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Advancing Frontiers in Medicine:
Translating Research from Bench to Bedside and Beyond

ABSTRACT BOOK

2nd October 2025
8:00am – 5.00pm

Auditorium, Chancellor Tuanku Ja'afar Education Complex,
Chancellor Tuanku Muhriz Hospital

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The Impacts of Dyslipidemia on Cardiovascular Markers among Young Adults

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ABSTRACT

Cardiovascular diseases remain a leading cause of global mortality and morbidity, with dyslipidemia recognised as its key risk factor. While overt clinical symptoms often manifest later in life, subclinical vascular and myocardial changes may begin in young adulthood but remain underexplored. Non-invasive cardiovascular measures provide valuable tools for detecting such early alterations. This study aimed to examine the effects of dyslipidemia on cardiovascular markers among young adult males population. This cross-sectional study included 83 male participants aged 20-40 years. Participants underwent lipid profiling, pulse wave velocity (PWV) measurement, and echocardiographic assessment of left ventricular and diastolic function. Dyslipidemia was defined as total cholesterol >5.2 mmol/L. Comparative analyses were performed to assess the difference between dyslipidemic and normolipidemic participants and correlation analyses were used to examine the association between dyslipidemia and cardiovascular markers. Dyslipidemic participants were significantly older than normolipidemic participants [35 (29-37) years old vs 31 (26-35) years old, p=0.023]. After adjusting for age, dyslipidemia was associated with a significant reduction in left ventricular ejection fraction (LVEF) (β = -3.24, 95% CI:-5.79 to -0.69, p=0.013). A significant negative correlation was also found between total cholesterol and LVEF (r = -0.254, p=0.023). No significant difference was observed between groups for PWV [dyslipidemic 6.50 (6.10-7.40 m/s) vs normolipidemic 6.35 (5.70-7.42 m/s)]. In young adult males, dyslipidemia is associated with reduced LVEF, indicating an adverse effect of dyslipidemia on myocardial function beginning early in life, underscoring the potential importance of early lipid management.

Keywords: Arterial stiffness; cardiovascular; dyslipidemia; echocardiography; young adults

A Systematic Review on Farmers' Vulnerability Assessments: Highlights on Adaptive Capacity

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ABSTRACT

Farmers were hit hard by climate change and were acknowledged to be among vulnerable population due to their agricultural dependence on climate and weather activities. Awareness and adaptive behaviours could reduce the heat-related health risks among farmers particularly during heatwaves. Therefore, to assess their vulnerability including adaptive capacity is critical in empowering farmers' sustainability. The researchers utilised the Preferred Reporting Items for Systematic Meta-Analyse protocol to identify adaptive capacity component in vulnerability assessment of farmers towards climate change. The articles included fulfilled the criteria of original articles in English language, focused on vulnerability assessment among farmers from year 2015 until 2025. Then, the selected article were appraised using a valid quality appraisal tool and proceeded with thematic analysis. It is highlighted that the emerging themes of knowledge, financial and networking were of equally important in the adaptive capacity component structure of farmers' vulnerability assessment. The findings serve as an importance guideline for specific themes integration in the vulnerability assessment among farmers towards climate change and its related health risks.

Keywords: Climate change; farmers; vulnerability

Themes: Environmental health; epidemiology

Development, Validity & Reliability of Lachmann-O-Meter to Detect Anterior Cruciate Ligament Laxity in A Saw Bone Model: A New Portable, Automated Athrometer

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ABSTRACT

Background: We developed an arthrometer to detect ACL laxity that are automated, portable, user friendly and sensitive to detect ACL laxity called Lachman-O-Meter. This study is to assess the efficiency of the newly developed Lachman-O-Meter in detecting ACL laxity in a saw knee bone model in comparable to Lachman test. **Method:** This was a pre-clinical, study on a saw bone knee models representing different grading of Lachman test; three button, two button and zero button knee model. Examiners were blinded and performed Lachman test on each saw bone model and were asked to grade it as soft end point, firm end point or negative Lachman test. Then, the examiner used Lachman-O-Meter on the saw bone model and record the finding. Criterion validity were performed using correlation analysis between the results of Lachman-O-Meter and the Lachman test. **Results:** In zero button model, examiner able to identify the ACL laxity using Lachman-O-Meter, with 90% accuracy in identifying Lachman test with soft end point, (r= 0.80, 95% CI: 0.29–1.22, p = <0.001). In two button model, examiner able to identify the ACL laxity using Lachman-O-Meter, with 100% accuracy in identifying Lachman test with firm end point, (r= 1, CI: 0.29–1.22, p = <0.001). The sensitivity was 100% , specificity of 80% , positive predictive value of 90.9 %, and negative predictive value of 100%, in detecting ACL laxity with firm and soft end point. **Conclusion:** Lachman- O-Meter is an efficient tool to be used in the diagnosis of different degrees of ACL laxity with high sensitivity and specificity, and excellent inter and intra-rater reliability

Keywords: Anterior cruciate ligament; anterior tibial translation; arthrometer; lachman test

The Double Burden: TB-HIV Co-Infection Among People Living with HIV in Pahang, Malaysia (2021-2024)

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ABSTRACT

Introduction: Tuberculosis (TB) remains a significant opportunistic infection among people living with HIV (PLHIV). This dual burden contributes to increased treatment costs and mortality. Global and local authorities have implemented various efforts to reduce the burden and limit the impact of this co-infection. To optimise these initiatives, it is essential to assess the disease burden and identify factors associated with TB-HIV co-infection. This study aimed to determine the prevalence of TB-HIV co-infection among PLHIV and its associated factors in Pahang. **Methodology:** A cross-sectional study was conducted among 390 PLHIV in Pahang using registry-based data between January 2021 and December 2024. Factors examined included sociodemographic characteristics, route of HIV transmission, presence of hepatitis B or C co-infections, and timing of HAART initiation. Multivariable analysis was applied to identify factors associated with TB-HIV co-infection. Results: The prevalence of TB-HIV co-infection among PLHIV in Pahang was 3.6%. Significant factors include were PLHIV aged 30 years, sexual transmission and delay initiation of Highly Active Antiretroviral Therapy (HAART). **Conclusion:** The prevalence of TB-HIV co-infection among PLHIV in Pahang is low. Younger age, sexual transmission of HIV and delayed initiation of HAART were the significantly associated factors. These findings should inform tailored health interventions for this high-risk subgroup. Future efforts should focus on highlighting this identified high-risk group as a strategy to reduce TB-HIV co-infection and advance the 95-95-95 targets.

Keywords: Malaysia; TB-HIV co-infection; TB-HIV Pahang

Accuracy of Antenatal Diagnosis of Congenital Heart Disease: A Retrospective Cohort Observational Study in a Tertiary Cardiac Center

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ABSTRACT

Accurate antenatal risk classification is essential for guiding clinical decision-making, optimising neonatal outcomes, and allocating healthcare resources effectively. However, discrepancies between antenatal and postnatal diagnoses remain a significant challenge. This study aimed to compare the diagnosis of fetal cardiac disease antenatally and postnatally together with determining the outcome of neonate post-delivery. This was a retrospective observational study involving 302 patients referred for suspected fetal congenital heart disease. Antenatal risk classifications were compared with postnatal outcomes using Cohen's kappa statistic to assess agreement. Diagnostic performance measures including sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and diagnostic odds ratio (DOR) were calculated. Neonatal outcomes including survival and surgical intervention rates were also examined. Antenatal and postnatal classifications demonstrated moderate agreement (Cohen's kappa = 0.522). Sensitivity ranged from 55.0% to 75.0%, while specificity values were consistently high (84.6%-99.3%). The "Others" category had the highest PPV (91.7%) and DOR (163.2). Neonatal survival was highest in the "Minor" group (88.7%) and lowest in the "Complex" group (58.3%). Surgical intervention was most frequent in the "Moderate" and "Others" groups. Notably, all neonates who underwent surgery survived. Antenatal risk stratification is a valuable tool for predicting neonatal outcomes and planning perinatal management. While current classifications demonstrate reasonable accuracy, improvements in prenatal diagnostics and earlier multidisciplinary involvement may further enhance predictive performance and patient care.

Keywords: Antenatal risk classification; congenital anomalies; diagnostic accuracy; fetal medicine; neonatal outcomes; prenatal diagnosis; surgery

Digital Health Interventions for Dementia Informal Caregivers: A Systematic Literature Review of Knowledge, Attitude and Practice Outcomes

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ABSTRACT

Background: Informal caregivers are central to supporting people living with dementia (PLwD) but often face gaps in knowledge, negative attitudes, and limited caregiving skills, collectively described as Knowledge, Attitude, and Practice (KAP). These gaps contribute to higher caregiver burden and poorer outcomes. With dementia prevalence rising, digital health interventions such as mobile health (mHealth) applications and internet-based platforms are being explored as scalable solutions to empower caregivers. **Objective:** To synthesise current evidence on mHealth and internet-based interventions targeting KAP outcomes among dementia caregivers. **Methods:** Following PRISMA 2020 guidelines, a systematic search of PubMed, Scopus, Cochrane Library, ScienceDirect, and ACM Digital Library was conducted for studies published up to February 2025. Eligible studies included randomised controlled trials, quasi- experiments, pre-post designs, and qualitative studies involving informal caregivers, with at least one KAP-related outcome. Study quality was appraised using the Effective Public Health Practice Project (EPHPP) tool. **Results:** From 1,928 records screened, seven studies were included, evaluating web-based platforms, virtual education programs, and mobile applications. Digital interventions consistently improved caregiver knowledge, particularly through structured e-learning and interactive mobile applications. Positive changes in caregiver attitudes, most notably toward more empathetic and person-centred care, were also reported, though the effects varied. Findings on practice and burden were mixed; some studies demonstrated improvements in caregiving skills, confidence, and decision-making, while others reported minimal impact on stress reduction or workload. Small samples, weak blinding, and varied outcome measures reduced the strength of the evidence. Still, digital interventions show promise, especially when they are tailored, interactive, and combined with psychosocial support. **Conclusion:** The literature supports the potential of digital health tools to enhance KAP among dementia caregivers, but highlights the urgent need for more rigorous, standardised, and equity- focused research.

Keywords: Caregivers; dementia; internet-based interventions; literature review; mobile health

Comparative Study on The Effects of Probiotics on Constipation and Quality of Life in Children with Cerebral Palsy

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ABSTRACT

Introduction: Children with cerebral palsy (CP) are at high risk for chronic constipation, with prevalence rates as high as 74%, depending on their Gross Motor Function Classification (GMFCS) level, compared to 0.7-29% in the general population. Current treatments include oral lactulose and enemas, with recent studies suggesting probiotics as a potential adjunct. Chronic constipation in CP children can cause significant discomfort and impact quality of life, but no studies have directly linked constipation severity with quality of life in this population. **Objective:** To compare the effectiveness of probiotics versus placebo in managing constipation in CP children and assess the relationship between constipation and quality of life. **Materials & Methods:** This single-center, double-blind comparative study was conducted at the CP Clinic, Hospital Tunku Ampuan Tuanku Aishah Rohani, Hospital Pakar Kanak-Kanak (HPKK), Universiti Kebangsaan Malaysia. Children meeting Rome IV criteria for constipation were recruited and randomised into probiotics or placebo groups. Pre- and post-intervention assessments included the Wexner score for constipation severity and the Pediatric Functional Constipation Questionnaire (PedFC-Q) for quality of life. **Results:** Thirty children (14 probiotics, 16 placebo) were enrolled. Post-intervention, significant reductions in lactulose use (71.4% vs. 28.6%) and Wexner scores ($p<0.001$) were observed. The PedFC-Q showed a mean reduction of 0.41 ($p=0.0003$), with improvements in physical (78%) and behavioral (50%) domains. **Conclusion:** Probiotics significantly improved constipation symptoms in CP children, especially those with GMFCS III-V, and contributed to enhanced quality of life. Probiotics may offer a beneficial alternative to current treatments.

Keywords: Cerebral palsy; constipation; probiotics; quality of life

From Past to Parenting: Adverse Childhood Experiences and Their Link to Early Childhood Development Knowledge in Malaysia

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ABSTRACT

Early childhood development (ECD) lays the foundation for lifelong health, learning, and well- being. Parental knowledge plays a critical role in ensuring optimal developmental outcomes and in the early detection of delays. However, parents with a history of Adverse Childhood Experiences (ACEs) - including abuse, neglect, or household dysfunction-may face challenges in acquiring and applying knowledge related to child development. While global studies have demonstrated the long-term effects of ACEs on parenting, this association remains understudied in Malaysia. We propose a study to assess parental knowledge on ECD, determine the prevalence of ACEs among Malaysian parents, and examine their association. A cross- sectional online survey will be conducted among 375 Malaysian parents with children aged 0-7 years. Data will be collected using a structured self-administered questionnaire comprising sociodemographic items, the validated Malay version of the ACE questionnaire, and the Knowledge of Infant Development Inventory-Short Form (KIDI-SF). Descriptive statistics will summarise participant characteristics, while Chi-square tests, t-tests, and multivariable logistic regression will explore associations between ACEs and parental knowledge. It is hypothesised that higher ACE exposure will be associated with lower levels of ECD knowledge. The findings will support trauma-informed approaches in family medicine, guide the development of parental education programs and inform policies to break intergenerational cycles of adversity in Malaysia.

Keywords: Adverse childhood experiences; early childhood development; Family Medicine; parental knowledge; Malaysia

Implanon NXT Acceptability Based on Side Effects, Satisfaction and Recommendation; Data From Repeat Users in 4 Family Planning Clinics

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ABSTRACT

Implanon-NXT is a contraceptive device inserted subdermally in the posterior arm. It releases Etonorgestrel and is effective for up to 3 years. The National Population and Family Development Board (LPPKN) has been using Implanon-NXT for the past 20 years; however, little data has been collected on its acceptability from a client perspective. The data shown here is part of a wider study on Implanon-NXT and pain management. Our objective was to assess acceptance and perception of Implanon-NXT among Malaysians. Data was collected using a questionnaire administered during clinic. Data from four LPPKN clinics in Melaka, Selangor, Sabah and Sarawak were included in the final analysis. 22 participants who repeatedly used Implanon-NXT were identified. Most participants (n=17, 77.3%) were using Implanon-NXT for the third time. Based on common side effects, 13 (59.1%) participants had Irregular Menses/Dysmenorrhea, 12 (54.5%) had weight gain and 5 (22.7%) had mood changes. The frequency of menses was decreased for 12 (54.5%) participants, Unchanged for 6 (27.3%), and Increased for 4 (18.2%). There was a decrease in the quantity of menses for 13 (59.1%) participants, increase in 5 (22.7%), and no change for 4 (18.2%). For Satisfaction with previous use of Implanon-NXT, 15 (68.2%) participants were very satisfied, 6 (27.3%) were satisfied, and 1 (4.5%) was very unsatisfied. All 22 (100%) participants who have used Implanon-NXT before will recommend it to a friend. These findings are consistent with existing studies and is helpful for clients to make an informed decision when choosing to use Implanon-NXT.

Keywords: Acceptability; contraception; implanon; satisfaction; side effects

Implementation of Falls Prevention Program among the Elderly in Hilir Perak

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ABSTRACT

With increasing age, loss of muscle mass and strength increase the risk of falls among elderly, which in turn causes complications such as fractures, reduced mobility and even death. Hence, a study was conducted from February 2025 until May 2025 to identify the elderly at risk of fall via the integration of BSSK and sarcopenia screening at health clinics in Hilir Perak. Possible sarcopenia were diagnosed using the guideline from Asian Working Group for Sarcopenia (AWGS) 2019. The prevalence of possible sarcopenia and falls incidents were 40.4% and 33.9% respectively. Out of the total 490 respondents, 324 respondents did not experience falls. However, it is interesting to note that, 21.6% (70/324) of them were identified to have risk of falls and referred to the physiotherapist for muscle resistance training. Integration of BSSK and sarcopenia screening proves to be a pivotal in the primary care setting as a falls prevention tool and the usage should be expanded.

Keywords: Elderly; falls prevention; sarcopenia

Food Insecurity and Its Associated Factors among Dayak Elderly In Southern Sarawak

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ABSTRACT

Food insecurity is a critical public health concern among older adults, especially in vulnerable and indigenous communities. This study aimed to examine its prevalence and explore associated determinants among the Dayak elderly population in southern Sarawak, Malaysia. A community-based cross-sectional study was conducted involving 311 Dayak elderly aged 6092 years, recruited from selected villages across Kuching, Samarahan, and Serian divisions using proportionate cluster sampling. Data were collected via interviewer-administered questionnaires covering sociodemographic information, social support, food environment, functional ability, oral health, and food insecurity status. Data were analysed using descriptive statistics and multiple logistic regression. The prevalence of food insecurity among the Dayak elderly was 26.4%. The odds of facing food insecurity were much higher for women (AOR 2.292, 95% CI = 1.052-4.993), those with a low household income (AOR 20.617, 95% CI = 2.635-161.342), individuals lacking savings (AOR 2.629, 95% CI = 1.332-5.191), those who had trouble getting to faraway food stores (AOR 4.107, 95% CI = 1.855-9.904), and individuals with only fair oral health (AOR 3.43, 95% CI = 1.166-10.09). Conversely, factors associated with a decreased likelihood of food insecurity included being single/widowed (AOR 0.362, 95% CI = 0.157-0.836) and receiving financial assistance (AOR 0.323, 95% CI = 0.154-0.675). These findings highlight the urgent need for tailored interventions addressing socioeconomic vulnerabilities, improving physical access to food, and incorporating oral health considerations into food security programs targeting elderly indigenous populations in Sarawak.

Keywords: Dayak elderly; food insecurity; food environment; indigenous; oral health

Pathophysiological Role of Cardiovascular Diseases in Cognitive Impairment: A Critical Viewpoint on Carotid Intima-Media Thickness and White Matter Hyperintensity Link

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ABSTRACT

Cardiovascular diseases (CVDs) increase the risk of cognitive impairment (CI) through potential vascular and neurodegenerative pathways. Carotid intima-media thickness (CIMT) has recently been proposed as a potential indicator of cerebral white matter hyperintensities (WMHs), which are strongly linked to CI. This meticulous viewpoint examines the role of CVDs, particularly carotid atherosclerosis in the progression of white matter abnormalities, by critically focusing on the CIMT-WMH relationship. It provides an in-depth understanding of the possible pathophysiological mechanisms by which CVDs contribute to significant CI. Evidence suggests greater CIMT is linked to higher WMH burden, particularly in older adults, hypertensive patients, and postmenopausal women. Subclinical atherosclerosis and vascular dysfunction are directly implicated in this association, accelerating cerebrovascular damage and CI. However, the underlying mechanisms remain elusive. Atherosclerosis may promote arterial stiffening and narrowing, leading to impaired cerebral perfusion and ischemic injury in white matter. Systemic inflammation along with disruption of blood-brain barrier may promote neuroinflammation within the central nervous system and contribute to microvascular damage. These pathways highlight the role of subclinical vascular disease in CI but with scarce magnitude and consistency since past studies were mostly cross-sectional, with limited longitudinal data, and lack of consensus on CIMT thresholds to reliably predict cognitive outcomes. Early CIMT monitoring can serve as a non-invasive, relatively low-cost approach to identify vulnerable, asymptomatic individuals at risk of increased cerebrovascular injury. Future research

should prioritise CVD population-based longitudinal studies, standardization of CIMT assessment, and its integration with MRI and neurocognitive screening. Tailored cognitive resilience programs with early cardiovascular risk management goals are recommended to strengthen preventive cardio-cerebral strategies.

Keywords: Cardiovascular diseases; carotid intima-media thickness; cognitive impairment; pathophysiology; white matter hyperintensity

Breastfeeding and Beyond: Exploring Its Role in Preventing Central Obesity among Women in Hulu Langat, Selangor

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ABSTRACT

The National Health and Morbidity Survey (NHMS) 2019 reported that more than 54% of Malaysian adults are overweight or obese, with central obesity being more prevalent among women. Central obesity poses significant health risks, including diabetes, heart disease, and metabolic syndrome, with waist circumference serving as a strong predictor. While sociodemographic and lifestyle factors have been widely studied, the potential protective role of breastfeeding against maternal central obesity remains unexplored. **Objective**: We proposed a study to determine the association between breastfeeding practices and central obesity among adult women in Hulu Langat. **Method**: A cross-sectional study will be conducted involving 390 adult women with history of breastfeeding, recruited through convenience sampling at selected Klinik Kesihatan in Hulu Langat. Data will be collected using validated questionnaires covering sociodemographic factors, breastfeeding history, physical activity and dietary behavior. Waist circumference will be measured by trained investigators. Descriptive statistics will be used to summarise participant characteristics, while chi-square tests, t-tests, and logistic regression will assess the association breastfeeding practices and central obesity. **Expected results**: We hypothesise a significant association between breastfeeding practices and central obesity among women, with exclusivity and duration of breastfeeding potentially influencing the relationship. **Conclusion**: If breastfeeding is shown to be protective, strengthening breastfeeding promotion could serve as a dual strategy-educing obesity while simultaneously increasing breastfeeding rates among Malaysian women.

Keywords: Abdominal; breastfeeding; obesity; waist circumference; women

Patients' Knowledge and Concern on Anaesthesia and Role of Anaesthetic Doctors in a Teaching Hospital

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ABSTRACT

Background: Public understanding of anaesthesiology often remains limited to the administration of anaesthesia, despite its broader scope in perioperative medicine, intensive care, pain management, and transfusion services. This study aimed to assess patients' knowledge of anaesthesia, explore their primary concerns, and evaluate their understanding of anaesthetic doctors' roles within a tertiary Malaysian hospital. **Methods:** In this cross-sectional study, a validated 19-item questionnaire was administered preoperatively to patients undergoing elective general anaesthesia. The survey assessed three domains: patient demographics, knowledge and concerns regarding anaesthesia, and understanding of the anaesthetic doctor's professional role. Data were analysed using descriptive statistics, chi-square tests, and logistic regression. **Results:** A total of 320 participants responded to the questionnaire. Although 75.6% recognised anaesthetic doctors as medical specialists, fewer acknowledged their roles in intensive care (58.7%), transfusion management (51.5%), and pain medicine (46.5%), with some misconceptions about radiological and technical duties. Patients' predominant concerns were fear of not waking up, intraoperative death, and postoperative nausea and vomiting. Booklets, followed by videos, and websites were the preferred educational formats by patients. Logistic regression showed tertiary education was the only independent predictor of good knowledge (OR 3.12, 95% CI 1.34-7.25, p = 0.008). **Conclusion:** Patients recognised core intraoperative roles of anaesthetic doctors but had limited awareness of their broader scope, which was strongly influenced by educational attainment. Patient-centred, multimodal educational strategies may bridge these gaps, reduce perioperative anxiety, and enhance the speciality's visibility in modern medicine.

Keywords: Anaesthesia; anaesthetic doctor role; patient concerns; patient knowledge; perioperative care

Parental Adverse Childhood Experiences and Adolescent Mental Health. A Structural Equation Modelling (SEM) Analysis of the Mediating Roles of Emotional Availability in Dyadic Perspective

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ABSTRACT

Adverse childhood experiences (ACEs) are highly prevalent worldwide and are consistently associated with negative mental health outcomes across the lifespan, including heightened stress, anxiety, and depression. Importantly, the impact of ACEs frequently extends beyond the individual, with evidence indicating intergenerational transmission through impaired parenting practices and relational processes. Emotional availability (EA)-encompassing sensitivity, structuring, non-intrusiveness, and responsiveness within the parent–adolescent dyad-represents a potential mechanism through which parental ACEs shape adolescent mental health outcomes. Despite growing global evidence, research investigating these processes in Malaysia remains scarce, particularly studies adopting a dyadic framework that incorporates both parental and adolescent ACEs. This study aims to address this gap by examining: (i) the association between parental ACEs and emotional availability; (ii) the mediating role of EA in the relationship between parental ACEs and adolescent mental health; (iii) determine the relationship between adolescents' MH and parental ACEs; and (iv) the influence of adolescent mental health on parental EA. A cross-sectional design will be employed, recruiting approximately 300 parent-adolescent dyads from clinics and community settings in Malaysia. Validated instruments will be utilised, including the ACE Questionnaire (parents), Adolescent ACE self-report, Emotional Availability Scales (dyadic quality), and the PHQ-GAD (adolescent mental health). Structural equation modelling (SEM) will be applied to evaluate direct, indirect, and reciprocal pathways, while adjusting for sociodemographic covariates. Findings are expected to advance theoretical models of intergenerational adversity by integrating ACEs, mental health and emotional availability within a dyadic framework, while providing evidence to inform culturally sensitive interventions aimed at strengthening adolescent mental health in Malaysia.

Keywords: Adolescent mental health; dyadic perspective; emotional availability; parental ACEs

A Newly Validated Malay Tool to Assess Fatigue among Construction Workers

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ABSTRACT

Background: Fatigue is a significant occupational risk factor in the construction industry, often described as "dirty, dangerous, and difficult" (3D). Despite its importance, no validated Malay tool exists to assess fatigue in this workforce, which is largely composed of foreign labourers. This study aimed to translate, cross-culturally adapt, and validate the Fatigue Assessment Scale for Construction Workers (FASCW) into Malay language. **Methods:** The 10-item FASCW underwent a rigorous five-stage process: forward translation, synthesis, backward translation, expert panel review, and cognitive interviews. Experts in occupational health, public health, psychology, linguistics, and safety contributed to refinement. Pre-testing was performed with 10 construction workers of varied nationalities. Psychometric evaluation was conducted among 150 workers using exploratory factor analysis (EFA) and reliability testing. **Results:** The Malay-FASCW was well accepted linguistically and culturally. Cognitive interviews resolved minor comprehension issues without item removal. Bartlett's test was significant ($p < 0.001$) and Kaiser-Meyer-Olkin value was 0.94, confirming sampling adequacy. EFA supported a single-factor solution with loadings of 0.733-0.872, explaining 66.9% of variance. Internal consistency was excellent (Cronbach's $\alpha = 0.888$). **Conclusion:** The Malay-FASCW is a valid and reliable tool for assessing fatigue among construction workers in Malaysia. This instrument fills a critical gap by enabling systematic evaluation of fatigue in a high-risk workforce, providing evidence to guide occupational health interventions and improve workplace safety.

Keywords: Construction workers; fatigue; FASCW; Malay; validation

Cross-Sectional Study of Sensory Profile in Autistic Children and Parenting Stress in Their Families

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ABSTRACT

Parents of children with autism spectrum disorder (ASD) are frequently found to experience heightened stress due to their child's distinct sensory profiles. However, few studies have investigated the factors that mediate this relationship. This study investigated the association between sensory profiles in children with ASD and parental stress index. In this purposive cross-sectional study, 87 biological parents of children with ASD aged between 3 to 14 years old were recruited from Child Development Centre Hospital Tunku Ampuan Besar Tuanku Aishah Rohani Universiti Kebangsaan Malaysia over a period of 5 months from April 2025 to August 2025. The subjects completed Short Sensory Profile-2 (SSP-2) and Parenting Stress Index Short Form (PSI-SF). Analysis using SPSS 29.0 identified that 15% of the parents with ASD children had significant levels of stress. The children in this population showed high heterogeneity in sensory profile. This study found that a child's sensory issues were associated with both a family history of neurodivergence and higher overall ASD severity. Separately, higher levels of parenting stress were correlated with a child's prior NICU admission and more pronounced restricted and repetitive behaviours (RRBs), which is a component of ASD severity. Correlation analyses revealed that parents tend to experience greater stress when their child's sensory profile indicates more significant challenges with sensory seeking, avoiding, and sensitivity. By understanding how sensory phenotypes and parental stress relate in families with ASD children, we can develop better management approaches. Establishing this association would help ensure that parents and children receive appropriate and targeted support.

Keyword: Autism; phenotypes; stress; sensory profiles

Undiagnosed Diabetes in Yemen: A Growing Public Health Crisis in the Shadow of Conflict

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ABSTRACT

Type 2 diabetes mellitus (T2DM) is increasing globally with substantial burden on healthcare systems, especially in resource-limited countries. In Yemen, limited diagnostic infrastructure and low screening rates contribute to delayed detection. Prediabetes increases cardiovascular risk and may progress to diabetes. Thus, early identification is crucial to guide interventions and reduce complications. This study aimed to estimate the prevalence of undiagnosed T2DM and prediabetes, and to identify factors associated with glycemic status among adults in Ibb, Yemen. A cross-sectional study was conducted from July 2024 to May 2025 across three medical centres in Ibb Governorate. A total of 1,045 adults aged 18-60 years, without prior history of diabetes or prediabetes, were included. Glycemic status was classified using fasting blood sugar (FBS), 2-hour oral glucose tolerance test (OGTT), and HbA1c, based on the American Diabetes Association (2025) criteria. Three diagnostic combinations (FBS + OGTT, FBS + HbA1c, and OGTT + HbA1c) defined undiagnosed diabetes. The prevalence of undiagnosed diabetes was 8.4% (FBS + OGTT) and 9.76% (FBS + HbA1c or OGTT + HbA1c). Prediabetes prevalence was 23.4%, 14.7%, and 26.4% based on FBS, OGTT, and HbA1c, respectively. Females constituted a higher proportion of undiagnosed cases. Age group was significantly associated with glycemic status ($p < 0.001$), while gender and family history showed significant associations with FBS and HbA1c classifications. Undiagnosed diabetes affects 8.4-9.76% of adults in Ibb, with prediabetes affecting up to one-quarter. Age and family history are key predictors, underscoring the need for early targeted screening in Yemen.

Keywords: Cross-sectional study; Ibb-Yemen; prediabetes; undiagnosed diabetes

A Comparative Study of Cardiovascular Disease Risk Biomarkers in Hypertensive and Normotensive Young Adults: Mybroad Study

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ABSTRACT

Cardiovascular disease (CVD) remains a leading cause of morbidity and mortality globally, with hypertension being a major modifiable risk factor. Early identification of CVD risk biomarkers in young adults is crucial for preventive interventions. This sub-study of The Malaysia Blood Pressure among Young Adults (MYBROAD) aimed to compare CVD risk biomarkers between hypertensive and normotensive young adults. A cross-sectional study involving 124 Malaysian young adults aged 18-39 years was conducted, with participants divided into hypertensive (n = 60) and normotensive (n = 64) groups. CVD risk biomarkers, including HDL-cholesterol (HDL-C), LDL-cholesterol (LDL-C), C-reactive protein (CRP), and glycated haemoglobin (HbA1c), were measured and compared between groups using the independent t-test analysis. Significant differences were observed between hypertensive and normotensive groups in several key biomarkers. HDL-C levels were significantly lower in hypertensive participants (1.2 $\pm$ 0.3 mmol/L) compared to normotensive individuals (1.4 $\pm$ 0.4 mmol/L, p = 0.002). CRP levels were significantly elevated in the hypertensive group (6.6 $\pm$ 7.5 mg/L) compared to the normotensive group (3.5 $\pm$ 5.6 mg/L, p = 0.011). HbA1c levels were also significantly higher in hypertensive participants (5.5 $\pm$ 1.6%) compared to normotensive controls (5.0 $\pm$ 0.9%, p = 0.020). LDL-C showed no significant difference between groups (3.4 $\pm$ 1.0 vs 3.1 $\pm$ 0.9 mmol/L, p=0.167). These findings highlight that young adults with hypertension exhibit significant alterations in CVD risk biomarkers. Early detection of these biomarkers can assist in guiding targeted interventions to reduce long-term CVD risk in young populations, emphasising the importance of routine screening and lifestyle modifications from a young age.

Keywords: C-reactive protein; glycated haemoglobin; HDL-cholesterol; hypertension; young adults

Alpha-Lipoic Acid (ALA) in Diabetes Mellitus-Induced Erectile Dysfunction (DMED): Preliminary Efficacy from an Interim Analysis

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ABSTRACT

Introduction: Erectile dysfunction (ED) is a common complication of type 2 diabetes mellitus (T2DM) related to endothelial dysfunction, neuropathy and oxidative stress. Alpha-lipoic acid (ALA), a potent antioxidant, has been shown to be beneficial in diabetic neuropathy and adjunctive ED therapy, but its role as monotherapy in diabetes mellitus-induced erectile dysfunction (DMED) remains unclear. **Methodology:** This ongoing, randomised, single-blind, pilot study evaluates oral ALA 600 mg daily in men with T2DM and mild to moderate ED. Thirty-four participants were randomised in a 1:1 ratio to receive either ALA plus vitamins B1, B6 and B12 or vitamins alone. The primary outcome was change in the 5-item version of the International Index of Erectile Function (IIEF-5) score. Secondary outcomes were changes in serum malondialdehyde (MDA), high-sensitivity C-reactive protein (hs-CRP) and testosterone. Analyses were performed at baseline, six weeks and twelve weeks; the results after six weeks are presented in this report. **Results:** Twenty-eight participants completed the follow-up. The intervention group showed a mean IIEF-5 increase of +2.36, while the control group demonstrated a slight decline, with a significant time–group interaction ($p = 0.015$). After baseline adjustment, the effect remained significant ($p = 0.017$). No differences were found between the groups for serum MDA, hs-CRP and testosterone. Four participants withdrew due to mild side effects; no serious adverse events occurred. **Conclusion:** ALA may improve erectile function in DMED, although no short-term changes in biomarkers were observed. This interim analysis demonstrates the feasibility and early efficacy of ALA monotherapy in DMED.

Keywords: Alpha-lipoid acid; diabetes mellitus-induced erectile dysfunction; high-sensitivity C-reactive protein; IIEF-5; malondialdehyde; testosterone

From Diet to Neurons: fMRI Evidence of the Association between Malaysian-Mind Diet Scores and Brain Activation

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ABSTRACT

Working memory and cognitive flexibility, regulated by the dorsolateral prefrontal cortex (DLPFC), are closely linked to the progression of cognitive decline. The Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet has shown promise in reducing cognitive decline risk among older adults. This study aimed to examine the association between Malaysian-MIND diet (MY-MINDD©) scores and brain activation in Malaysian older adults. A cross-sectional study was conducted among forty older adults aged 60-75 years. Dietary intake was assessed using a validated 124-item semiquantitative Food Frequency Questionnaire (FFQ) to calculate MY-MINDD© scores. Brain activation was measured using task-based fMRI (N-back and Stroop Colour Word Test), and DLPFC activation was analysed in regions of interest (ROIs) including Brodmann's areas 9, 46, and the anterior cingulate cortex (ACC). ANCOVA and multiple linear regression (MLR) evaluated brain activation differences across MY-MINDD© quartiles, adjusting for gender, age, education, and body mass index (BMI), with significance set at $P < 0.0063$ and $P < 0.05$. Subjects in the highest MY-MINDD© quartile showed significantly greater DLPFC activation during 0-back, 1-back, and SCWT incongruent tasks ($P < 0.05$). A multivariate general linear model (GLM) showed a significant overall effect of MY-MINDD© scores on brain activation across fMRI tasks ($P = 0.003$). MLR demonstrated significant positive associations between MY-MINDD© scores and DLPFC activation during 0-back (left and right), 1-back (right), and SCWT incongruent (left and right) tasks ($P < 0.0063$). Higher adherence to the MY-MINDD© diet was associated with greater brain activation, suggesting its potential as a proxy of cognitive decline risk.

Keywords: Brain activation; DLPFC; fMRI; Malaysian-MIND diet; older adult

Investigating The Prevalence and Clinical Manifestation of Rhinovirus from Hospitalised Patients in Tertiary Care Centre UKM

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ABSTRACT

Rhinovirus is a respiratory pathogen causing respiratory tract infections. The symptoms are fever, runny nose, and cough, occurring among vulnerable paediatric and elderly groups. Patients with previous asthma exacerbation and viral infection are prone to contracting this virus. There is no comprehensive study analysis on the whole age population with clinical manifestations in Malaysia. This study aims to determine the prevalence of rhinovirus among patients and its correlated clinical manifestation obtained. Nasopharyngeal swab (NPS) samples were collected from the tertiary care centre UKM from June 2024 to May 2025. Nucleic acid extraction and real-time RT-PCR were performed on samples collected. A total of 400 samples were collected, and 200 samples were finished performing the test. 36.5% (73/200) samples were detected with rhinovirus gene. 0 to 4 years old(70%) and age more than 60 years old(15%) have higher detection rate than other age group (p=0.800). Male (60%)(p=0.881) has a higher infection rate than female (40%). Clinical symptoms such as pneumonia (23%)(p=0.557), fever (20%)(p=0.304), and cough (19%)(p=0.883) were mostly presented in patients detected with rhinovirus. Meanwhile, previous viral infection (47%) (p=0.656) and previous bacterial infection (15%)(p=0.697) were mostly found in rhinovirus detected patients. However, there are no significant differences on all parameters between detected and non-detected groups, except for underlying heart disease from detected group(3.49%)(p=0.047). In conclusion, the prevalence rate of rhinovirus (n=200) is 37%. Prevalence rate and clinical manifestations measured can give a reference to physicians for the current update of this infection.

Keywords: Heart disease; paediatric; pneumonia; rhinovirus; respiratory infection

Uncovering Determinants of In-Hospital Mortality in Type 2 Diabetes Mellitus Patients: Evidence from a Tertiary Teaching Hospital in Kuala Lumpur

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ABSTRACT

Type 2 Diabetes Mellitus (T2DM) is a major global concern accounting for about 90% of diabetes cases in 2025. In Malaysia, T2DM contributes to hospital admissions and in-hospital mortality. Identifying determinants of in-hospital mortality among T2DM patients is crucial to guide clinical and healthcare management. This study aims to uncovers in-hospital mortality determinants among T2DM patients in a Malaysian tertiary teaching hospital. This cross-sectional study Hospital Canselor Tuanku Muhriz (HCTM) in Kuala Lumpur analysed 2,838 inpatients mortality with T2DM (E11.-- according to International Classification of Disease 10th Edition, ICD-10) from the casemix database records. Determinants of in-hospital mortality were identified using simple and multiple logistic regression. Overall in-hospital mortality rate among T2DM patient was 4.2%. Patients who died had a higher mean age of 67.72 years (SD 12.06) compared to survivors 65.11 years (SD 11.03). Significant determinants of mortality identified included Case Main Group (CMG) infection and parasitic diseases (aOR = 8.042; 95% CI: 2.999, 21.569; $p < 0.001$), respiratory system diseases (aOR = 3.004; 95% CI: 1.192, 7.571; $p = 0.020$), hepatobiliary/pancreatic conditions (aOR = 3.674; 95% CI: 1.143, 11.871; $p = 0.029$), central nervous system (aOR = 3.484; 95% CI: 1.236, 9.826; $p = 0.018$) and severity level 3 (aOR = 2.994; 95% CI: 1.464, 6.221; p = 0.003). Each additional diagnosis increased risk of mortality (aOR = 1.107; 95% CI: 1.032, 1.189; $p = 0.005$). This study underscore the need for early detection and management strategies tailored to target high-risk clinical condition to reduce mortality among T2DM inpatients.

Keywords: Casemix system; infection; inpatient; mortality determinants; Type 2 Diabetes Mellitus

Heat-Related Cardiovascular Risks in a Warming Climate: A Preliminary Study in Kedah, Malaysia

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ABSTRACT

Climate change has driven a steady increase in global temperatures intensifying adverse health effects. This study aims to assess the relationship between high temperature (heat) and cardiovascular diseases (CVD) mortality and morbidity in Kedah. The dataset comprised daily mortality (2011-2020) from Department of Statistics Malaysia, morbidity data from Health Information Centre, Ministry of Health Malaysia, and meteorological data and air pollutants data from the Malaysian Meteorological Department and Department of Environment, respectively. A generalised additive model (GAM) integrated with a distributed lag non-linear model (DLNM) was employed to analyse the non-linear and lagged effects of heat exposure, adjusting the air pollutants (PM2.5 and NO_2) as potential confounders. The statistical analyses were performed using R software, version 4.4.1 (2024-06-14). Heat exposure demonstrated significant cumulative lag effects on CVD outcomes, with increase relative risk of mortality at Lag 0-28 days (RR= 1.13, 95% CI:1.04-1.22) and relative risk for morbidity across short and long lags (RR=1.11-1.16). These findings show heat poses immediate and delayed effects on cardiovascular health. This study provides scientific evidence and a fundamental basis for projection of heat-related health impacts. Future research is recommended to focus on mid- and long-term climate projections to better anticipate and mitigate health risks arising from higher temperatures particularly in tropical regions.

Keywords: Cardiovascular; climate change; GAM-DLNM; heat; mortality; morbidity

Effect of Body Mass Index on Bone Mineral Density in Middle-Aged Adults

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ABSTRACT

Osteoporosis, a musculoskeletal disorder characterised by compromised bone strength, and obesity, defined by excessive adiposity, are two major public health concerns. This study assessed the association between body mass index (BMI) and whole-body bone mineral density (BMD) in middle-aged adults. We retrospectively analysed data from 95 patients (72 females and 23 males) aged between 35 and 50 years who underwent dual-energy X-ray absorptiometry (DXA). Participants were stratified by sex and categorised into BMI groups as <25 kg/m^2 (normal or low weight), >25 - <30 kg/m^2 (overweight) and >30 kg/m^2 (obese). The association between BMI and BMD was analysed using one-way ANOVA followed by Tukey's post-hoc tests for pairwise comparisons, and $p<0.05$ was considered significant. A statistically significant association was found between BMI category and BMD in females ($p = 0.0104$), with BMI group explaining 12.4% of the variance in BMD ($R^2 = 0.124$). Post-hoc analysis revealed that obese women had a significantly higher BMD compared to both the normal BMI group ($p = 0.0429$) and the overweight group ($p = 0.0143$). No significant difference was observed between normal and overweight females ($p > 0.05$). Similarly, no significant association was observed in males ($p = 0.721$), with the BMI group accounting for 3.2% of the variance in BMD ($R = 0.032$). This study demonstrates a sex-specific association between BMI and BMD in middle-aged adults. Obesity was linked to higher BMD in women, suggesting a potential protective mechanical effect, whereas no such association was found in men. These findings highlight the need for sex-stratified approaches to understanding the impact of body composition and skeletal health.

Keywords: Body mass index (BMI); bone mineral density (BMD); DXA; middle-aged; obesity

Ficus deltoidea Extract Attenuates Oxidative Stress and Enhances Osteogenic Activity in Human Osteoblasts

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ABSTRACT

Background: Osteoporosis is a skeletal disorder marked by low bone mass and microarchitectural deterioration, increasing fracture risk, especially in the elderly and those exposed to oxidative stress. Oxidative stress disrupts osteoblast function and bone remodeling, yet few therapies target both oxidative damage and bone formation. *Ficus deltoidea* (FD) has shown bone-protective activity in animal models, but its molecular mechanisms remain poorly defined. **Methods:** Human fetal osteoblasts (hFOB 1.19) were divided into five groups: untreated control, H_2O_2-induced stress, and three treatment groups exposed to H_2O_2 followed by FD extract (6.25, 12.5, or 25 µg/mL). The IC_{50} of H_2O_2 was determined using the MTS assay. After 3 and 7 days of treatment, calcium deposition was assessed by Alizarin Red S staining and quantified with cetylpyridinium chloride (CPC). Protein levels of SOD, GPx, CAT, MDA, and ALP were measured by ELISA, while gene expression of Nrf2 and ERK was analysed using RT-qPCR. **Results:** FD, particularly at 6.25 µg/mL, significantly alleviated H_2O_2-induced cytotoxicity, enhanced calcium deposition, and modulated oxidative markers. Treatment increased CAT activity, reduced MDA levels, and markedly upregulated Nrf2 and ERK expression, whereas GPx remained unaffected. **Conclusion:** FD demonstrated dual antioxidant and osteoinductive properties in oxidatively stressed osteoblasts. These findings provide molecular evidence supporting *Ficus deltoidea* as a promising phytomedicine for osteoporosis management.

Key Words: Antioxidant signaling (Nrf2, ERK); *Ficus deltoidea*; osteoblasts (hFOB 1.19); osteogenesis; osteoporosis; oxidative stress

Molecular Characterisation of Key Virulence Genes in *Enterococcus faecalis* and *Enterococcus faecium* Isolates in a Malaysian Tertiary Hospital

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ABSTRACT

Background: *Enterococcus faecalis* and *Enterococcus faecium* are opportunistic pathogens associated with various healthcare-associated infections. Their virulence is driven by specific genes that promotes adhesion, biofilm formation, tissue invasion, and immune evasion. While antimicrobial resistance among enterococci is well-documented, local data on virulence gene distribution remain scarce. This study aimed to investigate the prevalence and species-specific distribution of five main virulence genes: *gelE* (gelatinase), *esp* (surface protein), *asa1* (aggregation substance), *cylA* (cytolysin), and *hyl* (hyaluronidase) in clinical isolates from Hospital Canselor Tuanku Muhriz. **Method:** 55 non-duplicate *Enterococcus* isolates (30 *E. faecalis*, 25 *E. faecium*) were analysed. Species identification was performed using MALDI-TOF MS. Virulence genes were detected using conventional PCR and confirmed by sequencing. Associations between gene distribution and species were evaluated using Fisher's exact test. **Results:** Isolates were mainly from blood (50.9%), pus/swabs (20.0%), and urine (18.2%). Overall, the most common gene was *gelE* (87.3%), followed by *asa1* (67.3%), *esp* (52.7%), *cylA* (23.6%), and *hyl* (7.3%). *E. faecalis* had significantly higher prevalence of *gelE* (96.7%, p=0.039) and *cylA* (43.3%, p<0.001), while *esp* was more common in *E. faecium* (72%, p=0.014). Most isolates (74.5%) harboured two or more genes with only 3 (5.5%) lacking all five. **Conclusion:** This study demonstrates species-specific virulence pattern with *E. faecalis* favours cytolytic or enzymatic traits, whereas *E. faecium* exhibits enhanced adherence properties. These suggest distinct pathogenic strategies that may influence clinical outcomes and mechanisms of persistence in hospital environments.

Keywords: Conventional PCR*; Enterococcus faecalis*; *Enterococcus faecium*; healthcare-associated infections; virulence genes

Tocotrienol-Incorporated Gelatin Hydrogel Crosslinked with Genipin for Future Bone Tissue Engineering Applications: Physiochemical Characterisation and Biocompatibility

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ABSTRACT

Tocotrienol's health benefits may be limited by poor delivery due to selectivity of α-tocopherol transfer protein in the liver. This work investigates the delivery of tocotrienol via a biodegradable gelatin hydrogel crosslinked with genipin. Tocotrienol's cytotoxicity and physicochemical properties were examined with the genipin-crosslinked gelatin hydrogel. 10% tocotrienol emulsion (TTE) was prepared using a sonicator and characterised with a zeta sizer and FTIR. A dose-response analysis was conducted to determine the appropriate tocotrienol concentration for hydrogel integration with genipin (GNP) (0. 1% or 0. 3% w/v) and crosslinked with gelatin (7% or 10% w/v). The dose-response study's tocotrienol emulsion was added to gelatin before polymerisation. With 141.9 nm particles and 0.150 PDI, the emulsion was homogeneous and stable. The 1% tocotrienol emulsion was chosen due to its viability. Formulations 1% TTE_0.1% GNP_7% Gel and 1%TTE_0.3% GNP_7% Gel had superior physicochemical properties compared to other groups. 1%TTE_0.3%GNP_7% Gel had outstanding hydrophilicity, weight loss, and a suitable swelling ratio for bone application. SEM scans of the surface and cross-section showed 1% TTE_0. 3% GNP_7% Gel had interconnected pores with an optimal average pore size of 292 ± 37 μm. Adding tocotrienol to the gelatin hydrogel matrix did not affect FTIR, XRD, or EDX. In vitro cytotoxicity studies indicated >90% cell viability of hFOB 1.19 cells cultured on 1% TTE _ 0. 1% GNP _7% Gel and 1% TTE _ 0. 3% GNP _ 7% Gel (105 ± 4. 36% and 95.36 ± 9. 78%). Combining tocotrienol with genipin-crosslinked gelatin hydrogel demonstrated superior physicochemical properties without in-vitro toxicity.

Keywords: Bone application; gelatin; genipin; injectable hydrogel; tocotrienol

Comparative Effects of Ejiao and Ejiao Peptides on Bone Health in Male Rats with D-Galactose-Induced Bone Loss

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ABSTRACT

Objective: Ejiao, a traditional Chinese medicine, is widely used for women's health and has shown protective effects against postmenopausal osteoporosis. However, evidence in male osteoporosis remains limited. Ejiao peptides, a digested form of Ejiao with improved absorption, have not been evaluated for skeletal efficacy. This study compared the therapeutic potential of Ejiao and Ejiao peptides in preventing D-galactose-induced bone loss in male rats. **Methods:** Three-month-old male Sprague–Dawley rats were divided into four groups: sham, D-galactose (600 mg/kg/day) with distilled water, D-galactose with Ejiao (0.53 g/kg/day), and D-galactose with Ejiao peptides (0.33 g/kg/day; equivalent to Ejiao). Treatments were administered for eight weeks. Bone mineral density and bone mineral content were measured longitudinally, while morphometric and biomechanical parameters were assessed post-sacrifice. **Results**: Whole-body bone mineral density remained stable in sham and D-galactose with distilled water groups but progressively increased in the Ejiao and Ejiao peptide groups, with significant gains at weeks 4 and 8. Ejiao significantly improved maximal force, maximal stress, break force, absolute density, and midshaft circumference compared with D-galactose controls ($p < 0.01$). Ejiao peptides did not enhance biomechanical or structural parameters. **Conclusion:** Ejiao enhanced bone strength, density, and geometry more effectively than Ejiao peptides, suggesting that its diverse bioactive constituents exert synergistic skeletal benefits. Ejiao may therefore represent a promising therapeutic candidate for age-related bone loss in men.

Keywords: Bone mineral density; D-galactose; Ejiao; Ejiao peptides

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Hypoxia as a Strategy to Enhance Mesenchymal Stem Cell-Derived Exosome Yield

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ABSTRACT

Introduction: Hypoxic preconditioning was recognised to enhance mesenchymal stem cell (MSC) proliferation and paracrine signaling. Recent evidence shows that reduced oxygen tension not only improves MSC biology but also can modulate the quantity and bioactivity of their secreted exosomes, boosting their regenerative potential. However, the effects of different hypoxic conditions on exosome yield, bioactivity, and composition remain unclear. Therefore, this study investigates the effect of hypoxia priming on exosome characteristics, including particle concentration, size distribution, and protein content. **Methods:** MSC cultures were subjected to normoxic (21% O_2) and hypoxic conditions (1% and 3% O_2). Cell viability was firstly assessed using standard assays. Conditioned media were collected, and exosomes were isolated and analyzed for particle concentration and size (nanoparticle tracking analysis) and protein content (quantification assays). **Results:** Cell viability was significantly improved under 3% hypoxia compared to normoxia. Particle concentrations were higher in hypoxia- primed groups relative to normoxia, with 3% hypoxia producing significantly greater yields than 1% hypoxia. Particle sizes across all groups were consistently below 150 nm, with no significant difference observed among normoxic and hypoxic conditions. Protein concentrations were elevated in the 3% hypoxia group compared with normoxia and 1% hypoxia, although the difference was not statistically significant. **Conclusion:** Hypoxia priming at 3% O_2 enhances cell viability and exosome yield without affecting size distribution, indicating that moderate hypoxia may improve the efficiency of MSC-exosome production for therapeutic applications.

Keywords: Cell viability; exosomes; hypoxia priming; mesenchymal stem cells; particle concentration

Comparative Antilipidemic Effects of *Cynodon dactylon* and Palm Oil (Crude & Refined) in Hyperlipidemia-Induced Mice

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ABSTRACT

The development of modern drugs has long been influenced by the use of plants in traditional medicine, with renewed interest in scientifically validating their therapeutic potential. Hyperlipidemia, a condition characterised by elevated blood lipids and associated with cardiovascular risk, remains a pressing health concern requiring safer and more effective interventions. This study aimed to evaluate the lipid-lowering effects of methanolic extracts of *Cynodon dactylon*, a widely available grass, in comparison with palm oil, Asia's primary cooking oil, using hyperlipidemic mouse models. Hyperlipidemia was induced by feeding mice a lipid-enriched diet for 30 days, followed by oral administration of *C. dactylon* extracts at low (250 mg/kg) and high (500 mg/kg) doses for another 30 days. Parallel groups were supplemented with crude and refined palm oil diets. Lipid profile analyses (cholesterol, HDL, LDL, VLDL, triglycerides) and histopathological examinations of liver, kidney, and heart tissues were conducted, alongside phytochemical screening and thin-layer chromatography of the extracts. Results demonstrated a significant cholesterol reduction in *C. dactylon*-treated groups, with the high-dose group achieving the greatest effect (32.6%, $p<0.05$) compared to hyperlipidemic controls, while palm oil diets reduced cholesterol by 26.3% ($p<0.05$). Histopathological analysis revealed hepatic lipid vacuolation and binucleated hepatocytes in hyperlipidemic mice, with high-dose *C. dactylon* partially mitigating hepatocyte lipid accumulation. Flavonoids identified in the extracts likely contributed to the observed antilipidemic activity. These findings suggest that *C. dactylon* possesses promising therapeutic potential as a natural lipid-lowering agent, contributing to the search for safer, plant-based strategies in hyperlipidemia management.

Keywords: *Cynodon dactylon*; hyperlipidemia; lipid-enriched diet; palm oil

Preliminary Validation of Lentiviral Constructs for Reprogramming Endometriosis-Derived Fibroblasts into IPSCS

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ABSTRACT

The transcription factors OCT4, SOX2, and KLF4 are essential for cellular reprogramming and induction of pluripotency. This study aims to establish a patient-derived induced pluripotent stem cell (iPSC) model for endometriosis, beginning with the validation of lentiviral constructs encoding these factors. Plasmids carrying OCT4, SOX2, and KLF4 were successfully transformed in ampicillin-resistant *Escherichia coli*, extracted using a Miniprep kit, and verified for concentration and purity by spectrophotometry. Functional validation was performed through transfection of 293T cells, where green fluorescent protein (GFP) expression confirmed successful plasmid delivery and transcriptional activity. Lentiviral particles were subsequently produced using the $CaPO_4$ precipitation method. Transduction of 293T cells resulted in detectable GFP expression, confirming viral functionality. However, optimisation is required to improve transduction efficiency. Scaling up viral production from 10 cm culture dishes to larger formats (T175 and triple-layer flasks), followed by titration, is currently in progress. These preliminary findings demonstrate that the reprogramming plasmids and viral constructs are functional, establishing the groundwork for generating patient-derived iPSCs. The next stage will focus on reprogramming fibroblasts from endometriosis patients and characterising their morphology, phenotype, and biomarker expression. Ultimately, this model will provide a novel *in vitro* platform for investigating endometriosis pathogenesis and potential biomarker discovery.

Keywords: Cell reprogramming; GFP expression; lentiviral vector; plasmids construction; transcription factors

Valuing Obesity Interventions in Malaysia: Development of Discrete Choice Experiment Questionaire on Public Willingness to Pay

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ABSTRACT

Obesity remains a pressing public health issue in Malaysia, with its prevalence continuing to rise despite the availability of various interventions targeting overweight and obesity. This trend has led to substantial economic implications, underscoring the need for more effective and culturally appropriate strategies. Understanding public preferences and willingness to pay (WTP) for obesity interventions is essential for designing cost-effective, sustainable, and contextually relevant programmes. A Discrete Choice Experiment (DCE) provides a robust methodological framework to elicit such preferences by simulating real-world decision-making scenarios. This study developed and validated a DCE questionnaire to measure public preferences and WTP for obesity interventions. Key attributes were identified through a comprehensive literature review and expert consultation, resulting in five attributes: intervention type, delivery mode, duration, potential side effects, and cost. Validation procedures ensured clarity and contextual relevance. Exploratory factor analysis (EFA) revealed a coherent factor structure aligned with theoretical expectations, while confirmatory factor analysis (CFA) confirmed model fit, supporting construct validity. Internal consistency was high across domains, with Cronbach's alpha values ranging from 0.78 to 0.89. Reliability testing demonstrated stable response patterns and acceptable item-total correlations. Respondents exhibited clear trade-offs between cost and intervention features, with a preference for lower cost programmes. The cost attribute significantly influenced choices, validating the WTP construct. This validated DCE instrument offers a reliable tool for informing health policy, optimising resource allocation, and guiding the development of targeted obesity interventions in Malaysia.

Keywords: Discrete choice experiment; intervention; Malaysia; obesity; overweight; validation; willingness to pay

Beyond the Scales: Shifting Public Perception on Obesity and Its Interventions in Malaysia

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ABSTRACT

Obesity is increasingly recognised as a critical public health concern in Malaysia, with prevalence rates continuing to rise despite the implementation of various interventions. Public perception often lags scientific consensus, hindering policy uptake and behavioural change. This study examines societal attitudes towards obesity and addresses a key research gap: the extent to which public perception influences the acceptability and sustainability of obesity interventions. Among 783 adult respondents, 92.2% agreed that obesity poses serious health risks, and 89.3% viewed it as a disease requiring systematic management. Notably, 61.1% expressed a need for weight-loss interventions, while nearly half perceived their current weight as non-ideal. Despite growing awareness, previous studies have largely focused on clinical outcomes, with limited attention to sociocultural attitudes and economic preferences. This study bridges that gap by integrating perception mapping, offering a dual lens on both economic and psychosocial dimensions. While lifestyle programmes received moderate support, scepticism remained towards pharmacological and surgical options. Furthermore, 87.5% of respondents associated ideal body weight with physical attractiveness, highlighting the influence of social norms on health-related decision-making. The novelty of this study lies in its quantification of both health and aesthetic motivations behind intervention preferences. Findings underscore the need for culturally resonant messaging and transparent communication to align clinical strategies with public expectations. Policy implications include the design of inclusive, perception-sensitive programmes that foster engagement and long-term sustainability. By reframing obesity as a systemic issue rather than a personal failing, Malaysia can advance an empathetic, evidence-informed approach that empowers rather than alienates.

Keywords: Attitudes; Malaysia; intervention design; obesity; public perception

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Content Validation and Reliability Test for Depression, Stigma, Social Support and Patient's Satisfaction Scale among Tuberculosis Patients in Serian Division, Sarawak

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ABSTRACT

Tuberculosis (TB) remains a major global health concern, ranking as the second leading cause of death from an infectious agent in 2022. In Malaysia, TB continues to pose a significant public health challenge, with limited research addressing its psychosocial dimensions. Depression is one of the most common comorbidities among TB patients, yet its assessment remains neglected in routine TB care. Validated instruments are therefore essential to reliably evaluate depression and related psychosocial factors in this population. This study aimed to establish the content validity and internal consistency reliability of four psychosocial assessment instruments: the Patient Health Questionnaire-9 (PHQ-9), the Tuberculosis Stigma Scale (TSS), the Multidimensional Scale of Perceived Social Support (MSPSS), and the Patient Satisfaction Questionnaire Short Form (PSQ-18). A cross-sectional study was conducted in two phases. First, content validity was assessed by eight experts in public health and psychiatry using Item- and Scale-Level Content Validity Indices (I-CVI, S-CVI/Ave, S-CVI/UA). Second, a pilot study involving 56 TB patients from four treatment centres in the Serian Division, Sarawak, evaluated internal consistency reliability using Cronbach's alpha. Results showed strong expert consensus, with all instruments meeting recommended content validity thresholds without requiring modifications. Reliability analysis demonstrated acceptable to excellent internal consistency: PHQ-9 (α=0.77), TSS (α=0.88), MSPSS (α=0.95), and PSQ-18 (α=0.73). The overall Cronbach's alpha for all scales combined was 0.86. In conclusion, the instruments demonstrated strong psychometric properties and cultural relevance, supporting their use in TB research and clinical care in Malaysia. These tools may facilitate the identification of psychosocial risk factors, inform targeted interventions, and strengthen patient-centred TB management.

Keywords: Psychosocial determinants; tuberculosis; validation

10-Year Retrospective Study on Characteristics and Outcomes of Ocular Trauma in Hospital Canselor Tuanku Muhriz

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ABSTRACT

This 10-year retrospective study aimed to determine the characteristics, risk factors, and outcomes of ocular trauma, including adnexal injuries, at a tertiary hospital. Medical records of 198 eyes from 186 patients with ocular trauma between January 2013 and December 2022 were reviewed for demographic, clinical, and management details. Data were analysed using SPSS (Version 26.0; IBM Corp., Armonk, NY, USA), with significance set at $p < 0.05$. The mean age was 37.8 ± 18.8 years, with the highest frequency in the 21-30 age group (31.7%). Most patients were male (78.5%) and employed (55.9%), with office workers (31.7%) and students (16.7%) representing the largest groups. Injuries most frequently occurred at home (33.9%). Closed-globe injuries were predominant (78.8%), while adnexal involvement was present in 74 cases, most often eyelid injuries (18.8%). Surgical intervention was required in 54.0%, with toilet and suturing being the most common procedure (33.8%). The leading mechanism was sharp-object trauma (23.7%). Closed-globe contusions were strongly associated with good prognosis (75.5%, $p < 0.001$), whereas globe ruptures were predictive of blindness (44.4%, $p < 0.001$). Penetrating injuries ($p = 0.040$) and the presence of relative afferent pupillary defect (RAPD) ($p < 0.001$) were significant predictors of severe vision loss, with RAPD positive in 66.7% of blind cases. Visual outcomes were best in closed injuries without adnexal involvement (92.6% good BCVA) and poorest in open injuries with adnexal involvement (44.4% good BCVA; 55.6% blind). Ocular trauma in young males, particularly from sharp objects at home, remains a major cause of vision loss, with RAPD and injury severity being strong predictors of poor outcomes, and adnexal involvement compounding morbidity in open-globe injuries.

Keywords: Adnexal injury; ocular trauma; open globe; retrospective study

From Classroom to Clinic: Assessing The Impact of a High-Yield Masterclass on Medical Student Preparedness

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ABSTRACT

Bridging the gap between theoretical knowledge and clinical application is a key challenge in undergraduate medical education. This study evaluated the effectiveness of the 'MBBS Masterclass 2025,' an intensive one-day intervention designed to enhance clinical reasoning and life support skills among medical students. A single-group, pre-test/post-test design was used. A matched cohort of 60 medical students (N=60) completed questionnaires before and after the masterclass. The instrument assessed self-perceived confidence across seven clinical domains (5-point Likert scale), objective knowledge via a 12-item quiz, and event satisfaction. Data were analysed using paired-samples t-tests and thematic analysis of qualitative feedback. The intervention yielded statistically significant improvements across all outcomes. Self-perceived confidence increased significantly in all seven domains ($p < .001$). Objective knowledge scores also improved significantly, with the mean score rising from 6.57 (SD=1.83) to 8.91 (SD=1.68) ($p < .001$). Participant satisfaction was exceptionally high, with all event aspects rated favorably (mean > 4.6/5.0). Qualitative feedback highlighted the value of the Basic and Advanced Life Support (BLS/ALS) sessions and case-based discussions, while also indicating a desire for more hands-on practice. The 'MBBS Masterclass 2025' is a highly effective educational model for enhancing both subjective confidence and objective clinical knowledge. These findings support using intensive, expert-led workshops to supplement the core curriculum. Future iterations should prioritise integrating hands-on practical skill stations to further improve learning outcomes.

Keywords: Clinical knowledge; medical education; pre-post study; program evaluation; self-perceived confidence

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Unveiling Hidden Lesions: Arthroscopic Radiofrequency Ablation for Subchondral Cysts Beneath Intact Cartilage

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ABSTRACT

Subchondral bone cysts (SBCs) are frequently observed in osteoarthritic joints, yet their pathogenesis remains debated. The two main theories, synovial intrusion and bony contusion, do not adequately explain cyst formation beneath intact articular cartilage. This report describes the surgical management of SBC with intact cartilage by using arthroscopic radiofrequency ablation. A 48-year-old woman presented with a 7-year history of progressive right knee pain unresponsive to conservative treatment. Clinical examination revealed reduced range of motion, and positive patellar grind test. Radiographs demonstrated early osteoarthritis changes, while MRI showed, joint and a subchondral cyst (2.1 x 2.0 cm) in the lateral femoral trochlea, with preserved cartilage. Diagnostic arthroscopy revealed hypertrophied synovium in the patellofemoral pouch, abundant fibrous tissue, intact chondral surface over the cyst, and grade chondral lesions in weight-bearing regions. Synovial debridement and radiofrequency ablation were performed using Edge™ bipolar probe (ConMed®), with careful technique to minimise thermal injury. Postoperatively, patient was allowed full weight-bearing with a protective brace. At 2 weeks, she reported symptomatic improvement, with the KOOS score increasing from 28% preoperatively to 36%. This case highlights the potential role of RFA as a safe and minimally invasive treatment option for subchondral cysts with intact cartilage, providing pain relief and functional improvement.

Keyword: Osteoarthritis; radiofrequency ablation; subchondral cyst formation

Content Validation and Reliability Test for Work-Family Conflict, Job Satisfaction, Family Satisfaction and Psychological Well-Being among Female Healthcare Workers in Samarahan Division, Sarawak

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ABSTRACT

Female healthcare workers face challenges in balancing professional and family roles, often leading to work-family conflict (WFC) that impacts job satisfaction, family satisfaction, and psychological well-being. Valid and reliable instruments are essential to measure these constructs in the Malaysian context. This study aimed to validate and assess the reliability of four instruments: the Work-Family Conflict Scale (WFCS), Ryff's Psychological Well-Being Scale (RPWBS), Short Index of Job Satisfaction (SIJS), and Family Satisfaction Scale (FSS) among female healthcare workers in Samarahan Division, Sarawak. The study employed a multi-phase process involving questionnaire development, translation, and expert content validation by six specialists (public health physicians, psychiatrist, psychologist, and family medicine specialist). Content validity was assessed using the Item-level Content Validity Index (I-CVI) and Scale-level CVI (S-CVI/Ave, S-CVI/UA). A pilot study was conducted among 192 female healthcare workers recruited through multistage sampling across five facilities. Reliability was measured using Cronbach's alpha and corrected item-total correlations. Content validation showed excellent outcomes, with I-CVI values of 0.83-1.00 and S-CVI/Ave between 0.97-1.00. Pilot testing demonstrated strong internal consistency: WFCS (α=0.89), RPWBS (α=0.87), SIJS (α=0.82), and FSS (α=0.91). All items showed acceptable item-total correlations and were retained. The findings confirm that the adapted questionnaire is valid and reliable, suitable for use among female healthcare workers in Sarawak. Robust measurement tools are vital to understanding the interplay of WFC, satisfaction, and well-being, and to guide evidence-based workplace interventions.

Keywords: Family satisfaction; female healthcare workers; job satisfaction; psychological well-being; reliability; work-family conflict; validation

Interrelationships between Catastrophic Health Expenditure, Social Capital and Psychological Distress among Retirees: A Scoping Review

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ABSTRACT

The global ageing population raises pressing challenges for health and social systems, particularly in terms of financial insecurity and mental well-being among retirees. Catastrophic health expenditure (CHE), defined as out-of-pocket spending that consumes a substantial share of household resources, undermines retirees financial stability. At the same time, psychological distress, including anxiety and depression, is increasingly common in later life due to chronic illness, reduced income, and social transitions. Social capital, encompassing networks, trust, reciprocity, and community participation, has been synthesise as a protective factor against both financial strain and poor mental health. However, the interconnections between CHE, social capital, and psychological distress remain underexplored. This scoping review synthesised global evidence on these relationships and identified research and policy gaps. Guided by Arksey and O'Malley's framework with Levac et al.'s refinements, and reported according to PRISMA-ScR, systematic searches were conducted in PubMed, Scopus, and Web of Science for English-language studies published between January 2000 and May 2025. Of 1,746 records, 20 studies met inclusion criteria, most originating from Asia with some from Africa, Europe, and Americas. CHE was consistently linked to higher psychological distress, while social capital showed beneficial effects on mental health. Limited evidence suggested that social capital may buffer the adverse impact of CHE on retirees mental well-being. Yet, few studies integrated all three dimensions simultaneously. Findings highlight the need for holistic strategies that combine financial protection and social support to promote healthy ageing. Future studies should clarify causal pathways between economic and psychosocial determinants of retiree health.

Keywords: Catastrophic health expenditure; psychological distress; retirees; social capital

Validating the Malay Version of Social Capital Questionnaires for Assessing Catastrophic Health Expenditure among Retirees

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ABSTRACT

Catastrophic health expenditure (CHE) is a growing concern among retirees in Malaysia, particularly in Sarawak, where fixed incomes and socioeconomic disparities heighten vulnerability. Social capital, defined as networks, trust, and norms that enable collective action, may act as a buffer against financial hardship by enhancing support systems. This study aimed to validate a culturally adapted Malay version of the Social Capital Questionnaire for evaluating CHE among retirees. The validation process involved forward and backward translation, expert panel review, and comprehensive psychometric evaluation. Six experts assessed 42 items across four key dimensions: relevance, clarity, simplicity, and ambiguity. Content validity was quantified using I-CVI, S-CVI/Ave, and S-CVI/UA. Face validity was established through feedback from 30 respondents. Exploratory Factor Analysis (EFA) with principal axis factoring and oblimin rotation was employed to determine the instrument's structural validity. Content validity was high, with I-CVI values ranging from 0.83 to 1.00 and perfect S-CVI/Ave and S-CVI/UA scores after revisions. Face validity results indicated that items were well-understood and culturally suitable. EFA identified two clear factors, bonding and bridging social capital, with loadings between 0.643-0.946 and 0.717-0.933, respectively, supporting the instrument's construct validity. The validated Malay version of the Social Capital Questionnaire is a reliable and contextually appropriate tool for assessing CHE among retirees. It offers valuable insights for developing targeted policies and social interventions to enhance retirees' financial resilience through social support mechanisms.

Keywords: Catastrophic health expenditure; networks; retirees; social capital

Mapping the Nexus Between Air Pollution and Mental Health Well-Being: A Systematic Literature Review

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ABSTRACT

In today's rapidly advancing technological era, environmental factors are increasingly acknowledged as critical determinants of health. Among these, factors like air pollutants have drawn growing attention due to their significant impact on mental well-being. Environmental stressors are no longer limited to physical health risks as they are now recognised for their role in influencing psychological wellbeing worldwide. During pandemic, it further amplified these effects, as individuals faced a convergence of biological vulnerability and psychosocial challenges. This study aimed to systematically review existing evidence to strengthen the understanding of air pollutants as a key determinant of mental health. A comprehensive search of electronic databases was conducted using specific keywords to identify relevant studies and guided by the PRISMA model screened 571 articles, of which 21 met the inclusion criteria. The data was extracted and analysed to determine the findings. The review identified particulate matter (PM), nitrogen dioxide (NO_2), and Sulphur dioxide (SO_2) as major environmental stressors significantly associated with adverse mental health outcomes, including increasing rates of psychological disorders and the worsening of pre-existing mental health conditions. Environmental stressors like air pollution exacerbate mental health challenges, revealing systemic vulnerabilities in mitigating their impact, especially during crises like the pandemic. Air pollution and mental health are closely linked, with global crises amplifying their interplay. Integrated policies combining environmental protection, mental health support, and crisis preparedness are urgently needed to bolster societal resilience and promote a healthier society.

Keywords: Air pollutions; built environment; environmental stressors; environmental determinant of health; mental health

Dilated Cardiomyopathy in Pregnancy: A Multidisciplinary Approach

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ABSTRACT

Introduction: Pregnancy induces profound haemodynamic changes that may overwhelm pre-existing cardiac disease. Non-ischaemic dilated cardiomyopathy (DCM) is associated with high maternal risk, making early recognition, pre-pregnancy optimisation, and multidisciplinary care essential. **Case presentation:** A 32-year-old nulliparous woman, recently diagnosed with non-ischaemic DCM, initially presented with a left ventricular ejection fraction (LVEF) of 25-30%. Following initiation of the 4 pillars of heart failure therapy, her functional status improved with LVEF of 45-50%. Shortly thereafter, she conceived unexpectedly. Upon confirmation of pregnancy, most heart failure medications were withheld due to foetal safety concerns, with only a β-blocker continued. Multidisciplinary review by cardiology, obstetrics, and anaesthesia team categorised her as WHO class III-IV risk, with significant maternal morbidity anticipated if pregnancy continued. After extensive counselling and shared decision-making with the family, termination of pregnancy was opted to safeguard her health and allow future optimisation prior to conception. **Discussion:** This case highlights the critical importance of integrated, team-based management for high-risk pregnancies. Obstetricians and cardiologists provided risk stratification and therapeutic guidance, while anaesthetists ensured procedural safety. The Family Medicine Specialist (FMS) could contribute by identifying the high-risk condition early, coordinating care across specialties, and supporting family-centred counselling. Such collaborative care highlights the need for comprehensive pre-pregnancy care, contraceptive counselling, and long-term follow-up within the primary care setting. **Conclusion:** Pregnancy in women with DCM carries substantial maternal risk. A multidisciplinary, patient-centred approach, anchored in primary care, is key to preventing adverse outcomes and preserving future reproductive potential.

Keywords: Dilated cardiomyopathy; high risk pregnancy; multidisciplinary care

Prevalence of Job Dissatisfaction and Factors Related to it among Doctors in Government Health Facilities in Perak

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ABSTRACT

Introduction: Job dissatisfaction among doctors is a growing public health concern, with implications for healthcare quality, patient safety, and workforce sustainability. In Malaysia, research in this area remains limited, particularly within Perak, where government facilities serve diverse populations. This study investigated the prevalence and determinants of job dissatisfaction among doctors in Perak's public healthcare system. **Methodology:** A cross-sectional study was conducted among 422 doctors working in hospitals, district health offices, and clinics across Perak. Stratified random sampling was applied. Data were collected using the validated Job Satisfaction Survey (JSS) and analysed with SPSS. Descriptive statistics, chi-square tests, and multiple logistic regression identified predictors of overall job dissatisfaction. **Results:** Job dissatisfaction was highly prevalent. Dissatisfaction was greatest regarding working conditions (95.0%), promotion opportunities (91.5%), and pay (88.7%). Logistic regression revealed that dissatisfaction with promotion opportunities (OR = 4.10, 95% CI: 2.05-8.19), pay (OR = 3.45, 95% CI: 1.92-6.19), and working conditions (OR = 2.85, 95% CI: 1.50-5.42) were the strongest predictors of overall job dissatisfaction. Rewards dissatisfaction also showed a modest but significant effect (OR = 1.86, p = 0.027). **Conclusion:** Job dissatisfaction is widespread among doctors in Perak, driven mainly by structural and systemic factors. Addressing remuneration, career progression, and workplace conditions is essential to improve physician morale, retention, and the sustainability of healthcare delivery in Malaysia.

Keywords: Doctors; job dissatisfaction; pay; promotion; working conditions

Association between Viral Factors and Clinical Manifestations Observed in Dengue Patients in Malaysia

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ABSTRACT

Malaysia is a hyperendemic country with all serotypes of the dengue virus (DENV) circulating simultaneously. A previous study reported that viral factors were associated with clinical manifestations. Therefore, this study aims to determine the association between viral factors, patient outcomes and clinical manifestations. Serum samples of NS1-positive dengue patients were collected from May 2021 until April 2024. Viral RNA was extracted using the Qiagen Viral RNA Extraction Kit. Multiplex PCR was performed using the Superscript III One-step qRT-PCR system kit with a universal forward primer and four specific reverse primers for serotyping. A total of 440 samples were collected for this study. Of 440 samples, 251 (57.0%) were DENV-2, 66 (15.0%) were DENV-4, and 49 (11.1%) represented coinfections of DENV- 2/DENV-4. The majority of dengue patients infected with DENV-2 were diagnosed as dengue with warning signs (n=128, 51.0%). Conversely, most patients infected with DENV-4 were diagnosed as dengue without warning signs (n=37, 56.1%). For patients co-infected with DENV-2/DENV-4, the majority were diagnosed as dengue without warning signs (n=28, 57.1%). For patients infected with DENV-2 and co-infected with DENV-2/DENV-4, the top three most common clinical manifestations were fever, transaminitis and myalgia. For DENV- 4 infected patients, the top three most common clinical manifestations were fever, myalgia and arthralgia. Patients infected with DENV-2 were more likely to have transaminitis than patients infected with DENV-4 (<0.001). In conclusion, those infected with DENV-2 were more likely to get more severe clinical manifestations than those infected with DENV-4.

Keywords: Clinical manifestation; dengue virus; genomic surveillance; genotypes; serotypes

Influence of Contraceptive Self-Efficacy, Spousal Communication and Cultural Perception on the Choice of Contraceptive Usage among Reproductive Women in Samarahan District

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ABSTRACT

Introduction: Contraceptive usage prevents unplanned pregnancies and reduces maternal- child mortality. Despite various contraceptive methods available in Malaysia, the contraceptive prevalence rate remained low. This study aims to determine the influence of contraceptive self- efficacy, spousal communication, and cultural perception on contraceptive usage among reproductive women in Samarahan District. **Methodology:** This cross-sectional study involved 405 married reproductive Malaysian women aged 18 to 49 living in Samarahan District who fulfilled the eligible criteria. A face-to-face interview was conducted using a structured questionnaire. A multistage sampling technique was used to select respondents. Pearson's Chi-square Test for Independence, Fisher Exact Test and Independent Samples T-test were used to test for the association of the variables. Simple logistic regression was conducted to determine the relationship between the variables, while multiple logistic regression was performed to isolate the significant predictors. IBM SPSS version 28.0 was used for analysis. **Results:** The current prevalence rates for using any and modern contraceptive methods were 72.6% and 58.3%, respectively. Place of residence, education level and monthly income status of both spouses, occupation status of the husband, age at first marriage, number of living children, presence of a son in the family, spousal communication and cultural perception were significantly associated with contraceptive usage. Place of residence, presence of a son in the family, and spousal communication were significant predictors of contraceptive usage. **Conclusion:** It highlighted the importance of enhancing spousal communication, addressing urban-rural disparities, and promoting gender equality as imperative interventions to increase contraceptive usage.

Keywords: Contraception; contraceptive self-efficacy; cultural perception; spousal communication

Successful Daycare Anterior Cruciate Ligament Reconstruction - First in Malaysia

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ABSTRACT

This case report presents the first successful daycare anterior cruciate ligament (ACL) reconstruction in Malaysia, demonstrating the feasibility and advantages of same-day discharge for elective ACL surgery. A 30-year-old male police officer and competitive footballer with a nine-year history of knee instability underwent ACL reconstruction using an Achilles tendon allograft with Modified Internal Bracing (MUIB) via an all-inside technique. Rigorous preoperative selection criteria, including ASA 1 status, strong social support, and adherence to prehabilitation program, ensured optimal outcomes. The patient was discharged the same day with minimal pain and followed a structured rehabilitation plan, including ice therapy and home exercises. At two-week follow-up, he exhibited no complications. This case highlights the efficacy of daycare ACL reconstruction in reducing healthcare costs while maintaining patient safety and satisfaction. Key factors for success include stringent patient selection, prehabilitation, and the use of allograft with MUIB to minimise operative time and enhance recovery. The findings align with global trends favouring outpatient ACL surgery, offering a model for resource-constrained healthcare systems.

Keywords: ACL; daycare; elective; health economics

Renal Tubular Acidosis Presenting As Hypokalaemic Periodic Paralysis: A Case Report

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ABSTRACT

Introduction: Hypokalaemic periodic paralysis (HPP) is a medical emergency with diverse aetiologies. Renal tubular acidosis (RTA) is an uncommon yet treatable cause, therefore recognising its acid–base nature helps avoiding misdiagnosis and delays in care. **Case Presentation:** A 28-year-old Malay lady presented with abrupt generalised body weakness resulting in inability to sit. Examination revealed proximal-predominant, symmetric weakness with hypo/areflexia, preserved sensation and intact cranial nerves. She had no gastrointestinal losses, diuretic use or thyrotoxic symptoms. Venous blood gas showed a normal-anion-gap metabolic acidosis (pH 7.29, HCO_3^- 16.7 mmol/L, chloride 118 mmol/L). Serum potassium was 1.6 mmol/L with urine pH remained 7.0 despite her acidotic state. ECG revealed sinus rhythm with prominent U waves while her thyroid function test was normal. She received more than 12 g intravenous and oral potassium chloride (KCl), magnesium sulphate ($MgSO_4$) and Shohl's solution under continuous cardiac monitoring. She subsequently had gradual improvement in power to 4-5/5 and currently receiving inpatient monitoring. Planned evaluation includes renal ultrasonography for nephrocalcinosis and autoimmune screening. **Case Discussion:** Normal-anion-gap metabolic acidosis plus inappropriately alkaline urine and severe hypokalaemia indicates distal (type 1) RTA with renal potassium wasting, explaining recurrent HPP. Differential diagnoses were less consistent which include thyrotoxic periodic paralysis, gastrointestinal bicarbonate loss (appropriately acidic urine), Bartter or Gitelman syndrome (metabolic alkalosis), proximal RTA (urine acidifies once HCO_3^- falls) and type 4 RTA (hyperkalaemia). **Conclusion:** Distal RTA should be considered in HPP when NAGMA coexists with alkaline urine. Early acid–base interpretation enables targeted therapy in reducing arrhythmic risk, accelerating neuromuscular recovery and prompting aetiological work-up.

Keywords: Hypokalaemic periodic paralysis; normal-anion-gap metabolic acidosis; renal tubular acidosis

Novel Surgical Technique for Fixation of Tibial Tuberosity Fracture Post Fulkerson Osteotomy with Anchor Sutures and Suture Tape Augmentation: A Case Report

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ABSTRACT

Fulkerson tibial tubercle osteotomy (TTO) is widely used to correct patellofemoral malalignment but may result in rare yet serious complications such as tibial tuberosity fractures, especially in scenarios of early loading or compromised fixation. We reported a 20-year-old female with bilateral patellar instability who underwent Fulkerson osteotomy whereby developed proximal tibial fracture 6 week postoperative. Intraoperative findings included a small, fragile fragment unsuited for screw fixation. Implementation of innovative fixation techniques with use of knotless suture anchors in conjunction with suture tape augmentation addresses the challenge. This fixation method provides a stable construct maximising stability, allowing phased rehabilitation. Patient's extensor mechanism function was restored without hardware irritation or failure. Anchor suture fixation with suture tape augmentation offers a viable, less invasive alternative to rigid hardware in managing tibial tuberosity fractures post-TTO, particularly when conventional fixation is contraindicated. This method preserves bone stock, minimises soft tissue disruption, and may reduce implant-related complications.

Keywords*:* Anchor sutures; complication; Fulkerson osteotomy; patellofemoral; peri-implant fracture

Double Trouble: Open Periprosthetic Humeral Fracture with Radial Nerve Palsy After RSA

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ABSTRACT

Reverse shoulder arthroplasty (RSA) is increasingly utilised for complex shoulder pathologies, leading to a rise in reported complications, including periprosthetic humeral fractures. However, the occurrence of radial nerve palsy at presentation with such fractures remains rare. We report the case of a 39-year-old woman with a history of juvenile rheumatoid arthritis and skeletal dysplasia who sustained an open periprosthetic humeral shaft fracture following a workplace fall. Clinical evaluation revealed immediate radial nerve palsy, while imaging confirmed a stable RSA stem. The fracture, located 6 cm distal to the stem (Wright and Cofield type C), was managed with open reduction and internal fixation using a locking plate augmented with FiberTape cerclage. Intraoperatively, the radial nerve was identified and found to be intact. Postoperative radiographs demonstrated stable fixation and maintained implant integrity. At seven months, callus formation and fracture union were evident, accompanied by gradual neurological recovery. This case highlights the rare presentation of an open periprosthetic humeral fracture with associated radial nerve palsy in a young patient with systemic disease. It emphasises the importance of assessing implant stability, ensuring meticulous radial nerve handling, and implementing a structured rehabilitation program. When the RSA stem is stable, locking plate fixation remains a reliable treatment strategy, even in complex scenarios involving open injuries and nerve involvement. This case adds to the limited literature on managing such rare complications and provides insights into optimal surgical and postoperative care.

Keywords: Periprosthetic humeral fracture; reverse shoulder arthroplasty; radial nerve palsy; skeletal dysplasia

Impact of Diffuse Parenchymal Lung Disease on Quality of Life: A Cross-Centre Study in Malaysia

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ABSTRACT

Diffuse Parenchymal Lung Disease (DPLD), or interstitial lung disease (ILD), is a heterogeneous group of disorders characterised by lung fibrosis and inflammation. The condition is progressive, debilitating, and associated with high mortality. Delays in diagnosis are common, contributing to worsening functional status, increased mortality risk, and impaired quality of life (QoL). This study aimed to assess QoL among patients with DPLD in Malaysia. A total of 103 patients were recruited from two tertiary centres: Hospital Canselor Tuanku Muhriz (HCTM) and the Institute of Respiratory Medicine (IPR) from the respiratory clinics in 2023. QoL was measured using the EQ-5D-3L questionnaire, which includes a descriptive system and a visual analogue scale (EQ-VAS). The descriptive system evaluates five dimensions-mobility, self-care, usual activities, pain/discomfort, and anxiety/depression-on a three-level scale, producing health state profiles subsequently converted into utility scores using a Malaysian-specific value set. The EQ-VAS captures self- rated health on a 0-100 scale, where higher scores reflect better perceived health. Our findings showed an average EQ-5D utility score of 0.738 (scale 0-1) and an EQ-VAS score of 70.0 (scale 0-100). These values were notably lower than the Malaysian general population's mean EQ-VAS score of 85.52, indicating that DPLD patients experience a substantially reduced QoL. In conclusion, this study demonstrates that DPLD is associated with considerable impairment in health-related quality of life. These findings underscore the need for timely diagnosis, multidisciplinary management, and supportive interventions to address the physical, emotional, and social burden faced by DPLD patients.

Keywords: Diffuse parenchymal lung disease; EQ-5D-3L questionnaire; quality of life

Anemia Severity and Associated Factors in Pregnancy: Findings from Beaufort, Sabah

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ABSTRACT

Anemia during pregnancy remains a major public health concern due to its association with adverse maternal and perinatal outcomes, including preterm birth, low birth weight, and increased maternal morbidity. This study aimed to describe the severity of anemia and explore factors associated with anemia severity among pregnant women in Beaufort District. A descriptive cross-sectional analysis was conducted using data from 80 cases of anemia in pregnancy reported in 2024. Data were analysed using SPSS version 21, and Fisher's Exact test was applied to assess associations between selected variables and anemia severity. Of the 80 cases, 87.5% had mild anemia (Hb 9-<11 g/dL) and 12.5% had moderate anemia (Hb 7-<9 g/dL), with no severe cases reported. The median maternal age was 29.0 years (IQR 25.0-36.0), and 35.0% were late bookers. Late antenatal booking was significantly associated with greater anemia severity (p = 0.003), with late bookers comprising 80.0% of moderate anemia cases compared to 28.6% of mild cases. No significant associations were observed for age, ethnicity, education, working status, gravida, or referrals to family medicine specialists and nutritionists. These findings highlight the importance of early antenatal registration for timely detection and management of anemia. Continuous monitoring and interventions, including nutritional counselling and clinical follow-up, are essential to prevent progression to more severe anemia and to improve both maternal and perinatal outcomes. These results suggest a need to strengthen community-based health promotion efforts to encourage earlier engagement in antenatal care and reduce the burden of anemia in pregnancy.

Keywords: Anemia in pregnancy; antenatal care; late booking; pregnancy outcomes

Differences in Titers of Neutralising Antibody in Primary and Secondary Dengue Patients Admitted to a Teaching Hospital in Malaysia

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ABSTRACT

Dengue is hyperendemic in Malaysia where more than 90% of the Malaysian adult population possessed neutralising antibodies (NAb) to dengue virus (DENV). Nonetheless, data on NAb titers in dengue patients in Malaysia is still limited. Thus, this study aims to determine the NAb titers against all four serotypes of DENV in primary and secondary dengue patients admitted to HCTM (2021 to 2024). A total of 391 febrile-phase serum samples were collected for this study. NAb titers against DENV-1-4 was determined using the plaque reduction neutralisation test, and clinical data were obtained from medical records. Associations between NAb titers, infection type, and disease outcomes were determined using Chi-square and Kruskal-Wallis tests. Samples were considered NAb-positive at titers of more than 20. Of 391 patients, 12.8% (n=50) were primary infection patients and 87.2% (n=341) were secondary infections patients. All primary infections were NAb-negative against all DENV serotypes (titers <10), while 37.8% (n=129) of secondary infection patients were NAb-positive for all serotypes. Secondary dengue infection patients with dengue without warning signs (DwoWS) and dengue with warning signs (DwWS) showed higher NAb titers against DENV-1-4 than primary dengue infection patients, with the highest titers against DENV-3. In conclusion, NAb titers in primary dengue patients were below the positive cut-off, while majority of secondary dengue patients possessed NAb against at least one serotype of DENV. NAb titers were higher in secondary dengue infection patients diagnosed with DwoWS and DwWS. These findings enhance understanding on dengue clinical-immunological relationship and support vaccine strategies in Malaysia.

Keywords: Dengue; Malaysia; neutralising antibody; primary; secondary

Factors Influencing the Level of Patient Safety Culture among Healthcare Workers at Sungai Buloh Hospital

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ABSTRACT

Introduction Patient safety culture is fundamental to ensuring high-quality healthcare delivery. Weak safety culture contributes to adverse events, diminished patient outcomes, and reduced institutional trust. International evidence shows that many hospitals have suboptimal safety culture scores. In Malaysia, Hospital Sungai Buloh has reported a high incidence of patient safety events, yet scientific data on contributing factors remain limited. This study addresses the gap by evaluating safety culture and its determinants among healthcare staff. **Objective** To assess the level of patient safety culture among healthcare workers at Hospital Sungai Buloh and identify socio-demographic, socio-economic, and occupational factors associated with it. **Methodology** A cross-sectional study will be conducted from December 2024 to February 2025 involving 460 healthcare staff, including medical officers, nurses, and clinical support workers. Stratified random sampling will ensure representative participation. Data will be collected using the validated HSOPSC 2.0 questionnaire (bilingual version). Descriptive statistics will measure overall safety culture scores, bivariate tests will explore associations, and multivariate logistic regression will determine independent predictors. **Results** Findings from a study conducted by Ismail & Khalid (2022) comparing cluster hospitals in the state of Kedah showed that less than one-quarter of respondents (23.9%) had a positive level of patient safety culture (score ≥ 75%). Meanwhile, results from a study conducted by Ali et al. (2024) in 18 public hospitals in Ethiopia revealed that 50.9% had a positive/good level of patient safety culture (score ≥ 75%). Ineffective leadership, a blame culture among staff, high workload with insufficient resources, and ineffective communication are the main factors contributing to a weak level of patient safety culture in Saudi Arabia. Conversely, support from hospital management and an organisational attitude that consistently promotes learning and continuous improvement are factors contributing to a high level of patient safety culture. **Conclusion** This study will provide baseline evidence on patient safety culture at Hospital Sungai Buloh. Findings will help hospital management and policymakers design targeted interventions, focusing on training, workload management, and leadership support to strengthen safety practices. **Discussion** A positive safety culture requires systemic changes, including effective communication, leadership commitment, and continuous staff development. Evidence generated will guide strategies to reduce preventable harm and promote safer healthcare delivery in Malaysia.

Keyword: Adverse events; healthcare; leadership; patient safety culture; preventable harm

Chronic Supplementation of Palm Oil-Based Tocotrienol-Rich Fraction (TRF) Attenuates Isoprenaline-Induced Cardiac Injury in High-Fat Diet-Fed Sprague-Dawley Rats

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ABSTRACT

Background: High-fat diet increases cardiovascular disease risk. Tocotrienols, a vitamin E component, have antioxidant and cardioprotective effects. This study investigated palm-oil- based tocotrienol-rich fraction (TRF) supplementation effects on cardiac injury in high-fat diet- fed rats. **Methodology:** Male Sprague-Dawley rats (weight 200-250g) were divided into three groups: standard chow diet (SD), high-fat diet (HFD), and HFD with TRF supplementation (HFD-TRF). The 12-week treatment monitored blood pressure, body weight, waist circumference weekly, and blood glucose pre- and post-treatment. Lipid profiles were measured at treatment end. Cardiac injury was induced using isoprenaline. **Results:** No significant differences occurred in body weight, waist circumference, and blood pressure between groups. HFD group showed increased cholesterol (2.0 $\pm$ 0.1 vs 1.5 $\pm$ 0.1 mmol/L), HDL (0.8 $\pm$ 0.05 vs 0.6 $\pm$ 0.04 mmol/L) and LDL (0.6 $\pm$ 0.04 vs 0.4 $\pm$ 0.03 mmol/L) compared to SD group. HFD+TRF showed significantly high HDL (0.5 $\pm$ 0.03 vs 0.8 $\pm$ 0.05 mmol/L) versus HFD. Triglycerides were lowest in HFD+TRF (0.6 $\pm$ 0.04 mmol/L) versus HFD (0.8 $\pm$ 0.05 mmol/L). Histopathological data showed decreased cardiac injury parameters in HFD+TRF versus HFD: oedema area (1,000 $\pm$ 120 vs 3,500 $\pm$ 200 μm^2), fibroblast (40 $\pm$ 5 vs 80 $\pm$ 10 cells/mm), neutrophils (100 $\pm$ 10 vs 250 $\pm$ 15 cells/mm^2) and necrotic cells (60 $\pm$ 8 vs 110 $\pm$ 12 cells/mm^2). **Conclusion:** TRF supplementation reduced cardiac injury despite unchanged lipid profile, blood pressure, and body measurements, suggesting a direct cardioprotective pathway.

Keywords: Cardioprotection; high-fat diet; isoprenaline and sprague-dawley rats; tocotrienol-rich fraction

Decision to Operate in Archer's Shoulder: Clinical Examination Versus Arthrogram

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ABSTRACT

This case report emphasizes the sensitivity of physical examination over radiological imaging in diagnosing shoulder labral tear. A 19-year-old national level archer presented with progressive painful snapping during the draw phase for a year which disturbs performance. Clinically, revealing a demonstrable posterior subluxation during the draw phase with positive Kim and Jerk tests, despite having full range of motion. Magnetic Resonance Arthrogram was normal. Diagnostic Arthroscopy of the shoulder was done diagnosing reverse Bankart Lesion and subsequently repaired. Following a structured rehabilitation protocol, the patient successfully returns to competition after 9-months follow up. This report concludes that clinical examination can be more sensitive than MRA in detecting posterior instability and diagnostic arthroscopy remains the gold standard for confirming pathology. Ultimately, a successful outcome depends on the combination of addressing the anatomical defect through surgery and strict adherence to a comprehensive postoperative rehabilitation program.

Keywords: Glenoid; labral tear; rotator cuff tear arthropathy; shoulder pain

Educational Differences in Fertility Knowledge among Married Women in Malaysia

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ABSTRACT

Introduction: Fertility knowledge plays a key role in shaping reproductive health decisions, yet misconceptions and knowledge gaps remain common. In Malaysia, evidence on fertility knowledge among married women is still limited. This study set out to assess fertility knowledge levels and explore sociodemographic factors linked to better understanding. **Methodology**: We conducted a cross-sectional online survey with 232 married women aged 30-49 years, recruited through cluster sampling. Fertility knowledge was assessed using the Cardiff Fertility Knowledge Scale (CFKS). Descriptive statistics were used to present overall and item-specific knowledge, while simple linear regression tested associations with sociodemographic factors such as age, ethnicity, parity, marriage duration, and education level. **Results**: The median fertility knowledge score was 46.15% (IQR = 23.08). Knowledge varied widely across items: most women recognised that smoking reduces fertility in both men and women (>87%), but less than one-third of women correctly identified the timing of infertility diagnosis (28.4%) and the impact of mumps on male infertility (14.7%). Education level emerged as the only significant predictor of fertility knowledge (B = 5.25, SE = 2.54, β = 0.13, p = 0.040), with women of higher education scoring, on average, 5.25 percentage points higher. Other factors showed no significant associations. **Conclusion**: Fertility knowledge among Malaysian married women was modest, with notable gaps in understanding infertility and male reproductive health. Higher education was linked to better knowledge, highlighting the importance of educational outreach and targeted health communication strategies.

Keywords: CFKS; education; fertility knowledge; Malaysia; reproductive health

Incidence of Cardiovascular Events in Patients Receiving Hematopoietic Stem Cell Transplant (HSCT) in HCTM: A Retrospective Cohort Study

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ABSTRACT

Background: Hematopoietic stem cell transplantation (HSCT) is a curative therapy for hematologic malignancies, yet cardiovascular events (CEs) remain a significant complication, particularly in Asian populations, where data are limited. **Objectives:** To determine the incidence and risk factors for short-term (<100 days) and 1-year cardiovascular events after HSCT at Hospital Canselor Tuanku Muhriz (HCTM), focusing on the predictive value of the Cardiovascular Registry in Bone Marrow Transplantation (CARE-BMT) score. **Methods:** This retrospective cohort study included adults who underwent autologous or allogeneic HSCT from 2000 to 2024. Data on demographics, comorbidities, transplant characteristics, and cardiovascular outcomes were analysed using univariate and multivariate logistic regression. **Results:** Among 117 patients (63 allogeneic, 54 autologous), the 1-year incidence of CE was 5.1%. Allogeneic recipients had higher CE rates (9.3%) compared to autologous recipients (1.6%). Allogeneic transplant (OR 3.84), obesity (OR 2.91), hypertension (OR 2.57), and intermediate/high CARE-BMT score (OR 7.68) were associated with elevated but not statistically significant-risk. Reduced baseline left ventricular ejection fraction (<50%) conferred the highest estimated risk (OR 64.7, 95% CI 3.2-1304.8). Most CEs occurred within 100 days post-transplant, predominantly in patients with intermediate/high CARE-BMT scores. Multivariate analysis was limited by the small number of events. **Conclusion:** The incidence and risk pattern of CE post-HSCT in this Malaysian cohort are align with international data, with increased risk among allogeneic recipients and those with higher CARE-BMT scores. Early events highlight the importance of risk stratification and proactive cardiovascular monitoring in this population.

Keywords: Cardiovascular events; CARE-BMT score; HCTM; HSCT; risk factors

Far From Home, Harder to Thrive? A Malaysian Internship Study

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ABSTRACT

Whether posting interns outside their home region makes it harder to thrive remains uncertain at national scale. Distance may raise living costs, weaken social support, and slow team integration, all of which can affect competence formation and safe practice. National evidence that both quantifies this association and explains the mechanisms is limited. We used an explanatory sequential mixed-methods design. In the quantitative phase, we analysed Malaysia's national internship database (n=5,829) and modelled the association between inter- regional placement and an unsatisfactory overall outcome, adjusting for age at entry, educational sponsorship, training-site type, and extended training. We assessed calibration (Hosmer-Lemeshow) and classification and ran sensitivity checks. In the qualitative phase, we conducted in-depth interviews with interns and supervisors sampled for maximum variation and used thematic analysis to interpret mechanisms linking distance to performance. We operationalised "thriving" as not receiving an unsatisfactory outcome, acknowledging that this administrative proxy does not capture wellbeing directly. Analysis shown inter-regional placement was independently associated with higher odds of an unsatisfactory outcome (aOR=1.37, 95% CI [1.109–1.680], p=0.003). Age >25 years (aOR=1.151; 95% CI [1.007–1.315], p=0.039) and absence of sponsorship (aOR=1.158; 95% CI [1.018-1.318], p=0.026) modestly increased risk, while extended training showed a large contemporaneous association (aOR=11.004; 95% CI [9.662-12.532], p<0.001). Training in non-MOH sites had lower odds of an unsatisfactory outcome (aOR=0.767; 95% CI [0.589-0.999], p=0.049). Model calibration was good (H-L p=0.814) with 77.2% correct classification. Interviews explained distance effects through four recurring mechanisms: accommodation and logistics strain, erosion of social support, supervision and belonging gaps, and amplified financial pressure. Interns described coping through peer micro-networks, budgeting, and rota adjustments. As conclusion, posting interns far from home is modestly associated with a higher risk of not thriving after adjustment. The mechanisms are tractable. Proximity-aware posting (as a tiebreaker within service constraints), targeted hardship support (including short-term accommodation assistance), and stronger onboarding and mentoring are proportionate, testable responses. Findings indicate association, not causation, but they offer clear levers for safer training and more equitable placement.

Keywords: Geographic displacement; house officer; inter-regional placement; internship; Malaysia;

mixed methods; social support; thriving

Customer Satisfaction Level towards Health Services at Private Health Screening Centers In Kuala Lumpur

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ABSTRACT

Introduction: Customer satisfaction measures how well services meet customer expectations. In healthcare, it is crucial for assessing and improving service quality. While many studies focus on private hospitals and clinics, research on private health screening centers in Kuala Lumpur is limited. This study evaluates service quality at these centers, emphasising socio-demographic, socio-economic, and service quality factors. **Research Objectives:** This study aims to assess customer satisfaction levels regarding services at private health screening centers in Kuala Lumpur and identify factors influencing satisfaction. **Methodology:** A literature review was conducted using SCOPUS, PUBMED, and Google Scholar from 1976 to 2022. Keywords included Customer Satisfaction Level, Service Quality, SERVQUAL Model, and PSQ. **Results:** The SERVQUAL and PSQ II/III models are commonly used to measure customer satisfaction. Reported satisfaction levels were high, between 78.8% and 93.1%. Key dimensions such as reliability, empathy, and assurance were strongly linked to satisfaction. Factors like age, education, and income also affected how customers perceived the services. **Conclusion:** Understanding customer needs and continuously improving service quality can boost satisfaction and loyalty in private health screening centers.

Keywords: Customer satisfaction; health screening center; PSQ-18; service quality; SERVQUAL; socio-demographic; socio-economic

Non-Gestational Ovarian Choriocarcinoma with Bleeding Colonic Metastasis: A Case Report

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ABSTRACT

Background: Non-Gestational Ovarian Choriocarcinoma (NGOC) is an extremely rare ovarian tumour, with an incidence of less than 0.6% of malignant ovarian germ cell tumours. Colonic metastasis from ovarian cancer is extremely rare, with only seven reported cases involving only the epithelial ovarian cancer. This is the first case of a patient with non - gestational ovarian carcinoma metastasis to the colon, complicated with active bleed. **Case Presentation**: We reported a case of 28 years old female, nulliparous. She presented with abdominal pain and loss of weight. Per abdomen noted abdominal mass palpable 22w size. Patient also having persistent lower GI bleed (LGIB). Urine pregnancy test was positive then noted β-HCG level was 826516 mIU/ml. CT thorax, abdomen and pelvis noted lobulated pelvic mass with increased peripheral vascularity likely ovarian in origin with bilateral multiple lung metastases (cannon ball appearance). Colonoscopy noted hepatic flexure malignant polyp (NICE Type III) with HPE coming out as necrotic tissue with scanty atypical cell seen. Initially planned for operation however patient condition deteriorates (symptomatic anaemia and increased oxygen requirement). CTA Abdomen noted active intraluminal bleed involving the mid region of ascending colon. Proceeded with embolisation of bleeding right ileocolic artery and left uterine artery. 1st cycle of chemotherapy (BEP regime; Bleomycin, Etoposide, Platinum) was also given to the patient. However, patient condition was further deteriorated and patient succumbed few days later.

Keywords: Colonic metastasis; non-gestational ovarian carcinoma

Big Five Traits and the Hidden Cost of Cyberbullying on Quality of Life among Secondary School Students in Klang

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ABSTRACT

Cyberbullying is a growing public health concern among adolescents, but little is known about the role of personality traits in shaping involvement in this phenomenon. This study examined the relationship between Big Five personality traits and cyberbullying roles, and assessed their impact on the quality of life of secondary school students in Klang, Selangor. A cross-sectional survey was conducted among 606 students from five national secondary schools selected through multistage sampling. Data were collected using validated self-administered questionnaires and analysed with SPSS version 28.0. The prevalence of cybervictimisation was 79.5%, while 21.1% reported engaging as perpetrators. Conscientiousness was significantly associated with perpetration (χ^2=4.876, df=1, p=0.027), but no personality trait was linked to victimisation. For quality of life, students scored highest in the environment domain and lowest in the psychological and social relationship domains. Over half rated their overall quality of life and general health positively. Cybervictimisation was associated with poorer psychological health (t(213)=2.485, p=0.014), whereas perpetration was significantly related to all WHO quality of life (WHOQOL-BREF) domains: physical health (p=0.003), psychological (p=0.001), social relationships (p=0.020), and environment (p<0.001). Conscientiousness emerged as a distinguishing trait among perpetrators, while no trait was associated with victimisation. Both roles were linked to diminished quality of life, with perpetrators showing broader impairments across all domains. These findings highlight the need for personality- informed interventions and targeted mental health support to address the consequences of cyberbullying.

Keywords: Adolescent; cyberbullying; secondary school; personality trait; quality of life

Unstable Zip Lesion of Meniscus in a Young Competitive Athlete: A Case Report

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ABSTRACT

Medial meniscus ramp lesions are well described but the lateral meniscus zip lesion is uncommon and often a missed pathology. Its identification and intervention is important to prevent persistent instability and to protect anterior cruciate ligament (ACL) graft integrity especially in ACL reconstruction. The objectives of this report is to outline how to look for the zip lesion intra-operatively and rehabilitation of the zip lesion repair post-operatively. We present the case of a 21-year-old competitive badminton player who sustained ACL injury. Arthroscopy findings demonstrate the zip lesion by careful lateral compartment examination which was successfully repaired using the all inside technique. This case highlights the importance of detailed arthroscopic exploration of the posterolateral compartment in ACL deficient knees. Early detection and repair of zip lesions can improve functional outcomes and protect against graft failure and lateral compartment degenerative changes.

Keywords: ACL tear; arthroscopy; all inside technique; lateral meniscus tear; zip lesion

Psychosocial Hazards in Medicine: Understanding Workplace Bullying among House Officers in Malaysia

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ABSTRACT

Workplace bullying is a concerning psychosocial stressor that has intensified following the COVID-19 pandemic, particularly in healthcare organisations, where residual effects, such as burnout and increased workload, risk exacerbating the behaviour. The consequences among house officers are profound, potentially jeopardising healthcare services. House officers are primarily vulnerable yet understudied. This study examines the prevalence, associated factors and impact of workplace bullying among house officers, focusing on the mediating role of psychological capital. A multicentre cross-sectional study was conducted across thirteen public hospitals in Malaysia using a self-administered questionnaire. Variance-based structural equation modelling (PLS-SEM) was employed to analyse the relationship between variables. A total of 961 house officers across multiple training hospitals in the central region of Peninsular Malaysia participated (80 % response rate). 23.4% house officers were classified as victims of workplace bullying. Results support the negative associations between workplace bullying with problem-solving conflict management styles (β= -0.099) and psychosocial safety climate (β= -0.414). Conversely, forcing (β=0.166) and avoiding (β= 0.070) styles were found to encourage workplace bullying. Workplace bullying was significantly related to turnover intention (β= 0.249), psychological symptoms (β= 0.295) and job performance (β= 0.098), with psychological capital serving as a partial mediator. Notably, contrary to proposed hypothesis, a positive relationship was observed between workplace bullying and job performance. Overall, workplace bullying represents a burgeoning concern, requiring comprehensive multifaceted measures to mitigate its occurrence. The results emphasised the crucial need to build a strong psychosocial safety climate, while enhancing workers' conflict management skills and psychological capital.

Keywords: Conflict management style; house officers; psychosocial safety climate; psychological capital; workplace bullying

Patient Self-Management Care in Preventing Catheter-Related Bloodstream Infections: A Narrative Review in Hemodialysis Care

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ABSTRACT

Background: Catheter-related bloodstream infections (CRBSIs) pose serious risks to hemodialysis (HD) patients, particularly where temporary non-tunnelled catheters are commonly used. These infections contribute to higher morbidity, mortality, and healthcare costs. While clinical bundles have demonstrated success in reducing infections, patient education and self-management remain underexplored areas. **Objectives:** To review and synthesise current strategies and identify gaps in patient self-management and education in the prevention of CRBSIs among HD patients. **Methods**: A narrative review of literature from 2011 to 2023 was conducted using PubMed, Scopus, and Google Scholar. The review focused on CRBSI epidemiology, preventive protocols, and educational interventions involving nurses and patients. Thematic analysis was performed to cover risk factors, strategies, and patient education gaps. Results: High CRBSI rates persist in resource-limited settings due to prolonged catheter use, a preference for non-tunnelled catheters, and inconsistent practices. Effective clinical interventions, such as chlorhexidine antisepsis, aseptic technique, and care bundles, have achieved a reduction of up to 82.6% in CRBSIs. Nurse training boosts adherence to protocols. However, patient-focused education is infrequently applied, despite evidence showing improved hygiene practices and symptom recognition. Notable gaps include health literacy challenges, the need for culturally tailored materials, and integrating self-care into patients' routines. **Conclusion:** Healthcare provider training alone is insufficient for sustained CRBSI control. Empowering patients through structured, culturally appropriate education is essential. Future interventions should include patients as active participants in catheter care. Institutional policies should integrate patient self-management to achieve meaningful reductions in CRBSI, particularly in low-resource settings.

Keyword: CRBSI; hemodialysis; infection prevention; patient education; self-management

Content Validation of Malay-Version Instruments Measuring Attitude, Subjective Norms, Perceived Behavioural Control and Intention in Predicting Diet Quality among University Students Based on the Theory of Planned Behaviour

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ABSTRACT

The Theory of Planned Behaviour (TPB) is widely used to assess diet quality, but the validity of instruments measuring its constructs Attitude (ATT), Subjective Norms (SN), Perceived Behavioural Control (PBC), and Intention (INT) remains uncertain due to limited context- specific studies. Cultural and linguistic diversity in southern Sarawak underscores the need for content validation on the instruments before their use on the field. This study aimed to examine content validity of the Malay-version instruments for assessing diet quality among university students in this region. The translated and pre-tested instruments were adapted from the previously published journal articles, mostly under western setting. The questionnaire consists of 23 items: 5 (ATT), 6 (SN), 6 (PBC), and 6 (INT). Three nutrition-related and one public health specialist were invited to assess relevance, clarity, simplicity, and ambiguity. Quantitative indices, including the Item-Level Content Validity Index (I-CVI) and the Scale- Level Content Validity Index (S-CVI/Ave), were used. ATT and PBC showed S-CVI/Ave scores of 1.00 for relevance, clarity, simplicity, and ambiguity. In contrast, the Subjective Norms performed very well on relevance (S-CVI/Ave of 1.00) and clarity (S-CVI/Ave of 0.96), however it showed a slight weakness in simplicity and ambiguity, with both criteria scoring an S-CVI/Ave of 0.88. All examined instruments demonstrated validity and can assess the TPB constructs used to explain diet quality among university students in southern Sarawak, supporting their use in future research on healthy eating determinants with reliable data.

Key Words: Diet quality; theory of planned behaviour; university students

Silent Danger: Pulmonary Embolism After Shoulder Surgery in the Beach Chair Position

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ABSTRACT

Pulmonary embolism (PE) is a rare but potentially life-threatening complication following shoulder arthroscopy, particularly when performed in the beach chair position (BCP), which may predispose patients to venous stasis. We report the case of a 58-year-old woman with no known medical comorbidities who developed acute PE three days after undergoing arthroscopic repair of a partial supraspinatus tendon tear in the BCP. The procedure lasted approximately 4 hours and 45 minutes under general anesthesia. Postoperatively, the patient experienced persistent tachycardia and hypoxemia without chest pain or dyspnea. Laboratory tests revealed elevated D-dimer levels, and a contrast-enhanced CT scan of the thorax confirmed multiple filling defects in the bilateral pulmonary arteries. She was promptly treated with subcutaneous low molecular weight heparin and transitioned to oral rivaroxaban. Her condition remained stable throughout hospitalisation, and she was discharged with no further complications. At a one-year follow-up, the patient remained asymptomatic with no recurrence of thromboembolic events. This case highlights the importance of maintaining clinical vigilance for thromboembolic complications even after low-risk orthopedic procedures, especially when performed in positions associated with venous pooling. Early recognition and prompt initiation of anticoagulation therapy are essential to improve outcomes and reduce morbidity. Awareness of risk factors such as prolonged operative time, anesthesia duration, and postoperative immobility may help guide clinical decisions regarding prophylaxis and monitoring in selected patients undergoing shoulder arthroscopy.

Keywords: Beach chair position; postoperative complications; pulmonary embolism; shoulder arthroscopy; supraspinatus tendon repair

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Development and Validation of the Booster Self-Care Module: A Social Cognitive Theory-Based Intervention for Elderly with Diabetes in Malaysia

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ABSTRACT

The prevalence of diabetes among elderly Malaysians is increasing, with inadequate self-care practices contributing to suboptimal glycaemic control and higher risk of complications. Despite this, culturally adapted, theory-based interventions for elderly populations remain scarce. This study aimed to develop and validate the BOOSTER Self-Care Module, a Social Cognitive Theory (SCT)-based intervention designed to strengthen diabetes self-care among elderly in community settings. The module was developed using the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model, structured into three phases: needs assessment, design and development, and validation. Needs assessment involved reviews of literature and guidelines, contextual appraisals across eight Elderly Activity Centres (PAWEs) in Selangor, and stakeholder consultations with healthcare teams and PAWE coordinators. The final intervention comprised seven interactive sessions supported by an infographic handbook, a self-care monitoring book, and WhatsApp-based booster reinforcements, all mapped to SCT constructs. Validation was undertaken with one expert providing detailed face-to-face qualitative feedback and five experts evaluating content using the Content Validity Index (CVI). In addition, eight elderly participants and two health educators using the Malay-translated Patient Education Materials Assessment Tool (PEMAT-M). The module demonstrated excellent content validity (I-CVI = 1.00; S-CVI = 1.00) and high face validity, with median scores of 95.4% for understandability and 91.7% for actionability. Experts recommended visual refinement, while participants endorsed cultural relevance, clarity, and usability. The BOOSTER Self-Care Module shows strong validity, feasibility, and acceptability, and represents a scalable, community-ready intervention poised for evaluation in a cluster randomised controlled trial and integration into elderly health programmes in Malaysia.

Keywords: Diabetes; elderly; intervention; self-care; Social Cognitive Theory

Research Progresson Multi-Omics Characteristics of Metabolic Syndrome In Postmenopausal Women

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ABSTRACT

Metabolic syndrome (MetS) in postmenopausal women is a complex disorder with rising global prevalence. Evidence indicates that postmenopausal endocrine changes interact with MetS components through mechanisms including dyslipidemia, impaired glucose regulation, and inflammatory activation. This review systematically examines multidimensional clinical indicators in this population to support individualised management strategies. Analysis of recent multi-omics data reveals characteristic dyslipidemia (elevated triglycerides, low HDL-C), insulin resistance, chronic inflammation (elevated CRP/PTX3), and prevalent vitamin D deficiency, which all closely interrelated. Additionally, electrolyte imbalances and polypharmacy patterns further complicate clinical management. The findings underscore a complex interplay between metabolic dysregulation, inflammation, and endocrine changes, highlighting the need for integrated risk models and tailored therapeutic approaches.

Keywords: HDL-C; metabolic syndrome; postmenopausal women; vitamin D

Causes of Death in Older Adults: A Comprehensive Literature Review with Implications for Hospital Pakar Sultanah Fatimah, Muar

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ABSTRACT

Malaysia is undergoing a rapid demographic shift towards an ageing population, with projections estimating that 15 percent of Malaysians will be aged 60 years and above by 2030. Hospital admissions for chronic and acute conditions are rising, especially in districts such as Muar. Understanding the leading causes of death and associated factors in this age group is essential to inform effective hospital care and policy decisions at Hospital Pakar Sultanah Fatimah (HPSF). This review aimed to systematically synthesise global and Malaysian evidence on leading causes of death among older adults and their associated sociodemographic, clinical, lifestyle, health-system, environmental and psychological determinants, with contextual implications for HPSF. A comprehensive review was conducted across PubMed, Scopus, Google Scholar and regional sources from 2000 to 2025 using terms related to elderly, mortality, causes of death, Malaysia and determinants. Observational studies, registry reports and reviews were included. Findings indicate that the top causes of death in older adults are pneumonia and respiratory infections, cardiovascular diseases such as ischaemic heart disease, heart failure and stroke, malignancies, chronic kidney disease and sepsis. Multimorbidity, particularly the coexistence of hypertension, diabetes and dyslipidaemia, significantly contributes to mortality. Higher risk was also observed among men, those of advanced age, rural residents, smokers, alcohol users and individuals with reduced access to timely and guideline-based care. In conclusion, preventable and manageable conditions remain the dominant causes of death among older adults. For HPSF, priorities include infection prevention, cardiovascular risk optimisation, comprehensive multimorbidity management and structured discharge-to- community support. These findings provide important direction for hospital planning and form the basis for the upcoming retrospective study at HPSF.

Keywords: Causes of death; elderly; mortality; Muar; multimorbidity

Baseline Serum Cholinesterase among Vector Workers in Pejabat Kesihatan Daerah Kinta: Descriptive and Test-Retest Reliability

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ABSTRACT

Introduction: Reliable pre-exposure cholinesterase baselines are essential to detect meaningful post-exposure depressions in pesticide-exposed vector workers. We described baseline distribution and evaluated short-term repeatability from paired pre-exposure measurements. **Methodology:** In a descriptive reliability study, 57 workers provided two venous baselines one week apart (B1, B2). Each worker's reference baseline was the mean of B1 and B2. Analyses included descriptive statistics and empirical 5-95th percentiles, paired T-test, Pearson correlation, and two-way mixed-effects ICC (absolute agreement). Agreement was summarised with mean paired difference and limits of agreement; within-subject CV% was calculated. **Results:** Mean (SD) cholinesterase: B1 9,615 (1,528) U/L; B2 9,644 (1,587) U/L. The reference baseline averaged 9,629.7 (1,531.3) U/L; median 9,727 U/L; empirical reference interval ≈ 7,179-12,066 U/L. The mean within-person percentage difference was 0.39% (SD 6.03%); observed bounds -10.25% to +10.50%. Agreement was high: mean difference (B2 B1) +28.8 U/L with limits of agreement about -1,076 to +1,179 U/L. No systematic bias was detected (paired T (56)=0.378, p=0.707). Test-retest reliability was excellent (Pearson r=0.932, p<0.001; ICC (A,1)=0.932, 95% CI 0.887-0.959; ICC (A,avg)=0.965, 95% CI 0.940-0.979). Median within-subject CV ≈ 4.2%. **Conclusion:** Vector workers' paired baselines show excellent repeatability with minimal within-person variation and no systematic shift across one week. Averaging two pre-exposure draws provides a robust personal reference. Repeats are advisable when within-pair differences exceed ~10-15% or fall outside empirical limits.

Keywords: Baseline cholinesterase; ICC; Malaysia; pesticide exposure; reliability; vector control

Occupational and Health Risk Factors for Latent Tuberculosis Infection (LTBI) among Healthcare Workers in a Tertiary Referral Centre, Putrajaya, Malaysia

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ABSTRACT

Healthcare workers (HCWs) globally, particularly in countries with an intermediate to high tuberculosis (TB) burden such as Malaysia, face an increased occupational risk of Latent Tuberculosis Infection (LTBI). Identifying specific risk factors is critical for targeted infection control and preventive treatment. This study aimed to determine the prevalence of LTBI and analyse the associated occupational and health risk determinants among HCWs at Putrajaya Hospital, a major tertiary referral centre. A primary data from 241 HCWs who underwent TB screening in 2024 were analysed. Risk factors of health and occupational characteristics were examined. Descriptive and inferential analyses were performed using SPSS version 26, with significance set at $p< 0.05$. Screening outcomes were assessed using IGRA tests. The prevalence of LTBI among HCWs was 2.5% (n=6). Most participants were female (71.0%), Malay (83.4%), and worked in wards (35.3%). Health risks included smoking (2.5%), alcohol use (0.8%) and comorbidities (6.2%). Bivariate analysis revealed significant associations between LTBI and smoking, alcohol consumption and comorbidities ($p<0.05$). However, job category and workplace unit did not show significant association. Logistic regression confirmed health risk factors as stronger predictors compared to occupational grouping. The study demonstrated that HCWs' vulnerability to LTBI is strongly influenced by individual health risk factors than by occupational characteristics. These findings highlighted the need for targeted health status interventions alongside workplace infection control.

Keywords: Healthcare workers; latent tuberculosis; prevalence; risk factors

Preventable Under-5 Mortality in Pekan District, Malaysia (2020-2024): A Retrospective Analysis of Determinants and Trends

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ABSTRACT

Background: Under five mortality (U5M) remains a key public health indicator of child well-being. Local data analysis is essential to identify preventable causes and inform targeted interventions. The Systematic Under-5 Mortality Review (SU5MR) is used to classify child deaths and guide district-level action. This study aimed to determine the trend and factors associated with preventable U5M in Pekan District, Pahang, from 2020 to 2024. **Methodology:** A cross-sectional study was conducted using secondary SU5MR data. All under-five mortality cases reported between 2020 and 2024 were included. Data were analysed descriptively, followed by bivariate analysis using Chi-square tests to determine associations between demographic and clinical factors with preventability of death. A p-value of <0.05 was considered statistically significant. **Results:** A total of 96 deaths were reviewed, of which 38 (39.6%) were found preventable. Significant association were found between child age group and preventable death ($\chi^2 = 8.732$, $p = 0.033$) and cause of death ($\chi^2 = 15.391$, $p = 0.002$). Other factors such as maternal age and parity of the mother not statistically significant associations. **Conclusion:** Targeted efforts are needed to reduce preventable U5M in Pekan, particularly among infants and children with infection-related causes. Strengthening maternal child health services, approach to unwell children under five update, and maternal health education that should be prioritised. Findings support alignment with SDG 3.2 and the National Child Health Strategic Plan 2021-2030.

Prevalence and Associated Factors of Active *Helicobacter pylori* Infection and Helminthiasis in Rural Indigenous Communities of West Coast Malaysia

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ABSTRACT

Helminth infections, which share similar transmission routes and risk factors with *Helicobacter pylori (H. pylori),* are common in developing countries and often leads to co-infections. This study aimed to determine the prevalence of active *H. pylori* infection and helminthiasis and to examine their associations with socio-demographic characteristics, risk factors and hematological markers. A cross-sectional study was conducted in rural Semai subtribe villages in Perak, Malaysia. Data on socio-demographics, medical history, and potential risk exposures were collected. Blood samples were analysed for full blood count parameters. Helminthiasis was diagnosed by direct fecal smear, Harada-Mori culture and stool staining, while active *H. pylori* infection was identified by stool antigen testing. Descriptive and inferential analysis were performed to evaluate associations between infection status and the study variables. A total of 120 asymptomatic villagers participated (mean age of 40 $\pm$ 18 years old). The prevalence of active *H. pylori* infection and helminthiasis was 20.8% each. Infection status was significantly associated with comorbidities (p=0.035), lymphocyte count (p=0.049) and eosinophil count (p=0.0045). Participants with active *H. pylori* infection more frequently reported comorbidities (48.0%) and had predominantly normal lymphocyte range (76.0%), whereas those with helminthiasis exhibited elevated lymphocyte counts (56.0%) and eosinophilia (96.0%). Even at relatively low prevalence, active *H. pylori* infection and helminthiasis were associated with distinct haematological profiles. These findings underscore the importance of integrated surveillance and tailored public health interventions in indigenous communities. Further studies incorporating molecular diagnostics are warranted to clarify underlying mechanisms and long-term implications.

Keywords: Aborigines; fecal; helminth; *H. pylori*; prevalence

Impact of COVID-19 Pandemic on Interventional Radiology Practices in Local Registry

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ABSTRACT

Introduction: The COVID-19 pandemic disrupted healthcare systems worldwide, impacting interventional radiology (IR). This study examined how the pandemic affected IR services at a Malaysian tertiary hospital. **Methods:** A retrospective cross-sectional study was conducted over four years (March 2018-February 2022), divided into pre-COVID (24 months) and COVID (24 months) phases. All IR procedures were reviewed. Case volumes, procedure urgency and type, staffing, and costs were analysed using SPSS and R. **Results:** A total of 5,867 procedures were performed, with volumes declining by 28.6% during COVID. Interventional procedures increased in relative proportion (92.0% vs. 89.2%, $p < 0.001$), while diagnostic procedures declined. Vascular interventions predominated throughout, rising from 80.1% to 83.4% ($p < 0.001$), reflecting their essential and non-deferrable nature. Urgency distribution was stable, with essential elective procedures preserved alongside acute and on-call cases. Most interventions showed reductions, except for percutaneous transhepatic biliary drainage, though none were statistically significant. Workflow efficiency was maintained, with shorter arrival-to-procedure times and minor staffing adjustments; however, the mean number of doctors per procedure decreased significantly ($p < 0.001$) due to redeployment. Mean monthly costs increased by 13.9% ($p = 0.04$) despite reduced volumes, driven by prioritisation of complex urgent cases, infection control, and fixed expenditures. **Conclusion:** COVID-19 significantly reduced IR volumes at our center, particularly diagnostic and non- vascular procedures, while urgent vascular and essential elective interventions were preserved. Costs rose despite fewer cases, underscoring the financial burden of sustaining critical services under pandemic constraints.

Keywords: COVID-19; healthcare cost; Interventional Radiology; on-vascular procedures; vascular procedures

Cross Sectional Study of Social Demographics and Comorbidities Contributing to Modic Changes in MRI Lumbosacral

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ABSTRACT

Lower back pain is a prevalent morbidity in Malaysia, affecting 10-63% of its population. One major contributing factor is degenerative disc disease, which has been linked to Modic changes (MC) observed in MRI scans. The aim of this research is to identify relationship between MC and social demographics or comorbidities in local population for risk identification and preventive measure. A cross-sectional study was conducted at Hospital Canselor Tuanku Muhriz (HCTM) involving patients who underwent MRI lumbosacral between November 2023 and March 2025. Data collected include: degenerative disc disease severity (Pfirmann grade), social demographics (age, gender, ethnicity, BMI, cigarette smoking and occupation) and comorbidities (Diabetes mellitus, hypertension, dyslipidemia and cardiovascular disease). Out of 185 subjects, Modic changes (MC) were present in 48.6%, with type 2 being the most common, followed by type 3 and type 1. Statistically significant associations were found between MC and higher Pfirrmann grade, older age, and cigarette smoking ($p < 0.05$). Although higher incidence of MC was observed in males, Chinese ethnicity, blue collar job, patients with Diabetes mellitus, hypertension, cardiovascular disease and obesity, these factors did not show statistical significance. Since cigarette smoking is a modifiable risk factor that is significantly associated with MC, smoking cessation could potentially reduce the occurrence of degenerative disc disease and MC. While chronic illnesses were observed among patients with MC, no significant statistical relationship was established. The study recommends further investigation into the duration and severity of comorbidities to better understand their influence on MC.

Keywords: Age; cigarette smoking; degenerative disc disease; Modic changes; Pfirrmann grade

Cross Sectional Study on Vitamin D Level and its Associated Factors in Type 2 Diabetes Mellitus Patients in a Tertiary Centre in Kuantan, Pahang

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ABSTRACT

Type 2 diabetes mellitus (T2DM) and Vitamin D deficiency has garnered significant health attention. There is growing evidence all over the globe that propose the inverse correlation between Vitamin D levels and glycaemic control. However, there is still limited data on Malaysian population, particularly in Kuantan, Pahang. This study was conducted to determine the prevalence of Vitamin D level and its associated factors and to evaluate the association with glycated haemoglobin (HbA1c) level in T2DM patients in a tertiary centre in Kuantan, Pahang. It was a cross sectional study involving a total of 167 T2DM patients in Sultan Ahmad Shah Medical Centre @IIUM (SASMEC @IIUM). Data consists of sociodemographic, clinical characteristics, serum 25-hydroxyvitamin D (25(OH) D) and HbA1c were collected. The relationship between the variables were analysed by using Chi- square test and Spearman's correlation. Majority (68.9%) of study population were Vitamin D deficient (<50 nmol/L), while 24.6% were Vitamin D insufficient (50-75 nmol/L). The mean 25(OH) D level was 42.9 $\pm$ 17.8 nmol/L, and mean HbA1c was 9.0 $\pm$ 2.7%, indicating poor control of the disease. There was significant, moderate negative correlation between 25(OH)D and HbA1c levels (p= -0.266, p <0.001). There was also significant association between female gender and Vitamin D deficiency (p <0.001). Vitamin D deficiency was notably high among T2DM patients, and it was strongly associated with poorer glycaemic control. The findings may provide recommendation for Vitamin D status evaluation, particularly in T2DM female patients for a potential new approach in the management of T2DM.

Keywords: Glycated haemoglobin; 25(OH)D; type 2 diabetes mellitus; vitamin D deficiency

Content and Face Validation of a Social Network Index-Based Questionnaire for Assessing CRC Screening Behaviour in Urban Poor Communities

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ABSTRACT

This study aimed to establish the content and face validity of a newly developed questionnaire assessing interpersonal social network characteristics related to colorectal cancer (CRC) screening behaviour. The instrument consists of two main domains: (i) the ego domain, which includes 35 items measuring the respondent's own social network structure and interactions, and (ii) the alter domain, which comprises 20 items evaluating the characteristics of ego's social network members (alters) influencing CRC screening decisions. Content validation was conducted by a panel of five public health experts using a 4-point ordinal scale to assess item relevance. The Item-Level Content Validity Index (I-CVI) for all items ranged from 0.80 to 1.00, indicating excellent agreement. The Scale-Level CVI using the average method (S-CVI/Ave) was 0.99 for the ego domain and 1.00 for the alter domain, confirming strong content validity. For face validation, five community representatives from the target population evaluated the clarity and comprehensibility of the items using a similar 4-point scale. The Face Validity Index (FVI) showed high clarity scores, with item-level FVI values ranging from 0.80 to 1.00, and overall scale-level FVI exceeding 0.90 for both domains. The findings demonstrate that the instrument possesses strong content and face validity for use in urban low-income communities to explore social network influences on CRC screening behaviours. This validated tool will be applied in a larger quantitative phase of a mixed-methods study.

Keywords: Colorectal cancer screening; content validity; face validity; questionnaire validation; social networks; urban poor

Target Controlled Ketofol, Early Experience and Future Possibilities: A Narrative Review of Current Evidence and Future Directions

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ABSTRACT

Ketofol, the admixture of ketamine-propofol, combines the haemodynamic stability and analgesia of ketamine with the smooth hypnosis of propofol, making them increasingly popular for sedation and anaesthesia. Target-controlled infusion (TCI) technology has made it possible to optimise the delivery of propofol. However, to date no validated dual-drug model exists for ketofol. Nevertheless, clinicians have already started adapting propofol TCI systems for ketofol delivery, representing a creative experimental approach. **Methodology:** This narrative review consolidates available evidence on TCI ketofol, adapting from pharmacological principles, pharmacokinetic simulation studies, continuous infusion trials, early ketamine investigations, and the first reported paediatric case series in Malaysia where ketofol was delivered through standard propofol TCI models. **Results:** Ketamine-to-propofol ratios of 1:3 for bolus dosing and 1:4 for infusion provide optimal sedation dynamics as the simulation data suggests. Early TCI feasibility studies successfully demonstrated controlled ketamine delivery together with propofol infusion, while ICU studies using continuous infusions of ketofol reported stable hemodynamics and reduced propofol requirements. A Malaysian case-series most recently described 12 paediatric patients undergoing upper limb surgeries in which ketofol was delivered via all Paedfusor, Kataria, Schnider, and Eleveld TCI models, resulting in an amazingly uneventful anaesthesia, preserved spontaneous respiration, and excellent postoperative analgesia without the need for rescue opioids. **Conclusion:** Target-controlled ketofol is at an early stage, but is also at a promising stage. While current experiences are able to suggest feasibility and clinical safety, however the absence of a validated dual-drug model highlights the need for pharmacokinetic-pharmacodynamic studies and multi-centre trials. With further studies and validation, TCI ketofol could evolve from just being a pragmatic workaround into a refined tool for a more refined and precision sedation.

Keywords: Ketamine-propofol admixture; ketamine; ketofol; propofol; procedural sedation; precision anaesthesia; target-controlled infusion; total intravenous anesthesia (TIVA)

The Prevalence, Risk Factors and Implications of Complications Related to Dialysis Catheter Insertion at a Tertiary Centre in Malaysia

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ABSTRACT

Background: Hemodialysis (HD) is crucial for patients with acute kidney injury (AKI) or end-stage renal disease (ESRD). While arteriovenous fistulas (AVF) and grafts are preferred for long-term vascular access, central venous catheters (CVCs) remain necessary in urgent cases or when permanent access is not feasible. This study aims to determine the prevalence, risk factors, and clinical implications of complications related to hemodialysis catheter insertion in a Malaysian tertiary centre. **Methods**: A retrospective, single-centre study was conducted on all patients who underwent hemodialysis catheter insertion from January to August 2023. Patients' baseline characteristics, procedural details, and complications were reviewed. Associated risk factors were analysed. **Results**: Of 824 patients, 33.9% developed complications, with the most common being failed puncture (9.5%), catheter dysfunction (8.3%), and infection (7.4%). Previous catheter insertion, prior complications, number of attempts, and insertion site were significantly associated with complications. Independent predictors included previous catheter insertion and multiple puncture attempts. Complications were linked to longer hospital stays but did not affect overall mortality significantly. **Outcomes**: Complications were associated with longer hospital stays, particularly failed puncture, which led to higher hospitalisation rates and extended stays. However, complications did not significantly affect in-hospital mortality. **Conclusion**: One-third of patients experienced complications from hemodialysis catheter insertion. Failed punctures, catheter dysfunction, and infections were most frequent, and complications prolonged hospital stays but had no major impact on in-hospital mortality.

Keywords: Catheter complications; complications risk factor; hemodialysis catheter

Rib Plasmacytoma Mimicking Pleural-Based Neoplasm: A Diagnostic Radiology Challenge in Multiple Myeloma

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ABSTRACT

Rib plasmacytoma is a rare manifestation of multiple myeloma (MM), often presenting as a lytic lesion with soft tissue extension that may mimic primary thoracic malignancies. While MM commonly involves the axial skeleton, rib-based lesions with associated pleural effusion are uncommon and may confound diagnosis. We report the case of a 66-year-old male with newly diagnosed MM who initially presented with dyspnea and reduced effort tolerance. Chest radiograph demonstrated a left lower thoracic opacity, raising suspicion for a pleural-based neoplasm. Computed tomography revealed a large expansile lytic lesion of the left 8th rib with soft tissue extension and significant left pleural effusion. Further evaluation confirmed multiple additional lytic lesions in the vertebrae and pelvis, consistent with advanced MM. Although pleural effusion occurs in only 6% of MM cases, and true myelomatous pleural effusion in about 1%, it may develop secondary to tumor mass effect, inflammation, or direct invasion. In this case, multiplanar CT and bone window analysis established the rib origin, underscoring the importance of careful skeletal review and image-pathology correlation. This case highlights how rib plasmacytomas may masquerade as pulmonary or pleural-based tumors, emphasising the crucial role of comprehensive radiological evaluation in preventing misdiagnosis. Accurate interpretation is vital to ensure appropriate staging and management in patients with MM.

Prevalence of Low Bone Mineral Density and Associated Factors in Men Living with HIV on Antiretroviral Therapy

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ABSTRACT

Low bone mineral density (BMD) is a recognised complication in people living with HIV that remains under-addressed, particularly in Malaysia. Risk factors for low BMD include aging, HIV infection itself and anti-retroviral therapy (ART) usage. This cross-sectional study examined the prevalence of low bone mineral density (BMD) and associated factors among men living with HIV on tenofovir-based ART in Malaysia. A total of 112 men (56 HIV-positive and 56 age and ethnicity-matched healthy controls) underwent dual-energy X-ray absorptiometry scans at the femoral neck and lumbar spine. The prevalence of low BMD at the femoral neck was significantly higher in the HIV group compared to controls (32.1% vs. 16.1%, p=0.047), while differences at the lumbar spine were not significant. Older age and low body mass index correlated strongly with low BMD in HIV individuals. Chronic kidney disease stages 2 and 3a were also linked to reduced femoral neck BMD. HIV-specific factors such as duration of illness, ART exposure, and CD4 counts showed no significant association with low BMD. The FRAX tool estimated a low 10-year fracture risk in both groups, with no participants exceeding intervention thresholds. Findings indicate that men living with HIV on tenofovir-based ART have a higher prevalence of low BMD, mainly driven by traditional risk factors rather than HIV-specific parameters. In conclusion, bone health screening and targeted preventive strategies may benefit this population to mitigate the risk of fragility fractures as survival improves. It highlights the importance of integrating bone health management into HIV care in Malaysia.

Keywords: BMD; DXA scan; fracture risk; HIV; tenofovir

The Whistling Boy - Foreign Body Aspiration

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ABSTRACT

Foreign body aspiration (FBA) is a critical pediatric emergency that can present with subtle clinical signs, especially in older children where delayed or atypical symptoms are uncommon. We report an unusual case involving a 12-year-old boy who presented with a persistent whistling sound during deep inspiration, occurring two weeks after accidentally aspirating a hollow plastic toy whistle. Initial symptoms included brief coughing but no airway distress. Physical examination revealed a stable child without stridor and a prominent biphasic wheeze on the right chest. Radiographs of the chest and abdomen were normal, underscoring the limitations of plain imaging in detecting radiolucent foreign bodies. A high index of suspicion led to direct laryngoscopy and rigid bronchoscopy under anesthesia, which identified the whistle lodged in the right secondary bronchus amid granulation tissue. Anatomical challenges, including micrognathia and prominent incisors, limited rigid bronchoscopy access, necessitating flexible bronchoscopy with a working channel for successful extraction. The patient recovered uneventfully and was discharged in good condition. This case illustrates the diagnostic challenges posed by atypical FBA presentations, particularly with hollow, air-permitting foreign bodies that mask classic symptoms and evade radiological detection. It emphasises the importance of early bronchoscopy when clinical suspicion is high, regardless of imaging results. Additionally, flexible bronchoscopy is highlighted as a valuable diagnostic and therapeutic modality in difficult anatomical situations or when rigid bronchoscopy is unsuccessful. This report adds to existing literature by identifying delayed whistling respiration as a distinctive clinical clue for bronchial foreign body aspiration.

Keywords: Bronchus; bronchoscopy; foreign bodies; otorhinolaryngology; pediatric emergencies

Cardiac Failure among Vector Control Workers with Organophosphate Toxicity: An Uncommon Presentation

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ABSTRACT

Exposure to insecticides is an inevitable occupational hazard for vector-control workers. A cohort study of 2116 adults in the United States in the early 2000s found that organophosphate exposure was significantly associated with a higher risk of death from cardiovascular disease over 14 years of observation. Two vector-control workers aged 38-year-old and 46-year-old respectively serving at Barat Daya District Health Office were diagnosed with cardiac failure. These gentlemen have more than a decade of experience in vector control activities; involving direct exposure to organophosphates. Their periodic serum cholinesterase levels were below baseline, consistent with organophosphate toxicity. Chemical Hazard Risk Assessment (CHRA) revealed a high exposure rating (inhalation and dermal routes) aggravated by incomplete personal protective equipment. Review of their medical records revealed well-controlled Diabetes Mellitus and Hypertension, otherwise no similarities in lifestyle and social determinants. The common factor between them was the occupational exposure to organophosphates with low serum cholinesterase levels. Administrative control to coordinate work schedule reduces duration and frequency of exposure is pivotal for risk reduction. Workers also should be provided timely and interval training on safe practices especially on personal protective equipment. CHRA in this case series revealed no usage of coveralls and repeated use of unwashed trousers during fogging, increasing the risk of dermal absorption of the residue. Agricultural Research Services of the United States Department of Agriculture reported the relative rate of absorption is highest through the scrotum; further establishing the importance of coverall protection.

Keywords: Cardiac failure; organophosphate toxicity; vector-control workers

Exhaustion at Heights: Unveiling the Link between Fatigue and Occupational Incidents among Construction Workers

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ABSTRACT

Background: Fatigue has been increasingly recognised as a critical human factor that compromises safety in high-risk industries, yet its role in the construction sector remains underexplored. Construction workers are exposed to a hazardous environment, physically demanding tasks, and irregular schedules, which predispose them to fatigue. Such conditions not only increase the risk of occupational accidents but also contribute to near-miss incidents, an important early indicator of compromised safety performance. To date, evidence on the prevalence of fatigue and its relationship with occupational incidents among construction workers in Malaysia is limited. **Objective:** This study aimed to determine the prevalence of fatigue among construction workers and to examine its relationship with occupational incidents, guided by the Linear Accident Causation Model, Reason's Human Error Theory, and Demand-Induced Strain Compensation for fatigue. **Methods:** A cross-sectional study was conducted among 600 construction workers employed in high-rise residential projects within the Klang Valley. Fatigue was assessed using the validated Malay version of the Fatigue Assessment Scale for Construction Workers. Data on occupational incidents in the past 12 months were obtained via self-administered questionnaires. Logistic regression analysis was performed to examine the association between fatigue levels and occupational incidents, adjusting for sociodemographic and occupational covariates. **Results:** The prevalence of fatigue was 258 (43%), while 180 (30%) of workers reported at least one occupational accident and also reported near-miss incidents. Workers without fatigue had significantly lower odds of reporting occupational incidents (adjusted OR = 0.253, 95% CI: 0.082-0.287, $p < 0.01$) compared with those experiencing fatigue. These findings align with accident causation theories, underscoring fatigue as a key precursor to unsafe behaviours and error pathways. **Conclusion:** Fatigue is highly prevalent among construction workers and is strongly associated with occupational accidents and near-miss events. These findings underscore the need for fatigue management strategies as part of occupational safety interventions in the construction sector. Incorporating fatigue monitoring and preventive measures could substantially reduce the risk of accidents and improve workplace safety.

Keywords: Construction workers; fatigue; Malaysia; near miss; occupational accidents

Elucidating the Prevalence of Respiratory Dysfunction in Parkinson's Disease and its Risk Factors; A Cross-Sectional Study

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ABSTRACT

Background and Objectives: Respiratory dysfunction (RD) is an important but often overlooked finding in PD leading impaired ventilatory function, ineffective cough, and an increased risk of aspiration and mortality. This study aimed to determine the prevalence of RD among patients with PD and its associated risk factors. **Methods**: A cross-sectional study of 42 PD patients attending Neurology clinic in Hospital Canselor Tuanku Muhriz (HCTM) was assessed for RD via lung spirometry (FEV1, FVC and FEV1/FVC), respiratory muscle strength (Maximal Inspiratory Pressure (MIP), Maximal Expiratory Pressure (MEP) and Peak Cough Flow (PCF). Data on demographics, comorbidities, disease duration, Levodopa Equivalent Daily Dose (LEDD) and Hoehn and Yahr Stage were collected. Statistical analyses were performed to determine associations between clinical variables and respiratory outcomes. **Results**: Respiratory dysfunction was highly prevalent, detected in 90.5% of patients. Among 38 valid spirometry tests, restrictive, obstructive, and normal lung patterns were seen in 42.9%, 9.5%, and 38.1% of patients, respectively. Abnormal MIP, MEP and PCF were found in 65.8%, 86.8% and 68.4% of patients. Increasing age correlated significantly with reduced MIP, MEP and PCF ($p < 0.05$). Unexpectedly, patients with abnormal spirometry had shorter disease duration (median 6.0 years) compared to those with normal readings (median 9.5 years). No associations were observed with LEDD. **Conclusion:** RD is highly prevalent in PD, primarily due to respiratory muscle weakness, ineffective cough and restrictive changes. Older patients are at higher risk regardless of disease duration. Routine respiratory evaluation should be incorporated into PD care for early intervention.

Keywords: Cough effectiveness; Parkinson's disease; prevalence; respiratory dysfunction; spirometry

The Great Drift: Unraveling An Ectopic Parathyroid Adenoma MysterY

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ABSTRACT

Introduction: Ectopic parathyroid adenomas (EPAs) are a rare but important cause of persistent or recurrent hyperparathyroidism, especially in patients with secondary hyperparathyroidism (SHPT). Their variable and often intrathoracic locations pose diagnostic and surgical challenges, requiring advanced imaging and adjunctive localisation techniques. **Case Report:** A 66-year-old woman with end-stage renal failure on long-term haemodialysis and a prior total parathyroidectomy in 2016, who presented with persistent biochemical hyperparathyroidism and progressive bone complications. Despite multiple negative Tc-99m Sestamibi scans and inconclusive ultrasound and CT findings, suspicion for ectopic parathyroid adenoma remained high. Selective venous sampling revealed a PTH gradient in the right inferior thyroid vein, suggestive of intrathoracic disease. A repeat Sestamibi scintigraphy with SPECT/CT subsequently demonstrated tracer uptake in the left paravertebral region at T7, confirming the presence of an ectopic adenoma. The patient was scheduled for a high-risk combined surgery incorporating completion parathyroidectomy with intraoperative gamma probe localisation. **Conclusion:** This case emphasises the importance of repeated and multimodal diagnostic strategies in patients with recurrent SHPT when standard imaging is inconclusive. The integration of functional imaging, venous sampling, and intraoperative localisation is critical for the successful management of ectopic parathyroid adenomas. Multidisciplinary collaboration remains essential for optimising patient outcomes in complex re-operative settings.

Keywords: Ectopic parathyroid adenoma; intraoperative localisation; secondary hyperparathyroidism; selective venous sampling; Sestamibi scintigraphy

Gates to Safety: A New Paradigm to Triage Accuracy in the Emergency Department

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ABSTRACT

The potential of readily available generative artificial intelligence tools (e.g., Gemini AI) to improve time-critical tasks, including Emergency Department triage, is not yet well substantiated in the literature. This study aimed to compare the accuracy and confidence level of the triage officers utilising the Generative Artificial Intelligence-Assisted Triage in Emergency Setting (GATES) system against conventional triage method as the control. A cross- sectional comparative experimental study was conducted where 60 triage officers were randomly assigned to either GATES or control. Each of triage officer from both groups triaged 10 simulated patients based on validated scenarios (three red, four yellow, two green, and one triage away scenarios). Triage decisions and confident level in triaging each scenario were recorded in the forms. The triage decisions were compared to the gold-standard from two emergency medicine consultants. Overall results shown that the GATES group achieved higher mean accuracy compared to the control groups (5.27 $\pm$ 1.57 vs 4.17 $\pm$ 1.51, p-value 0.003) as well as participants using GATES as a tool reported higher confidence in their triage decisions than those using control methods (4.07 $\pm$ 0.75 vs 3.82 $\pm$ 0.57, p-value 0.043). The GATES significantly enhanced triage accuracy most pronounced in high-acuity red zone cases. On the other hand, GATES boosted confidence level substantially compared to conventional groups, in triaging patients for non-critical zones. Demographic factors showed minimal impact on triage accuracy or confidence in both groups. The data supports that integrating AI-assisted tools like GATES significantly enhances confidence level particularly among assistant medical offers group with more experiences in working. These findings advocate for the clinical integration of AI systems to complement human skills and raise the overall standard of emergency department triage.

Keywords: Accuracy; artificial intelligence; confidence level; emergency medicine; triage

Non-Invasive Ventilation (NIV) among Children in Paediatric Intensive Care Unit (PICU) - A Single Center Retrospective Study on Practice, Outcomes and NIV Failure Risk Factors

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ABSTRACT

Introduction: There is limited local data on the practice of non-invasive ventilation (NIV) usage, outcomes and risk factor associated with NIV failure among critically ill children. This study aimed to describe the pattern of NIV usage and identify these risk factors. **Methodology**: A retrospective analysis was conducted on patients aged from one month old to 12 years old admitted to PICU at Hospital TABTAR UKM from 1st July 2024 till 31st December 2024 who required NIV support. NIV failure was defined as the need for invasive mechanical ventilation following NIV support. **Results:** A total of 240 admissions were reviewed. Median age of study population was14 months old (IQR [9-27 months]).17 patients (7.4%) failed NIV and required intubation. Significant predictors for failure include acidosis (pH ≤ 7.34), elevated lactate levels (≥2.1 mmol/L) upon admission (OR 4.46, 95% CI 1.51-13.1, p = 0.02) and after admission (OR 5.30,1.92-14.61, p = 0.02), higher Pediatric Index of Mortality 3 scores (OR 1.17, 95% CI: 1.01-1.35, p= 0.03) and elevated C-Reactive Protein (OR 1.02, 95% CI: 1.00-1.03, p=0.03). Persistently elevated respiratory rate and heart rates at 1 and 6 hours after NIV initiation were strongly associated with NIV failure. **Conclusion**: Severity of illness and a poor physiological improvement within the initial hours of support are crucial predictors of NIV failure. Early recognition of these risk factors is important to guide us in escalation of respiratory support.

Keyword: Failure; NIV

Double Jeopardy: Unmasking the Syndemic of Tuberculosis and Diabetes in Malaysia: Systematic Literature Review

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ABSTRACT

Tuberculosis (TB) and diabetes mellitus (DM) are escalating public health threats with profound global implications. In Malaysia, rising type 2 diabetes rates and persistent TB incidence have created a dual epidemic that complicates disease control. This systematic review and meta-analysis examined the TB-DM association in Malaysia, focusing on prevalence, risk estimates, and clinical outcomes. A comprehensive search of PubMed, Scopus, Web of Science, and local databases (2000-2025) identified 11 eligible studies involving Malaysian populations. Data on prevalence, odds ratios (ORs), and treatment outcomes were extracted, with quality assessed via the Newcastle-Ottawa Scale.Findings revealed a pooled DM prevalence of 18.6% among TB patients (95% CI: 14.2-23.1), markedly higher than the general population. TB patients with DM had a 2.4-fold increased risk of adverse outcomes (OR: 2.42, 95% CI: 1.71-3.41), including delayed sputum conversion, relapse, and mortality. Subgroup analysis showed elevated comorbidity in older adults, urban populations, and high-DM states (Selangor, Johor, Penang). This review underscores a strong bidirectional link between TB and DM in Malaysia, highlighting the urgent need for integrated screening and management Routine DM screening among TB patients and vice versa could improve early detection and treatment success. National health policies must prioritise collaborative TB-DM control strategies to reduce the dual burden and accelerate progress toward End TB targets.

Keywords: Comorbidity; diabetes mellitus; Malaysia; meta-analysis; systematic review; tuberculosis

Beyond Awareness: Unveiling the Pulse of HIV Knowledge and Sexual Intentions among Hulu Langat's Youth

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ABSTRACT

HIV/AIDS remains a pressing global health concern, with youth disproportionately affected due to persistent gaps in knowledge, stigma, and limited access to comprehensive sexual education. This study investigates HIV/AIDS awareness among university students aged 17 to 25 in Hulu Langat, Selangor, employing a quantitative approach via structured questionnaires. Key variables assessed include knowledge, attitudes, sexual intentions, and influencing factors such as educational background, information sources, peer influence, and cultural norms. Data were analysed using IBM SPSS Statistics Software (v30.0.0). Findings revealed high overall knowledge (mean score: 4.2/5), with 90% of respondents correctly identifying transmission routes. Positive attitudes were observed in 85% of participants; however, only 5% had undergone HIV testing. Notable correlations emerged: knowledge positively influenced attitudes ($r = 0.312$, $p = <0.001$) and negatively correlated with sexual intention ($r = -0.198$, $p< 0.01$). Female respondents demonstrated higher knowledge scores ($r = -0.215$, $p <0.01$). Despite encouraging awareness levels, gaps persist in prevention and disease management understanding. The study recommends expanding inclusive, interactive health education within academic settings and fostering community and local authority engagement. These efforts are crucial to dismantling stigma and promoting informed decision-making among adolescents. The implications underscore the need for gender-sensitive, youth-driven interventions particularly through digital platforms to translate knowledge into responsible sexual health practices. Strengthening HIV/AIDS education is essential for shaping evidence-based public health policies and empowering youth as informed agents of change.

Keywords: HIV/AIDS; Malaysia; public health; sexual intention; university students; youth awareness

A Diagnostic Dilemma: Adrenal Diffuse Large B-Cell Lymphoma Mimicking Disseminated Infection

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ABSTRACT

Background: Adrenal diffuse large B-cell lymphoma (DLBCL) is a rare and aggressive lymphoma subtype that often presents with nonspecific symptoms, creating a significant overlap with disseminated infections. We describe a case of a patient with pyrexia of unknown origin, ultimately diagnosed with adrenal lymphoma. **Case Presentation:** A 65-year-old man with diabetes and hypertension presented with three months of fever and septic shock requiring inotropic support. Initial investigations revealed elevated CRP and ESR but low procalcitonin and sterile blood cultures. CT imaging showed bilateral adrenal hyperplasia, pleural effusions, mediastinal lymphadenopathy, and small liver lesions, raising suspicion for disseminated tuberculosis (TB), fungal infection, or lymphomatous malignancies. Despite empirical antibiotics and anti-TB therapy, the patient's condition worsened, prompting further invasive investigations. An adrenal biopsy and bone marrow trephine confirmed DLBCL. Anti-TB therapy was discontinued after TB was ruled out through adrenal and pleural investigations and adrenal fungal PCR was negative. The patient continued to deteriorate, developed a nosocomial infection, and eventually succumbed to his illness. **Discussion:** This case highlights how adrenal lymphoma can mimic severe infection, complicating early diagnosis. The nonspecific presentation, combined with the various difficulties of obtaining deep tissue biopsies, can further delay diagnosis. Clinicians should maintain a high index of suspicion for hematologic malignancies in patients with prolonged febrile illness unresponsive to treatment, even in the absence of classic features. Early recognition and prompt tissue diagnosis are essential for adrenal lymphoma due to its aggressive course and rapid deterioration.

Keywords: Adrenal; lymphoma; pyrexia

How Accurate is Salivary Cortisol in Diagnosing Adrenal Insufficiency?

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ABSTRACT

Adrenal insufficiency (AI) involves diminished adrenal gland function and can be life-threatening. As its prevalence increases, prompt diagnosis becomes essential. Serum cortisol used in the ACTH stimulation test helps confirm AI but may lack accuracy; serum free cortisol offers better accuracy but is rarely accessible. Consequently, salivary cortisol measured at baseline and after ACTH stimulation may serve as a potential diagnostic tool. This systematic review aims to assess the accuracy of salivary cortisol in diagnosing AI beyond its usual role in hypercortisolism, even though it is not currently recommended for routine screening or diagnosis. The review will include human diagnostic studies on patients of any age with suspected AI confirmed by ACTH stimulation tests or insulin tolerance tests. Diagnostic metrics such as sensitivity, specificity, positive and negative predictive values, positive and negative likelihood ratios, and area under the curve will be searched from MEDLINE, Cochrane Library, Scopus, and EMBASE since their database inception. Two independent reviewers will screen, select, and extract data, with disagreements resolved by a third reviewer. Study quality will be assessed using QUADAS-2. The review will analyse the diagnostic parameters with 95% confidence intervals to determine when salivary cortisol is effective, whether at baseline or post-stimulation. Heterogeneity among studies will be explored based on population, test protocol, outcomes, and bias. This review will assist clinicians in evaluating the diagnostic accuracy of salivary cortisol in suspected AI and exploring its additional functions, potentially enhancing cost-effectiveness.

Systematic Review Registration: PROSPERO 2024; CRD42024527812
Keywords: Adrenal insufficiency; diagnostic accuracy; salivary cortisol

Expression of Placental Glucose Transporter Glut3 and Amino Acid Transporter System L 4f2hc (Cd98) in Pregnancies Complicated with Fetal Growth Restriction

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ABSTRACT

Introduction: Fetal growth restriction (FGR) is a condition that affects 5-10% of pregnancies and is the second most common cause of perinatal mortality. It is responsible for about 30% of stillborn infants. Glucose Transporter 3 (GLUT3) facilitates maternal-to-fetal glucose transport, supporting critical processes such as cellular proliferation and fetal development. CD98 is a type **II** transmembrane glycoprotein that plays important roles in amino acid transport. We investigated the immunoexpressions of CD98 and GLUT3 stains in placenta of pregnancies affected by FGR and those without. **Materials and Methods:** A single-centre matched case control study of 120 placentas (60 placenta of pregnancies affected by FGR and 60 gestationally matched normal pregnancies), from Hospital Canselor Tuanku Muhriz (2019-2023). GLUT3 and CD98 expression assessed via immunohistochemistry in syncytiotrophoblast, fetal vascular endothelium, maternal vascular endothelium and decidua. **Result:** CD98 intensity of expression and immunopositivity were significantly increased in the syncytiotrophoblasts, fetal vascular endothelium, and decidua of the FGR group. In contrast, GLUT3 intensity of expression and immunopositivity were significantly decreased in the syncytiotrophoblasts and decidua of FGR cases. CD98 intensity of expression was notably higher in early-onset compared to late-onset FGR within the fetal vascular endothelium. No significant difference in CD98 intensity of expression was observed between severe and mild/moderate FGR cases. In addition, GLUT3 intensity of expression did not differ significantly by FGR onset timing or severity. **Conclusion:** Placental expression of CD98 is significantly higher in the FGR group in syncytiotrophoblasts, fetal vascular endothelium, and decidua, with no difference in maternal vascular endothelium. In contrast, GLUT3 expression is significantly lower in syncytiotrophoblasts and decidua within the FGR group.

Keywords: Amino acid transporter; CD98; fetal growth restriction; Glucose transporter; GLUT3; placenta

Plasma Metabolomics Profiling in Aging Rats and its Correlation with Cognitive Behaviours

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ABSTRACT

Amid global population aging and the rising burden of cognitive disorders, understanding the role of systemic metabolic alterations in cognitive decline has become increasingly critical. Circulating plasma metabolites, reflecting overall metabolic homeostasis, offer a valuable window into the mechanisms underlying brain aging. While previous studies have reported associations between specific plasma metabolites and cognitive performance, most have been constrained by a narrow focus on isolated biomarkers or pathways. To overcome this limitation, we employed untargeted plasma metabolomics to comprehensively characterise metabolic changes associated with age-related cognitive decline. Plasma samples were analysed via LC-MS/MS-based untargeted metabolomics, with data processed by MS-DIAL and MetaboAnalyst for multivariate statistics and pathway analysis. Results revealed significant cognitive decline associated with disruptions in key metabolic pathways including the TCA cycle, glyoxylate/dicarboxylate metabolism, and amino acid metabolism (alanine, aspartate, glutamate, and aromatic amino acids). These disturbances reflect impaired energy metabolism and neurotransmitter homeostasis, suggesting their potential as non-invasive biomarkers and intervention targets for early diagnosis and treatment of cognitive disorders.

Keywords: Cognitive aging; correlation; lcms; plasma metabolomics

Diagnostic Value of LMP3 in Ovarian Clear Cell Carcinoma

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ABSTRACT

Introduction: Ovarian carcinoma is a leading cause of cancer-related death among women, with clear cell carcinoma representing a distinct histological subtype associated with poor prognosis and diagnostic challenges. Identifying reliable biomarkers is crucial for improving diagnosis and management. Insulin-like growth factor-II mRNA-binding protein 3 (IMP3) and E-cadherin have emerged as potential markers implicated in ovarian carcinoma development and progression. This study aimed to determine IMP3 and E-cadherin expressions in ovarian carcinoma and investigate their associations with clinicopathological parameters. **Materials and Methods:** This was a cross-sectional retrospective study, involving 64 cases of ovarian carcinoma diagnosed over 6 years. IMP3 and E-cadherin were performed in all cases, and their expressions were assessed and correlated with clinicopathological parameters. **Result:** A total of 64 ovarian carcinomas were included, with 33 (51.6%) serous carcinoma, 12 (18.8%) clear cell carcinoma, 9 (14.0%) mucinous carcinoma and 2 (3.1%) other histological subtypes. Chi Square analysis revealed that the immunoexpression of IMP3 and negative expression of E-cadherin was significantly higher in clear cell carcinoma than that in non-clear cell carcinoma ($p = 0.037$). **Conclusion:** IMP3 was significantly overexpressed in ovarian clear cell carcinoma, supporting its potential as a valuable diagnostic biomarker for this subtype. While no significant association with survival outcomes was found for IMP3 or E-cadherin, their distinct expression patterns suggest a role in tumour biology in ovarian carcinoma. Further large-scale prospective studies are warranted to validate these findings and explore their prognostic potential.

Keywords: Ovarian carcinoma; IMP3; E-cadherin; prognosis; survival

Effects of Tenofovir Disoproxil Fumarate on Bone Mineral Content, Density and Body Composition in Male Rats

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ABSTRACT

Introduction: Tenofovir disoproxil fumarate (TDF) is widely prescribed for the management and prophylaxis of HIV and chronic hepatitis B virus infections, but has been linked to bone loss and altered body composition. While epidemiological studies highlight increased risks of osteoporosis and fractures, TDF's effects on bone health and body composition under different hormonal status remain limited. **Methodology:** Male Sprague–Dawley rats were divided into four groups: intact + water, intact + TDF, orchidectomised + water, and orchidectomised + TDF. TDF was administered by oral gavage at 27 mg/kg/day for 12 weeks. Bone mineral content (BMC), bone mineral density (BMD), lean mass, fat mass, and fat percentage were assessed by DXA. **Results:** TDF did not significantly affect BMD or lean mass ($p > 0.05$). BMC was significantly higher in intact rats treated with TDF compared with orchidectomised rats given water ($p < 0.05$). Regarding body composition, intact rats treated with TDF showed significant increases in fat mass and fat percentage compared to other groups ($p < 0.05$). In contrast, no such effects were observed in orchidectomised rats ($p > 0.05$). **Conclusion:** Within 12 weeks, TDF did not impair skeletal indices but promoted fat accumulation under intact androgen status. Androgens are critical for bone mineral maintenance and modulate TDF's metabolic impact on adipose tissue. Thus, the metabolic effects of TDF appear androgen-dependent and may be blunted under hypogonadal conditions.

Keywords: Androgen; antiretroviral therapy; fat mass; osteoporosis; testosterone

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Effects of Palm Tocotrienol on Bone Mineral Density and Biomechanical Strength in a Model of Bone Loss due to Androgen Deficiency and Gut Dysbiosis

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ABSTRACT

Gut-bone axis is a well-established concept, but the interactions between sex hormone deficiency and gut microbiota on bone health have not been examined extensively. Palm tocotrienol has been shown to regulate gut microbiota composition and improve bone health separately. However, whether this action was mediated through the gut-bone axis remains elusive. This preliminary study aims to investigate the effects of palm tocotrienol on osteoporosis induced by orchidectomy (ORX) and gut dysbiosis. Three-month-old Sprague Dawley male rats were assigned to five groups (n=8/group): sham (SHAM), ORX, ORX+antibiotics (ORX+ANT), ORX+PT3 and ORX+ANT+PT3. The ORX groups underwent bilateral orchidectomy, while the ANT groups received a combination of ampicillin, sulfamethoxazole, and trimethoprim for three months. The PT3 groups received palm tocotrienol at 60 mg/kg for three months. A monthly bone mineral content (BMC) and density (BMD) assessments were performed. Post-sacrifice, rats' femurs were harvested for biomechanical strength analysis. The results showed that whole-body BMD and BMC, as well as femoral BMC, of ORX+ANT and ORX+ANT+PT3 were significantly lower than those of SHAM in the third month ($p<0.05$). As for the femoral BMD, the ORX group has a significantly lower value compared to the SHAM group in the first month ($p<0.05$). Bone biomechanical strength revealed that ORX, ORX+ANT and ORX+ANT+PT3 have reduced Young's modulus, maximum force, stress and stiffness compared to the SHAM group ($p<0.05$). In conclusion, testosterone deficiency, in combination with gut dysbiosis, negatively impacts the skeletal health of male rats. Palm tocotrienol may partially improve bone health in these conditions.

Keyword: Antibiotics; gut microbiota; osteoporosis; testosterone deficiency; vitamin E

Photoprotection by *Centella asiatica*: Antioxidant and MMP/MAPK Modulation in UVB-Damaged Skin

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ABSTRACT

Ultraviolet (UV) exposure promotes skin aging by inducing oxidative stress, matrix metalloproteinase (MMP) activation, and mitogen-activated protein kinase (MAPK) signaling. This study examined the photoprotective effects of orally administered *Centella asiatica (*CA) extract in mice subjected to UVB irradiation. Mice were divided into five groups: Sham, UV control, CA extract, Heliocare® oral, and topical sunscreen. The CA group received 500 mg/kg body weight orally, while the Heliocare® group received 200 mg/kg. Treatments lasted 10 days, with UVB exposure on days 7-10 (except sham group). Serum samples were analysed for oxidative stress markers and antioxidant enzymes (SOD, CAT, GST) using ELISA, while skin biopsies were assessed for MMP and MAPK gene expression via real-time PCR. CA significantly reduced malondialdehyde (MDA) levels, preserved SOD activity, and modulated CAT and GST compared to UV controls. Gene expression analysis showed downregulation of MMP1, MMP2, MMP9, and TIMP1, alongside suppression of JNK and activation of ERK and P38 pathways. These findings suggest that *Centella asiatica* extract offers substantial photoprotection against UVB-induced skin damage, primarily through antioxidant activity and regulation of MMP/MAPK signaling, supporting its therapeutic potential in preventing photoaging.

Keywords: Antioxidant enzymes; *Centella asiatica* extract; MAPK signaling; matrix metalloproteinases (MMP); oxidative stress; photoprotection; photoaging; skin aging; UVB irradiation

Effects of D-Galactose on Testicular Histomorphometric Indices in an Artificial Ageing Model

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ABSTRACT

Ageing is associated with progressive testicular structural degeneration and dysfunction. However, modelling age-related changes in old rats is logistically difficult. D-galactose administration is widely used to establish an experimental ageing model. To establish a testicular ageing model for drug screening purposes, we aim to investigate the optimal dosage of D-galactose to induce changes in testicular histomorphometric indices in male rats in this pilot study. Sprague Dawley male rats were assigned to four groups: a sham that was injected with normal saline (n=5), D-galactose groups that were injected with 150 mg/kg/day (n=6), 300 mg/kg/day (n=6) and 600 mg/kg/day (n=6) for 8 weeks till sacrifice. Post-sacrifice, histomorphometrical assessments of the testis were performed. The results showed that the lumen perimeter of the rats given 300 mg/kg D-galactose was significantly higher than that of the sham group ($p < 0.05$). Seminiferous tubule lumen diameter showed similar changes, with significantly higher values in rats given 300 mg/kg D-galactose compared to all other groups. In conclusion, 300 mg/kg D-galactose induces expansion of seminiferous tubule lumen (both perimeter and diameter), possibly reflecting compensatory activation of spermatogenic processes due to assault. The effects diminish with higher dosage due to testicular atrophy.

Keywords: Male reproductive system; seminiferous tubules; testis; toxicity

Effects of Annatto Tocotrienol and Vitamin K2 Co-Supplementation on Bone Mineral Density and Body Composition in a Rat Model of Oestrogen Deficiency

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ABSTRACT

Previous studies showed that the anti-osteoporosis effects of tocotrienol have a threshold, which cannot be overcome by increasing its dosage. Vitamin K2 also possesses skeletal beneficial effects, and its synergistic effects with tocotrienol have not been validated. This preliminary study aims to determine the effects of annatto tocotrienol and vitamin K2 co-supplementation on bone health in a rat model of osteoporosis due to oestrogen deficiency. Female Sprague Dawley rats were randomised into six groups (n=3/group): sham, ovariectomised rats (OVX) given olive oil, OVX rats given annatto tocotrienol (AnTT, 60 mg/kg/day, oral), OVX rats given vitamin K2 (VK2, 50 mg/kg/day, oral), ovariectomised rats given AnTT and VK2 (same doses as previous groups), and ovariectomised rats given calcium carbonate (1% in drinking water). Monthly bone mineral density (BMD) and body composition assessments were performed with dual-energy X-ray absorptiometry. The results revealed that no significant difference in percentage of change in BMD, BMC, fat mass and lean mass among the groups for three months ($p > 0.05$). In conclusion, the effects of ovariectomy and annatto tocotrienol/vitamin K2 are too small to be detected with low sample size. Further studies are still ongoing.

Keywords: Bone; menopause; osteopenia; skeleton; vitamin E

Identification of Non-Tuberculous Mycobacteria (NTM) From PCR-Positive Culture-Negative Clinical Samples by Partial 16s rRNA Sequencing

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ABSTRACT

Introduction: Molecular methods enable rapid detection of non-tuberculous mycobacteria (NTM) from clinical samples for timely management. We investigate the accuracy of NTM PCR detection in PCR-positive culture-negative samples, by partial 16S rRNA sequencing. **Methodology:** We analysed 1695 clinical specimens from HCTM using the Lytestar™ TB/NTM real-time PCR assay and mycobacterial culture. 11 out of 56 specimens (19.6%) were NTM PCR-positive but culture-negative, with cycle threshold (Ct) ranging from 30 to 33. The extracted DNA was then subjected to 159 bp 16S rRNA gene fragment sequencing. The sequencing chromatograms and multiple sequence alignment was performed using Chromas version 2.6.6 and Molecular Evolutionary Genetics Analysis version 12 (MEGA12) software, respectively. The sequences were also matched to the National Centre for Biotechnology Information (NCBI) GenBank database using the Basic Local Alignment Search Tool (BLAST). **Results:** 1/11 (9.1%) showed sequence matching to *Mycobacterium* sp., 3/11 (27.3%) were inconclusive, and 7/11 (63.6%) could not be sequenced. **Discussion and conclusion:** This study is constrained by mostly high Ct values in PCR-positive samples and therefore limitations for further sequencing analysis. The samples were presumed to be paucibacillary with low DNA yield or possible DNA degradation or contamination. 16S rRNA gene sequencing is the reference method for identifying NTM due to its high accuracy; however, it lacks some species discrimination among the rapid growers within the *Mycobacterium fortuitum* and *Mycobacterium chelonae-abscessus* complexes. Complementary testing, such as the *rpoB* gene analysis, may enhance species identification.

Keywords: Molecular method; nontuberculous mycobacterium; polymerase chain reaction; sequence analysis

Evaluating the Impact of Mitragynine on Bone Microarchitecture using Microct in a Murine Model

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ABSTRACT

Mitragynine, the main alkaloid of *Mitragyna speciosa* (Kratom), exerts opioid-like analgesic and addictive effects. However, its influence on bone health remains unclear. Opioids and cannabinoids are known to compromise skeletal integrity through direct cellular activity, hormonal imbalance, and increased fall risk; therefore, this study investigated whether Mitragynine induces similar alterations in bone microarchitecture using micro-computed tomography (microCT). Male Swiss albino mice (n=36) were treated for 28 days with low- dose Mitragynine (1-4 mg/kg), high-dose Mitragynine (5-25 mg/kg), morphine (5 mg/kg), tetrahydrocannabinol (THC, 2 mg/kg), vehicle (Tween 20), and untreated control. Femurs were harvested and analysed for bone volume fraction (BV/TV), trabecular thickness (Tb.Th), trabecular number (Tb.N), and trabecular separation (Tb.Sp). Low-dose Mitragynine showed the highest bone volume (64.47%) and trabecular thickness (0.298 mm), while THC showed the lowest (59.52%, 0.190 mm). Trabecular number was markedly elevated in the THC group (13.77 mm^{-1}) but remained comparable across other groups (2.09-2.22 mm^{-1}). Trabecular separation was greatest in Control (0.716 mm) and lowest in THC (0.468 mm), with low-dose Mitragynine showing favorable values (0.635 mm). While statistical significance was not achieved, the trend suggests that low-dose Mitragynine may help preserve skeletal microarchitecture relative to morphine and THC, suggesting a less detrimental and possibly beneficial influence on skeletal health. These findings provide better insights into Mitragynine's dose-dependent effects, supporting its potential consideration in developing safer alternatives to conventional opioids with fewer adverse effects on bone. Further studies should confirm these dose-dependent effects and explore the osteoblast-osteoclast mechanisms and hormonal interactions mediating Mitragynine's skeletal influence.

Keywords: Bone health; bone microarchitecture; kratom; microct; mitragynine

Single-Cell RNA Sequencing Reveals Immunoregulatory Reprogramming of Tim-3$^+$ Monocytes in Ovarian Cancer

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ABSTRACT

Ovarian cancer is a highly heterogeneous gynaecological malignancy with complex genetic, histological, and clinical subtypes that complicate diagnosis and treatment. Standard therapies, such as cytoreductive surgery and platinum-based chemotherapy, offer limited long-term benefit, while immunotherapy has shown only modest efficacy. Early detection remains hindered by the low sensitivity and specificity of current biomarkers. Single-cell RNA sequencing (scRNA-seq) has emerged as a powerful tool to address these challenges by resolving tumour and immune microenvironment heterogeneity at single-cell resolution. In this study, peripheral blood mononuclear cells from 12 healthy donors and 12 ovarian cancer patients were profiled using the BD Rhapsody Single-Cell Assay platform with AbSeq antibody panels for protein identification and a targeted immune response panel analysed via SeqGeq. Approximately 30,000 single cells were analysed, leading to the identification of seven distinct monocyte clusters across both cohorts. Notably, a TIM-3$^+$ monocyte subset was detected in both healthy donors and patients. In healthy individuals, CD14$^+$CD16$^+$HLA-DR$^+$CD11c$^+$Tim3$^+$ monocytes exhibited strong activation of pathways related to pathogen sensing, antigen presentation, and inflammatory signalling, reflecting an immune-activating phenotype supportive of host defence. In contrast, ovarian cancer-associated monocytes (CD14$^+$HLA-DR$^+$CD11c$^+$Tim3$^+$) demonstrated elevated expression of inflammatory mediators and immunoregulatory genes, suggesting reprogramming toward an inflammatory but immunosuppressive phenotype. These monocytes secreted cytokines and chemokines that facilitated tumour progression, suppressed cytotoxic activity, and displayed tumour-associated macrophage-like features that contribute to immune evasion. Collectively, these findings underscore the utility of scRNA-seq in uncovering immune cell heterogeneity and reprogramming, offering opportunities for early biomarker discovery, improved treatment strategies, and enhanced patient survival in ovarian cancer.

Keywords: Immune reprogramming; monocytes; ovarian cancer; precision medicine; single-cell RNA sequencing

A Comparative Analysis of Antioxidant Activity between *Punica granatum and Phaleria macrocarpa*

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ABSTRACT

Oxidative stress plays a critical role in the pathogenesis of chronic diseases, driving interest in natural antioxidants as safer alternatives to synthetic compounds. The antioxidant potential of *Phaleria macrocarpa* (mahkota dewa) has been relatively well documented; however, less evidence is available regarding the bioactivity of *Punica granatum* (pomegranate) peel, despite its abundant phytochemicals. This study compared the antioxidant activities of *P. macrocarpa* and *P. granatum* peel extracts prepared using ethanolic extraction. Antioxidant capacity was evaluated using hydrogen peroxide scavenging and ferric reducing antioxidant power (FRAP) assays, with ascorbic acid as a positive control. In the hydrogen peroxide scavenging assay, *P. granatum* exhibited the highest activity (84.6 ± 1.2%), surpassing ascorbic acid (72.3 ± 0.9%) and *P. macrocarpa* (61.5 ± 1.5%). Similarly, the FRAP assay showed ascorbic acid with the strongest reducing power (1050 ± 25 µmol Fe^{2+}/g), followed by *P. granatum* (820 ± 18 mol Fe^{2+}/g) and *P. macrocarpa* (540 $^{2+}$ 22 µmol Fe^{2+}/g). These findings confirm the superior antioxidant potential of *P. granatum*, while recognising *P. macrocarpa* as a moderate but valuable source. Both extracts demonstrate potential applications in nutraceuticals and functional foods targeting oxidative stress-related disorders.

Keywords: Antioxidant activity; FRAP assay; hydrogen peroxide scavenging; *Phaleria macrocarpa*; *Punica granatum*

Elucidating the Changes in the Gut Microbiome with Ageing and its Modulation by Ginger Extract

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ABSTRACT

Ageing causes gut dysbiosis by reducing microbial diversity, decreasing the number of beneficial bacteria, and increasing the prevalence of pathogens, which leads to a range of health problems. Ginger (*Zingiber officinale* Roscoe) possesses anti-inflammatory properties due to its phytochemical compounds, including gingerol and shogaol. This study aimed to elucidate the changes in the gut microbiome with ageing and its modulation by ginger extract. Forty Sprague-Dawley rats (young and old) were divided into ginger-treated and control groups. The rats in the ginger-treated group received 200 mg/kg/day of ginger extract, while the control group received 1 mL of distilled water via oral gavage daily for 3 months. DNA extracted from faeces and colon was subjected to 16s rRNA sequencing. Our results showed that the Firmicutes/Bacteroidota ratio was increased in the old control group compared to the young and decreased with ginger treatment in both faeces and colon ($p<0.05$). The alpha diversity index, as indicated by the Observed and Chao indices, showed increased microbial diversity in the old-treated groups after 3 months of ginger treatment ($p < 0.05$). In the young-treated group, the alpha diversity, as measured by the Shannon and Simpson indices, was significantly different from that before treatment ($p < 0.05$). The microbial composition in the old treated group became similar to that of the young-treated group, indicating improvement in microbiome composition with ginger supplementation. In conclusion, supplementation with ginger extract enhances the gut microbiome in the older group while increasing diversity in the young rats, suggesting its beneficial effects in improving gut health.

Keywords: Ageing; ginger; gut microbiome; 16s rRNA sequencing

Diagnostic Modality of Artificial Intelligence for Antinuclear Antibody Testing of Routine Clinical Samples

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ABSTRACT

The antinuclear antibody (ANA) test, commonly ordered for the diagnosis of systemic autoimmune rheumatic diseases (SARD), uses the indirect immunofluorescence (IIF) technique as the gold standard method. Recent developments in ANA testing include the use of artificial intelligence (AI) for automation; however, validation of this technique is still needed, as variability in performance has been reported worldwide. This study evaluated the diagnostic performance of an automated image analyser, the EUROPattern Suite (*EUROIMMUN, Lübeck, Germany*), for ANA IIF testing. A total of 257 serum samples submitted to the Immunology Laboratory of Hospital Canselor Tuanku Muhriz between May and July 2025 for ANA testing were analysed using EUROPattern, and results were compared with manual IIF readings by laboratory personnel, used as the gold standard. The overall agreement for ANA positivity was 98.4% ($\kappa = 0.85$), with a sensitivity of 99%. However, pattern agreement was lower at 60.9%. Within this, mixed pattern agreement was higher at 73.6% (all patterns correct), whereas simple pattern agreement was only 49.6%. These findings are consistent with other studies, highlighting the potential value of AI in ANA testing, while also emphasising that pattern recognition still requires cautious interpretation. Further refinement of the AI database may improve accuracy. Integration of AI into laboratory workflows may help reduce workload and standardise ANA reporting.

Keywords: Antinuclear antibody; artificial intelligence; automated image analyser; diagnostic performance; indirect immunofluorescence