ≥ 8 recruited from three Indigenous Jakun settlements in Rompin, Pahang. The intervention comprised three face-to-face sessions delivered over one month, with readiness to change assessed using a validated Jakun-version Readiness to Change Questionnaire at baseline, immediately post-intervention, and at six- and 12-week follow-ups. The cohort was predominantly male (97.5%), aged 30-39 (40.0%), married (60.0%), had completed primary education (45.0%), were self-employed (77.5%), and all belonged to the low-income group. Beer was the main beverage consumed (92.5%). Generalized Linear Mixed Models using a multinomial distribution with a cumulative logit link function revealed a statistically significant main effect of time on the odds of transitioning to a more advanced stage of change ($F(3, 118) = 5.98$, $p < 0.001$). Pairwise comparisons relative to baseline demonstrated that immediately following the intervention, participants had significantly higher odds of advancing (odds ratio [OR] = 4.05; 95% confidence interval [CI] [1.26, 12.98], $p = 0.019$). This positive trajectory strengthened at six weeks (OR = 9.85; 95% CI [2.52, 38.43], $p = 0.001$) and 12 weeks (OR = 12.94; 95% CI [3.02, 55.54], $p < 0.001$) post-intervention. Sensitivity analysis using the baseline observation carried forward method for missing data confirmed the robustness of these findings ($F(3, 155) = 4.98$, $p = 0.003$). These results provide preliminary evidence that culturally adapted brief MI is a promising strategy for improving readiness to change among risky drinkers within Indigenous populations in Malaysia.

Keywords: alcohol drinking, indigenous peoples, motivational interviewing, transtheoretical model

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OR026 Development and Validation of a Questionnaire to Assess Nutritional Knowledge Related to Cognitive Function Among Malaysian Older Adults

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Adequate knowledge of neuroprotective nutrition is essential for preserving cognitive health during ageing. However, there is a lack of validated tools specifically designed to assess nutritional knowledge related to cognition among the Malaysian elderly. This study aimed to develop and validate a reliable questionnaire to fill this gap. The questionnaire was developed by generating an item pool across seven domains, with items scored dichotomously. Content validity was assessed by a panel of six experts, and the Scale-Level Content Validity Index (S-CVI/Ave) was calculated. To evaluate reliability, a two-week interval test-retest was conducted among 108 older adults (mean age 69 ± 7.9 years). Statistical analyses included the Intraclass Correlation Coefficient (ICC), Bland-Altman Limits of Agreement (LOA), and Standard Error of Measurement (SEM%). The initial 30-item draft was refined to 20 items following expert review. The S-CVI/Ave was 0.92, indicating excellent content validity. Reliability analysis demonstrated high stability over time, with ICC values ranging from 0.78 to 0.88. The LOA plots showed strong agreement between assessments, and the SEM% was 4.38% (well below the 10% threshold), confirming the instrument's precision. The developed 20-item questionnaire is a valid and reliable tool for assessing nutritional knowledge related to cognitive function among Malaysian older adults. To enhance the instrument's discriminant power and mitigate the impact of guessing, incorporating a 'Not Sure' response category is recommended for future refinement.

Keywords: validation study, knowledge, cognition, aged, Malaysia

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OR030 Associations between Working Memory Performance and Prefrontal Activation in White Noise among Adolescents with Internet Gaming Addiction

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White noise (WN) can enhance cognitive performance. Previous research demonstrated that WN increased auditory working memory (AWM) performance in healthy young adults during a backward word recall task (BWRT). However, the effect of WN on AWM among adolescents with internet gaming addiction (IGA) have not been studied. This study aimed to investigate the effects of WN at different intensity levels on AWM performance and brain activation among adolescents with and without IGA symptoms. Twenty-one adolescents (9 with IGA symptoms) participated in this study. They performed the BWRT during an fMRI scan in the presence of 45, 50, 55 and 60 dB intensity level WN. The fMRI data were processed using SPM12 to obtain brain activation (NAV) in the prefrontal cortex. Group differences and association between variables of interest were analysed using SPSS. No significant group difference in brain activation is observed at all intensity levels of WN ($p > 0.05$). However, BWRT performance was found to be negatively and significantly correlated with NAV for the right middle frontal gyrus ($\rho = -0.717$, $p = 0.03$) and right superior frontal gyrus ($\rho = -0.763$, $p = 0.017$) but only at 55 dB and in the IGA group. No significant correlation was found in the non-IGA group. Findings from this study suggest that AWM performance in IGA individuals is associated with altered recruitment of prefrontal regions under moderate auditory noise conditions. The negative correlation may reflect enhanced efficiency of neural processing within the dorsolateral prefrontal cortex during a cognitively demanding auditory tasks.

Keywords: adolescent; brain, dB, gaming, white noise

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OR033 Food Insecurity Among Adults with Type 2 Diabetes in Malaysia: the Role of Socioeconomic Determinants

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Food insecurity is increasingly recognised as a significant social determinant of health that can have a negative impact on dietary habits and disease management in people with Type 2 diabetes mellitus (T2DM). In Malaysia, rising diabetes prevalence, with persistent socioeconomic inequalities, increases the risk of poor diet quality and limited nutrition security. This study examined the association between socioeconomic characteristics, lifestyle factors, diet quality, and food insecurity among adults with T2DM in Klang Valley. This cross-sectional study recruited 100 adults with T2DM from two health clinics. Information on sociodemographic and socioeconomic characteristics, lifestyle practices, and dietary intake was collected through structured interviews and medical record reviews. Food insecurity and diet quality was determined using validated questionnaires. Associations between variables were examined using Chi-square tests and logistic regression analyses. Participants' mean age was 58.5±9.9 years, with females representing the majority (61.0%). More than half of the participants were from the B40 income group (54.0%). Overall, 35.0% of respondents experienced food insecurity. Among the reported indicators, 26.0% expressed concern about food scarcity due to financial limitations, while 17.0% were unable to afford nutritious food. A significant 91.0% of participants had poor or unsatisfactory diet quality. Logistic regression analysis revealed that individuals with lower educational attainment were significantly more likely to experience food insecurity (OR=6.24; 95% CI:1.98–19.73; p=0.002). Similarly, those who were unemployed (OR=3.67; 95% CI:1.41–9.53; p=0.008), belonged to the B40 income group (OR=6.00; 95% CI:2.29–15.76; p<0.001), or received financial assistance (OR=5.34; 95% CI:1.97–14.49; p=0.001) were significantly more likely to experience food insecurity. However, diet quality was not significantly associated with food insecurity (p=0.912). These findings highlight the important influence of socioeconomic vulnerability on food insecurity among adults with T2DM. Addressing broader social determinants of health and strengthening nutrition security initiatives may help improve diabetes management among vulnerable populations.

Keywords: diabetes mellitus, food insecurity, diet quality, socioeconomic determinants, nutrition security

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OR038 From Awareness to Action: Sexual Health Knowledge, Attitudes and Practices Among Undergraduates at Universiti Kebangsaan Malaysia

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Sexually transmitted diseases (STDs) continue to pose a substantial public health concern among young adults, particularly in developing countries where awareness and preventive behaviours may be inconsistent. University students represent a population at heightened risk due to increased independence, exploration of relationships, and varying levels of sexual health literacy. This study aimed to assess the knowledge, attitudes, and practices (KAP) related to STDs among undergraduate students at Universiti Kebangsaan Malaysia (UKM) and to examine potential differences between science and non-science students. A cross-sectional survey was conducted involving 751 undergraduate students from 12 faculties. Data were collected using a self-administered questionnaire adapted from the validated International AIDS Questionnaire – English Version (IAQ-E) alongside established KAP instruments. Non-parametric statistical analyses were employed to evaluate group differences and explore correlations among knowledge, attitudes, and practices. Overall, 58.6% of respondents demonstrated good knowledge of STDs, 57.5% expressed positive attitudes towards sexual health and prevention, and 61.0% reported engaging in safe practices. Science students achieved significantly higher knowledge scores compared with non-science students ($U = 5277.5$, $Z = -5.822$, $p < 0.001$). However, no statistically significant differences were observed between the two groups in terms of attitudes or practices. Correlation analysis revealed a weak but statistically significant association between knowledge and attitudes ($\rho = 0.082$, $p < 0.05$). No significant relationships were found between knowledge and practices or between attitudes and practices. Despite moderate to high levels of knowledge and generally positive attitudes, the findings indicate that awareness does not necessarily translate into safer sexual behaviours. This disconnect highlights the limitations of knowledge-based approaches alone. Strengthening comprehensive, behaviour-focused sexual health education, particularly for non-science students, may help bridge the gap between awareness and practice and contribute to more effective STD prevention strategies among university populations.

Keywords: awareness, knowledge, prevention, sexually transmitted diseases, undergraduates

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OR039 Plant Predominant Dietary Patterns and Cognitive Resilience in Breast Cancer Survivors: Translating Nutritional Science into Healthy Longevity

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Cancer-related cognitive impairment accelerates neurocognitive ageing, posing a significant barrier to healthy longevity in breast cancer survivorship. While fundamental research links this decline to systemic inflammation and oxidative stress, translating these bench insights into bedside clinical applications remains underexplored. Dietary exposure bridges this gap, as plant-predominant diets provide bioactives targeting these pathophysiological pathways. To evaluate nutrition as a translational strategy, this cross-sectional study examined associations between empirically derived dietary patterns and cognitive function among 262 breast cancer survivors at Hospital Canselor Tuanku Muhriz, Malaysia, within the Cancer Survivors Trajectories of Ageing Research (C*STAR) study. Food frequency questionnaires and principal component analysis identified three dietary patterns: vegetable-rich, fruit-and-condiment, and ultra-processed and mixed. A comprehensive neuropsychological battery assessed verbal memory (Rey Auditory Verbal Learning Test), processing speed and attention (Digit Symbol Test; Trail Making Test Part A), working memory (Digit Span), and executive function (Trail Making Test Part B). A composite score captured global cognitive performance alongside domain-specific assessments. Multivariable linear regression models adjusted for sociodemographic and clinical variables revealed no significant associations between dietary patterns and individual cognitive domain scores (all $p > 0.05$). Greater adherence to the fruit and condiment pattern, characterised by higher intake of plant-derived foods and bioactives, was significantly associated with better composite cognitive performance ($\beta = 1.185$, $p = 0.039$). The vegetable-rich, ultra-processed, and mixed patterns showed no significant associations. Adherence to a plant-predominant dietary pattern is associated with better global cognitive performance in breast cancer survivors. Targeted non-pharmacological dietary interventions provide an evidence-based translational strategy to mitigate cognitive ageing and promote healthy longevity after cancer.

Keywords: cognitive ageing, dietary pattern, breast cancer, survivorship

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OR040 Simulation-Based Technologies for Patient Education in Medical Imaging and Radiotherapy: A Systematic Review

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Patient education plays a crucial role in preparing individuals for medical imaging and radiation-related procedures. However, conventional education methods such as verbal explanations and printed materials may be insufficient to help patients understand complex procedures and unfamiliar clinical environments. Immersive technologies have been introduced to overcome these limitations. Thus, this review was conducted to explore the current applications of immersive and simulation-based technologies for patient education in medical imaging and radiation procedures, and to assess their impact on patients. The review synthesises findings from studies published between 2005 and February 2026 that were identified through Scopus, PubMed, and WoS databases using keywords related to immersive technology, patient education, medical imaging, and radiotherapy. A total of 20 studies met the inclusion criteria and have moderate to high quality assessments. The technologies used included virtual reality (VR), augmented reality (AR), mixed reality (MR), virtual tours, and video simulation. Based on thematic analysis, four main themes were identified: (1) improvement in patient knowledge and understanding, (2) reduction of anxiety and psychological distress, (3) enhancement of patient experience and preparedness, and (4) usability and feasibility of immersive technologies. Across the reviewed studies, it is reported that immersive technologies improve patient understanding of radiotherapy, imaging procedures, and image-guided interventions. Several studies also demonstrated reductions in anxiety, fear, or distress before treatment or imaging procedures. However, the review found that most studies were concentrated in radiotherapy and radiation oncology settings, with comparatively fewer studies conducted in broader diagnostic imaging contexts including nuclear medicine. This highlights the need for future research to expand immersive patient education into other modalities. In conclusion, immersive and simulation-based technologies represent effective and feasible strategies for patient education in medical imaging and radiation procedures, with strong potential to improve patient understanding, reduce anxiety, and enhance procedural preparedness.

Keywords: immersive simulation, patient, education, medical imaging, radiotherapy

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OR041 Protecting Vulnerable Workers in a Warming Climate: A Community Health Perspective on Occupational Heat Stress in Malaysia

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Occupational heat exposure is increasingly recognised as a critical public health and occupational safety concern, particularly in tropical regions where rising ambient temperatures and high humidity intensify heat strain among outdoor workers. Construction workers are among the most vulnerable occupational groups due to sustained physical exertion, prolonged sun exposure, and limited access to preventive heat mitigation measures. Beyond individual health consequences, heat stress may compromise workforce productivity, increase healthcare burden, and exacerbate socioeconomic vulnerabilities within affected communities. This study aimed to determine the prevalence and determinants of heat stress among construction workers in Malaysia and to generate evidence supporting community-oriented occupational health protection strategies. A cross-sectional study was conducted among 87 construction workers from three construction sites in Klang Valley and Johor Bahru using the validated Heat Strain Score Index (HSSI). Descriptive analysis was used to characterise worker demographics and heat-related symptoms, while one-way ANOVA and Pearson correlation analyses were applied to examine differences in heat strain scores and associated risk factors. A substantial proportion of workers reported heat-related illness symptoms, including mild headache (55.2%), muscle pain (54.0%), and dizziness (46.0%). Despite these symptoms, 45% of respondents were categorised within the HSSI Green Zone, indicating potential under-recognition of heat stress risk. Significant differences in HSSI scores were observed across construction sites ($F(2,84) = 15.0$, $p < 0.001$). Heat strain scores were also significantly associated with body mass index, household income, and hydration practices ($p < 0.001$). These findings underscore the need for strengthened heat stress awareness, improved hydration management, and integrated occupational heat mitigation strategies involving collaboration between researchers, industry stakeholders, and policymakers to enhance worker protection and community health resilience in the context of climate change.

Keywords: occupational heat stress, construction workers, climate change, community resilience

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OR042 Integrated Manual and Automated Image Analysis for Correlation Dielectrophoretic Quantification of Bacteria Against Plate Count Enumeration

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Dielectrophoresis (DEP), an electrokinetic technique, offers a rapid alternative to conventional plate count enumeration for bacterial quantification. At an optimal operating frequency, bacterial cells migrate towards regions of high electric field gradients, enabling quantitative observation of particle accumulation within a defined region of interest near microelectrode edges. *Citrobacter freundi*i was used as a model organism to evaluate DEP-based bacterial quantification under positive dielectrophoresis (pDEP) conditions. The optimal operating frequency was determined using COMSOL Multiphysics simulations and subsequently validated through experimental DEP observations. Simulations predicted 3 MHz as the optimal frequency, generating an electric field strength of 1×10^5 V m^{-1} and an estimated particle velocity of ~5 µm s^{-1}, promoting bacterial accumulation within the region of interest. A constant deposition methodology was implemented, where 1 µL of bacterial suspension was introduced onto the microelectrode surface for DEP analysis, while identical suspensions were plated on agar for conventional colony enumeration. Bacterial concentrations ranging from 10^5 to 10^2 CFU mL^{-1} were investigated to determine DEP-derived bacterial counts per mL. DEP-trapped bacteria were quantified using two image-based approaches. Microscopy images of the defined region of interest (ROI) near the electrode edges were analysed by manual counting and by automated particle detection using ImageJ, where image thresholding and particle analysis were applied to enumerate bacterial cells. Correlation with plate count enumeration was evaluated using linear regression analysis, demonstrating a strong positive relationship. Automated image analysis exhibited higher correlation ($R^2 = 0.94$, $p < 0.05$) compared with manual counting ($R^2 = 0.86$, $p < 0.05$) across 10^2–10^4 CFU mL^{-1}, indicating improved robustness at higher bacterial densities. These findings demonstrate that DEP quantification at 3 MHz reliably reflects bacterial concentration and highlight the potential of DEP-based platforms for rapid quantitative microbial analysis.

Keywords: Dielectrophoresis, microbial analysis, bacteria, automated

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OR043 Maternal Genetic Diversity of the Minangkabau Population Revealed by Targeted Mitochondrial Sequencing and Its Forensic Implications

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Multiple human migrations have shaped Island Southeast Asia, but Austronesian expansion is the most significant. Despite this, the maternal genetic structure of many indigenous tribes remains poorly defined at high phylogenetic resolution. In a matrilineal society, the Minangkabau people of Indonesia offer a unique paradigm for studying the dynamic link between social structure and maternal genetic history. Seven primer sets targeting both control and coding regions were used to analyze mtDNA variation in 25 unrelated Minangkabau individuals. These primer sets targeted control (HVS-I and HVS-II) and phylogenetically informative mitochondrial DNA coding regions. After PCR amplification and Sanger sequencing, UGENE, Aliview, and SnapGene were used for sequence alignment and polymorphism detection. Haplogroup assignment, diversity indices, genetic distance, and phylogenetic reconstruction were done using MITOMAP, DnaSP6, Arlequin 3.5, and MEGA 12. An analysis found substantial maternal genetic diversity. The research found 25 unique haplotypes in 25 individuals, resulting in a diversity of 1.000 ± 0.0113. Every sample has a fixed 9-bp 8281-8289del deletion. This deletion distinguishes Asian haplogroups. Y2 (16%) and B4c (B4c1b2a2), both Austronesian lineages, dominated the haplogroup distribution, followed by M7c (12%). The profile also contained trace levels of East Asian (D5b and M9) and West Eurasian (H2a) lineages, indicating a complex history of regional mixing and transoceanic gene flow. These findings demonstrate that the Minangkabau maternal gene pool represents a genetically layered population shaped by migration, admixture, and matrilineal inheritance. Importantly, the high haplotypic diversity and absence of shared haplotypes enhance the forensic utility of mtDNA, particularly for human identification in degraded samples and disaster victim identification in disaster-prone regions.

Keywords: Island Southeast Asian, Minangkabau, mitochondrial DNA, haplogroups, forensic genetics

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OR044 Association Between Upper Limb Coordination and Grip Strength in Older Adults: A Cross-Sectional Study

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Age-related declines in upper limb function, particularly coordination and muscle strength, may compromise everyday performance and functional independence over time. Understanding how these domains interact is important for informing strategies that support functional capacity across ageing trajectories. This study aimed to examine upper limb coordination and hand grip strength in older adults, and to explore their relationship. Data were collected from 84 community-dwelling older adults (13 males, 71 females; mean age 69.4 ± 10 years) who demonstrated adequate standing balance, were able to follow instructions, and completed all outcome measures. Upper limb coordination was assessed using the Plate Tapping Test (PTT), and hand grip strength was measured using a Jamar hydraulic hand dynamometer. The relationship between variables was analysed using Spearman's correlation coefficient. The mean PTT completion time for the dominant arm was 14.3 ± 5.42 seconds, and the mean dominant hand grip strength was 24.6 ± 5.61 kg. Males showed better performance than females in both measures. A statistically significant moderate negative correlation was observed between coordination performance and grip strength in the dominant hand ($r_s = -0.422$, $p < 0.001$), indicating that faster coordination was associated with greater strength. Given the moderate strength of the association, these measures may reflect partially distinct aspects of motor performance rather than a single underlying construct. This suggests that age-related changes in upper limb function may involve multiple interacting domains. Considering both coordination and strength in assessment and intervention planning may enhance the specificity of approaches aimed at maintaining upper limb function. Further research is warranted to explore strategies that specifically target upper limb coordination in older adults, alongside conventional strength-focused approaches, with potential implications for sustaining functional independence and supporting healthy ageing trajectories.

Keywords: coordination, arm activity, hand grip strength, elderly, aged

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OR045 Elucidating The Framework of Herbal and Dietary Supplement Consumption Among Elderly People

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The widespread use of herbal and dietary supplements (HDS) among elderly populations raises concerns regarding safety, appropriateness, and integration with conventional healthcare. Despite their perceived benefits, HDS consumption is often shaped by complex socio-cultural influences and occurs with limited clinical disclosure. This study aimed to (1) explore the practices and expectations of elderly individuals regarding HDS use, and (2) develop and validate a comprehensive framework to support safe HDS consumption. A qualitative exploratory design was employed, involving in-depth interviews with 12 elderly participants to capture rich experiential data, followed by expert validation of the developed framework. Three overarching themes emerged from the analysis. The first theme, herbal use as a way of life, reflects the routine integration of HDS into daily health practices, driven by familiarity and perceived effectiveness. The second theme, health decisions shaped by heritage and faith, highlights the influence of cultural traditions, intergenerational knowledge, and religious beliefs in shaping health behaviours. The third theme, expectations of staying well in later life, underscores the motivation to maintain independence, prevent illness, and enhance quality of life. Across all themes, limited disclosure of HDS use to healthcare providers was consistently observed. Participants often viewed HDS practices as personal or culturally embedded knowledge rather than clinical information, increasing the risk of potential herb–drug interactions and compromised patient safety. Building on these findings, a conceptual framework was developed and validated by a panel of 8 experts in healthcare, pharmacy, and public health. The framework positions the elderly at the centre, supported by interconnected roles of family members, healthcare providers, and regulatory authorities such as the Ministry of Health and the National Pharmaceutical Regulatory Agency. Family members act as key influencers in decision-making, while healthcare providers are responsible for fostering open communication, promoting disclosure, delivering evidence-based education, and monitoring adverse outcomes. Regulatory bodies contribute through policy dissemination, public education, and enforcement, incorporating public feedback to ensure cultural relevance. Core elements of the framework include reliable advice, shared responsibility, collaborative governance, and effective communication. The expert validation process confirmed the framework's relevance, clarity, and applicability in real-world settings. This study offers a theoretically grounded and practice-oriented model to enhance safe HDS consumption, strengthen healthcare communication, and inform policy development in ageing populations.

Keywords: herbal, dietary supplement, elderly

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OR046 Neuroprotective Effects of Intermittent Fasting Against Inflammatory Markers in The Rat's Hippocampus and Prefrontal Cortex

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Intermittent Fasting enhances the antioxidant defence mechanisms in the brain by counteracting oxidative damage. It suppresses the pro-inflammatory nuclear factor kappa B (NF-κB) pathway and increases the activity of nuclear factor erythroid-2-related factor 2 (Nrf2), a master regulator of antioxidant defences, these declined the levels of inflammatory mediators such as TNF-α, IL-1β, and IL-6 and drives the expression of pro-inflammatory cytokines. The study aims to determine the neuroprotective effects of intermittent fasting on the brain's inflammatory markers in rats exposed to stress. This was an animal experimental study conducted in the Health Campus of Universiti Sains Malaysia. 32 male Spraque-Dawley rats were divided into 4 groups each consisting of 8 rats. Fating groups fast for 1 month followed by 2 weeks of 2 interrupted stress protocols. The Control-Stress group underwent similar stress protocols. All animals were sacrificed, hippocampus and prefrontal cortex were extracted and homogenized. IL-6, IL-1β, TNF-α, and IL-10 ELISA were conducted on the homogenate. Data collected were analysed using GraphPad Prism. There were significant statistical differences of IL-10 in the rat's hippocampus and IL-1β in the Prefrontal cortex but no significant statistical differences of IL-6 and TNF-α in the rat's Prefrontal cortex. Intermittent fasting has been found to improve neuronal survival and synaptic plasticity by reducing the levels of neuro-inflammatory mediators.

Keywords: intermittent fasting, chronic stress, neuroprotection, inflammatory markers

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OR047 A Cross-Sectional Study on the Impact of Eating Behaviors on Dietary Intake in Children with Autism Spectrum Disorder (ASD)

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Children with Autism Spectrum Disorder (ASD) are commonly known to experience feeding-related problems such as food selectivity due to their sensitive sensory. This would lead to interruptive mealtime behaviors such as aggressive behavior as these children refuse to eat foods that are beyond their sensory needs. If not intervened earlier, these children are at risk of having poor nutritional status later in life. Therefore, this study aimed to identify the common mealtime behaviors exhibited in autism children and investigate the association between mealtime behaviors, autism-related symptoms and nutritional intake among autism children. This cross-sectional study was carried out on 51 children aged three to ten years old who have been diagnosed with ASD at Tunku Ampuan Besar Tuanku Aishah Rohani (HTABTAR). Structured questionnaires were administered to parents for demographic information, mealtime behavior (BAMBI) and challenging behavior in children (ASD-BPC). Anthropometric measurement was obtained to determine nutritional status based on WHO growth standards. WHO Anthro plus version 3.2.2 and SPSS version 29 were used to analyses data. The mean age of participants is 6.4±1.73 years old, with 94% participants showed presence of feeding difficulties. A statistically significant strong association was observed between mealtime behaviors and autism-related symptoms ($r=0.521$, $p<0.001$). The acceptance of vegetables was statistically significantly to total calorie intake, $p<.05$. However, the ASD-BPC scores and acceptance rate of carbohydrate, protein and fruits do not statistically significantly predict the total calorie intake in children with ASD, $F(5,48) = 1.394$, $p>.05$, $R2 = .134$. In conclusion, this study discovered the more severe autism-related symptoms are exhibited, it is more likely that the child would display disruptive mealtime behaviors. However, the acceptance of carbohydrate, protein, fat and autism-related symptoms are not strongly correlated with total energy intake among children with ASD.

Keywords: Autism spectrum disorder; mealtime behavior; autism-related symptoms; dietary intake; nutritional status

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ABSTRACTS OF POSTER PRESENTATIONS

PP001 Design and Usability Evaluation of a Mobile Health Application for Childhood Stunting Prevention among Women of Reproductive Age: A Participatory Design Study

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Mobile phones have emerged as powerful tools for delivering health information to the public. However, limited locally developed mHealth interventions targeting stunting prevention among women of reproductive age exist in Malaysia. Therefore, the study aimed to develop and evaluate the usability of a mobile health application, Be Healthy, Let's Stop Stunting (BLESS), designed to deliver nutrition education targeting a triad of prospective groups of women of reproductive age (pre-conception women, pregnant women, and mothers). The study was carried out in iterative stages following the five-stage ADDIE instructional design model (Analysis, Design, Development, Implementation, and Evaluation) and employed purposive sampling for participant recruitment. First, a user needs assessment was conducted through semi-structured interviews and focus group discussions to gather opinions from women of reproductive age about the preferred design of the mHealth app. In the next stage, a prototype of the application was created and developed. The final stage involved user usability evaluation using a Malay version of the Mobile Application Usability Questionnaire (MAUQ). The needs assessments indicated that the preferred application design should prioritize user-friendliness, familiarity with the interface, and offline functionality. Thirty-seven women of reproductive age participated in the usability testing. The participants expressed high satisfaction with the application (mean score: 6.16 ± 0.47 out of 7.00). The BLESS mHealth application demonstrated high usability and the potential to improve nutritional knowledge among women of reproductive age and to serve as a preventive measure against stunting among children below 2 years old in Malaysia.

Keywords: mHealth, ADDIE, childhood stunting, women of reproductive age, nutrition education

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PP002 Antibacterial Activity and Physicochemical Characterisation of *Centella asiatica* Ethanolic Extract Cream Formulations Against Selected Pathogenic Bacteria

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Centella asiatica (pegaga) is a traditional medicinal plant well-recognised for its wound healing and antimicrobial properties. Despite growing interest in herbal topical formulations, scientific evidence supporting standardised C. asiatica cream preparations remains limited. This study aimed to formulate, physicochemically characterise and evaluate the antibacterial activity of *C. asiatica* ethanolic extract cream formulations at 2.5% and 7.5% concentrations against *Staphylococcus aureus*, *Escherichia coli* and *Bacillus cereus*. Ethanolic extracts were prepared via cold maceration using 90% ethanol. Oil-in-water cream formulations were developed and subjected to physicochemical evaluation, including pH, washability, dye test, and organoleptic assessment over 30 days. Fourier Transform Infrared (FTIR) spectroscopy was employed to confirm the presence and stability of key bioactive compounds. Antibacterial activity was assessed using well diffusion, minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) assays, with gentamicin (0.1% w/w) as positive control. Both formulations demonstrated skin-compatible pH (4.79–5.36), stable oil-in-water characteristics, and acceptable physical properties. FTIR analysis confirmed the preservation of functional groups associated with triterpenoids and glycosides. The 7.5% formulation exhibited significantly greater antibacterial activity ($p < 0.05$), producing inhibition zones of 16.5–22.5 mm, with an MIC of 50 mg/mL against all tested organisms. No bactericidal effect was observed, indicating a bacteriostatic mode of action. In conclusion, *C. asiatica* ethanolic cream, particularly at 7.5% concentration, demonstrates promising potential as a stable topical antibacterial formulation compared to lower % concentration. These results indicate a concentration-dependent antibacterial effect. Further optimisation and clinical evaluation are recommended to enhance its therapeutic applicability.

Keywords: *Centella asiatica*, antibacterial, cream formulation, FTIR, phytochemical screening

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PP005 Phytochemical Screening and Antimicrobial Activity of *Catharanthus roseus*: Comparative Efficacy of Leaf, Flower, and Root Extracts Against *Escherichia coli* and *Candida albicans*

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Catharanthus roseus (Kemunting Cina) is well-established as the source of the anticancer. However, its antimicrobial potential across different plant parts remains underexplored. With antimicrobial resistance (AMR) driving demand for novel plant-derived therapeutics, this study aimed to evaluate and compare the phytochemical profiles and antimicrobial efficacy of ethanolic extracts from the leaves, flowers, and roots of *C. roseus* against *Escherichia coli* and *Candida albicans*. Plant materials were extracted by cold maceration using 95% ethanol for seven days. Phytochemical screening employed standard qualitative methods and antimicrobial activity was assessed by the agar well diffusion method at 200 mg/mL, with Amoxicillin and Griseofulvin as positive controls. Statistical significance was determined using the unpaired t-test. Extraction yields were highest in leaves (16.25%), followed by flowers (12.29%) and roots (5.60%). Alkaloids, carbohydrates, flavonoids, proteins, and terpenoids were present in all plant parts, while glycosides and saponins were absent in flowers. All extracts showed statistically significant antimicrobial activity ($p < 0.001$). The leaf extract exhibited the strongest antibacterial activity against *E. coli* (12.9 mm), followed by flowers (9.0 mm) and roots (6.1 mm). For antifungal activity against *C. albicans*, roots produced the largest inhibition zone (6.8 mm), followed by leaves (6.0 mm) and flowers (4.8 mm). These findings demonstrate plant part-specific antimicrobial potential: leaves showed superior antibacterial efficacy consistent with their complete secondary metabolite profile, while roots displayed the strongest antifungal activity, likely driven by saponins known to disrupt fungal membranes. The reduced bioactivity of flower extracts correlates with the absence of these key phytochemicals. Collectively, these results extend the therapeutic relevance of *C. roseus* beyond oncology and support further isolation and characterisation of its bioactive compounds to address the growing AMR crisis.

Keywords: *Catharanthus roseus*, ethanolic extract, antimicrobial activity, phytochemical screening, antifungal activity

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PP006 Beyond the Lead Apron: Modeling Lifetime Cancer Risk Estimates from Thyroid Exposure in Clinical Staff

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In radiology, radiation protection often prioritizes the torso via lead aprons, frequently neglecting the highly radiosensitive thyroid gland. A significant research gap exists in translating physical dose measurements into long-term biological risks, particularly concerning gender-specific sensitivities. Current safety protocols often rely on generalized models that may underestimate the risk for female personnel. This study aimed to quantify the Lifetime Attributable Risk (LAR) of thyroid cancer among clinical staff during central venoplasty procedures to advocate for enhanced shielding protocols. Thyroid doses were measured using nanoDot dosimeters during a single central venoplasty procedure for four clinical roles: Radiologist, Medical Officer (MO), Radiographer, and Staff Nurse. Risk estimation was performed using the NCI Radiation Risk Assessment Tool (RadRAT v.4.3.1), utilizing an acute exposure model based on a U.S. 2015–2019 population baseline. Lifetime risk was calculated by integrating gender, birth year, and specific organ dose (mGy). The quantitative modeling revealed a significant disparity between radiation dose and subsequent Excess Lifetime Risk (ELR). The radiologist received the highest dose of 0.064 mGy, resulting in a mean ELR of 0.0101 per 100,000. In comparison, the MO and radiographer received lower doses of 0.033 mGy and 0.021 mGy, with mean ELR values of 0.00634 and 0.0059 per 100,000, respectively. Notably, a biological outlier was observed in the staff nurse despite receiving the lowest dose of 0.007 mGy. The mean ELR for staff nurses was 0.00935 per 100,000, nearly identical to the radiologist's risk. The findings reveal a profound gender-based disparity where female clinical staff face disproportionately higher ELR and baseline future risks, even when receiving up to nine times less radiation dose than male colleagues. Acknowledging the heightened radiosensitivity of the female thyroid is essential for healthcare institutions to align with ALARA principles and proactively mitigate the long-term cancer burden among interventional personnel.

Keywords: interventional radiology, thyroid dosimetry, RadRAT, excess lifetime risk, occupational health

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PP008 Human Health Risk Assessment Associated with Exposure to Per- and Polyfluoroalkyl Substances (Pfas) in Fine Particulate Matter ($Pm_{2.5}$)

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Fine particulate matter ($PM_{2.5}$) is a significant urban air pollutant capable of adversely affecting human health through inhalation exposure; however, studies on its role as a carrier for Per- and Polyfluoroalkyl Substances (PFAS) in Malaysia remain very limited. This lack of data creates a critical knowledge gap, particularly in assessing health risks associated with airborne PFAS exposure. Therefore, this study aimed to determine the concentration and distribution of PFAS bound to $PM_{2.5}$ in the urban environment of Kuala Lumpur, to evaluate seasonal variations between the Northeast Monsoon and Southwest Monsoon, and to assess non-carcinogenic and carcinogenic health risks arising from inhalation exposure. $PM_{2.5}$ sampling was conducted at a high-traffic urban location near Hospital Kuala Lumpur over a full annual monsoon cycle. PFAS compounds associated with $PM_{2.5}$ were analysed using liquid chromatography–mass spectrometry, while seasonal differences were evaluated using the Mann–Whitney U test. Human health risk assessment was performed based on Lifetime Average Daily Dose (LADD), Hazard Quotient (HQ), and Cancer Risk (CR), supported by the Multiple-Path Particle Dosimetry (MPPD) model to evaluate $PM_{2.5}$ deposition patterns within the human respiratory system across different age groups. The results demonstrated the consistent presence of PFAS bound to $PM_{2.5}$ in ambient air, with dominance of short-chain compounds such as PFBA alongside detectable levels of legacy PFAS including PFOA, and compound-specific seasonal variability. Health risk assessment indicated that children are more vulnerable to non-carcinogenic risks, while carcinogenic risk associated with PFOA increased with age and cumulative exposure duration. This study contributes new scientific evidence on airborne PFAS in a tropical urban setting and provides essential baseline data to support the inclusion of PFAS in ambient air monitoring programmes and the strengthening of air pollution management policies and public health protection strategies in Malaysia.

Keywords: fine particulate matter, polyfluoroalkyl substances (PFAS)

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PP009 Exciting and Inhibiting Connections in Healthy Adult Brain: Applying Bayesian Inference on Resting-State Fmri Data Stratified by Brain Hemisphere, Gender and Handedness

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The human brain maintains a dynamic equilibrium between excitatory and inhibitory neuronal interactions. While a balance in the number of excitatory and inhibitory neurons is not strictly required for neural equilibrium, it remains unclear whether a similar principle applies to the distribution of exciting and inhibiting connections. Addressing this gap is clinically significant, as disproportionate excitatory–inhibitory connectivity has been increasingly implicated in the pathophysiology of neuropsychiatric and neurological disorders. This study investigated the distribution of exciting and inhibiting connections within the Default Mode Network during rest using resting-state functional magnetic resonance imaging (fMRI) data from 47 healthy young adults, with the primary objective of establishing a normative baseline against which disease-related connectivity imbalances can be identified. Dynamic Causal Modeling (DCM) and Statistical Parametric Mapping (SPM) were employed to analyze effective connectivity among key DMN nodes, including the posterior cingulate cortex, medial prefrontal cortex, bilateral inferior temporal cortex, lateral parietal cortex, medial dorsal thalamus, and bilateral posterior cerebellum. A fully connected model was specified and inverted for each participant, with Bayesian Model Averaging applied at the group level. Results showed that all connections among DMN nodes exceeded a posterior probability of 0.9, indicating strong bidirectional interactions between regions, with inhibiting connections outnumbering exciting connections during rest. Analyses stratified by brain hemisphere, gender, and handedness further revealed apparent differences in the relative strength of excitatory-inhibitory connectivity, indicating that these biological factors meaningfully shaped intrinsic connectivity patterns. Together, these findings provide a clearer understanding of DMN dynamics in healthy individuals and establish a standardized reference framework for detecting connectivity imbalances associated with disorders such as depression, schizophrenia, autism spectrum disorder, and Alzheimer's disease.

Keywords: adolescent, Bayesian, default mode network, exceedance, probability

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PP011 Phytochemical Profiling And GC-MS Analysis of *Eleusine Indica* L. Gaertn Polar Extracts: Unveiling Novel Bioactive Agents for Multiphase Wound Healing

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Chronic wounds pose a major clinical challenge, underscoring the need for affordable, innovative wound-healing agents. *Eleusine indica* L. Gaertn, a common grassy weed used in local wound care, has been shown to have antimicrobial, anti-inflammatory, and antioxidant properties that support tissue repair. This study aimed to perform a qualitative phytochemical screening and quantitative gas chromatography-mass spectrometry (GC-MS) profiling of different polar extracts from *E. indica* leaves. The goal was to isolate and identify the specific bioactive components responsible for its healing effects. We extracted *E. indica* leaves using three polar solvents: methanol and ethanol through cold maceration, and water through both hot and cold infusion methods. The extracts were qualitatively screened for saponins, tannins, alkaloids, flavonoids, and triterpenoids. Afterward, GC-MS analysis was conducted to separate and identify their volatile bioactive constituents. Qualitative screening showed that alkaloids and flavonoids were present in all tested polar extracts. Saponins were only found in the aqueous extracts, while triterpenoids were exclusively isolated from the cold aqueous infusion. The GC-MS analysis identified a variety of bioactive compounds linked to faster wound healing. Notably, the methanol and ethanol extracts contained high levels of essential fatty acids, particularly 9,12,15-octadecatrienoic acid (up to 17.49%) and tetradecanoic acid (up to 15.02%), recognized for their strong anti-inflammatory and antimicrobial properties. Significant diterpenes, such as phytol, were identified, along with phytosterols like stigmasterol and gamma-sitosterol, which support antioxidant mechanisms and cell growth during tissue repair. The wide range of identified anti-inflammatory, antimicrobial, and antioxidant metabolites provides chemical support for the traditional use of *E. indica*. These findings underscore its strong potential for future clinical applications as new, commercially viable therapeutic agents targeting various stages of the wound-healing process.

Keywords: *Eleusine indica*, gas chromatography-mass spectrometry, wound healing, polar extracts, bioactive compounds

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PP012 High Bacterial Contamination Burden and MDRO Prevalence on Hospital Fomites: A Quantitative Study from a Tertiary Referral Hospital in Klang Valley Malaysia

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Healthcare-associated infections (HAIs) are serious threat to patient safety, yet the role of medical fomites as environmental reservoirs of HAIs, especially related to antimicrobial resistance (AMR) is often under-reported. This study investigated the prevalence of bacterial and AMR profiles on medical fomites across the medical ward in a tertiary referral hospital in Klang Valley, Malaysia. A quantitative study of cross-sectional environmental surveillance was conducted nine times between October 2024 and February 2025. 648 samples were collected randomly from five high-touch medical fomites namely blood pressure (BP) cuff, thermometer, stethoscope, glucometer and telephone across the tuberculosis ward, male general medical ward, high dependency ward, isolation ward, coronary care unit and cardiac rehabilitation ward. Bacterial contamination load on each fomite was determined using the standard plate count method and expressed as colony-forming units per item (CFU/item). Meanwhile, bacterial identification was performed by MALDI-TOF MS, and antimicrobial susceptibility testing was determined using VITEK® 2 analysis on selected isolates. Of whole samples, 98.1% showed significant microbial contamination. Statistical fomite analysis revealed that BP cuff had the highest bacterial contamination mean $\log_{10}$(CFU/Items) ($M = 3.81$, $SD = 1.10$) than Stethoscope ($M = 3.18$, $SD = 0.81$), glucometer ($M = 2.58$, $SD = 0.66$), thermometer ($M = 2.52$, $SD = 1.02$), and telephone ($M = 2.58$, $SD = 0.91$), all $p < 0.05$. Bacterial contamination in the ward showed significant variation, $H(5) = 14.78$, $p < 0.05$ ($N=648$). High dependency ward demonstrated highest contamination ($M = 119{,}300$, $SD = 789{,}133$, median = 1,500), while CRW had the lowest ($M = 6{,}205$, $SD = 24{,}043$, median = 450). Among 144 selected isolates, 20.8% (n=30) were identified as AMR strains versus 79.2% as susceptible strains. The AMR strains were predominantly present in the high-dependency ward namely Multidrug-Resistant *Acinetobacter baumannii*, Methicillin-Resistant *Staphylococcus aureus* (MRSA), Extended-spectrum beta-lactamase *Klebsiella pneumoniae*, *Enterobacter cloacae*, and *Pseudomonas sp.* Medical fomites in this hospital serve as critical reservoirs of bacterial contamination and a significant MDRO burden, posing a high risk for cross-transmission. There is a vital need for enhanced stewardship and the integration of automated disinfection technologies to mitigate the HAIs, especially of AMR transmission in Malaysian hospitals.

Keywords: multidrug-resistant organisms, fomite contamination, healthcare-associated infections, antimicrobial resistance

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PP013 Genotoxicity Assessment of Buccal Cells among Municipal Workers Occupationally Exposed to Fogging Spray

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Pyrethroids, the primary class of insecticides used in mosquito fogging activities, are generally regarded as safer alternatives to older pesticides such as organophosphates. However, increasing evidence suggests that pyrethroid exposure may induce oxidative stress and DNA damage, raising concerns about potential health risks among workers involved in fogging operations. This study aimed to assess genotoxic damage in buccal cells among municipal workers exposed to insecticides during fogging activities. This cross-sectional study involved 30 respondents comprising 15 fogging operation workers (exposed group) and 15 office workers (control group) from a municipal council. A structured questionnaire was used to obtain information on sociodemographic characteristics, smoking status, and duration of occupational exposure to insecticides. Genotoxic damage was evaluated by determining the frequency of micronuclei (MN) per 1,000 buccal cells following acridine orange staining and fluorescence microscopy analysis. The results showed that MN frequency was significantly higher among workers in the exposed group compared to the control group ($p < 0.001$), indicating increased genotoxic damage associated with occupational exposure to fogging insecticides. Smoking status, age, and duration of exposure were also examined as potential contributing factors. A significant difference in MN frequency was observed between smokers and non-smokers within the exposed group ($p < 0.05$), while age did not show a significant association with MN frequency. Duration of exposure showed a weak but significant positive correlation with MN frequency ($R^2 = 0.072$, $p < 0.05$). Multiple linear regression analysis revealed that smoking status and duration of insecticide exposure were significant predictors of MN frequency, collectively explaining 65% of the variation observed ($R^2 = 0.65$, $p < 0.01$). These findings suggest that workers involved in fogging operations may face an increased genotoxic risk, highlighting the importance of continuous health monitoring and preventive occupational safety measures.

Keywords: buccal cells, genotoxicity, fogging, occupational exposure, insecticides

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PP014 Challenges in Accessing Hearing Healthcare Services Among The Parents of Children with Cochlear Implants During The COVID-19 Pandemic

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The COVID-19 pandemic, a global event that led to a lockdown lasting around three years, has significantly impacted sectors such as the economy, education, and healthcare. This study aims to investigate the challenges parents face in accessing hearing healthcare services for children who received cochlear implants (CI) before and during the pandemic. Sixteen parents were interviewed to understand their experiences accessing hearing healthcare services during the COVID-19 pandemic. Children who received CI before and during the pandemic were categorised into pre-COVID-19 (n = 8) and COVID-19 (n = 9) groups, respectively. Three main challenges were identified among the parents. Firstly, difficulty in attending follow-up appointments was common for both groups of parents. Secondly, challenges related to performing online rehabilitation sessions at home were reported by parents from the pre-COVID-19 group, while time pressure for CI surgery was a stressor for parents in the COVID-19 group. However, interestingly, when comparing the timing of deafness diagnosis and CI-related variables of CI children between both groups, no significant differences were found ($p > .05$), indicating that the procedure was not affected by the pandemic. Although the parents reported numerous challenges in accessing hearing healthcare services, the comparative analysis revealed no significant differences in age at deafness diagnosis or age at CI implantation. This could be attributed to a standardised, rigorous protocol implemented at the tertiary hospital. In conclusion, while parents reported numerous challenges during the pandemic, the effects were not significantly different across this cohort, as they were alleviated by promptly receiving an appropriate telepractice service plan and by strictly following the established instructions. Nevertheless, the pandemic has facilitated the rapid growth of telepractice services, enabling more families to access hearing healthcare in diverse ways.

Keywords: COVID-19, children with cochlear implants, parental challenges, hearing healthcare services

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PP015 Multiligamentous Knee Reconstruction All-inside Technique with Modified Universiti Kebangsaan Malaysia Internal Bracing (MUIB) Graft

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Multiligament knee injuries (MLKI) remain surgically challenging, with high risks of arthrofibrosis, graft failure, and tunnel-related complications. This technical note describes a single-stage, all-inside anterior cruciate ligament (ACL) and posterior cruciate ligament (PCL) reconstruction augmented with Modified Universiti Kebangsaan Malaysia Internal Bracing (MUIB) graft construct, combined with a Modified Larson posterolateral corner (PLC) reconstruction, aiming to enhance biomechanical stability while reducing tunnel widening and facilitating accelerated rehabilitation. All-inside PCL and ACL reconstruction was performed arthroscopically using retrograde socket preparation with FlipCutter technology. The MUIB graft technique incorporated FiberTape centrally within the allograft rather than externally augmenting the graft, thereby minimising windshield-wiper and bungee effects associated with tunnel widening. The PCL graft (approximately 80mm) and ACL graft (within 62-67mm depending on patient height) were secured using suspensory fixation devices with sequential tensioning. A Modified Larson PLC reconstruction was performed through an open approach using a single allograft to reconstruct the lateral collateral ligament (LCL) and popliteus tendon via anatomically positioned fibular and femoral tunnels. Graft fixation followed a defined sequence: PCL tensioned at 90° flexion with anterior drawer force, ACL in full extension, followed by simultaneous PLC tensioning. An accelerated rehabilitation protocol emphasising early range of motion, protected weight bearing, and early quadriceps activation was implemented. Internal bracing has demonstrated promising outcomes in MLKI reconstruction, with reported failure rates between 0% and 13.6%. However, conventional augmentation techniques may predispose to tunnel widening. By embedding the FiberTape within the graft substance, the MUIB construct aims to provide load sharing while mitigating tunnel-related complications. This approach offers anatomic restoration, reduced graft attenuation during the “killer turn” in PCL reconstruction, and potential for earlier functional recovery. Single-stage all-inside ACL-PCL reconstruction augmented with the MUIB graft and combined with modified Larson PLC reconstruction provides a biomechanically robust construct that may benefit in multiligament knee injuries.

Keywords: multiligament knee injury, all-inside reconstruction, internal bracing, posterior cruciate ligament reconstruction, posterolateral corner reconstruction

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PP016 Analytical Strategies for the Forensic Characterization of E-Liquids: Matrix Mitigation and Sensitive Detection of Alkaloids and Additives

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This narrative review examines the development of analytical approaches used for the forensic characterization of electronic cigarette liquids, with particular attention to matrix-related challenges and the detection of minor or undeclared constituents. Early analyses focused largely on nicotine quantification, whereas more recent work has expanded towards broader chemical profiling of alkaloids, flavouring agents, sweeteners, and synthetic additives. A major analytical difficulty in this field is the complex e-liquid matrix, in which high concentrations of propylene glycol and glycerol can suppress or distort the detection of target compounds. The review therefore considers sample-preparation strategies designed to reduce matrix interference, including freeze-out extraction, liquid–liquid extraction and solid-phase microextraction. It also evaluates the use of modern separation and detection platforms, particularly GC–MS/MS, LC–MS/MS and HILIC–MS/MS, for the targeted analysis of nicotine-related alkaloids, saccharides such as sucrose, and other additives of forensic or regulatory interest. In addition, the review discusses sensitivity-enhancement approaches in capillary electrophoresis, including field-amplified sample injection, which has enabled markedly improved detection of trace alkaloids such as pseudoephedrine and ephedrine. Taken together, these developments show how analytical chemistry has progressed from routine nicotine measurement to more refined forensic profiling of e-liquids. The review highlights the importance of method selection according to matrix complexity, analyte class and evidential purpose, and shows how robust analytical workflows can support product authentication, detection of undeclared substances, and more reliable regulatory assessment of electronic cigarette formulations.

Keywords: electronic cigarette liquids, forensic characterization, matrix effect, alkaloids, analytical chemistry

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PP017 RAPD-PCR Profiling for Comparative Study of Low-Quantity Human DNA (Hair Shaft) and *E. coli* Banding Patterns

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Forensic analysis of human hair shafts remains one of the biggest challenges, as DNA is often limited and degraded and is frequently susceptible to microbial contamination. Traditional DNA typing is often inapplicable for such samples. For contaminated evidence, the RAPD approach offers a flexible and sequence-independent alternative for creating genetic profiles. This work assesses the applicability, reliability, and discriminatory power of RAPD in distinguishing human DNA profiles from typical microbial contamination. The study developed random DNA profiles using human hair shaft DNA and compared the resulting banding patterns generated by *E. coli* as a model for non-human contamination within the microbiome. To assess the efficiency of RAPD, the study employed an experimental approach to evaluate the influence of sample condition, primer choice, and PCR parameters on the quality and reproducibility of profiles obtained from both human hair samples and *E. coli*. In addition, to understand the historical application of RAPD and to confirm its potential as a preliminary screening tool in modern forensic science, relevant journal publications were reviewed and synthesised in this work. Compared to the DNA profile obtained from *E. coli*, RAPD generated non-overlapping and unique banding patterns for human hair shaft DNA, demonstrating its efficiency in discriminating between the species under investigation. In addition to illustrating RAPD's capability for species-specific exclusion of microbial contaminants, this successful discrimination addresses crucial gaps in the reproducibility validation of RAPD for human trace evidence processing. The results affirm that RAPD is a reliable, rapid, and cost-effective initial screening method for problematic trace evidence. Responding to the need, as highlighted in recent literature, for validated rapid screening techniques, this research offers standardised guidelines that may advance the adoption of RAPD, particularly in resource-limited forensic laboratories, to support investigations in which traditional methods may fail.

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PP018 Occupational Radiation Exposure among Medical Radiation Personnel at Teaching Hospital

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Occupational radiation exposure monitoring is a fundamental component of radiation protection programmes, ensuring regulatory compliance and minimising health risks among medical radiation workers. Continuous dose surveillance also provides an objective measure of the effectiveness of radiation protection policies implemented within clinical departments. This study evaluated occupational radiation exposure among 105 medical radiation workers (MRWs) in the Department of Radiology, Hospital Canselor Tuanku Muhriz (HCTM), over a three-year period from 2022 to 2024. Personal radiation doses were monitored for effective dose (Hp (10)) and skin dose (Hp(0.07)) using Radiophotoluminescent Dosimeters (RPLDs), with monthly dose readings obtained via the Asahi Techno RPL Reader (FGD-650). Radiographers recorded the highest mean annual dose (1.10 ± 0.28 mSv), followed by radiologists (1.08 ± 0.35 mSv) and medical officers (0.76 ± 0.14 mSv). Nevertheless, all recorded doses remained well below the International Commission on Radiological Protection (ICRP) recommended occupational dose limit of 20 mSv per year. In 2023, a notable decrease in occupational exposure was observed across all professions as COVID-19 cases declined, healthcare operations stabilised, and procedural volumes returned to lower levels. Occupational radiation exposure among medical radiation workers in this centre remained within acceptable safety limits throughout the study period, indicating effective implementation of radiation protection measures. This study offers crucial baseline data that can guide the refinement of radiation protection policies, specifically tailored to the evolving demands of a teaching hospital. Continuous, evidence-based improvements are vital for sustaining high standards of protection and safeguarding the long-term health and safety of medical workers in clinical practice.

Keywords: occupational dose, medical radiation workers, radiophotoluminescent dosimeter, radiation protection

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PP019 NeuroHabit© App: AI-Assisted Engineering and Validation of a Hierarchical Scoring Engine for Modelling Neurochemical Balance in Behavioural Interventions

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Many Mobile Health (mHealth) applications fail to sustain long-term behavior change because linear scoring systems ignore the hierarchical nature of human neurobiology. NeuroHabit© moves beyond "streak-based" gamification by implementing a bio-mathematical engine that prioritizes physiological recovery over simple task accumulation. This study describes the algorithmic framework of the application and the protocol for its clinical validation. Claude AI was utilized for the high-fidelity calibration of a proprietary algorithm featuring a multiplicative foundational gate, rawPct × (0.5 + 0.5 × foundationRate), which scales habit efficacy against recovery baselines (e.g., sleep). A four-week pilot study is planned (n=30), utilizing a purposive sampling strategy to include both neurotypical and neurodivergent cohorts. Validation will be conducted via a structured questionnaire measuring: (1) Face Validity of the qualitative "Brain Phase" signal, (2) Tracking Anxiety via an adapted Perceived Stress Scale (PSS-10), and (3) Habit Automaticity via the Self-Report Habit Index (SRHI). Preliminary AI-assisted stress-testing has already verified the algorithm's sensitivity to category neglect and foundational deficiencies. The subsequent human pilot study aims to demonstrate that the "Hidden Score" philosophy significantly reduces tracking-related anxiety compared to traditional binary trackers. It is hypothesized that prioritizing "Weight 3" foundational behaviors will lead to higher SRHI scores, indicating superior habit automaticity. By integrating AI-driven technical calibration with a planned human-centered validation, NeuroHabit© proposes that "de-gamifying" mHealth through homeostatic modeling is a viable path for lifestyle medicine. This research offers a scalable framework to reduce digital fatigue while improving the biological accuracy of behavioral interventions.

Keywords: behavioural informatics, AI-Assisted design, habit automaticity, mHealth validation, neurochemical homeostasis

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PP020 *In vitro* Differential Responses of Human SH-SY5Y Neuronal Cells and Human U87 Astrocyte-Like Cells to Glutamate and Docosahexaenoic Acid (DHA)

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Glutamate-mediated excitotoxicity is a major pathological mechanism in neurodegeneration, marked by overstimulation of receptors, resulting in neuronal injury or death. Astrocytes are essential for maintaining glutamate homeostasis and preventing neuronal damage. Furthermore, docosahexaenoic acid (DHA), an omega-3 polyunsaturated fatty acid, is widely known for its neuroprotective effects. Most *in vitro* studies have focused on neuronal cell models, while the comparative effects of glutamate and DHA in neuronal and astrocytic cells remain unexplored. This study aimed to evaluate the effects of glutamate and DHA on cell viability and morphology of neuronal and astrocytic cells. Human SH-SY5Y cells were differentiated using 10 µM retinoic acid for 7 days to generate neuronal cells, while human U87 cells were used as astrocyte-like cells. Both cells were treated with varying concentrations of glutamate (0, 50, 75, 100, 150, 200 mM) or DHA (0, 50, 75, 100, 150, 200 µM) for 24 h. Following treatment, cell viability was determined by MTT assay, and morphological changes were examined microscopically. Glutamate exposure reduced SH-SY5Y cell viability, with a gradual decline starting at 50 mM. Morphological analysis showed neurite damage at 100 mM, with drastic neuronal degeneration at higher concentrations (≥150 mM). In contrast, U87 cells maintained consistent viability across glutamate concentrations, although at ≥150 µM altered U87 cell morphology and reduced cell viability. Similarly, DHA exhibited cell-type-dependent effects. SH-SY5Y cells remained healthy at 50–100 µM, whereas DHA at ≥150 µM was toxic to neuronal cells, resulting in neurite and structural damage. In U87 cells, DHA appeared to promote proliferation at all concentrations, as indicated by increased cell viability, healthy morphology, and higher density cultures. These findings indicate that neuronal and astrocytic cells have different susceptibilities to glutamate and DHA, supporting the suitability of these *in vitro* models for neurotoxicity and neuroprotection research.

Keywords: excitotoxicity, Sh-Sy5y, U87, neuroprotection, DHA

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PP022 Temporal Stability And Forensic Reliability Of Lip Prints: A Systematic Review

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Lip prints have attracted increasing interest as a supplementary forensic identifier, particularly in cases where fingerprints or DNA are limited, degraded, or unavailable. Their practical value, however, depends not only on individual uniqueness but also on whether lip print patterns remain sufficiently stable over time. This systematic review aimed to evaluate the available evidence on the temporal stability of lip prints and to consider their reliability for forensic application. A structured search was conducted across seven electronic databases for studies published between 2000 and 2024. The review followed PRISMA 2020 guidance and included longitudinal studies that assessed lip print patterns at more than one time point in human participants. Six studies involving a total of 637 individuals met the inclusion criteria. Follow-up periods ranged from six months to three years, and both manual classification and digital comparison approaches were reported. Overall, the findings suggest that major lip print features remain relatively stable over time, with reported consistency rates ranging from 73.8% to 100%. Where variation occurred, it was often associated with differences in recording technique, print pressure, environmental exposure, or observer interpretation rather than true anatomical change. Studies incorporating digital methods appeared to demonstrate better reproducibility than those relying solely on manual classification. Despite these encouraging findings, the current evidence base remains limited by small study numbers, methodological heterogeneity, inconsistent recording conditions, and the absence of a standardised analytical framework. Lip prints therefore show promise as a supplementary forensic tool, but the available evidence does not yet support their routine use as a standalone method of identification. Further longitudinal research using standardised and digitally supported methods is needed to strengthen the evidential basis for forensic practice.

Keywords: cheiloscopy; lip prints; forensic science; temporal stability

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PP023 Awareness on Artificial Intelligence and Future Career Prospect among Full Time Medical Imaging Students in a Private Institution: A Brief Study

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Artificial intelligence (AI) is rapidly transforming medical imaging through advancements in diagnostic accuracy, image processing, and workflow optimization. Despite this progress, the level of AI literacy and workforce readiness among future practitioners remains insufficiently defined. This study aimed to critically evaluate AI awareness among full-time diploma and bachelor medical imaging students at KPJ Healthcare University, Nilai, and to examine its association with educational level alongside perceptions of AI's impact on future career trajectories. A cross-sectional design was conducted using a validated self-administered questionnaire (Cronbach's alpha = 0.848). A total of 135 students were recruited through purposive sampling. Data were analyzed using descriptive statistics and non-parametric inferential tests, with statistical significance set at $p < 0.05$. The findings revealed that while a majority of students demonstrated high overall awareness (77.0%), this awareness was predominantly superficial, with limited depth in understanding key applications such as machine learning and AI integration across imaging modalities. No statistically significant difference was observed between diploma and bachelor cohorts ($p = 0.052$), suggesting that higher educational attainment does not necessarily correspond to enhanced AI literacy. In terms of perception, students exhibited cautious optimism, recognizing AI as a tool for professional enhancement while simultaneously expressing uncertainty regarding its implications for job security and evolving clinical roles. These findings highlight a critical gap between awareness and applied competency, indicating a misalignment between technological advancement and current educational practices. The persistence of uncertainty further reflects limited curriculum integration of AI-related competencies. This study underscores the urgent need for structured, competency-based curriculum integration to enhance AI literacy and ensure workforce readiness in an increasingly AI-driven healthcare environment.

Keywords: artificial intelligence, AI literacy, medical imaging education, workforce readiness, curriculum integration, student perception

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PP024 Longevity of Change: Preliminary Qualitative Findings on Sustained Health Practices from the AGELESS Programme

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Introduction: The AGELESS multidomain intervention was developed to improve physical, cognitive, nutritional, psychosocial, and metabolic-vascular outcomes among older adults with cognitive frailty. Although its short-term benefits have been well established, sustaining these health-promoting behaviors beyond the intervention period remains a critical challenge in aging populations. Evidence on the long-term continuation of such multidomain practices is limited, highlighting a significant gap in understanding their real-world sustainability. Therefore, this study aims to explore which intervention components are maintained over time, and to identify the factors that facilitate or hinder their continued adoption. Methods: A qualitative follow-up study was conducted 12 months post-intervention among older adults who completed the two-year AGELESS multidomain programme. Semi-structured interviews were conducted with eight purposively selected participants. Interviews were transcribed verbatim and analyzed using thematic analysis with ATLAS.ti software, guided by six pre-specified domains (sustained practices, motivators, barriers, perceived benefits, impact on daily life, and recommendations for sustainability). Results: Preliminary findings revealed a pattern of selective sustainability, where participants predominantly maintained simple, routine-based physical activities (e.g., walking, household tasks), while structured and cognitive components were not sustained. Continuation was driven by intrinsic, health-oriented motivations, particularly maintaining mobility and preventing discomfort. A major barrier was the inability to recall intervention content, compounded by the absence of post-programme support and resources. Participants adapted practices by integrating them into daily routines and modifying them according to physical capacity. Perceived benefits were described in functional terms, including improved mobility, reduced pain, and enhanced independence in daily activities. Explicit recommendations were limited, though findings suggest a need for ongoing reinforcement and support mechanisms. Conclusion: Sustainability of multidomain interventions among older adults with cognitive frailty is shaped by practicality, memory retention, and contextual integration. Interventions aiming to promote longevity should prioritize routine-compatible strategies and incorporate sustained support to enhance long-term impact.

Keywords: sustainability, cognitive frailty, multidomain intervention, older adults, qualitative

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PP025 The Effectiveness of Dynamic Strengthening Exercise between Pain and Functional Activity for Mechanical Low Back Pain in Asia (MLBP) – A Systematic Review

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Mechanical low back pain (MLBP) is a prevalent condition in Asia, exacerbated by sedentary lifestyles, poor ergonomics, and occupational hazards. This systematic review evaluates the effectiveness of dynamic strengthening exercises (DSE) in reducing pain and improving functional activity among individuals with MLBP in Asia. A total of five peer-reviewed studies conducted between 2019 and 2024, involving 210 participants aged 20–60, were analyzed. The interventions included lumbar stabilization, spinal extension, and core strengthening exercises, with outcomes measured using the Visual Analogue Scale (VAS), Numerical Pain Rating Scale (NPRS), and Oswestry Disability Index (ODI). Results consistently demonstrated significant reductions in pain intensity and improvements in functional activity, outperforming passive modalities and general aerobic exercises. DSE effectively targets stabilizing muscles such as the transversus abdominis, multifidus, and erector spinae, enhancing spinal alignment, trunk control, and postural stability. Additionally, combining DSE with ergonomic education further amplified therapeutic outcomes. The review highlights DSE as a cost-effective, accessible, and culturally adaptable intervention for MLBP management in Asia. However, limitations such as short intervention durations, small sample sizes, and lack of long-term follow-up underscore the need for further research. This study supports the integration of DSE into clinical practice and public health strategies to address the growing burden of MLBP in Asia.

Keywords: mechanical low back pain, dynamic strengthening exercises, pain, functional activity

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PP027 Cytotoxicity and Selective Anticancer Potential of Triphenyltin(IV) N-Methyl-N-Benzyldithiocarbamate in Hepatocellular Carcinoma (HepG2) and Human Embryonic Kidney (HEK293) Cells

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Hepatocellular carcinoma (HCC) remains a major global health burden and is characterized by high mortality rates, therapeutic resistance, and limited responsiveness to conventional chemotherapy. Although agents such as 5-fluorouracil (5-FU) are clinically employed, their therapeutic utility is frequently compromised by systemic toxicity and acquired resistance. Therefore, the identification of novel chemotherapeutic scaffolds with enhanced selectivity and mechanistic precision is urgently required. Organotin(IV) compounds have emerged as promising antitumor candidates due to their pronounced cytotoxic potency, structural tunability, and ability to interact with critical intracellular targets. In the present study, the cytotoxic and selective anticancer potential of triphenyltin(IV) N-methyl-N-benzyl dithiocarbamate was systematically evaluated against human hepatocellular carcinoma (HepG2) cells and non-malignant human embryonic kidney (HEK293) cells. Cell viability was quantified using the MTT reduction assay following 24-hour exposure, and half-maximal inhibitory concentration (IC_{50}) values were determined. Morphological assessments were conducted to characterize the mode of cell death. The compound exhibited marked cytotoxicity toward HepG2 cells, with an IC_{50} value of 0.70 µM, while demonstrating comparatively lower toxicity in HEK293 cells (IC_{50} = 1.97 µM). The calculated selectivity index (SI = 2.81) indicates preferential cytotoxic action toward malignant cells. Microscopic examination revealed classical apoptotic features, including cell shrinkage, chromatin condensation, membrane blebbing, and loss of adherence, suggesting activation of programmed cell death pathways rather than nonspecific necrosis. The enhanced anticancer activity may be mechanistically associated with the stability of Sn–N and Sn–S coordination bonds, which confer structural rigidity and facilitate sustained intracellular bioactivity. The lipophilic triphenyltin moiety likely enhances membrane permeability, promoting efficient cellular uptake and interaction with mitochondrial or nuclear targets, potentially triggering oxidative stress and apoptotic signaling cascades. Collectively, these findings demonstrate that triphenyltin(IV) N-methyl-N-benzyl dithiocarbamate possesses potent and selective antiproliferative activity against hepatocellular carcinoma cells. The compound represents a promising organotin-based chemotherapeutic lead, warranting further investigation through mechanistic studies involving apoptosis-related biomarkers, cell cycle profiling, reactive oxygen species modulation, and comprehensive in vivo efficacy and toxicity evaluations.

Keywords: HepG2, HEK293, organotin(IV), MTT assay, apoptosis, selectivity index (SI), triphenyltin dithiocarbamate

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PP028 Refractive and Visual Acuity Profiles in Keratoconus: A Retrospective Review at UKM Optometry Clinic (2017–2024)

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Keratoconus is a progressive ectatic corneal disorder that causes marked changes in refractive error and deterioration of visual acuity. This study aimed to characterise the refractive error and visual acuity profiles of keratoconus patients according to disease severity and to evaluate the impact of optical interventions, including spectacles and contact lenses. A retrospective review was conducted at the Optometry Clinic, Universiti Kebangsaan Malaysia (UKM), involving 71 patient records collected between 2017 and 2024. Analysis showed no significant change in refractive error at the first follow-up ($p = 0.620$), whereas highly significant changes were detected at the second and third follow-ups ($p < 0.001$). Visual acuity differed significantly across severity levels ($p = 0.001$), with patients in the mild stage demonstrating the highest mean rank (48.10). In contrast, those in severe to most severe stages had substantially lower values (22.40–23.91). The Friedman test revealed a statistically significant improvement in visual acuity across the three visits ($\chi^2 = 99.852$, $df = 2$, $p < 0.001$), indicating that optical correction with spectacles or contact lenses plays a crucial role in enhancing visual acuity over time. This study provides a longitudinal clinical overview of keratoconus patients in an optometric setting, supporting more tailored management strategies based on disease severity. Additionally, the results highlight the need for improved electronic clinical documentation to support future research and patient monitoring. From a policy and practice standpoint, the findings reinforce the importance of early detection and continuous follow-up in keratoconus management, with implications for primary care guidelines and optometric training programmes.

Keywords: keratoconus, severity, refractive error, visual acuity

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PP029 Content Validity of a Newly Developed Paediatric Vision Screening Index

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Question-based paediatric vision screening tools offer accessible, scalable alternatives to conventional screening approaches. However, ensuring robust content validity is essential to establish conceptual adequacy and representativeness of screening domains prior to further psychometric evaluation. This study aimed to evaluate the content validity of a newly developed paediatric vision screening index comprising parent- and child-reported versions in both English and Malay. A methodological validation study was conducted in two sequential stages: content validation of the original English version, followed by translation and content validation of the Malay version. Twenty-one subject matter experts, including ophthalmologists and optometrists actively involved in paediatric eye care, independently rated each item using a four-point relevance scale. Item-level Content Validity Index (I-CVI) and Scale-level Content Validity Index based on the average method (S-CVI/Ave) were computed. Items that failed to meet the recommended threshold values were either excluded or revised in response to expert feedback. For the English version, the parent questionnaire demonstrated I-CVI values ranging from 0.56 to 1.00 and S-CVI/Ave values between 0.81 and 0.91. A total of 21 items were excluded, and 8 items were revised. The child version showed I-CVI values ranging from 0.44 to 1.00 and S-CVI/Ave values between 0.84 and 0.94, resulting in the exclusion of 14 items and revision of 12 items. Following forward-backward translation and expert review, the Malay version demonstrated improved content validity. The parent version showed I-CVI values ranging from 0.82 to 1.00 and S-CVI/Ave values between 0.93 and 0.97, while the child version showed I-CVI values ranging from 0.82 to 1.00 and S-CVI/Ave values between 0.86 and 0.97. No further items were excluded in the Malay validation phase. The newly developed paediatric vision screening index demonstrated satisfactory content validity in both English and Malay versions after systematic expert evaluation and refinement.

Keywords: content validity, question-based; paediatric vision screening

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PP030 Knowledge and Attitudes of Early Childhood Development (ECD) Practitioners Towards Childhood Hearing Loss and Hearing Services

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Early identification of childhood hearing loss depends not only on screening systems but also on the knowledge and attitudes of early childhood development(ECD) practitioners who observe children in everyday learning environments. This study examined levels of knowledge and attitudes toward childhood hearing loss among Malaysian ECD practitioners, the relationship between knowledge and attitudes, and demographic factors associated with these outcomes. A cross-sectional quantitative survey was conducted with 849 practitioners from public and private early childhood centers across Malaysia. Data were collected using an adapted self-administered questionnaire assessing knowledge and attitudes related to childhood hearing loss. Descriptive statistics summarized responses, while Spearman correlation and logistic regression analyses were used to examine associations and predictors. Overall, 66.4% of practitioners demonstrated high knowledge. Higher correct responses were observed in the Impact (86.7%) and Signs and Symptoms (83.5%) domains, while knowledge was lowest in Identification and Intervention (52.8%). Only 30.3% of participants felt equipped to support a child with hearing loss in the classroom. Positive attitudes were observed in 59.4% of practitioners; however, only 27.4% believed that children with hearing loss could attend mainstream classrooms. A weak but significant positive association was found between knowledge and attitudes (ρ = .201, $p < .05$). Gender, education level, and nature of employment predicted knowledge, while age and education level were associated with attitudes. ECD practitioners demonstrated basic knowledge of childhood hearing loss, but gaps remain in procedural knowledge, referral understanding, and confidence in classroom inclusion. Strengthened training, clearer referral guidance, and cross-sector collaboration between education and health services are needed to support early identification and inclusive practice in early childhood settings.

Keywords: early childhood workforce, childhood hearing loss, knowledge and attitudes, early identification, inclusive education, health and education system, Malaysia

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PP032 Predictors of Metabolic Dysfunction-Associated Fatty Liver Disease

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Metabolic dysfunction–associated fatty liver disease (MAFLD) is becoming increasingly prevalent due to the rising rates of overweight, obesity, and metabolic syndrome among Malaysian adults. This study aimed to assess the association between cardiometabolic factors, dietary intake, and oral health status with MAFLD among staff and students at the National University of Malaysia (UKM). A cross-sectional study was conducted among staff and students aged 18–65 years. Participants completed questionnaires on sociodemographic characteristics, medical history, physical activity, and oral health status, as well as a 3-day food diary to assess dietary intake. Anthropometric measurements were obtained, and liver stiffness and steatosis were assessed using transient elastography (FibroScan). Blood biomarkers, including liver function tests, full lipid profile, fasting blood glucose, and HbA1c, were also measured. Univariate and multivariate logistic regression analyses were performed to identify predictors of MAFLD, while Spearman's rank correlation was used to examine the associations between anthropometric measures, cardiometabolic factors, physical activity, dietary intake, and liver steatosis and stiffness. A total of 105 participants with a median age of 36.0 (IQR 16.0) years were included in the study. The overall prevalence of MAFLD among UKM adults was 19.0%. HbA1c (aOR = 15.36, 95% CI: 3.20– 73.66, p = 0.001) and HDL-C (aOR = 0.044, 95% CI: 0.003–0.548, p = 0.015) were identified as independent predictors of MAFLD. Liver steatosis was strongly correlated with age, body mass index, waist circumference, body fat percentage, glycaemic indices, and triglyceride levels, and was inversely associated with HDL-C (all $p < 0.001$). Metabolic dysfunction, central obesity, and excess energy intake appear to be key drivers of MAFLD among staff and students at UKM, highlighting the importance of early identification of metabolic risk factors and caloric intake reduction in the prevention of MAFLD.

Keywords: Fatty liver; metabolic syndrome; dietary intake

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PP034 Clinical Differentiation of Structural Language and Functional Communication Profiles in Post-Stroke Aphasia and Alzheimer's Disease Within a Multilingual Malaysian Cohort: A Retrospective Analysis

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Communication impairment in older adults is frequently attributed to post-stroke aphasia (PSA) or Alzheimer's disease (AD), yet differentiating language-driven impairment from cognitively mediated communication decline remains clinically challenging, particularly in multilingual populations. This study compared structural language and functional communication performance between PSA and AD in a Malaysian tertiary rehabilitation cohort and examined whether multilingual status moderated these differences. A retrospective comparative chart review was conducted among patients aged ≥60 years referred for speech-language assessment between January 2023 and December 2025. Thirty patients with medically confirmed PSA (64.2 ± 7.8 years; 63% male) were compared with thirty-five patients with medically confirmed AD (72.6 ± 6.9 years; 68% female). Structural language performance was assessed using the Quick Aphasia Battery (QAB) total score. Functional communication was evaluated using the Derby Functional Communication Scale (DFCS) across Expression, Understanding and Interaction domains. Global cognition was measured using the Montreal Cognitive Assessment or Mini-Mental State Examination. Language history classified patients as monolingual or multilingual. Two-way factorial analysis of variance examined main and interaction effects, with effect sizes reported using partial eta squared (η^2p) and Cohen's d. PSA demonstrated significantly lower QAB total scores than AD ($p < 0.05$; moderate-to-large effect size), indicating pronounced structural language impairment. Significant differences were observed across DFCS domains ($p < 0.05$; small-to-moderate effect sizes), with PSA showing reduced functional communication performance. AD exhibited significantly lower cognitive screening scores ($p < 0.05$; moderate effect size). Two-way analyses indicated significant main effects of diagnosis (η^2p in the small-to-moderate range), while diagnosis-by-language interaction effects were small. These findings demonstrate statistically and clinically meaningful differentiation between PSA and AD within a multilingual Malaysian cohort and support integrating structural and functional measures to enhance diagnostic precision and rehabilitation planning in ageing populations.

Keywords: post-stroke aphasia, Alzheimer's disease, cognitive-communication disorders, multilingualism, functional communication

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PP035 Comparative Study: Commercial Mineral Water as an Alternative Diluent for 10% Giemsa Staining in Malaria Diagnosis

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Malaria is a parasitic disease caused by Plasmodium spp. and transmitted through the bite of female Anopheles spp. mosquitoes. Microscopic examination of Giemsa-stained blood films remains the gold standard for malaria diagnosis as recommended by the World Health Organization (WHO). Standard preparation of 10% Giemsa requires freshly prepared phosphate buffer at pH 7.2 to ensure optimal staining quality. However, buffer preparation requires distilled water, which is time-consuming and costly. Although tap water has been suggested as an alternative diluent, its inconsistent pH across different locations may affect staining quality. This study aimed to evaluate Mesra, a locally produced and cost-effective commercial mineral water brand that is accessible, as a potential alternative diluent for 10% Giemsa staining. A total of 52 positive malaria slides stored at -30°C were used. The slides were divided into two groups (n=26 each). Each group was stained with 10% Giemsa prepared using either phosphate buffer (pH 7.2) or commercial mineral water with consistence pH 7.33. The staining results were evaluated by two screeners and the mean scores were recorded based on a scale 1 (poor) and 2 (good). The mean staining score for Giemsa prepared with commercial mineral water (1.85) was slightly higher than that prepared with phosphate buffer (1.79). However, statistical analysis revealed no significant difference between the two diluents ($p = 0.639$), indicating that commercial mineral water produces staining quality comparable to the standard phosphate buffer. Commercial mineral water is a viable, ready-to-use and inexpensive alternative to phosphate buffer for Giemsa staining. Its implementation can significantly simplify malaria microscopy in resource-limited settings without compromising diagnostic accuracy.

Keywords: malaria, Giemsa staining, phosphate buffer, commercial mineral water, microscopic diagnosis

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PP037 Weekday Sleep Restriction Is Associated with Food Fussiness among Primary School Children

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Insufficient sleep has become increasingly common among children due to early school schedules and lifestyle factors. This study aimed to determine the associations between sleep characteristics on school and non-school days with eating behaviour among primary school children. A cross-sectional study was conducted among 443 school children aged 10-12 years old in Selangor, Malaysia (52.9% boys; 82.4% Malay; 64.3% from urban schools). Sleep characteristics, including sleep-wake time and sleep duration on school days and non-school days, were assessed using Children's ChronoType Questionnaire (CCTQ). Eating behaviours were evaluated using the Children's Eating Behaviour Questionnaire (CEBQ) with eight domains. Multiple linear regression analyses were performed to examine associations between sleep characteristics and eating behaviour domains, adjusting for age, sex, school locality, household income and sleep duration on non-school days. Children reported significantly shorter sleep duration on school days compared with non-school days (7.43 vs 9.21 hours, $p<0.001$), indicating weekday sleep restriction. Later bedtime on school days was positively associated with food fussiness (Beta = 0.07; 95% CI: 0.01,0.13; p = 0.022), while sleep duration on school days was negatively associated with food fussiness (Beta = -0.07; 95% CI: -0.12, -0.01; p = 0.022), after adjusting for confounding variables. Interestingly, later wake-up time on school days was associated with higher enjoyment of food (Beta = 0.13; 95% CI: 0.01,0.25; p = 0.049). No significant associations were observed between sleep characteristics on non-school days and any eating behaviour domains. Sleep characteristics during school days were associated with higher food fussiness among primary school children. The absence of similar associations on non-school days suggests that weekday sleep restriction may influence selective eating behaviours. These findings highlight the potential role of sleep health in shaping children's eating behaviours and support the integration of sleep considerations into child nutrition and health promotion strategies.

Keywords: Eating behaviour; Food fussiness; Weekday sleep restriction; Sleep duration; School children

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PP038 Occupational Safety and Health Literacy and Work-Related Injury Prevalence among Royal Malaysia Police Officers

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Police officers are exposed to multiple occupational hazards, including traffic incidents, emergency response environments, and physically demanding duties. Occupational safety and health (OSH) literacy is defined as the ability to access, understand, and apply workplace safety information, which is considered an important factor in injury prevention. This study aimed to assess the levels of occupational safety and health (OSH) literacy and its association with work-related injuries among RMP in Kuala Lumpur and Selangor. A cross-sectional survey was conducted among 450 police officers across selected police headquarters in Kuala Lumpur and Selangor states. The study adopted a purposive sampling approach, ensuring that participants were selected based on specific eligibility criteria relevant to the research objectives. Only police officers holding the rank of constable or above, with a minimum of six months of service, and without any history of chronic illness, were included in the sample. Most respondents were aged 31–40 years, and 54.9% had secondary-level education. A majority reported engaging in regular physical activity (89.8%) and were non-smokers (61.1%). Overall, 82% of officers demonstrated high OSH literacy levels. Despite this, the prevalence of work-related injuries was 32%. Statistical analysis indicated no significant association between OSH literacy levels and injury occurrence among respondents. Although most police officers demonstrated high OSH literacy, work-related injuries remain prevalent. Therefore, preventive measures to reduce the likelihood of work-related injury risks need to be implemented. Comprehensive occupational safety strategies addressing both behavioural and workplace risk factors are therefore essential to reduce injury risks among Royal Malaysia Police personnel.

Keywords: Occupational Safety and Health Literacy; Work-Related Injuries; Police Officers; Occupational Health; Accidents

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PP039 MyLangLab Narrative Database

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Access to culturally and linguistically relevant language data has remained limited for speech-language therapists (SLTs) in Malaysia. Assessment and intervention practices have frequently relied on international language sample resources that do not fully reflect the multilingual and multicultural linguistic environment of Malaysian children. Rather than reflecting limitations in assessment accuracy, this situation highlights the need for innovative spaces that support the development of locally relevant assessment and intervention resources, as well as training materials for students and clinicians. To address this need, the MyLangLab Narrative Database project was conducted to develop a localised repository of narrative language samples to support teaching, research, and clinical training within the Speech Science Program at UKM. The project focused on creating a prototype database that compiles narrative language data reflecting local linguistic contexts. The study adopted a qualitative design guided by the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). During the analysis phase, existing international language databases were reviewed to identify best practices in database structure, accessibility, and data organisation. These insights informed the design of a blueprint and user manual outlining the database architecture and guidelines for data entry and retrieval. During the development phase, a working prototype was constructed incorporating a sample set of clinical narrative data. The prototype was then implemented through a pilot evaluation involving approximately 25 participants, including students and faculty members from the Speech Science Program at UKM. Participants interacted with the database and provided feedback regarding usability, functionality, and relevance for teaching and research purposes. User responses were analysed thematically to identify strengths, limitations, and areas for refinement. The outcome of the project was a functional prototype and a structured framework for a sustainable local language database. MyLangLab is expected to enhance access to culturally relevant language samples, support evidence-informed practice in speech-language therapy, and strengthen educational resources for future SLTs in Malaysia. Ultimately, the initiative contributes to the continued development of language assessment and intervention practices within the Malaysian context.

Keywords: Narrative, Multilingual children, Speech-language therapy clinical resource

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PP040 High-Frequency 5G Radiofrequency Exposure Accelerates Testicular Ageing Via Apoptosis in Male Rats

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The testis is highly susceptible to radiofrequency radiation (RFR), and apoptosis is a key mechanism underlying testicular ageing. With the deployment of 5G networks operating at 3.5 GHz and 24 GHz, potential impacts on male reproductive health remain poorly understood. This study was conducted to investigate the effect of chronic high-frequency 5G exposure on apoptotic pathways in male rat testes. A total of eighteen (N=18) male rats were randomly assigned to Control, 3.5 GHz, or 24 GHz exposure groups with n=6 for each group. Exposure was conducted for 7 hours/day for 60 days. Testicular apoptosis was evaluated via caspase-3, p53, and Bax mRNA expression, and the apoptotic index was validated through the TUNEL assay. Findings showed that exposure to 3.5 GHz frequency caused significant upregulation of caspase-3 (0.814 ± 0.115) compared with the 24 GHz group (0.372 ± 0.050, $p < 0.05$), indicating ongoing apoptosis in 3.5 GHz. Meanwhile, lower caspase-3 mRNA expression in the 24 GHz exposure suggests a possible adaptive stress response. The mRNA findings were consistent with the apoptotic index at 3.5 GHz (6.382 ± 0.677), which was significantly higher than that of the Control (0.434 ± 0.220, $p = 0.0004$). Interestingly, p53 and Bax expression remained unchanged in both exposed groups, implying apoptosis occurred via alternative, non-canonical pathways. This observation may represent an atypical biological response to RFR exposure. In conclusion, chronic high-frequency 5G exposure induces frequency-dependent apoptotic changes in the testis, consistent with accelerated testicular ageing. Exposure at 3.5 GHz appears to cause a more pronounced effect on testicular apoptosis compared to 24 GHz. These findings underscore the need for further investigation and precautionary measures to protect male reproductive health amid widespread 5G deployment.

Keywords: 5G; Testicular apoptosis; Caspase-3

PP043 A Retrospective Study on Audible Contrast Threshold (ACT) among Hearing Impaired Adults in Audiology Clinic: A Pilot Study

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Despite advancements in Digital Noise Reduction (DNR) over the decades, speech-in-noise perception remains a major challenge for hearing aid (HA) users. The Audible Contrast Threshold (ACT) test provides an objective and language-independent estimate of speech-in-noise perception ability, and its results can be used to guide audiologists in personalising DNR settings in HAs. However, the ACT remains underexplored in clinical practice, particularly in Malaysia, and only limited studies are available globally. In this study, test duration, number of attempts, and participants' subjective feedback were collected at a private HA centre in Malaysia to evaluate its clinical practicality. A total of 25 patients (n = 25) with hearing loss (mean age = 58 years; range = 33–80 years) were recruited between November 2025 and March 2026, and 56% (n = 14) of them completed this test. The ACT was brief to administer, with a mean duration of 2.47 minutes (SD = 0.81; range = 1–4 minutes). Among participants who completed the test, nine required one attempt and five required two attempts. The findings showed that participants who were unable to complete the ACT had significantly poorer hearing thresholds (M = 65.43 dB HL, SD = 16.94) compared with those who completed the test (M = 52 dB HL, SD = 16), t = 2.07, p = 0.05. Some participants reported difficulty distinguishing between "siren-like" and "noise-like" stimuli, particularly those who were unable to complete the task. In addition, the analysis revealed a non-significant correlation between the better-ear Pure Tone Average (PTA) and ACT score (r = 0.466), possibly due to the small sample size (n = 14). In conclusion, these preliminary findings indicate that the ACT is practical to administer within a short clinical timeframe and demonstrates measurable associations with hearing thresholds.

Keywords: ACT, DNR, practicality, hearing aids, adults

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PP044 Developing a healthy food marketing framework for Malaysian youth through stakeholder collaboration and participatory action research: A multi-phase study protocol

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The rising prevalence of childhood obesity in Malaysia highlights an urgent need for strategies that address obesogenic food environments and promote healthier dietary habits, particularly among children who are most vulnerable to unhealthy food marketing. Healthy food marketing (HFM) offers a promising approach by countering the dominance of unhealthy food promotions and encouraging healthier dietary behaviours. This study protocol is part of the SHAPE Asia (Malaysia) project and outlines a multi-phase approach to develop a contextually relevant, stakeholder-informed HFM framework to support youth in navigating food marketing and adopting healthier dietary practices. Phase 1 involves a bibliometric review to map global and regional evidence on HFM, with a focus on consumer empowerment approaches. This phase will identify research gaps, highlight effective communication channels, and contextualise Malaysia's current food marketing landscape. Phase 2 focuses on stakeholder mapping and shared priority setting to identify and engage policymakers, government ministries, civil society, international agencies, and businesses. Using a mixed-methods approach comprising focus group discussions and surveys, this phase will explore perceptions of unhealthy food marketing, barriers to HFM implementation, and opportunities to empower youth. It will generate shared understanding of priorities and foster readiness for collaborative action. Phase 3 employs Participatory Action Research, in which stakeholders co-design intervention strategies to improve food marketing practices within their organisations. Strategies will be piloted and refined through two iterative cycles of planning, action, and reflection. Stakeholder reflection sessions and feedback from youth as experiential stakeholders will guide refinement to ensure cultural relevance, feasibility, and sustainability within the Malaysian context. This study is expected to generate an actionable HFM framework tailored to Malaysia, strengthen multi-sector collaboration to transform food marketing environments, and equip youth with the skills to adopt healthier lifelong dietary habits. The framework will also guide policy and stakeholder practices with locally relevant strategies.

Keywords: Healthy food marketing; food environment; health promotion; participatory research; adolescents

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PP045 Caffeine Consumption Patterns Among Malaysian University Athletes: Implications for Safe Intake and Community Health

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Caffeine is one of the most widely consumed ergogenic aids in sport settings due to its ability to enhance performance and cognitive alertness. However, there is limited awareness of safe caffeine consumption among Malaysian university athletes and assessing their adherence to recommended intake limits. A cross-sectional study was conducted among 236 athletes (135 males, 101 females) using the validated Modified Caffeine Consumption Questionnaire (M-CCQ). Caffeine content of commonly consumed beverages was determined using High-Performance Liquid Chromatography (HPLC) to establish accurate intake estimates. Descriptive statistics were used to summarise consumption patterns, and Spearman's correlation analysis was performed to examine associations between beverage types. Overall, median caffeine intake was 243 mg/day (0–919.5) with 69.1% of athletes exceeding the recommended daily intake limit. Ready-to-drink Nescafé canned coffee was the most consumed product (34%) with an intake of 151 mg/day (118 - 200), followed by Nescafé 3-in-1 (33%) with 172 mg/day (86 - 258). Although ground coffee ranked third in consumption frequency, it contributed the highest median daily caffeine intake of 1056 mg/day (528-1056), representing the highest single-day intake observed. Notably, caffeine content per serving of several commercially available coffee products exceeded the recommended 50 mg/serving threshold. Moderate positive correlation was observed between intake of instant coffee mixes and canned coffee ($p = 0.46$, $p < 0.001$), suggesting concurrent consumption of multiple caffeinated beverages. The high prevalence of caffeine intake among university athletes raises public health concerns. Inadequate labelling of caffeine content in commercially available beverages may contribute to unintentional overconsumption, potentially increasing the risk of adverse effects such as sleep disturbances and impaired recovery. These findings highlight the need for greater awareness, improved product labelling, and targeted educational interventions to support safer caffeine consumption practices among athletes and promote community health.

Keywords: Caffeine; athletes; overconsumption; product labelling

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PP048 Differentiation of *Escherichia coli* and *Staphylococcus aureus* in Mixed Suspensions Using Dielectrophoresis

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Rapid identification of bacterial species is important for clinical diagnostics and infection control. Conventional microbiological methods often require lengthy culture and biochemical analyses, which can delay pathogen identification. In this study, dielectrophoresis (DEP) was investigated as a label-free technique for differentiating bacterial species in mixed suspensions. Two clinically relevant bacteria, Escherichia coli and Staphylococcus aureus, representing Gram-negative and Gram-positive organisms, respectively, were used as model species. Bacterial suspensions were prepared in a medium with controlled conductivity (0.03 S/m) to ensure consistent DEP conditions. Mixed bacterial samples were prepared using different dilution ratios to vary the relative cell concentrations. In Mixture A, E. coli was diluted at 1:100 and S. aureus at 1:1000, while in Mixture B, the dilution ratios were reversed. DEP experiments were conducted at 30 kHz and 300 kHz based on previously characterised responses of the two species. Particle trajectories were recorded and analysed, and 100 particles were tracked for each experiment. In the E. coli-rich mixture, 86% of detected particles were identified as E. coli, while 14% were identified as S. aureus. Conversely, in the S. aureus-rich mixture, 64% of detected particles were identified as S. aureus and 36% as E. coli. These results demonstrate that DEP responses can be used to differentiate bacterial species in mixed suspensions based on their distinct electrokinetic behaviours. The findings highlight the potential of DEP as a rapid and label-free approach for bacterial differentiation, which may support faster pathogen screening in clinical diagnostics as well as monitoring of bacterial contamination in environmental and water samples.

PP050 PCOS Phenotype Predicts Follicular Development and Treatment Response: A Prospective 3D Transvaginal Ultrasound Study

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Polycystic ovary syndrome (PCOS) remains under-characterised in Malaysian primary care despite being a leading cause of anovulatory infertility. This study aimed to determine the distribution of PCOS phenotypes among infertile Malaysian women, examine demographic associations, and evaluate phenotype-specific follicular development changes following infertility treatment using three-dimensional transvaginal ultrasound (3D TVS). A prospective observational cohort study recruited 122 married women aged 20-40 years with Rotterdam-diagnosed PCOS at a private clinic in Selangor, Malaysia between January 2023 and December 2024. Participants were classified into phenotypes A-D and grouped as classic (A/B) or non-classic (C/D). Baseline and post-treatment 3D TVS measured endometrial thickness, ovarian volume, follicle number, and largest follicle size. Phenotype A was the most prevalent (53.3%), followed by phenotype D (23.8%), phenotype B (14.8%), and phenotype C (8.2%). Classic PCOS accounted for 68.0% of participants. Women with classic PCOS were significantly older than those with non-classic phenotypes. A significant association between ethnicity and phenotype was observed, with all Indian participants presenting with classic PCOS. Following infertility treatment, both groups demonstrated significant reductions in endometrial thickness, ovarian volumes, and follicle counts ($p < 0.05$). However, women with non-classic PCOS showed greater improvements in endometrial thickness and left ovarian volume. Three-dimensional transvaginal ultrasound provides a reliable method for PCOS phenotyping and follicular monitoring in Malaysian primary care infertility settings. The observed phenotype-specific and ethnicity-related patterns highlight the potential for more personalised infertility management strategies in women with PCOS.

Keywords: Polycystic ovary syndrome; PCOS phenotype; infertility; follicular development; three-dimensional transvaginal ultrasound

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PP051 Feasibility and Potential Effects of High-Intensity Interval Training (HIIT) Versus Moderate-Intensity Continuous Training (MICT) Prehabilitation in Enhance Recovery After Surgery (ERAS) Pathways

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Exercise-based prehabilitation improves outcomes in major abdominal surgery, but optimal intensity remains unclear. High-intensity interval training (HIIT) may offer a time-efficient alternative to moderate-intensity continuous training (MICT), yet evidence on its feasibility, safety, and effects within Enhanced Recovery After Surgery (ERAS) programmes is limited. To examine the feasibility of HIIT versus MICT prehabilitation and their potential effects on maximal inspiratory pressure (MIP) and exercise capacity in patients undergoing major abdominal surgery. This prospective, double-blinded pilot randomised controlled trial recruited 23 patients from the surgical and anaesthetic clinics scheduled for major abdominal surgery at Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia. Participants were randomised to HIIT (n=13) or MICT (n=10) groups, receiving supervised prehabilitation for four weeks preoperatively. Assessments occurred at baseline, post-intervention, early postoperative (days 1–7), 4–6 weeks, and 3 months postoperatively. Outcomes included post-operative pulmonary complications (PPC), length of hospital stay (LOS), MIP, and 1-minute sit-to-stand test (1MSTST). Data were analysed using repeated-measures ANOVA ($p < 0.05$). All 23 participants completed the study (mean age 61.3 ± 11.9 years) with 95.7% retention and high adherence (HIIT 100%, MICT 90% with RR = 1.11, 95% CI: 0.94-1.36). No adverse events occurred. PPCs were reported in 8% of HIIT and 0% of MICT participants (RR = 0.85, 95% CI: 0.952–1.164, $p = 0.17$). LOS was significantly shorter in MICT (14.1 ± 22.4 days) than HIIT (21.4 ± 37.6 days), $p > 0.05$. No significant time × group interactions were found for MIP ($F(2.50, 52.48) = 0.58$, $p = 0.602$) or 1MSTST ($F(3.50, 73.48) = 1.17$, $p = 0.33$). Between-group effects were also non-significant for MIP ($F(1,21) = 3.56$, $p = 0.073$) and 1MSTST ($F(1,21) = 1.29$, $p = 0.27$). Post-hoc analyses showed MIP declined from post-intervention to 4–6 weeks ($p = 0.038$) and improved by 3 months ($p = 0.002$). 1MSTST decreased pre-discharge ($p < 0.001$) but exceeded baseline at 3 months ($p = 0.005$). HIIT and MICT were feasible, safe, and demonstrated comparable effects on inspiratory muscle strength and exercise capacity in ERAS perioperative prehabilitation. Larger trials are warranted to confirm these preliminary findings. The protocol of this study is registered in the Australia New Zealand Clinical Trial Registry (ANZCTR) with registration number ACTRN 12625000023459.

PP052 Zerumbone Attenuates Aluminium Chloride-Induced Neurotoxicity in an In Vitro Alzheimer's Disease Model

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Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by oxidative stress that leads to neuronal damage and reduced cell viability. This study evaluates the protective and therapeutic effects of zerumbone, a bioactive sesquiterpene compound isolated from the rhizomes of Zingiber zerumbet (wild ginger) on the H19-7/IGF-IR hippocampal cell line exposed to aluminium chloride ($AlCl_3$) as an in vitro AD model. Cell viability was assessed using the MTT assay. Zerumbone showed low toxicity, maintaining cell viability above 70% even at high concentrations (100 µg/mL). Accordingly, the 10% inhibitory concentration (IC_{10}) and 25% inhibitory concentration (IC_{25}) were determined to be 0.7 µg/mL and 2.3 µg/mL, respectively. In contrast, $AlCl_3$ caused significant cytotoxicity consistent with oxidative stress-induced neuronal damage, and the 30% inhibitory concentration (IC_{30}) was chosen to simulate early-stage AD. Cell proliferation was measured using the alamarBlue assay. Two main groups were studied: a protective group, where cells were pre-treated with zerumbone before 24-hour exposure to $AlCl_3$, and a therapeutic group, where zerumbone treatment was applied after 24-hour $AlCl_3$ exposure. Treatment effects were evaluated at 2, 4, and 8 hours, while cell proliferation was measured at 24, 48, and 72 hours. In the protective group, both IC_{10} and IC_{25} zerumbone significantly increased cell viability at 24 and 48 hours compared to the $AlCl_3$ group, with the strongest effect observed after 2 hours of pre-treatment. In the therapeutic group, zerumbone also improved cell viability, with the highest effect at 24 hours and a steady increase from 2 to 8 hours of treatment. In conclusion, zerumbone shows both protective and therapeutic effects against $AlCl_3$-induced neurotoxicity by enhancing cell viability and proliferation. These findings suggest that zerumbone has good potential as an antioxidant agent for the prevention and treatment of AD.

Keywords: Zerumbone; Alzheimer's Disease; Neuroprotection; Antioxidant; Proliferation

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PP053 Understanding of Healthy Food Among Employees in Klang Valley, Malaysia: A Qualitative Study

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Understanding how individuals conceptualize healthy food is important for designing effective nutrition interventions and improving dietary behaviours. However, little is known about how working adults in Malaysia understand and interpret healthy food. This study aim to explore the understanding of healthy food among office employee in Klang Valley, Malaysia. A qualitative study was conducted among 24 office employees in Klang Valley, Malaysia. Data were collected between March and June 2025, through six triadic group discussions (n=18) and six in-depth interviews (n=6). Participant were recruited from public and private sectors. Data were audio recorded, transcribed verbatim, and analyzed using inductive thematic analysis with using Atlas.ti version 25. Participants generally demonstrated a good understanding of healthy food concepts. Healthy food was commonly defined as balanced diet, portion control, maintaining regular meal patterns (avoid meal skipping and late-night eating), higher intake of fruits and vegetables, and food low in sugar, salt, fat, and oil. Participants also associated healthy food with healthier cooking methods, minimally processed foods, food hygiene, and home-cooked meals. However, several misconceptions were identified. Participants frequently perceived avoiding rice, consuming coconut milk-based dishes, fried and oily local traditional foods, and choosing bread or biscuits as inherently healthy, while healthy eating was often equated with weight loss. These findings suggest that employees understanding of healthy food reflects a combination of nutrition knowledge, personal beliefs, cultural interpretations, resulting inconsistencies in dietary understanding. Office employees demonstrated a generally good understanding of healthy food concepts, however several misconceptions may influence food choices. Targeted nutrition education is needed to improve food literacy and support healthier dietary decisions among working adults.

Keywords: Healthy food, nutrition knowledge, food literacy, office employee

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PP054 Histomorphometric and Macroscopic Evaluation of the Wound Healing Potential of *Eleusine indica* (Linn.) Gaertn. in a Rabbit Model

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Chronic and acute wound management remains a major clinical challenge, prompting increased interest in ethnobotanical therapies. *Eleusine indica* (Linn.) Gaertn., commonly known as *rumput sambau*, has long been used in traditional medicine for its anti-inflammatory properties; however, the biological mechanisms underlying its wound-healing potential remain insufficiently understood. This study evaluates the wound-healing efficacy of *E. indica* aqueous extracts in an in vivo rabbit model through macroscopic wound contraction and microscopic tissue remodeling analysis. Full-thickness cutaneous wounds (6 mm) were created on the dorsal region of New Zealand White rabbit using a biopsy punch. Animals were divided into five groups: 1.5% *E. indica* aqueous extract, 3% *E. indica* aqueous extract, positive control (Intrasite Gel), vehicle control (Carbopol gel), and an untreated control. Wound healing progression was monitored through daily wound contraction measurements. Histopathological evaluation was performed on tissue samples collected on days 7 and 14 using Hematoxylin and Eosin stain (H&E) and Masson's Trichrome stain (MT). Wounds treated with *E. indica* aqueous extracts demonstrated faster contraction rates compared with the control groups. H&E staining revealed enhanced re-epithelialization in the treated groups, characterized by organized squamous epithelial layers and the presence of active fibroblasts involved in extracellular matrix formation. Masson trichrome stain further indicated dense and well-organized collagen fiber deposition within the dermal layer, suggesting improved structural remodeling and reduced inflammatory cell infiltration during the healing process. These findings indicate that *E. indica* aqueous extract supports cutaneous wound healing by stimulating fibroblast activity and promoting collagen deposition. The results provide a physiological basis for further metabolomic investigations to identify the bioactive metabolites and molecular pathways responsible for these regenerative effects.

Keywords: *Eleusine indica*; wound healing; fibroblast proliferation; collagen deposition; histopathology.

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PP055 Antiproliferative Activity and Apoptosis Induction of Triphenyltin (IV) Diisopropyl Dithiocarbamate in HepG2 Hepatocellular Carcinoma Cells

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Hepatocellular Carcinoma (HCC), the primary form of liver cancer, remains one of the leading causes of cancer-related mortality worldwide. In Malaysia, HCC ranks among the top ten most common cancers, highlighting the urgent need for more effective chemotherapeutic agents. Organotin(IV) derivatives have attracted considerable attention due to their potent cytotoxic activity against various cancer cell lines. Among these derivatives, triphenyltin(IV) diisopropyl dithiocarbamate emerges as a promising anticancer candidate with submicromolar potency. This study aimed to evaluate the cytotoxic activity and determine the mode of cell death induced by triphenyltin(IV) diisopropyl dithiocarbamate in the human hepatocellular carcinoma cell line, HepG2. Cytotoxicity was assessed using the MTT assay following 24-hour exposure of HepG2 cells to various concentrations of the compound. The half-maximal inhibitory concentration (IC_{50}) was calculated and compared with menadione, which was used as a positive control. To explore the mode of cell death, the Annexin V- FITC/PI staining assay was performed and analysed to distinguish the percentage of apoptotic from necrotic cell populations. Triphenyltin(IV) diisopropyl dithiocarbamate demonstrated notable cytotoxicity in HepG2 cells, with an IC_{50} of 0.78 ± 0.08 µM, showing substantially higher potency than menadione (IC_{50} = 13.00 ± 1.56 µM). The mode of cell death analysis revealed that, at the IC_{50} concentration, triphenyltin(IV) diisopropyl dithiocarbamate induced significant apoptosis, with 83.33% of the cell population undergoing apoptosis. These results suggest that apoptosis is the main mechanism behind the cytotoxic effects of triphenyltin(IV) diisopropyl dithiocarbamate in HepG2 cells. In conclusion, triphenyltin(IV) diisopropyl dithiocarbamate demonstrates potent antiproliferative activity against HepG2 cells and induces apoptosis as the predominant mechanism of cell death. Its superior cytotoxic efficacy compared with the positive control highlights its potential as a promising anticancer candidate for further investigation in the development of novel therapeutic strategies for hepatocellular carcinoma.

Keywords: Triphenyltin; Apoptosis; Cytotoxicity; Cell Death; HepG2

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PP056 Detection Of Heavy Metals and Microplastics in Selected Vegetables From Markets and Supermarkets Around Klang Valley

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This study investigated the presence of microplastics and heavy metals in selected vegetables like green coral lettuce (*Lactuca sativa*), broccoli (*Brassica oleracea var. italica*), pegaga (*Centella asiatica*), and water spinach (*Ipomoea aquatica*) obtained from markets and supermarkets around Klang Valley. Microplastics were analyzed using stereomicroscopy and Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy (ATR-FTIR), while heavy metals were quantified using Inductively Coupled Plasma Mass Spectrometry (ICP- MS). Unwashed pegaga, green coral lettuce, and broccoli showed the highest microplastic counts (1.33 particles g^{-1}), with levels decreasing significantly after rinsing. One-way ANOVA confirmed significant differences ($p < 0.05$) in microplastic content among vegetables. For heavy metals, unwashed water spinach had the highest Pb concentration (1.12 mg/kg), while washed water spinach and pegaga recorded the highest Cu (1.63 mg/kg), Zn (11.61 mg/kg), and Ni (0.43 mg/kg). Significant differences were found for Cd, Zn, Cu, and Ni ($p < 0.05$), but not for Pb and Cr. Most heavy metal levels were within FAO/WHO limits, except Pb in unwashed pegaga and water spinach. The results highlight contamination risks based on vegetable type and rinsing status.

Keywords: Heavy Metals, Microplastics, UKM, Vegetables.

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PP057 Quantifying Dose Enhancement Factor by Gold Nanoparticles (AUNPS) in 6 MV and 10 MV Photon Energies Radiotherapy: A Monte Carlo Study with GATE/Geant4

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Gold nanoparticles (AuNPs) are emerging as promising radiosensitizers because of their ability to enhance local energy deposition during radiotherapy. This study quantified dose enhancement induced by AuNPs in megavoltage photon beams and examined its dependence on photon energy and nanoparticle size using validated Monte Carlo simulations based on GATE and Geant4. A clinical linear accelerator was modeled to simulate 6 MV and 10 MV photon beams. Beam quality was optimized by adjusting incident electron energies to 6.4 MeV and 9.8 MeV, respectively. The simulated percentage depth dose (PDD) curves were validated against reference clinical data using gamma index analysis (3%/3 mm), achieving passing rates of 98.0% for 6 MV and 94.74% for 10 MV, demonstrating excellent agreement. Spherical AuNPs with diameters of 1.9, 5.0, and 15.0 nm were embedded in a homogeneous water-equivalent phantom. Absorbed dose, dose enhancement factor (DEF), and radial energy deposition profiles were evaluated to characterize nanoscale dose amplification. Results showed strong size- and energy-dependent enhancement. Under 6 MV irradiation, the maximum DEF for 1.9 nm AuNPs was 5.73, decreasing with increasing particle size. At 10 MV, ultrasmall AuNPs exhibited even greater enhancement, with a peak DEF of 16.13 for 1.9 nm particles, whereas 15.0 nm particles showed minimal enhancement (DEF 1.13). Radial dose analysis revealed highly localized energy deposition within 10–20 nm of the nanoparticle surface, primarily driven by secondary electron emission. Larger nanoparticles demonstrated reduced enhancement due to increased self-absorption, while smaller particles produced higher surface doses and steeper dose gradients. Overall, AuNP-mediated dose enhancement in megavoltage radiotherapy depends strongly on nanoparticle size and photon energy. Ultrasmall AuNPs (<5 nm) provide superior radiosensitization, particularly at 10 MV, highlighting the importance of nanoscale optimization and confirming the robustness of Monte Carlo modeling for nanoparticle-based radiotherapy research.

Keywords: AuNPs; Dose enhancement factor; Nanoscale radiosensitization; GATE/Geant4; Monte Carlo dosimetry

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PP058 Elucidating the Efficacy of A Novel Supplement Containing Standardized *Cosmos caudatus* Extract for the Mental Well-Being in the Ageing Population With Mild Cognitive Impairment (MCI): Study Protocol for A Randomized Controlled Trial

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The global prevalence of mild cognitive impairment (MCI) among adults aged 50 years and above is rising sharply, linked to a higher progression rate in developing dementia. Cosmos caudatus (CC), an indigenous herb rich in flavonoids such as quercetin and quercitrin, has demonstrated neuroprotective and cognitive-enhancing potential. This study employs a randomized, double-blind, controlled trial design with three study arms aiming to explore the effectiveness of a plant-based supplement containing CC extract on cognitive function, mood status, blood biochemical profile, and cognitive-related biomarkers. Participants with Mild Cognitive Impairment (MCI) aged 50 years and above will be invited to participate in this study and thereafter will be randomly assigned to one of three groups: 250 mg CC, 500 mg CC, or a placebo for six months. The primary outcomes include changes in cognitive function and mood status. The secondary outcomes include changes in the blood biochemical profile and cognitive-related biomarkers supported by functional magnetic resonance imaging (fMRI). This study protocol is currently undergoing ethical review and will be approved by the Medical Research Ethics Committee of the National University of Malaysia (UKM MREC). Study findings will be disseminated through peer-reviewed conference presentations and open-access publications.

Keywords: Mild cognitive impairment; Cognitive function; Cosmos caudatus; Biomarkers; fMRI

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PP059 Neuroprotective and Therapeutic Potential of Zerumbone against Aluminium-Induced Neurotoxicity: A Behavioural Study in an Alzheimer's Rat Model

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Aluminum accumulation in the brain is one of the significant environmental risk factors for Alzheimer's Disease (AD), leading to oxidative damage and cognitive decline. Aluminum may act as a cross-linker, encouraging amyloid-beta proteins to clump together into the plaques that are the hallmark of Alzheimer's. Aluminum also contributes to the hyperphosphorylation of tau proteins, leading to the neurofibrillary tangles that disrupt nutrient transport within brain cells. Zerumbone (ZER), a bioactive sesquiterpene from the Zingiber zerumbet plant, has shown potent anti-inflammatory and antioxidant properties. Therefore, the objective of this study is to evaluate the neuroprotective and therapeutic effects of ZER on aluminum-induced memory impairment and behavioral changes in Wistar rats. Eighty male Wistar rats were co-administered aluminum chloride (AlCl3) (25 mg/kg) and Zerumbone (10, 20, and 30 mg/kg) via oral gavage for 42 days (neuroprotective) and 56 days (therapeutic). Cognitive function was assessed using the Open Field Test (OFT), Y-Maze, and Novel Object Recognition (NOR) test. Results indicate that aluminum exposure significantly impaired spatial working memory in the Y-Maze test and reduced the Discrimination Index in the NOR test. Treatment with ZER effectively rescued these cognitive deficits without affecting locomotor activity in the OFT. Statistical analysis confirmed a significant restoration of recognition memory in ZER-treated cohorts compared to the aluminum-only group. In conclusion, ZER demonstrates robust neuroprotective and therapeutic efficacy against aluminum-induced neurotoxicity. These findings suggest ZER as a potential candidate for mitigating heavy-metal-induced cognitive impairment in Alzheimer's disease.

Keywords: Zerumbone, Aluminium Chloride, Neuroprotection, Spatial Memory, Novel Object Recognition

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PP060 Boosting Post-Stroke Recovery: Feasibility and Potential Benefits of Soft Robotic-Assisted Hand Training with Standard Therapy in Community-Dwelling Survivors

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Soft robotic hand devices have emerged as an adjunct to conventional physiotherapy to enhance motor recovery. However, evidence on their feasibility, safety, and potential effects remains limited, particularly among Malaysian community-dwelling stroke survivors. This study aimed to evaluate the feasibility and potential effects of soft robotic-assisted hand training combined with standard therapy (SRAHT-ST) on upper limb function, lung function, and quality of life in post-stroke patients. This prospective single-blinded pilot randomized controlled trial recruited 10 community-dwelling stroke survivors from the Klang Valley. Participants were randomly allocated to SRAHT-ST (n = 5) or standard therapy (ST, n = 5). Both groups received therapist-supervised sessions over 8 weeks. Feasibility and safety were assessed, and outcomes included the Action Research Arm Test (ARAT), Box and Block Test (BBT), Fugl-Meyer motor (FMM) and sensory (FMS) assessments, lung function, and quality of life, measured at baseline, 4 weeks, and 8 weeks. Ethical approval was obtained from Universiti Kebangsaan Malaysia (JEP-2024-261), and the study was registered with the Australian New Zealand Clinical Trials Registry (ACTRN12624000923561). All participants completed the study (mean age 61.3 ± 11.9 years) with 81.3% retention and high adherence. No adverse events were reported. Two-way mixed ANOVA showed significant improvements over time across all outcomes ($p < 0.001$). Significant time × group interaction effects were observed for ARAT, FMM, FMS, BBT, handgrip strength and lung function ($p < 0.01$). Post-hoc analyses demonstrated greater improvements in the SRAHT-ST group from baseline to 4 and 8 weeks ($p < 0.05$). The SRAHT-ST protocol was feasible, safe and showed potential benefits for upper limb and lung function. Findings preliminarily support soft robotic-assisted training as an adjunct to rehabilitation and guide protocol refinement. Given the small sample size, results should be interpreted cautiously and adequately powered trial is warranted.

Keywords: Soft robotic-assisted hand training; community-dwelling; stroke survivors; upper-limb function: lung function

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PP061 SMARTCAFF-i™: A Web-Based Innovation for Monitoring Caffeine Intake among Athletes

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Caffeine is widely consumed by athletes to enhance physical performance, endurance and alertness. However, excessive intake may lead to adverse physiological effects such as cardiovascular disturbances, sleep disruption and anxiety. In Malaysia, limited information on the local caffeine content data together with the lack of practical tools to monitor caffeine consumption, poses challenges for athletes and active individuals in managing their intake safely. Addressing this gap is important for promoting safer caffeine consumption behaviours among athletes and physically active individuals. This study aimed to develop and evaluate SmartCaff-i™, a web-based application designed to assist athletes in monitoring their caffeine intake. The development of SmartCaff-i™ was conducted through four research phases. Phase 1 (needs analysis) explored caffeine consumption patterns and identified commonly consumed caffeinated beverages among athletes. Phase 2 (laboratory analysis) determined the caffeine content of selected commonly consumed beverages to establish a reliable local caffeine database. Phase 3 (application development) involved the design and development of the SmartCaff-i™ web platform, integrating the caffeine database into an interactive monitoring system, followed by prototype validation. Phase 4 (usability evaluation) assessed the usability and practicality of the application as a personal monitoring tool for caffeine intake. The SmartCaff-i™ application enables users to record and monitor daily caffeine intake through features such as a caffeine diary, intake tracking and educational caffeine information on caffeine consumption. By integrating locally generated research data with digital health technology, the application supports informed decision-making and promotes safer caffeine consumption. SmartCaff-i™ bridges the gap between laboratory research and digital health while demonstrates how research-based innovation can contribute to improving caffeine intake management among athletes and physically active individuals. The development of this platform highlights the importance of interdisciplinary research collaboration and technological innovation in creating practical digital health solutions for monitoring dietary intake.

Keywords: SmartCaff-i™; caffeine intake monitoring; digital health innovation; athlete; community health

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PP062 Temporal Dysregulation of B-Amyloid Clearance in the Hippocampal Microenvironment of an Alzheimer's Disease Rat Model

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Alzheimer's disease (AD) is characterised by the accumulation of β-amyloid (Aβ), with impaired clearance increasingly recognised as a key contributor to disease progression. However, the temporal dynamics of Aβ clearance within the hippocampal microenvironment remain inadequately understood. This study examined transcriptomic and biochemical changes in rats exposed to aluminium chloride ($AlCl_3$, 200 mg/kg/day) at D14 (acute), D28 (subacute), and D42 (subchronic) timepoints, each comprising control and induced groups. RNA sequencing (n = 12) generated high-quality data (average 7.0 Gb/sample, 98.2% mapping), identifying 18,570 expressed genes, while soluble $Aβ_{40}$ levels were quantified using ELISA. At D14, soluble $Aβ_{40}$ levels were markedly elevated, accompanied by increased expression of amyloidogenic genes (Bace1, Psen1) and clearance-related genes (Ide, Lrp1, Scarb1, Aqp4, Ccl2). This pattern suggests an early compensatory response, primarily mediated by intracellular degradation and transport mechanisms. Microglial activation (Trem2) remained limited, while reduced Apoe and Mme expression may indicate incomplete engagement of lipid-associated and extracellular clearance pathways. By D28, soluble $Aβ_{40}$ levels had normalised alongside reduced expression of both production- and clearance-related genes, although Aqp4 remained elevated. Increased expression of Cxcl10, Trem2, Gfap, and Anxa3, together with modest Mme levels, is consistent with enhanced inflammatory signalling and microglial activation, occurring alongside declining clearance capacity. At D42, sustained upregulation of Trem2 and Apoe, coupled with increased Gfap and reduced Map2 expression, points towards persistent glial activation with emerging neuronal impairment. Concurrent reductions in Aqp4 and Lrp1, alongside partial Ide recovery and modest Mme expression, may reflect disruption of glymphatic and transport-mediated clearance pathways. Reduced Cxcl10 with sustained Ccl2 suggests a shift towards a more chronic inflammatory state. In conclusion, Aβ clearance exhibits a stage-dependent transition from early compensatory responses to progressive dysregulation, with altered Aβ dynamics at later stages.

Keywords: Aluminium-induced rat model; Alzheimer's disease; Astrocytes and microglia; β-amyloid clearance

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PP063 Exercise Modulates Lymphocyte Populations in Aluminium-induced Immunotoxicity in Wistar Rats

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Aluminium (Al) is a common environmental toxicant that causes oxidative stress and accumulates in tissues, resulting in the suppression of immune function. Although Al is known for neurotoxicity, its effects on the peripheral immune system are poorly characterized. Exercise has been suggested as a nonpharmacological therapy that might alleviate chemical toxicities, but its protective mechanisms against Al-induced immunotoxicity in lymphoid organs remain unknown. The aim of this study is to evaluate the protective effects of a 70-day structured high-intensity interval training (HIIT) treadmill regimen against chronic aluminium-induced immunotoxicity in the spleen, mesenteric lymph nodes (MLN), and cervical lymph nodes (CLN) of Wistar rats. Twenty-four male Wistar rats were randomized into four groups: Sedentary Control (DES), Exercise Control (DEH), Aluminium Sedentary (ES), and Aluminium Exercise (EH). Aluminium groups received AlCl3 (200 mg/kg/day) orally for 70 days. Treadmill exercise began on day 28 for DEH and EH and continued until day 70. At the study's end, the rats were sacrificed and the spleen, MLN, and CLN were harvested for flow cytometry analysis. Results demonstrated that the DEH group significantly reduced the percentage of splenic CD3+CD8+ T lymphocytes ($p < 0.05$). Conversely, the ES group led to a notable decrease in CD3+CD4+FoxP3+ regulatory T cells within both mesenteric and cervical lymph nodes ($p < 0.05$). A similar reduction in this regulatory population was also observed in the mesenteric lymph nodes of the DEH group ($p < 0.05$). Our findings demonstrate that aluminium toxicity causes substantial immune dysfunction, which can be effectively countered through physical exercise. This intervention specifically preserves immune integrity by stabilizing immunoregulatory mechanisms within the gut-associated lymphoid tissues.

Keywords: Exercise, aluminium, immunotoxicity, lymphocytes, Wistar rats.

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PP064 Microbiological Safety of Street-Vended Martabak in Kuala Lumpur

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Street food is widely consumed for its affordability, yet it remains a public health concern due to food safety risks linked to poor hygiene. This study aimed to determine bacterial contamination levels in martabak and its side dishes (pickled onion and curry) sold by street vendors in Kuala Lumpur. This study also assesses vendor hygiene status and examines the association between premise hygiene score and the bacterial contamination level. A cross-sectional study was conducted involving 20 samples of martabak and its side dishes from 20 vendors around Kuala Lumpur. Samples were analysed for Total Viable Count (TVC), coliforms, Escherichia coli, Staphylococcus aureus, and Salmonella spp. The vendor's premise hygiene score was evaluated using a validated 25-item observational checklist that includes personal hygiene, utensils and storage, handwashing facilities, surrounding area, and pest control components. Findings revealed that only one martabak sample was found to have the presence of bacteria with the TVC reading of 2.957 log CFU/g. In contrast, pickled onion showed a higher frequency of contamination, with the presence of bacteria detected in six samples (average TVC: 3.884 ± 1.087 log CFU/g). Curry samples demonstrated the most critical microbiological profile, with concurrent contamination across four parameters. Hygiene assessments classified 85% of vendors as having moderate hygiene levels, while only 15% were categorised as clean. Spearman's correlation analysis showed a significant moderate negative association between hygiene scores and TVC levels of the side dishes (r_s = -0.411, p = 0.035). In conclusion, while freshly cooked martabak was generally safe, the accompanying side dishes posed significant risks due to inadequate hygiene. Strengthening sanitation facilities, improving handling practices, and providing continuous training for vendors are essential measures to reduce foodborne disease risks among consumers in Kuala Lumpur.

Keywords: Street food, Bacterial contamination, Food safety, Hygiene practice, Martabak

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PP065 Development of Fast-Dissolving Piper betle Herbal Oral Strips with Antibacterial Activity for Halitosis Management

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Halitosis is a common oral health condition primarily caused by bacterial activity in the oral cavity, particularly *Streptococcus mutans* and *Staphylococcus aureus*, which produce volatile sulphur compounds responsible for unpleasant breath odour. Conventional oral hygiene products such as mouthwashes and chewing gums often contain synthetic chemicals that may cause irritation and provide only temporary relief. Therefore, this study aimed to develop a natural and portable oral care product by formulating fast-dissolving herbal oral strips containing *Piper betle* L. leaf extract. Fresh betel leaves were subjected to ethanol extraction using the cold maceration technique to obtain the crude extract. Phytochemical screening was conducted to identify bioactive compounds, followed by antibacterial evaluation using minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) assays against *S. mutans* and *S. aureus*. The extract was then incorporated into an oral strip formulation using the solvent casting method with suitable film-forming polymers, plasticizers, sweeteners, and flavouring agents. The results revealed the presence of bioactive phytochemicals including flavonoids, phenols, and terpenoids, which are known for their antimicrobial properties. Antibacterial testing demonstrated effective inhibition of oral pathogens with MIC and MBC values indicating strong antibacterial potential, and inhibition zones reaching up to 24 mm. The developed oral strips exhibited desirable pharmaceutical characteristics, including thin, flexible films, pH values ranging from 6.7 to 6.9, and rapid disintegration within 30 seconds when placed on the tongue. These findings indicate that *Piper betle*-based oral strips represent a promising natural therapeutic approach for reducing oral microbial load and managing halitosis. This innovation integrates traditional herbal medicine with modern drug delivery technology, offering a safe, convenient, and user-friendly oral hygiene product with potential applications in both pharmaceutical and personal healthcare sectors.

Keywords: *Piper betle* L.; Fast-dissolving oral thin films (OTFs); Halitosis; Solvent casting method; Antibacterial activity

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PP066 Feasibility of Soft Robotic-Assisted Hand Training Combined with Standard Therapy in Community-Dwelling Stroke Survivors: A Pilot Randomized Controlled Trial

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Soft robotic hand devices have emerged as a potential adjunct to conventional physiotherapy for post-stroke upper limb rehabilitation. However, evidence regarding their feasibility, safety, and preliminary clinical signals remains limited, particularly among Malaysian community-dwelling stroke survivors. This pilot study evaluated the feasibility, safety, and preliminary clinical signals of a soft robotic-assisted hand training protocol combined with standard therapy (SRAHT-ST) on upper limb function, lung function, and quality of life in post-stroke patients. In this prospective single-blinded pilot randomized controlled trial, 10 community-dwelling stroke survivors within the Klang Valley were randomized to either SRAHT-ST (n = 5) or standard therapy alone (ST, n = 5). Both groups received 24 therapist-supervised sessions over 8 weeks. Primary feasibility outcomes were retention rates, intervention adherence, and safety. Secondary outcomes included the Action Research Arm Test (ARAT), Box and Block Test (BBT), Fugl-Meyer motor (FMM), Fugl-Meyer sensory (FMS), lung function, and quality of life (EuroQol), which were measured at baseline, 4 weeks, and 8 weeks. Exploratory two-way mixed ANOVA was used to examine trends in changes over time and between groups. Ten participants completed the intervention (mean age 61.3 ± 11.9 years), with 81.3% retention, high adherence, and no intervention-related adverse events. Exploratory analyses showed improvements over time across outcomes ($p < 0.001$) with trends toward greater improvements in upper limb outcomes and lung function in the SRAHT-ST group versus ST (time × group interaction, $p < 0.05$). Findings should be interpreted as preliminary estimates only. The SRAHT-ST protocol was feasible, safe, and acceptable, supporting progression to a definitive trial. Exploratory findings suggest potential signals of benefit for upper limb and pulmonary function and inform future trial design. No efficacy conclusions can be drawn due to the pilot nature and small sample size.

PP067 Investigation of Personalised Post-Reconstruction Positron Range Correction in 68Ga Positron Emission Tomography Imaging

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Positron range blurring inherently limits the spatial resolution of Gallium-68 (68Ga) Positron Emission Tomography (PET) imaging. This study aims to develop an iterative post-reconstructed positron range correction (PRC) algorithm and evaluate its impact on the quality of clinical PET images. An iterative post-reconstruction PRC algorithm was developed by comparing measured clinical PET images with simulated annihilation images generated via GATE Monte Carlo simulations, utilizing patient-specific CT-derived attenuation and density maps. The method was evaluated retrospectively on 17 patients undergoing 68Ga-DOTATATE PET scans. Two experienced, blinded nuclear medicine physicians reviewed standard PET (PET0) and corrected (PRC5) images side-by-side, assessing overall image quality, artifacts, and lesion preferences. Quantitative analyses evaluated image noise, standardized uptake value (SUV), contrast, and signal-to-noise ratio (SNR). Quantitatively, the PRC significantly improved lesion contrast ($p<0.05$) and SNR ($p<0.05$), and yielded increased radiotracer uptake ($p<0.05$). The algorithm successfully preserved the normal physiological distribution of 68Ga in the body, with only a marginal noise increment of approximately 2% . Despite quantitative enhancements, qualitative reader assessments showed a preference for uncorrected PET0 images. PET0 images achieved 94.1% agreement for "Excellent" overall quality, whereas PRC5 achieved 58.8% agreement, typically categorized as "Satisfactory". Reduced preference for PRC5 was attributed to artifacts induced during the deblurring process, predominantly in the abdominal region (e.g., liver, bowel, spleen), which were caused by spatial discrepancies between the PET and CT attenuation maps due to respiratory and peristaltic motion. Personalised post-reconstruction PRC successfully improves quantitative metrics such as lesion contrast and SNR in 68Ga imaging. However, clinical preference is negatively impacted by motion-induced artifacts. In artifact-free images, PRC is the preferred modality, warranting further research to mitigate attenuation map discrepancies and fully translate quantitative gains into clinical diagnostic confidence.

Keywords: positron range correction, Gallium-68, GATE Monte Carlo simulation, iterative post-reconstruction

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PP068 Preliminary Results of a Scoping Review on Teaching Older Adults How to Land Safely: Movement-Based Strategies to Reduce Fall-Related Injury Risk

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Falls are a leading cause of injury, disability, and loss of independence among older adults. Although conventional fall prevention programmes aim to reduce fall incidence, many falls remain unavoidable. Teaching safe falling or movement-based landing strategies may help reduce injury severity when falls occur; however, the current evidence base remains fragmented. This scoping review aims to map the existing literature on interventions that teach safe falling or landing strategies to older adults and examine their potential role in reducing fall-related injury risk. A scoping review was conducted in accordance with PRISMA-ScR principles. Electronic databases including PubMed, Scopus, Web of Science, PEDro, and the Cochrane Library were searched. Studies involving adults aged ≥60 years and interventions explicitly teaching safe falling, fall-landing, or fall recovery strategies were considered. Data were extracted and synthesized descriptively. A total of 21 relevant studies were identified, including randomized controlled trials, feasibility studies, qualitative studies, protocols, and laboratory-based biomechanical studies. Common approaches included judo-inspired programmes, martial arts-based falling techniques, tuck-and-roll strategies, motor analogy training, and fall arrest programmes. Reported outcomes included reduced hip impact force, improved balance and strength, enhanced fall technique competence, increased confidence, and reduced fear of falling. However, many studies involved small samples, healthy participants, or simulated laboratory falls. Preliminary findings suggest that movement-based safe landing strategies are feasible and may reduce fall-related injury risk among older adults. Further high-quality trials involving real-world populations and long-term outcomes are needed to support clinical implementation.

Keywords: Falls prevention; Older adults; Safe landing strategies; Fall-related injuries; Injury prevention

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PP069 Knowledge, Awareness and Practice of Breast Self-Examination among Female Students at A Private Healthcare University in Nilai

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Breast cancer remains a major global public health concern, with early detection playing a critical role in improving survival outcomes. Breast self-examination (BSE) is a simple, low-cost strategy that promotes breast awareness, particularly among young women. This study aimed to assess the association between demographic characteristics, knowledge, and awareness with BSE practice among female students at a private healthcare university in Nilai. A cross-sectional study was conducted among 351 female students using a structured online questionnaire assessing socio-demographic characteristics and levels of knowledge, awareness, and practice of BSE. Descriptive statistics and multiple logistic regression analyses were performed. The findings indicated that 56.3% and 55.8% of respondents had poor knowledge and awareness, respectively, while 54.6% demonstrated poor BSE practice. Although 82.3% had heard of BSE, only 20.5% performed it monthly as recommended. Common barriers included a lack of knowledge (48.9%), low perceived risk (45.7%), and forgetfulness (42.0%). Significant associations were observed between knowledge and practice ($p < 0.001$) and between awareness and practice ($p < 0.001$), whereas no significant association was found between demographic factors and practice. Notably, 85.2% of respondents expressed a willingness to attend future educational programs. In conclusion, despite moderate awareness of BSE, substantial gaps exist in knowledge and consistent practice. These findings highlight the need for structured, skills-based educational interventions to enhance competency and promote regular BSE practice, thereby strengthening early detection efforts and contributing to improved breast health outcomes.

Keywords: Breast self-examination; breast cancer; knowledge, awareness and practice; university students; early detection.

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PP071 In-Hospital Mortality of Infective Endocarditis in Malaysia: A Systematic Review and Meta-Analysis

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Infective endocarditis (IE) remains a severe infection associated with substantial early mortality. However, in Malaysia, reported in-hospital mortality rates vary widely across single-centre retrospective studies (13%–44.4%), and no prior systematic review has provided a pooled national estimate. This lack of a comprehensive national synthesis limits comparison with international data and constrains evidence-based clinical and policy decision-making. This systematic review and meta-analysis aimed to estimate the pooled in-hospital mortality rate of IE in Malaysia. It also sought to contextualise outcomes across healthcare settings, time periods, and prognostic factors, with the goal of establishing the first national benchmark to inform clinical practice, registry development, and health-system planning. Conducted in accordance with the PRISMA 2020 statement, a systematic search of three electronic databases (PubMed, Google Scholar, and SciSpace) was performed. Eligible studies were observational studies reporting in-hospital mortality among adult patients (≥18 years) diagnosed with IE using the modified Duke criteria in Malaysian healthcare institutions and published in English. Of 255 records identified, seven unique Malaysian studies (eight mortality estimates comprising 382 adult patients, 2005–2023) were included. Using a random-effects model, the pooled in-hospital mortality rate was 33.2% (95% CI: 27.8%–39.1%), with low between-study heterogeneity ($I^2 = 13.3\%$, p = 0.326). Mortality was higher in tertiary referral centres (30.8%–44.4%) compared to a secondary-care hospital (13.0%). Staphylococcus aureus infection, heart failure, hemodynamic instability, renal dysfunction, and the absence of surgical intervention were identified as adverse prognostic factors. Overall, in-hospital mortality in Malaysia remains high, systemic, and exceeds international benchmarks. These findings support the urgent need to strengthen clinical pathways, promote earlier diagnosis, establish multidisciplinary endocarditis teams, and develop a national IE registry to guide health-system policy and enable meaningful international comparison.

Keywords: Infective endocarditis; in-hospital mortality; systematic review; meta-analysis; Malaysia

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PP074 Lysosomal Impairment Drives Vacuolation but Not Significant Amyloid-β40 Accumulation in Human Brain Endothelial Cells

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Alzheimer's disease (AD) is characterized by progressive cognitive decline and is strongly associated with the accumulation of amyloid-beta (Aβ) peptides. While lysosomal dysfunction has been implicated in increased Aβ42 accumulation, its effects on Aβ40 dynamics and cytosolic vacuolation in brain endothelial cells remain unclear despite its significant role in forming Aβ deposits and importance in the Aβ42/40 ratio. Thus, this study investigated the impact of chloroquine (CQ)-induced lysosomal dysfunction on cytosolic vacuolation and intracellular and extracellular Aβ40 levels in human brain endothelial cells (HBEC-5i). HBEC-5i cells were treated with 70.5 μM CQ for 24 hours to induce lysosomal impairment. Morphological changes and cytosolic vacuolation were evaluated by inverted microscope and ImageJ analysis, while Aβ40 levels in cell lysates and supernatants were quantified using ELISA. CQ-treated cells exhibited significant morphological alterations, including cell shrinkage and prominent cytosolic vacuole formation. Quantitative analysis revealed a significant increase in vacuolation density and vacuole diameter compared to untreated controls ($p < 0.05$), indicating disrupted autophagy-lysosomal pathway function. Despite these structural changes, intracellular Aβ40 levels showed a slight, non-significant decrease, while extracellular Aβ40 levels demonstrated a non-significant increase following CQ treatment. These findings suggest that Aβ40 may be preferentially trafficked out of endothelial cells, potentially via transcytosis pathways, even under lysosomal dysfunction conditions. In conclusion, CQ-induced lysosomal impairment significantly alters endothelial cell morphology and promotes cytosolic vacuolation but does not markedly affect Aβ40 levels. The results highlight a possible differential handling of Aβ40 compared to Aβ42 and underscore the importance of endothelial transport mechanisms in AD pathology. Further studies are needed to elucidate the interplay between lysosomal dysfunction, Aβ trafficking, and blood–brain barrier integrity.

Keywords: Beta amyloid; Chloroquine; Endothelial Cells; Lysososome; Vacuoles

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PP075 Assessing the Malaysia Mandarin Pediatric Speech Perception (MyMaPS) Semi-automated Test: Content Validity and User Confidence Among Audiology Students and Professionals

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This cross-sectional study evaluated the content validity, confidence, and perception ratings of the MyMaPS semi-automated test application and manual among student clinicians and audiologists. Validation occurred in two phases. First, six audiologists evaluated the adapted Content Validity Index (CVI) and the confidence and perception questionnaires based on relevance, simplicity, clarity, and ambiguity on a 4-point scale. In the second phase, 29 student clinicians who had received clinical training for at least 1 semester, and three audiologists were recruited from the Audiology Program, Universiti Kebangsaan Malaysia (UKM). All participants answered the pre-training confidence and perception questionnaire and underwent an online briefing session, followed by face-to-face training sessions. The CVI Semi-MyMaPS and the post-training confidence and perception questionnaire were administered after the training. The results showed that the two questionnaires received good face validity ratings (scores of > 3). The MyMaPS semi-automated test application and test manual met the satisfactory level of CVI (scores of > 0.83). Wilcoxon signed-rank tests indicated that the post-training confidence and perception ratings towards the MyMaPS semi-automated test manual ($T = 351$, $z = -4.47$, and $p < 0.001$) and test application ($T = 300$, $z = -4.31$, and $p < 0.001$) were significantly higher compared to pre-training scores. The results showed that the participants were confident in conducting the MyMaPS test and found it very helpful to use in a clinical setting. These results suggested that the content of the MyMaPS semi-automated test manual and test application are valid to be used among audiology students and audiologists in Klinik Audiologi & Sains Pertuturan (KASP), UKM.

Keywords: Content validity, Mandarin, Speech perception, Confidence and perception ratings

PP076 Satisfaction with Mobility Assistive Technology and Quality of Life among Lower Limb Amputees: A Preliminary Analysis

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Lower limb amputations are profound and life-altering events. Many lower limb amputees face limited access to mobility devices and report dissatisfaction, probably affecting their quality of life (QOL). Yet, research combining these factors remains lacking. This cross-sectional study examined the relationship between satisfaction with mobility assistive technology and QOL among lower-limb amputees. This study collected data using a self-developed demographic questionnaire, the Quebec User Evaluation of Satisfaction with Assistive Technology (QUEST 2.0), and the World Health Organisation Quality of Life Brief Version (WHOQOL-BREF) at the PERKESO Rehabilitation Center. Inclusion criteria included: amputees who are Malaysian citizens aged 18 years or older; with a minimum educational qualification of the Malaysia Lower Certificate of Education (LCE/SRP), Lower Secondary Assessment (PMR), or Form Three Assessment (PT3); have undergone lower limb amputation with a surgical wound that had healed up to four months post-amputation; and are using assistive technology specifically for mobility, either permanently or temporarily awaiting prostheses. This preliminary analysis included 42 participants (Men = 29; Women = 13) aged 48.45 (SD = 10.99) years, with an average duration of mobility device use of 39.82 (SD = 32.05) weeks. They scored an average total satisfaction score of 3.62 (SD = 0.77), with higher satisfaction in device-related components (Mean = 3.70, SD = 0.78). The psychological domain of QOL had the highest score (Median = 66.67, IQR = 54.17 – 79.17). In contrast, the social relationships domain scored the lowest (Mean = 59.92, SD = 20.92). Overall- or device-related satisfaction was not associated with QOL domains. Service-related satisfaction was moderately associated with the social relationships QOL domain (r_s = .340, p = .028). Although lower limb amputees report general satisfaction with their mobility devices, service-related issues and low social relationships QOL remain concerns, emphasising the need for improved service delivery and a client-centred approach to rehabilitation.

Keywords: Assistive technology; mobility; lower limb; amputation; quality of life

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PP077 Looking is Not Seeing: Objective Gaze Analytics Reveal Limits of Self-Reported Attention in Digital Slit-Lamp Video Training

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Digital video instruction is central to contemporary clinical skills training in rehabilitation and health sciences. However, learner engagement in digital environments is typically evaluated using self-report surveys, which may not accurately reflect actual attentional behaviour. Eye-tracking technology offers an objective, real-time measure of gaze analytics for visual attention, yet its relationship to perceived engagement remains insufficiently examined in optometry education. This study investigated the relationship between objectively measured visual attention and self-reported attentional engagement during video-based slit-lamp training. Forty-four Year 3 optometry students at Universiti Kebangsaan Malaysia viewed slit-lamp instructional videos while eye movements were recorded using a screen-based eye-tracking system (Tobii Pro Spark). Objective gaze analytics attention was operationalised as dwell time percentage within expert-defined, clinically relevant Areas of Interest (AOIs). Perceived attention was measured immediately post-viewing using the Attention subscale of the Reduced Instructional Materials Motivation Survey (RIMMS). Spearman correlation was conducted, followed by linear regression modelling. Objective dwell time on critical AOIs (61.65% ± 6.76) was not significantly associated with self-reported attention (Spearman $\rho = 0.21$, $p = 0.18$). Regression analysis confirmed that gaze allocation did not significantly predict perceived attention, $F(1,42) = 1.36$, $p = 0.25$, accounting for only 3.1% of variance ($R^2 = 0.031$). Findings reveal a measurable dissociation between observed visual behaviour and learners' perceived attentional engagement during digital slit-lamp instruction. These results highlight potential limitations of reliance on self-report metrics in evaluating digital clinical education and support the integration of gaze analytics as an innovative tool for optimising instructional design. Embedding objective attention measures into digital health training platforms may enhance evidence-based development of clinical skills education in rehabilitation and health sciences.

Keywords: eye tracking; digital learning analytics; video-based training; visual attention; optometry education; rehabilitation education.

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PP079 Prediction of MiR-155 as Biomarkers in Breast Cancer: A Systematic Review

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Despite advances in the detection and treatment of breast cancer (BC), it remains a prevalent disease worldwide. miRNAs play an important role in cancer, and their presence may have several advantages in tumour initiation, dissemination, immune evasion, and drug resistance. In general, miR-155 is considered an oncogenic miRNA that promotes tumour growth, angiogenesis, and invasiveness in BC. Therefore, researchers have used it as a predictive biomarker and therapeutic target. However, its predictive value for BC patients remains to be fully elucidated. To address this issue, this systematic review aims to summarise the existing evidence and describe the predictive significance of miR-155 in BC pathology. All eligible studies were searched on PubMed and WOS databases by various search strategies. 37 studies were fully examined from 640 potentially eligible articles, comparing tissue, circulating, and urinary miR-155 expression levels with clinical applications and clinicopathological features in BC patients. We found miRNAs isolated from blood or urine samples of patients diagnosed with BC may be as valuable as those from tissue samples. They could provide information on early diagnosis, disease progression, relapse, treatment response, and metastasis. Simultaneously, challenges that need to be evaluated to understand the ability of miR-155 to address real clinical needs were analysed, highlighting the consistency in translating this molecule into clinical practice. Our paper suggests that the predictive role of miR-155 in BC management requires further validation. This work has been registered in PROSPERO with registration number CRD420251001681 and date of registration 14th May 2025.

Keywords: miR-155; breast cancer; prediction; tissue; blood

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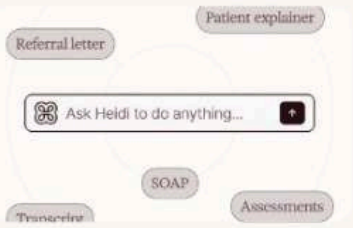

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