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MINISTRY OF HEALTH MALAYSIA
INSTITUTE FOR HEALTH BEHAVIOURAL RESEARCH

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Special Issue:

Abstracts of the 1st National Conference on Behavioural Sciences in Health

Mainstreaming Behavioural Sciences for Better Health

6 -7 May 2026 | National Institutes of Health
Setia Alam, 40170 Shah Alam, Selangor

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CONFERENCE SCHEDULE

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CONFERENCE SCHEDULE
6th May 2026 (Wednesday)

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People at the Centre of Health Design
YBhg. Datuk Dr. Mahathar Abd Wahab
Director General of Health

PLENARY 1, Auditorium Perdana

Charting Malaysia's Future Health System:
The Role of Behavioural Sciences in Policy, Planning & Service Transformation
YBhg. Datuk Dr. Nor Fariza Ngah
Deputy Director General of Health (Research & Technical Support)

PLENARY 2, Auditorium Perdana

From Behaviour to Better Health:
Integrating Insights into Public Health, Clinical Care & Community Engagement
YBrs. Dr. Ismuni Bohari
Deputy Director General of Health (Public Health)

FORUM 1, Auditorium Perdana

Behavioral Sciences for Better Health: What's Next for Malaysia?

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RAPID FIRE SESSION FOR E-POSTER PRESENTATION *(Concurrent)*

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ORAL PRESENTATION 2, Auditorium 1
ORAL PRESENTATION 3, Auditorium 2

SYMPOSIUM 1, Auditorium Perdana

Theme: Integrating Behavioural Sciences into Public Health Policy & Practice

SYMPOSIUM 2, Auditorium 1

Theme: Behavioural Applications in Clinical Care & Service Delivery

SYMPOSIUM 3, Auditorium 2

Theme: Digital Nudges, AI & Behavioural Tech in Health Systems

CONFERENCE SCHEDULE
7th May 2026 (Thursday)

ORAL PRESENTATION 4, Auditorium Perdana
ORAL PRESENTATION 5, Auditorium 1
ORAL PRESENTATION 6, Auditorium 2

PLENARY 3, Auditorium Perdana

From Consumer Preferences to Healthier Choices: An Industry Perspective on Behavioural Sciences
Venon Tian
Chief Operating Officer, ZUS Malaysia

SYMPOSIUM 4, Auditorium Perdana

Theme: Behavioural Data, Analytics & Population Insight

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SYMPOSIUM 5, Auditorium 1

Theme: Designing Behaviourally Informed Health Promotion Systems & Structures

SYMPOSIUM 6, Auditorium 2

Theme: Behavioural Insights for Effective Health Communication & Engagement

SYMPOSIUM 7, Auditorium Perdana
Theme: Public Trust, Misinformation & Behavioural Risk Management

SYMPOSIUM 8, Auditorium 1
Theme: People, Culture & Context in Behavioural Change Strategies

SYMPOSIUM 9, Auditorium 2
Theme: Building Institutional Capacity & Workforce for Behavioural Science in Health

FORUM 2, Auditorium Perdana
Behavioural Insights As A National Health Asset: Where Should We Lead Next?

WELCOMING REMARKS, Auditorium Perdana
YBhg. Datuk Dr. Nor Fariza Ngah
Deputy Director General of Health (Research & Technical Support)

OFFICIAL LAUNCHING, Auditorium Perdana
YB Datuk Seri Dr. Dzulkefly Ahmad
Minister of Health

CLOSING & AWARD PRESENTATION, Auditorium Perdana

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ORAL PRESENTATION

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(OP002) THE BEHAVIOURAL IMPACT OF JOB DEMANDS AND WORKPLACE RELATIONSHIPS ON EMPLOYEE MENTAL HEALTH

Ahmad Shahrul Nizam Bin Isha @ Isa[1*], Farrah Ilyani Che Jamaludin[1], Paras Behrani[1] & Emeraazwa Emeraldi[1]

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ABSTRACT

Workplace psychological distress is a growing concern in high-demand manufacturing settings, affecting employee well-being and organizational performance. Job demands, work structure, and interpersonal relationships critically influence mental health outcomes, making understanding these pathways vital for effective interventions.

OBJECTIVE(S): This study examines how job demands and workplace relationships influence employee mental health and the behavioural mechanisms through which stress and burnout mediate anxiety and depression.

MATERIALS & METHODS: A cross-sectional survey of 867 Malaysian electronics employees assessed job demands, work organization, interpersonal relationships, and burnout using the Copenhagen Psychosocial Questionnaire (COPSOQ), and stress, anxiety, and depression using the DASS-21. Data were analyzed using PLS-SEM to examine direct and indirect behavioural pathways.

RESULTS: Job demands increased burnout ($\beta = 0.323$, $p < 0.001$), stress ($\beta = 0.460$, $p < 0.001$), and depression ($\beta = 0.336$, $p < 0.001$), while supportive interpersonal relations and leadership reduced burnout ($\beta = -0.091$, $p = 0.025$), depression ($\beta = -0.082$, $p = 0.031$), and stress ($\beta = -0.090$, $p = 0.007$). Stress strongly predicted anxiety ($\beta = 0.853$, $p < 0.001$), and burnout mediated job demands' effect on depression (indirect = 0.046, $p = 0.001$). Work individual interface had indirect effects on anxiety via stress (0.177, $p < 0.001$) and depression via burnout (0.049, $p = 0.001$). The model explained variance in anxiety ($R^2 = 0.749$), stress ($R^2 = 0.377$), burnout ($R^2 = 0.346$), and depression ($R^2 = 0.337$).

CONCLUSION: Managing workload and fostering supportive workplace relationships are essential to protect employee mental well-being. Integrating behavioural insights into organizational policies can improve mental health and guide evidence-based occupational strategies for industry and policymakers.

KEYWORDS: *Employee Mental Health; Job Demands; Burnout; Workplace Relationships; Behavioural Interventions*

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(OP003) DEVELOPMENT AND EVALUATION OF THE ONCOSHIELD MODULE FOR ANTINEOPLASTIC DRUGS HANDLING PRACTICES AMONG NURSES IN WEST MALAYSIA

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ABSTRACT

BACKGROUND: Antineoplastic drugs are essential in cancer treatment but have posed significant occupational hazards to healthcare workers, particularly nurses involved in preparation, administration, and disposal. Many antineoplastic agents are classified as carcinogenic, mutagenic, and teratogenic, with repeated occupational exposure associated with reproductive toxicity and increased cancer risk. Despite established international safety guidelines, handling practices remained inconsistent in Malaysian hospitals due to knowledge gaps, insufficient training, and organisational barriers.

OBJECTIVE: To develop and evaluate the effects of a structured educational module, OncoShield Module, on safe handling practices and associated psychosocial determinants among nurses in government hospitals in West Malaysia.

METHODS: A cluster randomised controlled trial will be conducted among nurses from selected government hospitals providing chemotherapy services. Hospitals will be randomly assigned to intervention or control groups. The intervention group will receive the OncoShield Module, developed using the Sidek Module Development Model and guided by the Predictors of Hazardous Drug Precaution model. The blended module integrates face-to-face teaching, skills-based training, and digital reinforcement. Data will be collected using a validated self-administered questionnaire at baseline, 1 month, and 3 months post-intervention. Generalized Linear Mixed Model will evaluate intervention effects while accounting for clustering and covariates.

EXPECTED OUTCOME: The module is expected to improve nurses' safe handling practices and related psychosocial determinants, including knowledge, self-efficacy, perceived risk, perceived barriers, perceived conflict of interest, interpersonal influence and organisational influence.

CONCLUSION: The findings will be expected to inform future development of evidence-based training strategies and contribute to strengthening occupational safety practices in oncology settings.

KEYWORDS: *Antineoplastic Drugs, Cytotoxic Drugs, Chemotherapy, Nurses, Occupational Health*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP005) THE PREVALENCE OF VACCINE HESITANCY AND THE ATTITUDES TOWARDS CHILDHOOD VACCINATION AMONG PARENTS IN PERAK

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ABSTRACT

INTRODUCTION: Vaccine hesitancy remains a growing public health concern that threatens the success of childhood immunisation programmes worldwide. In Malaysia, despite the availability of free vaccination services through government health facilities, parental concerns regarding vaccine safety, necessity, and trust in healthcare systems continue to influence vaccination uptake. Understanding the prevalence of vaccine hesitancy and its associated factors among parents is essential for developing targeted interventions to maintain high immunisation coverage and prevent vaccine-preventable diseases.

OBJECTIVE(S): This study aimed to determine the prevalence of vaccine hesitancy among parents in Perak, Malaysia, to examine parental attitudes toward childhood vaccination, and to identify sociodemographic, contextual, individual, and vaccine-specific factors associated with vaccine hesitancy.

MATERIALS & METHODS: A descriptive cross-sectional study was conducted among parents attending Maternal and Child Health Clinics across Perak. A total of 367 parents with at least one child aged over one year participated in the study. Data were collected using a structured self-administered questionnaire adapted from the World Health Organization's SAGE Working Group on Vaccine Hesitancy and the Parent Attitudes about Childhood Vaccines (PACV) scale. Descriptive statistics were used to summarise participant characteristics and prevalence of vaccine hesitancy, while inferential analyses, including chi-square and Fisher's exact tests, were performed to examine associations between sociodemographic variables and vaccine hesitancy.

RESULTS: The prevalence of vaccine hesitancy among parents was 8.2%. Although overall vaccine acceptance was high, substantial concerns were reported regarding vaccine safety, side effects, and the number of vaccines administered simultaneously. Age, gender, ethnicity, household income, number of children, and children's vaccination status were significantly associated with vaccine hesitancy ($p < 0.05$). Trust in healthcare providers and the Ministry of Health was generally strong, while non-healthcare sources such as the Internet were the primary sources of vaccine-related information.

CONCLUSION: Vaccine hesitancy among parents in Perak remains relatively low but is influenced by multiple sociodemographic and perceptual factors. Strengthening health communication, improving trust in vaccination information, and addressing specific parental concerns are crucial to sustaining childhood immunisation uptake.

KEYWORDS: *Vaccine Hesitancy; Childhood Immunisation; Parents; Public Health; Malaysia*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP007) BEHAVIOURAL INSIGHTS ON THE IMPLEMENTATION OF A COMMUNITY-BASED ORAL HEALTH PROGRAMME

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ABSTRACT

INTRODUCTION: *Program Kampung Angkat Pergigian* (PKAP) is a community-based oral health programme that aims to promote oral health through home visits. Implementation is influenced not only by the service technicality but also by the community's behaviour.

OBJECTIVE(S): To identify behavioural enablers and barriers influencing the implementation of home visits.

MATERIALS & METHODS: An exploratory qualitative study was conducted between June 2023 and June 2024 in Negeri Sembilan. Data were gathered from 24 in-depth interviews with community members sampled purposively. The interviews were audio-recorded, transcribed verbatim, and analysed using the reflexive thematic analysis approach. To identify behavioural enablers and barriers, relevant themes identified were mapped to the EAST framework that provides insights on how behaviour is influenced when interventions are Easy, Attractive, Social and Timely.

RESULTS: Community members highlighted that by reducing logistical effort and providing access, home visits were accepted positively, as they were easy. Increasing capability and physical burden, such as a lack of training for community health workers and preparation of homes for the visits, are behavioural barriers in this domain. Acceptance was influenced by perceived attractiveness, with incentives encouraging engagement, while fear towards procedures and discomfort with professionals visiting reduced the appeal of the service. Social enablers were rooted in trust, with community representatives providing legitimacy and familiarity, while perceived judgment by neighbours acted as a barrier. Service provision during office hours limited participation, but with advance notification and timely alignment with community schedules, it facilitated acceptance.

CONCLUSION: Behavioural factors influence service acceptance, and addressing these behavioural enablers and barriers can strengthen implementation.

KEYWORDS: *Behavioural insights, Community-based oral health home visits, EAST framework.*

BERTAMBAH MUTIU
PERSIDANGAN PENYELIDIKAN KESIHATAN KEBANGSAAN MOH 2024
INSTITUT KESIHATAN NEGARA

(OP008) DETERMINANTS OF SEVERE PERINEAL TEARS DURING VAGINAL DELIVERY: A RETROSPECTIVE HOSPITAL-BASED STUDY TITLE

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ABSTRACT

INTRODUCTION: Obstetric Anal Sphincter Injuries (OASIs) are severe perineal injuries during vaginal delivery, affecting the anal sphincter and perineal tissues, with long-term complications such as pain, incontinence, and reduced quality of life. Despite their significance, the risk factors and prevalence of OASIs are not well understood, particularly in Terengganu, Malaysia, where severe perineal tears remain a critical issue during vaginal deliveries. This study aims to identify the determining factors associated with birth-related severe perineal tears at a public hospital in Terengganu.

OBJECTIVE(S): This study aims to identify the determining factors associated with birth-related severe perineal tears

MATERIALS & METHODS: A retrospective study was conducted at Hospital Sultanah Nur Zahirah, Terengganu, analyzing 15,196 vaginal births from January to December 2024. A structured Case Report Form (CRF) was used to gather maternal characteristics, obstetric history, and delivery-related data. Descriptive statistics were applied to identify the prevalence and risk factors.

RESULTS: The majority of affected women were aged 35 years or younger (88.9%), lived in rural areas (60%), and had secondary education (57.8%). Primigravida mothers accounted for 60% of cases. Most deliveries occurred at 38–39 weeks (57.8%), with second-stage labor under one hour in 97.8%, and episiotomy in 48.9% overall cases.

CONCLUSION: Severe perineal tears had a low incidence (0.30%), similar to other regions. However, factors like primiparity, rapid labor, and episiotomy use were identified as modifiable risks that can be addressed through improved care practices.

KEYWORDS: *Severe Perineal Tear, Obstetric Anal Sphincter Injury, Vaginal Birth, Risk Factors*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP010) CROSS-CULTURAL ADAPTATION AND FUZZY DELPHI CONTENT VALIDATION OF THE MALAY BURNOUT ASSESSMENT TOOL (BAT-23)

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ABSTRACT

INTRODUCTION: Burnout is officially recognized by the World Health Organization in ICD-11 as an occupational phenomenon resulting from chronic workplace stress that has not been successfully managed. Although widely studied globally, validated burnout assessment tools in Bahasa Malaysia remain limited. The Burnout Assessment Tool (BAT-23), developed to address conceptual and psychometric limitations of earlier instruments, has not yet been systematically translated and validated for use in Malaysia. The objective of this study is to translate and evaluate the content validity of the Bahasa Malaysia version of the Burnout Assessment Tool (BAT-23) among Malaysian employees.

MATERIALS & METHODS: A two-phase methodological design was employed. Phase 1 involved an eight-step translation and cultural adaptation process, including forward translation, reconciliation, backward translation, harmonization, cognitive interviews, and refinement. Phase 2 assessed content validity using the Fuzzy Delphi Technique with 15 experts from occupational health, psychology, public health, and human resource fields. Items were evaluated based on threshold value ($d \leq 0.20$), expert agreement ($\geq 75\%$), and defuzzification value ($A \geq 0.50$).

RESULTS: Cognitive interviews confirmed clarity and cultural appropriateness of the translated items. Fuzzy Delphi analysis demonstrated strong expert consensus, with 20 out of 23 items meeting all validation criteria. Minor item-level revisions were required, particularly within the Mental Distance construct.

CONCLUSION: The Bahasa Malaysia BAT-23 demonstrates strong linguistic equivalence and content validity, providing a culturally appropriate and psychometrically robust tool for assessing burnout among Malaysian employees.

KEYWORDS: *Burnout Assessment Tool, Fuzzy Delphi Technique, Content Validity, Occupational Burnout*

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(OP011) FROM AI-ENABLED ITERATIVE INTERVENTIONS TO ORGANISATIONAL BEHAVIOURAL CAPABILITY: A THREE-YEAR PUBLIC HEALTH CASE IN JAPAN

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ABSTRACT

INTRODUCTION: Artificial intelligence (AI) has accelerated the use of personalised nudges to promote healthy behaviours. However, it remains unclear how public organisations can leverage AI to build sustainable health systems. Evidence is limited on how AI-enabled interventions can drive system-level transformation and organisational capacity development required for sustained behaviour change.

OBJECTIVE(S): This study examines whether iterative AI-enabled personalised nudges, combined with system-level redesign and organisational capacity building, can produce sustained improvements in preventive health behaviour.

MATERIALS & METHODS: A three-year field implementation was conducted in Yomitan Village, Japan, targeting approximately 6,300 residents aged 40–74 enrolled in the National Health Insurance scheme. AI-enabled behavioural diagnosis informed theory-based message design and personalised delivery via SMS and postcards. Year 1 focused on externally led personalised nudges targeting long-term non-attendees. Year 2 integrated system-level redesign through co-design with municipal officers, informed by the Behaviour Change Wheel and Sludge Audit methods. Year 3 institutionalised behavioural diagnosis and intervention selection within the municipality using AI-supported tools. A quasi-experimental municipality-level comparative trend analysis compared changes in participation with the prefectural average.

RESULTS: Participation in preventive health check-ups increased by 16.1 percentage points over three years, exceeding the prefectural average increase of 3.1 percentage points. Sustained improvement required both iterative nudges and system-level redesign.

CONCLUSION: Establishing a Behaviourally-Informed Public Organisation is critical for sustained and scalable health behaviour change. AI grounded in behavioural science can enable both effective intervention delivery and ongoing organisational capacity development.

KEYWORDS: *Artificial Intelligence (AI), Behaviourally Public Policy, System-level Change, Personalised-nudges, Organisational Capacity Development.*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP013) WHO DELIVERS MATTERS: PERCEIVED RELIABILITY OF HEALTH INFORMATION SOURCES IN MULTI-ETHNIC MALAYSIA DURING COVID-19

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ABSTRACT

INTRODUCTION: The COVID-19 infodemic underscored the importance of identifying health information sources perceived as reliable by the public to support effective health communication.

OBJECTIVES: We examined how Malaysians perceived the reliability of health information sources from formal (healthcare workers, scientists, and non-governmental organisations [NGOs]) and informal (religious leaders, community leaders, personal contacts, and influencers) sources. Positively influential sources were identified to examine ethnic differences in perceived reliability across education levels and age groups.

MATERIALS & METHODS: Malaysian adults were cross-sectionally surveyed between April and June 2021. Participants rated the perceived reliability of the investigated sources. Logistic regression analyses were conducted to identify positively influential sources—those perceived as reliable and associated with positive vaccination intention, and explore ethnic differences in perceiving these influential sources as reliable across education levels and age groups using adjusted predicted probabilities.

RESULTS: 5,784 participants were included. Formal sources were perceived as the most reliable across ethnic groups and, together with community leaders, were positively influential. Adjusted predicted probabilities of perceiving healthcare workers and scientists as reliable were ≥80% across most groups, but ≤78% among Indigenous participants with lower education or older age. Indian and Chinese participants reported higher probabilities of perceiving NGOs as reliable (>75%) compared with Malays and Indigenous participants (≈65–70%). All ethnicities had moderate probabilities of perceiving community leaders as reliable (45–55%) at the lowest education level and youngest age group.

CONCLUSION: Healthcare workers and scientists should serve as core health communicators, while NGOs and community leaders may provide complementary support.

KEYWORDS: *Health Information, Information Source, Public Health, Reliability, Trust*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP014) PERCEIVED KNOWLEDGE, PERCEPTION AND READINESS OF UNIVERSITY STUDENTS REGARDING SUSTAINABILITY EDUCATION AND PRACTICE

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ABSTRACT

INTRODUCTION: Climate change, environmental degradation, and resource depletion increasingly impact health systems. This situation shows the need for healthcare professionals with skills in sustainability, including knowledge of planetary health. However, there is limited evidence on how prepared healthcare students are for sustainability education in Malaysian private universities.

OBJECTIVE(S): This study assessed perceived knowledge, attitudes, and readiness toward sustainability education and practice at a private healthcare university in Kuala Lumpur to identify gaps informing curriculum and institutional policies.

MATERIALS & METHODS: A cross-sectional online survey was conducted among foundation, undergraduate, and postgraduate students from April–May 2025 using a validated questionnaire. Quantitative data were analysed descriptively using SPSS v30; open-ended responses underwent thematic analysis.

RESULTS: Among 427 respondents (76.8% female, 82.2% Malaysian), 83.6% were undergraduates; 81% had not taken any sustainability courses before. Most rated their environmental and planetary health knowledge as fair or good. Key challenges included climate change, pollution, and deforestation. Workshops and seminars were the preferred learning format. Common practices included conserving water and energy and reducing plastic.

CONCLUSION: Limited formal exposure highlights a curricular gap. Integrating sustainability and One Health curricula with active student involvement may enhance knowledge, attitudes, and readiness, informing broader institutional strategies.

KEYWORDS: *Attitudes and Practices, Environmental Health, Health Knowledge, Sustainable Development, Universities*

PERPUSTAKAAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP015) TRADITIONAL ISLAMIC HEALING PRACTICES IN EPILEPSY CARE: THE PERSPECTIVES FROM MALAY MUSLIM PRACTITIONERS IN MALAYSIA

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ABSTRACT

INTRODUCTION: In Malaysia, epilepsy is perceived not only as a neurological disorder but also through spiritual and cultural perspectives. Health beliefs, treatment decision-making, and help-seeking behaviours could all be influenced by such perspectives. The continued use of Complementary and Alternative Medicine (CAM) for epilepsy, especially Islamic traditional practices such as *ruqyah syar'iyyah* and *bekam*, reflects culturally grounded approaches to illness management alongside biomedical care.

OBJECTIVE(S): This study aimed to explore the perceptions and management strategies of Islamic traditional medicine practitioners regarding epilepsy, with emphasis on their clinical reasoning, therapeutic approaches, and integration with conventional medical treatment.

MATERIALS & METHODS: A qualitative exploratory design was employed. In-depth face-to-face interviews were conducted with nine experienced practitioners (male = 4; age = 54.4 ± 13.2 years), each with at least five years of experience practising *ruqyah* and *bekam*. Interviews were transcribed verbatim and analysed using thematic analysis.

RESULTS: Five primary themes emerged: (1) illness as a spiritual or energetic disturbance, (2) the Quran and natural elements as healing tools, (3) healing as a faith-based effort and personal responsibility, (4) customisation and patient-centred practice, and (5) collaboration and ethical boundaries. Findings indicate that culturally embedded belief systems clearly shape therapeutic behaviour, patient engagement, and treatment pathways.

CONCLUSION: Islamic traditional therapy provides a culturally relevant and holistic framework emphasising spiritual healing, individualised care, and religious ethical principles. These findings highlight the role of cultural and religious meaning-making in shaping health behaviour and healthcare utilisation, suggesting potential pathways for integrating traditional and modern healthcare systems in managing chronic and stigmatised conditions such as epilepsy.

KEYWORDS: *Complementary And Alternative Medicine; Cultural Health Beliefs; Epilepsy; Islamic Traditional Healing; Treatment-Seeking Behaviour*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP016) WHEN RESILIENCE MEETS HAPPINESS AT WORK: BEHAVIOURAL INSIGHTS FROM PRIMARY HEALTHCARE

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- ABSTRACT NOT AVAILABLE –

KEMENTERIAN KESIHATAN MALAYSIA
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(OP017) CONFIRMATORY FACTOR ANALYSIS AND RELIABILITY OF A QUESTIONNAIRE ON BEHAVIORAL DETERMINANTS OF OCCUPATIONAL SAFETY AND HEALTH AMONG MALAYSIAN E-WASTE WORKERS

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- ABSTRACT NOT AVAILABLE –

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP018) DRIVING BEHAVIOUR CHANGE: A PILOT EVALUATION OF A BETEL QUID CESSATION PROGRAM IN MALAYSIA

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ABSTRACT

INTRODUCTION: Oral cancer remains as one of the most debilitating and life-threatening malignancies, with profound impacts on survival and quality of life. Betel quid (BQ) use, a major behavioural risk factor, remains highly prevalent among high-risk communities in Malaysia. However, the absence of a structured cessation program represents a critical gap in the national oral cancer prevention efforts.

OBJECTIVE(S): To pilot-test a cross-culturally adapted BQ cessation program and evaluate its preliminary effectiveness in a high-risk community in Malaysia.

MATERIALS & METHODS: A quasi-experimental pilot study was conducted among 46 BQ users from the Bajau community in Kota Belud, Sabah, with 23 participants assigned to intervention and control groups, respectively. The intervention group received a theory-informed cessation program comprising five support sessions and an educational booklet, while controls received the booklet only. Primary outcome was self-reported cessation rate, with secondary outcomes including quit attempts, consumption rate and knowledge. Within and between-group differences were analyzed using ANOVA, Cochran's Q, McNemar and Chi-square tests.

RESULTS: At Day-22, BQ cessation was achieved by 82.6% of the intervention group compared to 39.1% of controls, with a higher cessation rate maintained at Month-3 (65% vs 39.1%). Quit attempts reached 100% in the intervention group at both follow-ups. Daily BQ mean consumption decreased significantly, with greater reductions in intervention group at Day-22 and Month-3 (4.17 and 3.91) than controls (2.57 and 2.71). Knowledge of the adverse health effects improved markedly and was maintained at Month-3.

CONCLUSION: The cross-culturally adapted cessation program demonstrated promising effectiveness, supporting its potential as a scalable preventive intervention for Malaysia.

KEYWORDS: *Behavioural Intervention, Betel Quid Cessation, Cessation Rate, Oral Cancer Prevention, Quit Attempts*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP019) AN EXAMINATION OF WORKING MEMORY DURING ENCODING AND RE-ENCODING PHASES: AN EEG-BASED EXPERIMENTAL STUDY

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ABSTRACT

INTRODUCTION: Memory repetition is widely used in learning strategies, however the distinct neural processes involved in initial encoding versus re-encoding remain poorly understood.

OBJECTIVE(S): This study investigates whether there is a significant difference in brainwave activity between the encoding and re-encoding phases during working memory (WM) tasks. The objective is to compare the neural dynamics underlying both phases to understand their respective cognitive functions.

MATERIALS & METHODS: A total of 34 young adults (aged 18–30) participated in an experimental design, selected through purposive sampling. Participants underwent a memory task involving the encoding of a word list, followed by re-encoding of the same list after a delay. EEG data were recorded and analysed, focusing on spectral power across delta, theta, alpha, beta, and gamma frequency bands. Paired sample t-tests and linear regression were conducted.

RESULTS: Paired sample t-test revealed significantly higher brainwave activity during the re-encoding phase compared to the encoding phase, particularly in the beta and gamma bands, indicating deeper cognitive processing and mental rehearsal. Meanwhile, linear regression analysis showed a positive, though marginal, association between encoding and re-encoding performance, suggesting that better encoding may support re-encoding.

CONCLUSION: These findings indicate that re-encoding involves deeper cognitive processing and mental rehearsal, highlighting its potential role in strengthening memory-guided behaviour and improving learning efficiency in everyday cognitive tasks.

KEYWORDS: *Cognitive; Electroencephalogram (EEG); Encoding; Re-encoding; Working Memory (WM)*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP020) INSTRUCTION PROCESSING UNDER COMPETITIVE STRESS: A PROPOSED STUDY ON COGNITIVE LOAD AND ATTENTIONAL CONTROL AMONG SILAT ATHLETES.

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ABSTRACT

INTRODUCTION: In combat sports such as Silat, athletes must read rapid cues, manage their arousal, and make precise decisions under intense competitive pressure. Coaches often report that, during bouts, athletes seem unable to listen to or respond effectively to instructions. This behaviour is frequently viewed as a lack of focus or discipline. However, recent perspectives from cognitive load theory and attentional control suggest a different explanation: when arousal and task demands are high, working memory capacity may be reduced, attention may narrow, and the processing of auditory information may be disrupted. In this view, instruction breakdown during competition may be better understood as a form of neurocognitive overload rather than a motivational problem.

OBJECTIVE(S): This study aims to examine how competitive arousal, perceived cognitive load, and attentional switching ability (between internal and external focus) relate to instruction uptake among competitive Silat athletes. It will also explore how coach–athlete communication patterns and the quality of their relationship influence athletes' ability to process instructions in high-pressure situations.

MATERIALS & METHODS: A mixed-methods design will be used with national- and development-level Silat athletes. Participants will complete validated questionnaires assessing competitive anxiety, attentional control, perceived cognitive load, and the quality of the coach–athlete relationship. They will then take part in simulated high-intensity sparring sessions, during which standardized coaching cues will be delivered at controlled intervals. Instruction recall accuracy, behavioural response times, and observable decision-making outcomes will be recorded. Afterward, semi-structured interviews will be conducted to explore athletes' subjective experiences of attentional focus, "listening windows," and cognitive processing under pressure. Quantitative data will be analysed using correlational and regression methods, and qualitative data will be examined using thematic analysis.

RESULTS: It is expected that higher levels of competitive arousal and cognitive load will be linked to poorer instruction recall and slower behavioural responses to coaching cues. Athletes with stronger attentional switching skills and greater familiarity with the cues are expected to show better instruction uptake under pressure. Development-level athletes are anticipated to be more vulnerable to cognitive overload than their higher-performing counterparts.

CONCLUSION: This study aims to reframe instruction breakdown during competition as a neurocognitive performance limitation rather than a motivational deficit. The findings are expected to guide the development of simplified cue systems, structured listening windows, attentional switching training, and evidence-based communication strategies for coaches working in combat sports. Ultimately, the project seeks to enhance competitive resilience and instruction efficiency among Silat athletes.

KEYWORDS: *Cognitive Load; Attentional Control; Competitive Stress; Coach Communication; Silat Performance*

(OP021) SEA, SALT AND SMILES: CULTURAL INFLUENCES ON ORAL HEALTH BEHAVIOUR IN STATELESS BAJAU LAUT COMMUNITY

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ABSTRACT

INTRODUCTION: Oral health is an essential component of overall well-being, yet optimal outcomes remain difficult to achieve among marginalised and stateless populations. The Bajau Laut (Adat Laut) community in Semporna, Sabah, faces structural, social, and economic barriers to oral healthcare due to stateless status, geographic isolation, and informal livelihoods. Applying Social and Behavioural Science (SBS) perspectives helps explain how cultural beliefs, health perceptions, and systemic inequalities influence their oral health behaviours.

OBJECTIVE(S): This study aims to examine the influence of environmental and social determinants on oral health among the Adat Laut community, focusing on demographic characteristics, predisposing, enabling, and reinforcing factors that shape their oral health behaviours and outcomes.

MATERIALS & METHODS: This community-based study was conducted on 24 May 2025 under the Dentistry for the Needy (DFTN) programme in collaboration with NGO Borneo Komrad and Universiti Malaya. Activities included oral health education, dental screening, and basic treatment. Data was collected through clinical records, field observations, and face-to-face interviews. Qualitative analysis applied SBS frameworks including the Health Belief Model, Health Locus of Control, Maslow's Hierarchy of Needs, and Iceberg Theory.

RESULTS: A total of 28 individuals received treatment (14 males, 14 females). Extractions were most common (42%), followed by fillings (11%), while preventive care (<10%) was underutilised. Adolescents and young adults showed the highest treatment needs, with widespread untreated caries and early tooth loss. Barriers included low oral health literacy, traditional remedy reliance, financial hardship, and statelessness, while NGO support facilitated participation.

CONCLUSION: High treatment needs and limited preventive uptake highlight the importance of community-based education, NGO–government collaboration, and policy reforms to improve oral health equity for this marginalised community.

KEYWORDS: *Bajau Laut, Dental Outreach, Oral Health Disparities, Social and Behavioural Science, Stateless Community*

PERPUSTAKAAN KESIHATAN AWAM MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP022) COMMUNITY PHARMACISTS' PERCEPTIONS, ACCEPTANCE AND READINESS TOWARD A HALAL-CENTRIC COMMUNITY PHARMACY PRACTICE

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ABSTRACT

INTRODUCTION: The integration of halal principles into healthcare services has gained increasing attention, particularly in Muslim-majority settings. In community pharmacy practice, aligning pharmaceutical products and services with halal requirements may enhance patient trust, ethical accountability, and culturally responsive care. Despite its relevance, the concept of a halal-centric community pharmacy model remains underexplored, particularly regarding pharmacists' understanding, perceptions, and readiness for implementation.

OBJECTIVE(S): This study aimed to explore community pharmacists' understanding of the halal concept, examine their perceptions toward a halal-centric community pharmacy practice, and assess their acceptance and readiness for its implementation.

MATERIALS & METHODS: A qualitative study was conducted using semi-structured focus group discussions guided by the HCPRE instrument. Twelve community pharmacists were purposively recruited from four Malaysian states representing different pharmacist density levels: high-density (Selangor and Johor) and low-density (Pahang and Terengganu), between October 2025 and February 2026. Data were analyzed using Reflexive Thematic Analysis, with themes generated inductively and organized within three HCPRE domains:
(A) Halal Concept, (B) Perceptions, and (C) Acceptance and Readiness.

RESULTS: Five themes were identified and aligned with the HCPRE domains. Under (A), halal was mainly understood at the product level, focusing on ingredients and certification. Within (B), halal-centric practice was viewed as part of ethical professionalism, with benefits including increased patient trust. Under (C), barriers such as limited halal-certified products and lack of guidelines were noted, although acceptance was generally positive with appropriate support and training.

CONCLUSION: Community pharmacists demonstrated alignment with the halal-centric concept; however, sustainable implementation requires institutional frameworks, professional education, and stakeholder collaboration.

KEYWORDS: *Community Pharmacy Practice, Halal-Centric Pharmacy, HCPRE, Qualitative Research, Thematic Analysis*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP024) A THEORY-DRIVEN STRUCTURAL MODEL OF PSYCHOSOCIAL PREDICTORS OF COVID-19 BOOSTER VACCINATION INTENTION AMONG MALAYSIAN ADULTS

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ABSTRACT

INTRODUCTION: COVID-19 booster uptake in Malaysia has plateaued despite ongoing risks from emerging variants, and evidence on the psychosocial factors shaping booster intentions remains limited.

OBJECTIVE(S): This study aimed to develop an integrated structural model to identify predictors of COVID-19 booster vaccination intention among Malaysian adults in the post-pandemic period.

MATERIALS & METHODS: A cross-sectional survey of 566 Malaysian adults was conducted. Questionnaires assessing COVID-19 booster vaccination intention, COVID-19 knowledge, trust, and constructs from the Health Belief Model and Theory of Planned Behaviour were validated. Measurement models were confirmed using Confirmatory Factor Analysis (CFA), followed by Covariance-Based Structural Equation Modelling (CB-SEM) to assess predictors, mediation by Subjective Norm, and moderation by Trust in credible information sources.

RESULTS: 54.4% of participants reported no intention to receive a COVID-19 booster dose, while 45.6% intended to vaccinate. CFA supported the measurement models, and the structural model demonstrated excellent fit (CFI = .965, RMSEA = .043). Significant predictors of intention were Subjective Norm (β = .502, p < .001), Perceived Benefits (β = .327, p < .001), and Perceived Barriers (β = –.129, p = .003). Subjective Norm fully mediated the effect of Perceived Threat and partially mediated the effects of Perceived Benefits and Perceived Barriers. Trust significantly moderated the influence of Subjective Norm on intention (β = .117, p = .035).

CONCLUSION: This study established a new structural model explaining booster vaccination intention in Malaysia. Social influence emerged as the strongest driver of intention, with Subjective Norm serving as the central mediator linking health beliefs to behaviour. Trust in credible sources of information further strengthened this social influence. These findings highlight the importance of fostering positive social norms and reinforcing public trust to enhance booster uptake and strengthen national health resilience.

KEYWORDS: *Behaviour Change, Structural Model, Theory of Planned Behaviour, Trust, Vaccine Hesitancy*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP025) A NEEDS ANALYSIS OF DRUG AND SUBSTANCE ABUSE PREVENTION FROM EXPERTS' PERSPECTIVES BASED ON HBM

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ABSTRACT

INTRODUCTION: Drug and substance use is a pervasive issue impacting behavioural and public health within school students. The Health Belief Model (HBM) offers a theoretical framework for designing effective prevention programmes by understanding individuals' health behaviours and decision-making processes.

OBJECTIVE(S): This study aimed to conduct a comprehensive needs analysis for the development of a drug and substance abuse prevention education module for school students.

MATERIALS & METHODS: A qualitative phenomenological design was applied. Primary data were collected through in-depth individual interviews with 10 experts selected via purposive sampling. Secondary data were gathered from relevant literature, reports and journals. Interviews were audio-recorded, transcribed verbatim and analysed using both inductive and deductive thematic analysis.

RESULTS: The findings revealed five major themes: (1) determinants of risky behaviour, (2) resilience and positive behaviour development, (3) risk perception and neurobehavioral awareness, (4) behaviour-based intervention strategies and (5) evaluation and sustainability. These themes align with the Health Belief Model, particularly perceived susceptibility, perceived severity and self-efficacy, reinforcing that modifying beliefs and risk perceptions is essential for achieving sustained behavioural change among students.

CONCLUSION: In conclusion, the findings emphasise the necessity of developing a structured, theory-driven prevention module based on expert perspectives. The identified themes highlight the multifaceted nature of adolescent risk behaviour, shaped by individual, friends, family and environmental influences. Incorporating the Health Belief Model that provides a strong theoretical foundation to address risk perceptions and enhance self-efficacy, supporting meaningful and sustained behavioural change.

KEYWORDS: *Drug, Substance, Behaviour, Thematic Analysis, HBM*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP026) BRIDGING THE INTENTION-ACTION GAP IN WEIGHT MANAGEMENT: A BEHAVIORAL ENABLEMENT STRATEGY THROUGH THE "*JANJI SIHATKU*" INTERVENTION

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ABSTRACT

INTRODUCTION: Weight management is often hindered by the 'intention-action gap'. To address this, the *'Janji Sihatku'* (Personal Health Pledge) framework was integrated into the IFITER program at Wellness Hub Timur Laut rooted in the COM-B model and EAST framework.

OBJECTIVE(S): To examine the effectiveness of *'Janji Sihatku'* in reducing weight and improving clinical biomarkers.

METHODOLOGY: This 6-month quasi-experimental study (Jun–Dec 2025) compared the intervention group (n=43) to a historical control cohort (n=69, Jan–Jun 2025) receiving the standard IFITER program without the framework. The intervention targeted Psychological Capability (Enablement) and Physical Opportunity (Environmental Restructuring) via a Daily Behavioral Tracking Card while the Personal Health Pledge (specific dietary/physical goal setting) targeted Reflective Motivation. The EAST framework ensured the intervention was Easy (simplified self-monitoring) and Social (accountability via pledges). Outcomes were assessed using the InBody 270 and IBM SPSS Statistics 27.

RESULTS: With an 83% retention rate (n=36), Wilcoxon Signed-Rank Test confirmed a significant BMI reduction (32.24 to 30.49, $p < .001$). Paired Samples T-Tests showed significant improvements in visceral fat (reduced 1.389, $p < .001$) and WHR (improved 0.02, $p = .002$). Compared to the historical control (n=69), the *'Janji Sihatku'* cohort showed superior clinical trends: 63% achieved ≥5 weight loss (vs 50.5%) and 19% achieved ≥10 (vs 8%).

CONCLUSION: The *'Janji Sihatku'* framework successfully bridged the intention-action gap, evidenced by a significant $p < .001$ reduction in BMI. Integrating behavioral enablement tools into national policy offers a scalable strategy for lifestyle intervention sustainability.

KEYWORDS: *Intention-Action Gap, Behavioral Intervention, Weight Loss Outcomes, Janji Sihatku, IFITER Program.*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP027) FACTORS INFLUENCING VACCINE REFUSAL FOR THE MEASLES-RUBELLA SUPPLEMENTARY IMMUNISATION ACTIVITY (MRSIA) IN THE SEREMBAN DISTRICT

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ABSTRACT

INTRODUCTION: The national Measles-Rubella Supplementary Immunisation Activity (MRSIA) vaccination campaign was conducted from 4th August 2025 to 12th October 2025 to curb the rise of measles cases in Malaysia. However, the 70% vaccination rate in the Seremban district during this campaign fails to meet the targeted 95% herd immunity threshold and one of the reasons for this is vaccine refusal. This study was conducted to examine the level of vaccine refusal in the Seremban district and the factors contributing to the vaccination refusal.

METHODS: This cross-sectional study was conducted in the Seremban district. Data was collected by reviewing secondary data within the Malaysia Vaccine Administration (MyVAS) system. The sampling method utilized was convenience and universal sampling, covering all 21,764 children aged 6 to 59 months in the Seremban district recorded in the MyVAS system who were eligible for the MRSIA vaccination.

RESULTS AND DISCUSSION: There was a 10.2% vaccine refusal rate in the Seremban district. Based on logistic regression analysis, the predictive factors for refusal were Malay ethnicity OR 1.48 (95% CI: 1.06–2.07), Malaysian citizenship OR 3.72 (95% CI: 1.65–6.39), in-clinic vaccination location OR 2.45 (95% CI: 2.09–2.88) and clinics in rural areas OR 1.32 (95% CI: 1.19–1.46). The most actionable finding of our study is the superiority of outreach programs over traditional in-clinic vaccinations.

CONCLUSION: It is hoped that by identifying these refusal factors, better planning and more effective measures can be implemented in future vaccination campaigns to ensure vaccine refusal rates are reduced.

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KEYWORDS: *Factors for Vaccine Refusal, Measles Rubella Vaccination, MRSIA, Vaccination Performance, Vaccine Refusal*

(OP028) MIND THE GAP: ASSESSING SEXUALLY TRANSMITTED DISEASES KNOWLEDGE AND PREVENTIVE PRACTICES AMONG MALAYSIAN UNDERGRADUATES

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ABSTRACT

INTRODUCTION: The growing burden of sexually transmitted diseases (STDs) among young adults highlights a pressing public health issue. This group often underestimates risks while prioritising perceived benefits, which may contribute to unsafe practices. A comprehensive evaluation of their knowledge, attitudes, and practices (KAP) is crucial to guide evidence-based interventions. Accordingly, this study examined Malaysian undergraduate students' attitudes toward STD prevention, stigma, and health-seeking behaviours.

MATERIALS & METHODS: An online cross-sectional study was conducted among 575 undergraduate students from five public universities across Malaysia. The survey instrument utilised a validated questionnaire (Cronbach's alpha = 0.722) covering sociodemographic data and the three KAP domains. Descriptive analysis and comparative statistics, including Mann-Whitney and Fisher's Exact tests, were employed to analyse the data.

RESULTS: The findings revealed a significant knowledge gap, with 67.0% of participants demonstrating poor knowledge of STDs. Despite this, 75.5% maintained positive attitudes, and 96.7% reported never having engaged in sexual intercourse. Statistical analysis showed significant differences between health science/science students and non-science counterparts in knowledge (Z=-3.285, p=0.001) and attitudes (Z=-5.323, p=0.000). However, no significant difference was found in preventive practices (Z = -0.008, p=0.994) between the two groups. Furthermore, there was no statistical association between knowledge levels (p=1.000) or attitudes (p=0.437) and actual preventive practices.

CONCLUSION: Malaysian public university students exhibit high levels of preventive behaviour and positive attitudes, yet suffer from an alarming lack of factual knowledge regarding STDs. Targeted educational programmes are urgently needed to bridge this knowledge gap across all academic disciplines.

KEYWORDS: *Sexually transmitted diseases (STDs), Knowledge, Attitude, Practice, Undergraduates.*

(OP029) APPLYING IDEA MODEL TO NON-COMMUNICABLE DISEASES' RISK AND CRISIS COMMUNICATION

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ABSTRACT

INTRODUCTION: Risk communication refers to a two-way communication process that involves the exchange of information and opinions among individuals, groups, and organisations. Better communication influences the quality of risk decisions. Non-communicable diseases (NCDs) are classified as a health crisis in Malaysia.

OBJECTIVE(S): This study examines a government run initiative to train community members to participate as volunteers to enable them to act as agents of change to combat the NCD crisis in Malaysia, *Komuniti Sihat Pembina Negara* (KOSPEN).

MATERIALS & METHODS: A qualitative approach was employed, using in-depth interviews and focus group discussion (FGD). Informants (who are the KOSPEN health volunteers) were selected via purposive sampling based on the data from the State Health Department of Kedah. A total of 10 KOSPEN localities in Kedah were involved, specifically 40 informants selected for the FGD and in-depth interviews. The informants were selected with the information from the Kedah State Health Department. The data collected was thematically analysed using NVIVO 15 software.

RESULTS: Findings show health communication emphasises dissemination over internalisation, using traditional media with limited audience segmentation and cultural framing. Explanation helps clarify issues, but jargon reduces understanding. Action elements lack clear calls and localisation. Overall, gaps in strategic communication hinder effective behavioural change at the community level.

CONCLUSION: Strategic communication is crucial for effective public health crisis messaging. Lack of internalisation and action limits behavioural change. The study guides health volunteers in constructing effective messages to combat NCDs in Malaysia.

KEYWORDS: *IDEA Model, Risk communication, Crisis Communication, Noncommunicable diseases*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN AWAM NEGARA

(OP030) CONCEPTUAL FRAMEWORK FOR PRIMARY CARDIOVASCULAR DISEASE PREVENTION IN B40 LOW-INCOME COMMUNITIES IN MALAYSIA: A MIXED-METHODS STUDY

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ABSTRACT

INTRODUCTION: Worldwide, cardiovascular disease (CVD) remains the leading cause of mortality. Individuals of lower socioeconomic status face higher CVD risk, yet the underlying reasons remain inconclusive, and primary prevention strategies yield variable outcomes.

OBJECTIVE(S): To develop a conceptual framework for the primary prevention of CVD within a low-income community in Malaysia.

MATERIALS & METHODS: A cross-sectional survey of 312 participants identified modifiable factors associated with 10-year CVD risk. Multiple linear regression analysed these factors against the Framingham Risk Score, a proxy for CVD risk. Additionally, six focus group discussions (n=34) among participants with moderate-to-high CVD risk explored motivations and barriers to adopting cardiovascular health behaviors. The Health Belief Model guided discussions and subsequent thematic analysis. Finally, quantitative and qualitative findings were triangulated with existing literature to develop a conceptual framework.

RESULTS: The survey identified diet diversity, random blood glucose, and waist-to-hip ratio as significantly associated with CVD risk, with adjusted ß (95% CI) values of -0.516 (-0.918, -0.115), 0.270 (0.135, 0.406) and 25.1 (17.0, 33.1) respectively. High-risk individuals drew motivation from their self-efficacy in self-care, social support and disease awareness. Conversely, barriers included poor health insights, psychosocial challenges and perceived lifestyle transitions. We propose four pillars of care to optimise cardiovascular health: targeted management of cardiometabolic risk factors, self-care empowerment, strategies to overcome barriers, and social support to foster sustained healthy behaviours.

CONCLUSION: Primary CVD interventions in low-income communities should comprehensively encompass the roles of individuals (mediated through self-efficacy in self-care) and broad social support (at the community and policy levels) to reduce first CVD events.

KEYWORDS: *Cardiovascular Disease, Low-Income, Primary Prevention, Risk Factors, Conceptual Framework, Mixed-Methods*

(OP031) YOUTH INTEGRATED COMMUNITY HEALTH VOLUNTEER TRAINING IN ENHANCING SELF-MOTIVATION AND HEALTH LITERACY FRAMEWORK ANALYSIS

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ABSTRACT

INTRODUCTION: Research on the effectiveness of youth-integrated community health volunteer (i-CHV) training is limited in Malaysia. It is necessary to explore the potential of youth in health sustainability as champions of public health preventive measures.

METHODS: A Scopus/Web of Science dataset was used to explore the framework for Integrated Community Health Volunteer, with year of publication limited to the post-pandemic period 2023-2026, which focuses on youth, public health prevention, community-level implementation, and the use of digital health as the main delivery tool.

RESULTS: The field of research shows a strong upward trend; however, limited studies focus on public health-promoting activities at the community level led by trained youth. Limited publication containing the training scope and the approach used for the delivery. Monitoring of sustainability activities was not mentioned in the publication. Thematic mapping revealed a path from early focus on community health education and peer-led mobilisation to outcome-driven interventions, capacity building, and psychosocial empowerment.

CONCLUSION: The evolution of a socially embedded, multidisciplinary field of public health is important for the sustainability of innovation.

KEYWORDS: *Public Health, Health Education, Community Empowerment, Youth, Preventive Measure*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP032) RADIOTAISO PERKASA PROJECT: ENHANCING STUDENTS' FITNESS, CONCENTRATION AND WELL-BEING THROUGH STRUCTURED LIGHT EXERCISE

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ABSTRACT

INTRODUCTION: The Radiotaiso Perkasa Project is a school-based initiative aimed at promoting healthy lifestyles among SMK (P) Treacher Methodist, Taiping's students through structured light exercise accompanied by music. Adapted from the Japanese practice of Radiotaiso, the program seeks to improve students' physical fitness, concentration, and overall well-being.

METHODS: The program was conducted two to three times weekly during morning assemblies and classroom free periods. A total of 200 students participated in the study. Data were collected through questionnaires and interviews to assess changes in fitness, engagement, and alertness.

RESULT AND DISCUSSION: Findings showed that 86.5% of students reported improved fitness levels, compared to 37.5% before the intervention. Enjoyment in physical activity increased from 32.5% to 86%, while classroom drowsiness decreased significantly. Alertness improved from 34.5% to 85%. Teachers and parents also observed better discipline, increased energy, and enhanced academic engagement among students.

CONCLUSION: The Radiotaiso Perkasa Project demonstrates that simple, consistent physical activities can significantly enhance students' physical, cognitive, and emotional development. The program has strong potential to be expanded and adapted at broader educational levels.

KEYWORDS: *Fitness, Healthy Lifestyle, Radiotaiso, School, HePiLI*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP033) HEALTH LITERACY AS A BEHAVIOURAL MODERATOR OF HEALTH BELIEF MODEL CONSTRUCTS IN COLORECTAL CANCER SCREENING PARTICIPATION: EVIDENCE FROM A MIXED-METHODS STUDY IN MALAYSIAN PRIMARY CARE

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ABSTRACT

INTRODUCTION: Colorectal cancer (CRC) screening is an effective strategy to reduce morbidity and mortality; however, participation remains low in Malaysia despite established recommendations for faecal occult blood testing among adults aged 50 years and above.

OBJECTIVE: This study examined CRC screening participation, its associated determinants, and the moderating role of health literacy in the relationship between Health Belief Model (HBM) constructs and screening behaviour, and explored contextual barriers among non-participants.

METHODS: A convergent mixed-methods study was conducted among 377 adults aged ≥50 years attending government primary care clinics in Melaka, Malaysia. Quantitative data were collected using validated instruments measuring health literacy, knowledge, attitudes, HBM constructs, and screening uptake. Analysis was performed using SPSS version 30, including descriptive statistics, binary logistic regression, and moderation analysis. Qualitative data from in-depth interviews with 12 individuals (6 participants, 6 non-participants) were analysed thematically.

RESULTS: Screening uptake was 16.7% despite generally adequate knowledge levels. Provider recommendation was the strongest predictor, followed by susceptibility and income. Health literacy showed no significant independent association with screening uptake but significantly moderated the relationship between perceived susceptibility and screening behaviour. Qualitative findings identified key barriers, including fear, procedural misunderstanding, cultural discomfort with stool handling, family influence, and toileting-related challenges.

CONCLUSION: CRC screening behaviour is influenced by an interplay of psychological, contextual, and system-level factors. Health literacy enhances the translation of perceived risk into screening actions, highlighting the need for integrated interventions that combine provider engagement, literacy-sensitive communication, and culturally appropriate strategies in primary care settings.

KEYWORDS: *Health Literacy, Health Belief Model, Colorectal Cancer Screening, Mixed-Methods, Primary Care, Malaysia*

PERSEKUTUAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP034) BEYOND POSTERS: BEHAVIOURALLY INFORMED HEALTH COMMUNICATION FOR EMERGING PUBLIC HEALTH THREATS

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ABSTRACT

INTRODUCTION: Traditional health education approaches, such as posters and didactic lectures, often have limited impact on sustained behaviour change. However, behavioural science emphasises the importance of engaging communication strategies to enhance risk perception and health literacy.

OBJECTIVE(S): Hence, this study examines behaviourally informed health communication interventions addressing three emerging public health challenges: rabies prevention, antimicrobial resistance (AMR), and climate change.

MATERIALS & METHODS: Three quasi-experimental community and school-based educational interventions were conducted in Sabah, Malaysia and neighbouring Southeast Asian settings. Pre- and post-intervention surveys were used to assess changes in knowledge, attitudes, and practices among participants. Paired t-tests were performed to evaluate differences between pre- and post-intervention scores.

RESULTS: A total of 765 participants were included across the three programs. The rabies intervention (n=259), which used simplified “single-message” communication demonstrated significant improvements in knowledge scores (8.82 to 10.12) and preventive practices (30.61 to 34.40) ($p<0.01$). The AMR program among primary school students incorporated participatory learning activities. Students in the intervention group showed significant improvements in knowledge (17.48 to 21.71) and attitudes (27.90 to 32.13) compared with controls ($p<0.001$). Climate change education using comic-based visual storytelling significantly improved students’ knowledge (4.46 to 5.65) and attitudes (31.02 to 32.28) ($p<0.01$).

CONCLUSION: Behaviourally informed communication strategies including simplified messaging, participatory learning, and creative visual tools can significantly improve health knowledge and attitudes across diverse public health risks. These findings highlight the potential of innovative communication approaches to strengthen community engagement and health literacy beyond conventional health promotion methods.

KEYWORDS: *Health Communication, Behavioral Change, Public Health Treat, Active Learning, Health Education*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP035) FROM INDIVIDUAL TO INTERAGENCY: A BEHAVIOURAL INSIGHTS APPROACH TO WORKPLACE PHYSICAL

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ABSTRACT

INTRODUCTION: Sedentary behaviour among office-based employees is a major contributor to non-communicable disease burden in Malaysia. Traditional health promotion approaches that rely predominantly on information dissemination have demonstrated limited effectiveness in sustaining behaviour change. Behavioural insights (BI) offer a complementary approach by addressing cognitive barriers and designing environments that make healthier choices easier and more automatic.

OBJECTIVE(S): To evaluate the effectiveness of a structured, multi-phase behavioural insights-based step challenge in increasing daily physical activity and improving anthropometric outcomes among employees across three organisations.

MATERIALS & METHODS: A four-phase step challenge was implemented among employees of ProtectHealth Corporation (PHC), Universiti Putra Malaysia (UPM), and Medical Device Authority (MDA) guided by the DDDIE framework (Define, Diagnose, Design, Implement, Evaluate). Phase 1 established individual baseline step counts over two weeks; Phase 2 applied an individual challenge with behavioural nudges including gamification, visual feedback rings, social proof via group messaging, and recognition; Phase 3 introduced an interdepartmental team competition within PHC; and Phase 4 expanded to an interagency challenge across all three organisations. Outcomes measured included daily step count, body weight, and waist circumference (WC). Focus group discussions (FGDs) were conducted with active and non-active participants to capture qualitative behavioural insights.

RESULTS: A total of 135 PHC employees participated, with 83% remaining active throughout. Mean daily steps increased from 4,610 (Phase 1 baseline) to 6,584 (Phase 2), an improvement of 1,974 steps per day. The Phase 2 team collectively achieved 9,074,023 steps over 14 days. Across the interagency phase, 87% of participants reduced body weight (mean reduction: 1.1 kg) and 60% reduced waist circumference (mean reduction: 1.0 cm). FGDs identified health motivation, peer influence, and gamification as the primary drivers of engagement, while time constraints, technical issues, and perceived unfairness were the main barriers.

CONCLUSION: A phased, BI-informed step challenge guided by the DDDIE framework effectively increased physical activity and improved health outcomes across multiple organisations. The scalability of this approach from individual to interagency levels demonstrates the potential of behavioural insights as a practical and replicable model for workplace wellness programmes in Malaysia.

KEYWORDS: *Behavioural Insights, DDDIE Framework, Physical Activity, Step Challenge, Workplace Wellness*

PERPUSTAKAAN INSTITUT PENYELIDIKAN PERUBATAN

(OP036) JUNIOR ORGAN DONATION ADVOCATES (JODA): A SCHOOL-BASED EDUCATIONAL INTERVENTION ON ORGAN DONATION AWARENESS IN MALAYSIA

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ABSTRACT

INTRODUCTION: Malaysia faces a significant shortage of organ donors, with one of the lowest donation rates globally. This persistent issue, rooted in a lack of awareness and cultural misconceptions, underscores the need for targeted educational interventions, particularly among youth. This pilot study aims to address this gap by evaluating a novel educational program for secondary school students. The primary objective of this study was to assess the feasibility and effectiveness of an educational module on organ donation. It sought to determine if the educational intervention could increase students' knowledge and positively influence their perceptions, attitudes, and behavioural intentions toward organ donation.

MATERIALS & METHODS:
A pilot study was conducted with 212 secondary school students (aged 14, 15, and 19 years old) from three schools in Selangor, Malaysia. Participants completed a simple, self-administered survey before and after a three-phase educational intervention. The program featured an expert talk, interactive games, and a reflection session. Data were analysed using descriptive statistics and cross-tabulation analysis to compare pre- and post-intervention responses.

RESULTS: Results showed a 36.57% increase in awareness, a 20% rise in willingness to pledge, and overall improvements across knowledge indicators. The evaluation also revealed higher empathy, stronger family discussions, and enhanced civic responsibility, supported by strong engagement throughout the campaigns.

CONCLUSION: The program shows promising potential as an effective educational intervention to improve organ donation awareness among youth in Malaysia. Beyond increasing knowledge, the program fosters empathy and social responsibility, positioning young people as future advocates for organ donation within their communities.

KEYWORDS: *Organ Donation; Awareness; Health Education; School Children; Junior Organ Donation Advocates (JODA)*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP037) WEB-BASED 'COPT NUTRI TRAIL' TO IMPROVE PARENTAL KNOWLEDGE AND PRACTICES IN PREVENTING CHILDHOOD OBESITY

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ABSTRACT

INTRODUCTION: Empowering parents with a nutritional guide through a web-based enhances their ability to change diet-related behaviors among obese children in preventing obesity.

OBJECTIVE: To assess the efficacy of CoPT Nutri Trail, a web-based educational module for parents, in enhancing parental knowledge and practices, subsequently influencing obesity-related behaviours among children.

MATERIALS & METHODS: This study employed a quasi-experimental study involved 57 parent–child pairs with obesity from two primary schools, assigned to an intervention (n = 29) or control group (n = 28). The intervention group participated in the CoPT Nutri Trail, a 12-week web-based programme designed to improve parental knowledge and parenting practices. The control group continued existing activities. Outcomes, including parental nutrition knowledge and parenting practices (modelling, involvement, encouragement, nutrition education, restriction, monitoring, and home environment), were assessed at baseline and three months post-intervention. A mixed ANOVA was used to evaluate group-by-time interaction effects.

RESULTS: There was a significant interaction effect between time and group for changes in parental knowledge, $F(1, 55) = 0.326$, $p < 0.001$. For parental practices, significant effects were observed in the domains of involvement, $F(1, 55) = 0.171$, $p = 0.001$, and home environment, $F(1, 55) = 0.109$, $p = 0.012$. No significant effects were found for the other domains.

CONCLUSION: CoPT Nutri Trail demonstrated potential as an effective strategy for engaging parents and promoting their participation in childhood obesity prevention. Improvements in parental knowledge, parental involvement and the ability to modify the home environment can positively influence children's eating habits, thereby contributing to obesity prevention.

KEYWORDS: *Web-Based Intervention, Obesity, Parent Practices, Knowledg*e

KEMENTERIAN KESIHATAN MALAYSIA
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(OP038) BEYOND THE SCALE: PSYCHOLOGICAL READINESS PREDICTS WEIGHT LOSS INTENT BETTER THAN BMI

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ABSTRACT

INTRODUCTION: Malaysia faces a rising obesity burden, yet weight management interventions remain predominantly body mass index (BMI) centric, neglecting the psychological preconditions essential for sustained behavioural change. University students represent a high-risk subgroup navigating this gap during a developmentally critical period.

OBJECTIVE(S): To identify independent psychological predictors of weight loss stages of change within the Transtheoretical Model (TTM), examining self-efficacy and decisional balance while controlling BMI and socioeconomic factors.

MATERIALS & METHODS: A cross-sectional study enrolled 146 overweight and obese undergraduates (mean BMI: 29.46 kg/m²) at Universiti Putra Malaysia. Validated TTM instruments assessed decisional balance (Pros/Cons) and self-efficacy (eating/exercise). Multinomial logistic regression compared action and maintenance stages against a consolidated inactive reference group (precontemplation/contemplation).

RESULTS: The model demonstrated robust fit ($\chi^2(8) = 48.06$, $p < .001$), explaining 32% of stage-of-change variance (Nagelkerke $R^2 = 0.320$). Exercise self-efficacy was the strongest predictor of maintenance (OR = 2.15, 95% CI: 1.45–3.19, $p < .001$), while decisional balance Pros was the primary catalyst for action stage entry (OR = 1.95, 95% CI: 1.14–3.34, $p = .015$). Notably, BMI ($p = .666$) and parental income ($p = .657$) were non-significant, confirming that physical and socioeconomic status do not independently determine psychological readiness.

CONCLUSION: Weight loss readiness is governed by psychological constructs self-regulatory confidence and benefit perception rather than anthropometric status. These findings advocate a paradigm shift in Malaysian obesity programming: from BMI-centric awareness toward efficacy-based, behaviourally informed skill building as the foundation for sustainable weight management among university students.

KEYWORDS: *Transtheoretical Model, Overweight and Obese, Weight loss, Self-efficacy, University students*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP039) KEMBARA SIHAT SEJAHTERA (KSS) HEPILI BERSAMA DIDI & FRIENDS: AN EDUTAINMENT STRATEGY IN PROMOTING HEALTHY LIFESTYLE

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ABSTRACT

INTRODUCTION: Promoting healthy lifestyles in Malaysia requires innovative strategies to bridge the gap between knowledge and behavior. The Kembara Sihat Sejahtera (KSS) HePiLi bersama Didi & Friends is a mobile health carnival targeting children, adolescents, and families. Grounded in the Health Belief Model and Social Cognitive Theory, it leverages the "Didi & Friends" brand to enhance health literacy in hygiene, nutrition, and mental well-being through edutainment.

OBJECTIVE: This study assesses health knowledge across multiple domains, participant satisfaction, and the program's perceived impact on lifestyle practices.

METHODOLOGY: A quantitative cross-sectional design was used with the THM health assessment tool. The intervention included seven educational videos, digital materials, six mall roadshows, and ten school sessions. Interactive games like health archery reinforced observational learning and behavioral reinforcement.

RESULTS: The program achieved over 19.7 million video views and engaged 170,131 mall visitors and 9,634 students. Data from 8,367 respondents showed high health literacy, with healthy eating and mental health exceeding 90% correct responses. Over 97% of participants felt the program successfully fostered a healthy living culture.

CONCLUSION: KSS HePiLi is an effective edutainment model for community health promotion. While health literacy was high, gaps in environmental hygiene suggest a need for more targeted future interventions. Leveraging cultural icons remains an effective approach for sustainable behavioral change.

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KEYWORDS: *Edutainment Strategy; Health Belief Model; Social Cognitive Theory; Health Literacy; Community Health Education; Healthy Lifestyle Promotion*

(OP040) NUDGING THE NON-URGENT: CHANGING THE 'ED-FIRST' MINDSET AMONG NON-URGENT PATIENTS THROUGH EDUCATIONAL INTERVENTION

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ABSTRACT

INTRODUCTION & OBJECTIVE: Emergency Department (ED) overcrowding is heavily worsened by non-urgent visits driven by cognitive biases. This study assesses the behavioural intentions of non-urgent patients regarding ED utilisation following a targeted educational intervention to determine if cognitive adjusting encourages appropriate healthcare-seeking behaviour.

MATERIALS & METHODS: A quasi-experimental design was employed with 71 non-urgent patients, divided into a control group (n=34) and an intervention group (n=37). Data on behavioural intentions post-intervention were collected using a validated questionnaire.

RESULTS AND DISCUSSION: Post-intervention data revealed a significant difference in behaviour intentions. The intervention group mostly stopped using the ED inappropriately, showing significantly lower intent to visit the ED for non-serious conditions compared to the control group (M=1.54 vs. M=3.41). The habit of using the ED simply because primary clinics are closed was neutralised in the intervention cohort (M=1.57) but strongly retained by the control (M=4.44). Demand for immediate, non-urgent treatment also shown a massive reduction (M=1.51 vs. M=3.71). On the other hand, the intervention group demonstrated nearly consistent intention to seek primary care first for non-emergencies (M=4.73). These findings demonstrate that educational interventions effectively break the 'convenience-first' biases, successfully shifting patients from a reactive approach to a reflective and more on triage-conscious mindset.

CONCLUSION: Directly addressing behavioural determinants through targeted education is a highly viable and necessary strategy for mitigating ED overcrowding and promoting sustainable healthcare utilisation.

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KEYWORDS: *Health-Seeking Behaviour, Behaviour Intention, Emergency Department Overcrowding, Educational Intervention, Healthcare Utilisation*

(OP041) LEARNING ETHICAL REFLEXIVITY ON THE GROUND: A NOVICE RESEACHER'S EXPERIENCE WITH RURAL INDIAN WOMEN IN MALAYSIA

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ABSTRACT

INTRODUCTION: Ethical reflexivity is an ongoing moral and ethical responsibility in action and is increasingly recognised as the main focus in qualitative research that deals with marginalised communities. While institutional ethics frameworks provide procedural guidance, they often fall short in addressing the relational and situational complexities of fieldwork. This paper reflects on my experiences as a novice researcher working with rural Indian women in Malaysia, examining how ethical reflexivity is not simply applied but learned through practice. Drawing on positionality and power, I situate reflexivity as ongoing and critical engagement with the research process.

OBJECTIVE(S): This study reflects my experience as a novice researcher's learning process of ethical reflexivity on conducting fieldwork on rural Indian women .

MATERIALS & METHODS: This study is based on qualitative study fieldwork involving semi-structured interviews and participant observation. A reflexive methodology guided the research with particular attention to my positionality and dynamics shaping researcher-participant interactions. Reflexive journaling and field notes were used to document ethical tensions and decision-making processes as they unfolded *in situ*.

RESULTS: Field encounters exposed the limitations of procedural ethics. Establishing trust required moving beyond formal consent towards relational engagement, often shaped by cultural expectations and social hierarchies. Power imbalances became evident in moments where participants positioned me as both researcher and confidante, complicating professional boundaries. Additionally, language barriers and emotionally sensitive disclosures required immediate, context -specific ethical judgements, reflecting what Guillemin and Gillam (2004) term "ethically important moments'.

CONCLUSION: Ethical reflexivity is cultivated through engagement with the field, requiring attentiveness to power, context and relational dynamics. This paper contributes to ongoing discussions on qualitative research ethics by foregrounding the lived, emergent nature of ethical practice.

KEYWORDS: *Ethical Reflexivity, Novice Researcher*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP042) IMPROVING PHYSICAL ACTIVITY PARTICIPATION AMONG OFFICE WORKERS USING BEHAVIOURAL SCIENCE. A LESSON LEARNED IN JKN PERLIS

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ABSTRACT

INTRODUCTION: Physical fitness sessions at Perlis State Health Department Complex have been conducted since 2020 every Friday afternoon, from 4:00 p.m. to 5:00 p.m. The average attendance has been unsatisfactory, with only about 5–10% participation each week. In 2024, the number of staff participating was around 10–15 people per week. On December 2024, we did a short survey and random interviews to find out why. Main reasons were :

a. Session time not suitable
b. Need to pick up children
c. Other personal commitments

OBJECTIVE(S) & INTERVENTION: A policy change was implemented regarding the timing with the sessions rescheduled to the morning, from 8:00 a.m. to 9:00 a.m, start on Februari 2025.

MATERIALS & METHODS: In addition to the change in timing approved by the Department's top management, other behavioral science approaches were used to influence staff participation, such as placing informational posters at punch-in locations, making announcements through the public address system, and using various infographic posters in health information materials highlighting the importance of physical activity.

RESULTS: The cumulative attendance of staff in 2024 was 604 people; after the intervention, the total attendance increased to 2,063 people in 2025.

CONCLUSION: Listening to people and adapting the program to their needs can improve participation in physical activity at work. By understanding people needs and preferences to design better programs, organizations can implement small changes, such as adjusting schedules to remove participation barriers while simultaneously using nudges like social norms and management support to encourage broader engagement.

PERSATUAN KESIHATAN AWAM MALAYSIA
INSTITUT KESIHATAN NEGARA

KEYWORDS: *Physical, Fitness, Sessions, Policy, Participation*

(OP043) ACTIVE BUT SEDENTARY? A BEHAVIOURAL PARADOX IN WORKPLACE HEALTH AMONG PUTRAJAYA CIVIL SERVANTS

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ABSTRACT

INTRODUCTION & OBJECTIVE(S): Civil servants represent a strategic workforce whose health influences productivity and governance outcomes, yet routine institutional health surveillance remains limited in Malaysia. This study aimed to assess the feasibility of ministry-stratified organisational-unit cluster sampling for workplace health surveillance in Putrajaya and to examine the relationship between physical activity and sedentary behaviour.

MATERIALS & METHODS: A cross-sectional online survey targeted civil servants (N = 51,348) across 25 ministries and the Prime Minister's Department. Ministries were treated as strata and organisational units as clusters. A proportionally allocated sample (n = 3,222) was invited using validated measures of physical activity, sedentary behaviour, and body mass index.

RESULTS & DISCUSSION: A total of n = 1,932 participated (≈60%), with representation from all ministries. While 84.1% met minimum physical activity recommendations, sedentary behaviour remained high, with 75.6% reporting more than 2 hours per day. Inactivity in travel and leisure domains was 62.3% and 46.3%, respectively. This pattern was accompanied by a high prevalence of overweight or obesity (n= 1020, 43.0%). These findings reveal a behavioural paradox: individuals who meet recommended physical activity levels remain at elevated health risk due to prolonged sedentary behaviour.

CONCLUSION: Organisational-unit stratified cluster sampling is feasible for workplace surveillance. The coexistence of high physical activity and high sedentary behaviour highlights the need for integrated workplace interventions that address total movement patterns rather than activity alone. Hybrid data collection and leadership-supported participation are essential to improve representativeness and strengthen policy impact.

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KEYWORDS: *Civil Servants; Stratified Sampling; Physical Activity; Sedentary Behaviour; Workplace Surveillance*

(OP044) DEVELOPMENT OF A TRANS-DISCIPLINARY TEACHING MODULE INTEGRATING BEHAVIORAL SCIENCE AND PROFESSIONAL DEVELOPMENT FOR MEDICAL STUDENTS

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ABSTRACT

INTRODUCTION: Behavioral Science module for medical students in Malaysia is focused only on clinical psychiatry during the preclinical years. Additionally, a Personal and Professional Development (PPD) module introduced only in the clinical years, resulting in an uneven distribution of content. Also, the PPD module ignored a theory-driven approach. Furthermore, the current module emphasizes psychological and sociological components while overlooking crucial domains, which are integral to the holistic professional development of medical students.

OBJECTIVE(S): The study aims to develop a trans-disciplinary teaching module that integrates the Behavioral Science domains.

MATERIAL & METHODS: This study explained two out of three phases of a Design and Development Research: (1) Need analysis, determining key domains & potential topics through peer discussion, (2) Design & development, constructing the module based on five content experts' evaluations & consensus.

RESULTS: The results are focused on the second preclinical year only**.** Phase 1 identified three key domains (Medical, Psychology, and Sociology) producing 12 topics shared across preclinical and clinical phases. Three more domains (Social Anthropology, industry networking and Islamic principles) were added based on expert consensus. The topics were later expanded into 24 preclinical topics, with eight assigned to the second year.

CONCLUSION: The trans-disciplinary module aligned with the six core domains. The module provides a more holistic foundation for behavioral science learning among medical students. With its adaptable structure and integration of theory driven approach, this module holds significant commercialization potential, offering a globally applicable and culturally responsive approach to medical education which informed professional identity formation.

KEYWORDS: *Behavioral Science, Islamic Principles, Psychology, Sociology, Social Anthropology*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP045) MENTAL HEALTH LITERACY INTERVENTION AMONG SECONDARY SCHOOL STUDENTS: A BEHAVIOURAL SCIENCE APPROACH THROUGH THE SEHAT SCHOOL OUTREACH PROGRAM

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ABSTRACT

INTRODUCTION: Adolescent mental health literacy is a growing public health priority aligned with the World Health Organization behavioural science agenda. In Malaysia, rising bullying concerns underscore the need for early school-based interventions, yet help-seeking remains limited due to stigma. These behaviours are shaped by capability, opportunity, and motivation. In response, the Selangor State Government introduced the SEHAT School Outreach Programme, a behaviourally informed intervention guided by the COM-B model.

OBJECTIVE(S): To evaluate the programme's effectiveness in improving adolescents' knowledge, attitudes, and practices (KAP) related to mental health, including readiness to recognise distress, seek help, and support peers.

MATERIALS & METHODS: A mixed-method quasi-experimental pre–post design was conducted among secondary school students in Hulu Langat and Klang, Selangor (N = 106). Participants were recruited via school counsellors, including Peer Support Leaders. The 3.5-hour workshop, delivered by trained facilitators, comprised three COM-B–aligned modules: mental health literacy, emotional regulation, and peer support with self-care. KAP questionnaires were administered pre- and post-intervention. Quantitative data were analysed using descriptive and inferential statistics, while qualitative responses were analysed thematically.

RESULTS: Baseline knowledge was moderate. Mean scores increased post-intervention (Hulu Langat: 3.73 to 4.26; Klang: 4.03 to 4.29), though not statistically significant. Descriptive trends indicated improved consistency and higher post-test performance. Qualitative findings showed increased confidence in recognising distress, willingness to seek help, and readiness to support peers.

CONCLUSION: The programme shows promise as a behaviourally informed school-based intervention. Despite modest quantitative gains, qualitative findings indicate meaningful behavioural shifts. COM-B offers a scalable approach to strengthening adolescent mental health literacy in Malaysia.

KEYWORDS: *Adolescent Mental Health, Behavioural Insights, COM-B Model, Mental Health Literacy, School-Based Programme, Help-Seeking Behaviour, Malaysia*

PENERBITAN AKADEMIK KEBANGSAAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(OP046) i-ACT FOR LIFE: MOBILE APPLICATION FOR PREVENTION AND MANAGEMENT OF PSYCHOLOGICAL DISTRESS

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ABSTRACT

INTRODUCTION: The COVID-19 pandemic underscored the importance of remote mental healthcare delivery. Digital interventions reduce costs, overcome access barriers, and offer flexibility, making them essential in addressing rising post-pandemic mental health challenges. In Malaysia, increasing demand continues to strain an overburdened mental healthcare system, necessitating scalable and innovative solutions.

OBJECTIVE(S): This study examines the development and user engagement of i-ACT for Life, a mobile application based on Acceptance and Commitment Therapy (ACT) integrated with Islamic spiritual practices, designed to prevent and manage psychological distress in Malaysia.

MATERIALS & METHODS: The app was adapted from a cloud-based instant messaging intervention previously validated in a randomised controlled trial. It comprises five weekly modules—Grounding, Unhooking, Acting on Values, Being Kind, and Making Room—aligned with ACT core processes and enriched with Qur'ānic verses, Hadith, and spiritual activities. The app incorporates infographics, interactive exercises, quizzes, audio-guided practices, and psychoeducational videos. Users are encouraged to complete the Depression, Anxiety, and Stress Scale-21 (DASS-21) pre- and post-intervention. i-ACT for Life is embedded within the Selangor Mental Sihat (SEHAT) - SELANGKAH initiative.

RESULTS: Since its launch in October 2022, the app has attracted 23,945 users, indicating strong accessibility and initial engagement, particularly with the Grounding module. However, participation declines markedly after Week 1, with only 180 users completing all modules by November 2024. Post-intervention DASS-21 completion rates were minimal.

CONCLUSION: While the app demonstrates strong reach, sustaining engagement remains a key challenge. Strategies such as enhanced promotion, automated reminders, and therapist-assisted support may improve retention and intervention outcomes.

KEYWORDS: *Cognitive-Behavioural; Culture; Mobile Health (mHealth); Prevention; Sustainable Development Goal 3*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP047) SLEEP AS A BEHAVIOURAL BUFFER FOR NURSES' COMMUTING SAFETY: A MULTILEVEL DIARY STUDY

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ABSTRACT

INTRODUCTION: Commuting accidents are a critical occupational hazard for hospital nurses, often attributed to persistent fatigue. While it is hypothesised that the daily spillover of work and off-work demands exacerbates this risk, the potential for daily recovery factors to act as protective behavioural buffers remains underexplored in current literature.

OBJECTIVE(S): To determine the moderating effects of daily sleep (duration and quality) as a behavioural buffer on the complex relationship between daily demands, persistent fatigue, and unsafe commuting behaviours among hospital nurses.

MATERIALS & METHODS: An intensive longitudinal diary study was conducted with 172 hospital nurses. To capture near real-time behavioural fluctuations, participants provided 976 daily data points across 5 to 7 consecutive days. Participants reported their daily work/off-work demands, sleep, fatigue, and driving behaviours. Data were analysed using Hierarchical Linear Modeling (HLM) and Monte Carlo methods to assess cross-level (2-1-1) moderated mediation.

RESULTS: Multilevel analyses revealed that daily persistent fatigue significantly mediates the relationship between work demands and unsafe commuting (95% CI: 0.0001, 0.011), as well as off-work demands and unsafe commuting (95% CI: 0.0001, 0.012). Crucially, individual sleep duration acted as a highly significant behavioural buffer. Longer sleep duration successfully weakened the indirect pathway of both work demands (95% CI: -0.074, -0.008) and off-work demands (95% CI: -0.075, -0.001) on unsafe driving through persistent fatigue. Conversely, subjective sleep quality did not demonstrate a significant moderating effect.

CONCLUSION: This study highlights the profound protective impact of sleep on daily driving behaviour. To effectively mitigate commuting risks, occupational health policies must adopt holistic behavioural approaches that address contextual stressors and actively champion adequate sleep duration as a vital, life-saving intervention.

KEYWORDS: *Commuting Safety, Work-Home Demands, Persistent Fatigue, Sleep Duration, Multilevel Diary Study*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP048) A BEHAVIOURALLY INFORMED CHATBOT INCREASES VACCINATION RATES IN ARGENTINA

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ABSTRACT

INTRODUCTION: Maintaining COVID-19 vaccine demand was critical during the pandemic. While one-way text reminders can increase vaccination, no studies have tested whether interactive chatbots incorporating behavioural functionalities could be more effective. We designed a WhatsApp chatbot with five behavioural features to simplify the vaccination journey in Chaco province, Argentina.

OBJECTIVE(S): To evaluate whether a behaviourally informed WhatsApp chatbot could increase COVID-19 vaccine uptake compared to a one-way message reminder and a no-message control group.

MATERIALS & METHODS: We conducted a preregistered, three-arm randomised controlled trial (n = 249,705) in Chaco province, Argentina. Participants were randomised to receive the interactive chatbot, a one-way WhatsApp reminder, or no message. The chatbot incorporated personalised eligibility information, a vaccination centre locator, a planning prompt, an appointment reminder, and directions via Google Maps. Vaccination was measured using administrative health records over four weeks.

RESULTS: The chatbot more than tripled vaccination uptake compared to the control group (1.56 percentage point increase; 95% CI, 1.36–1.77; P < 0.001) and nearly doubled uptake versus the one-way reminder (0.99 pp increase; 95% CI, 0.83–1.17; P < 0.001). Effects were consistent across genders and age groups, at an estimated cost of US$46 per additional vaccination.

CONCLUSION: Interactive chatbots embedding behavioural functionalities significantly outperform one-way reminders for increasing vaccination uptake. These findings demonstrate the potential of scalable, low-cost digital behavioural tools for health systems globally. As Malaysia advances its National Blueprint for Behavioural Insights in Health, such interventions offer a promising model for integrating behavioural science into routine public health practice.

KEYWORDS: *Chatbot, Digital, Health, Vaccination, WhatsApp*

KEMENTERIAN KESIHATAN MALAYSIA
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(OP049) BEHAVIOURAL DETERMINANTS OF E-CIGARETTE USE AMONG UNIVERSITY STUDENTS IN MALAYSIA: IMPLICATIONS FOR PUBLIC HEALTH POLICY

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INTRODUCTION: E-cigarette use among young adults is an emerging public health concern. Among university students, e-cigarette use behaviour may be influenced by perceptions, motivations, and knowledge gaps. This study examined behavioural factors associated with e-cigarette use, including motivations, perceptions, and selected knowledge, among university students in Malaysia and their implications for public health policy.

METHODS: A cross-sectional online survey was conducted among 424 university students in Selangor, Malaysia. Descriptive statistics summarised prevalence, reasons for use, perceptions, and selected knowledge items, while chi-square tests examined associations with current e-cigarette use.

RESULTS: Current e-cigarette use was reported by 34.0% of students. Among current users, the most commonly reported reasons for use were perceiving e-cigarettes as less harmful than smoking (63.2%), smoking cessation (57.6%), and no bad smell (47.2%). Compared with non/ex-users, current users were significantly more likely to agree that e-cigarettes are safer than tobacco cigarettes (80.6% vs 46.8%) and help smokers quit (84.7% vs 42.5%) (both $p<0.001$). In contrast, current users were less likely to agree that e-cigarettes can cause nicotine addiction (34.7% vs 71.1%), are a public health concern (36.8% vs 67.1%), and should be regulated like tobacco products (34.0% vs 65.4%) (all $p<0.001$). Knowledge of nicotine content, carcinogenic ingredients, and legal purchasing age also differed significantly by use status.

CONCLUSION: E-cigarette use among university students is strongly associated with favourable perceptions of reduced harm and smoking cessation benefits. Targeted behavioural risk communication and strengthened campus tobacco control policies are needed.

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KEYWORDS: *Behavioural Factors, E-Cigarettes, University Students, Vaping*

(OP050) CHALLENGING THE CONTINUUM ASSUMPTION: A MASEM SUPPRESSION ANALYSIS OF SOCIAL MEDIA USE INTENSITY, SOCIAL MEDIA ADDICTION, AND DEPRESSION

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ABSTRACT

INTRODUCTION: The conceptual distinction between social media use intensity (SMI) and social media addiction (SMA) remains unclear in the literature. SMA is often assumed to represent a dysregulated or excessive form of SMI, implying that both constructs operate along a single continuum. However, empirical findings have been inconsistent, particularly in studies examining their relationships with psychological distress and depression. One possible explanation is that shared variance between SMI and SMA obscures their unique effects, leading to contradictory conclusions across studies. This study aims to examine whether SMI and SMA function as distinct constructs by testing the presence of suppression effects in their relationships with depression.

MATERIALS & METHODS: Effect sizes will be extracted from published studies reporting correlations among SMI, SMA, and depression. Meta-analytic structural equation modelling (MASEM) will be employed to synthesise the correlation matrices across studies. Suppression analysis will be conducted within the MASEM framework using the pooled effect sizes for SMI–depression, SMA–depression, and SMI–SMA.

RESULTS: The analysis is expected to demonstrate that controlling for the overlap between SMI and SMA attenuates the negative association between SMI and depression, while strengthening the positive association between SMA and depression, indicating the presence of a suppression effect. This pattern would suggest that the two constructs have opposing relationships with psychological well-being.

CONCLUSION: The findings are expected to support the conceptual distinction between SMI and SMA, suggesting that they represent qualitatively different patterns of social media engagement rather than merely different levels of the same behaviour.

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KEYWORDS: *Social Media Addiction; Social Media Intensity; Depression; MASEM; Meta-Analysis*

(OP051) BEHAVIOURAL MODULE DEVELOPMENT FOR ADOLESCENT ORAL HEALTH

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ABSTRACT

INTRODUCTION: Behavioural science can enhance adolescent health education by creating contextually relevant modules. In oral health promotion, these modules should include behavioural constructs, user perspectives, and effective validation methods. The Sense of Coherence (SOC) framework can serve as a foundation for behavioural science to enhance comprehensibility, manageability, and meaningfulness of oral health-related practices.

OBJECTIVE(S): This study aimed to introduce a psychosocial-oral-health intervention module for Form Two school adolescents based on a SOC framework. The SOC module was specifically designed to enhance oral hygiene practices among 14-year-old school adolescents.

MATERIALS & METHODS: The module development process consist of three stages: draft module development, pilot testing among school adolescents, and expert validation using the Fuzzy Delphi Method (FDM) to build consensus on the module.

RESULTS: The pilot test showed increased clarity, appropriateness, and engagement among participants. Following expert review, the FDM analysis indicated module content agreement (values ranging from 0.02 to 0.10) and fuzzy scores (from 0.89 to 0.93), with 100% expert consensus. Briefly, the module content was found to be interactive, culturally appropriate, and behaviorally focused.

CONCLUSION: A behavioural science-based development process that incorporates end-user feedback at an early stage and FDM analysis for validation appears to provide an accessible and methodologically sound approach to content validation. This may help inform the development of feasible and appropriate oral health interventions for adolescents.

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KEYWORDS: *Adolescent Oral Health, Behavioural Science, Fuzzy Delphi Method, Module Development, Sense of Coherence*

(OP052) BEHAVIOURAL SCIENCE–DRIVEN WEIGHT MANAGEMENT INTERVENTION AMONG FIREFIGHTERS IN MALAYSIA

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INTRODUCTION: Overweight and obesity among firefighters negatively impact operational readiness, cardiovascular health and physical performance. Within JBPM, a substantial proportion of personnel fall into overweight and obesity categories, necessitating structured interventions. This programme applied behavioural science frameworks including the COM-B model (Capability, Opportunity, Motivation – Behaviour), social norm reinforcement and habit formation to facilitate sustainable behaviour change in an occupational setting.

OBJECTIVE(S): To evaluate the effectiveness of a behavioural science-informed weight management intervention implemented through Wellness Hub and JBPM joint effort & to assess its impact on weight reduction, body mass index (BMI) and physical fitness outcomes.

MATERIAL & METHODS: A quasi-experimental intervention was conducted over six months involving 1,309 firefighters. The programme integrated behavioural strategies including structured physical activity routines, self-monitoring, peer accountability and environmental nudges within institutional settings. Behavioural levers targeted motivation (goal setting, feedback) capability (guided exercise sessions) and opportunity (scheduled sessions and supportive environment). Pre- and post-assessments included weight, BMI and physical fitness components. Programme adherence was evaluated through attendance and implementation fidelity.

RESULTS: Overall, 80.66% of participants achieved weight reduction, exceeding the programme target of 80%. Among them, 21.08% reduced ≥5 kg, while 59.58% achieved moderate weight loss. Positive BMI shifts towards normal classification were observed in 40.18% of participants. Physical fitness improved in 88.1% of participants, with marked increases in flexibility, muscular endurance, and cardiovascular endurance. Programme adherence remained high, with 78% attendance and 91% implementation rate, indicating strong behavioural engagement.

CONCLUSION: This study demonstrates that integrating behavioural science principles within structured occupational programmes can produce significant improvements in weight and fitness outcomes. The application of COM-B and behavioural nudges enhanced adherence and sustainability of behaviour change. Findings provide actionable evidence to inform Ministry of Health Malaysia (MOH) strategies in scaling behavioural interventions for obesity prevention, particularly within high-risk occupational groups. This model supports policy integration into national workplace health programmes and aligns with whole-of-government efforts to combat non-communicable diseases.

KEYWORDS: *Behavioural Intervention, COM-B Model, Firefighters, Occupational Health, Weight Management*

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(OP053) AI-ASSISTED MAPPING OF PARENT-REPORTED CHILD DEVELOPMENT CONCERNS TO BEHAVIOURAL DOMAINS FOR EARLY SUPPORT PLANNING

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ABSTRACT

INTRODUCTION: Early developmental and behavioural concerns are often first noticed by caregivers and expressed in broad everyday language such as “cannot write,” “does not focus,” or “does not follow instructions.” Although meaningful, such descriptions may not clearly indicate the underlying functional difficulties involved, such as attention, communication, self-regulation, adaptive behaviour, or pre-academic readiness. This can complicate early support planning and referral before formal specialist assessment.

OBJECTIVE(S): This study aimed to propose an artificial intelligence (AI)-assisted approach for analysing caregiver-reported child concerns and mapping them into meaningful behavioural domains to support earlier and more structured triage and referral planning.

MATERIALS & METHODS: A conceptual behavioural decision-support framework with a preliminary prototype implementation was developed using natural language processing techniques to analyse free-text caregiver narratives. The prototype identifies salient behavioural indicators from narrative input and maps them into predefined domains, including attention, communication, social interaction, adaptive behaviour, self-regulation, and pre-academic readiness.

RESULTS: The preliminary prototype demonstrates the feasibility of restructuring broad caregiver concerns into more interpretable behavioural profiles. Instead of leaving concerns as surface-level complaints, the system maps them into structured domains that may support clearer triage-oriented communication and more informed referral and early support planning.

CONCLUSION: The proposed AI-assisted framework shows potential as an early concern-structuring and decision-support tool for caregivers, educators, and early support providers prior to specialist assessment. Further work is needed to refine the prototype and evaluate its usability, accuracy, and practical value in real-world settings.

KEYWORDS: *Artificial Intelligence, Behavioural Science, Decision Support, Developmental Concerns, Early Childhood*

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(EP001) BEHAVIORAL CHANGE INTERVENTION THROUGH THE QUICK RESPOND-SEARCH & DESTROY (QR-SD) INNOVATION IN DENGUE FEVER CONTROL AT TAMAN DESA KEMUMIN PHASE II, KELANTAN

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ABSTRACT

INTRODUCTION: Taman Desa Kemumin Phase II was identified as a sensitive dengue outbreak locality that has persisted since 2019. Entomological studies found the Aedes Index in this area reached 7%, placing it in the "very high" category and requiring immediate control measures. The primary issues identified were the indifferent attitude of residents and weaknesses in the traditional monitoring system for Search and Destroy (S&D) activities.

OBJECTIVE: To evaluate the effectiveness of the QR-SD innovation in improving the practice of a 10-minute weekly Search and Destroy (S&D) routine and to ensure zero dengue cases throughout the three-month intervention period.

MATERIALS & METHODS: The project involved 40 respondents from four main zones. The intervention was implemented using digital QR codes attached to premises' door tags, allowing for the real-time completion of S&D checklists. Data was monitored through an online database and supported by providing rewards as incentives to active residents to reinforce behavioural change.

RESULTS: The study results showed a 45% increase in community involvement, with the number of houses performing S&D activities rising from 21 to 39 after the intervention. The achievement rate for specific objectives was recorded at 97.5%. Most significantly, the locality successfully recorded zero dengue cases throughout the project implementation period.

CONCLUSION: The QR-SD innovation is proven to be a more systematic, time-saving, and cost-effective approach that is successful in fostering sustainable dengue prevention practices. This project has high potential to be expanded to other dengue outbreak localities.

KEYWORDS: *Dengue Fever, Behavioral Change, Search & Destroy, Digital Innovation*

KEMENTERIAN KESIHATAN MALAYSIA
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(EP002) SHARED DECISION-MAKING AND ADHERENCE IN COMPLEX IMPLANT REHABILITATION WITH COMPROMISED ALVEOLAR BONE HOUSING

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ABSTRACT

INTRODUCTION: High-risk clinical scenarios in implantology often depend on the biological limits of alveolar bone. However, behavioural factors such as transparent risk communication and patient adherence are equally vital for long-term success.

OBJECTIVE(S): To demonstrate the impact of a Shared Decision-Making (SDM) approach and patient adherence to the clinical outcome of a high-risk implant case involving severe bone loss.

MATERIALS & METHODS: A 40-year-old male with a fractured maxillary central incisor and significant buccal bone resorption was managed. An SDM protocol was used to communicate a guarded success prognosis. The patient actively participated in the choice to proceed with Guided Bone Regeneration (GBR) and subsequent implant placement.

RESULTS: By involving the patient in the decision-making process, greater patient engagement and responsibility and adherence to post-surgical oral hygiene was achieved. Successful osseointegration and aesthetic restoration were reached despite the compromised site. The patient reported high satisfaction with the functional outcome and the transparency of the treatment process.

CONCLUSION: Incorporating SDM into clinical practice and patient empowerment can mitigate clinical risks and lead to successful outcomes even in biologically challenging scenarios.

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KEYWORDS: *Shared-Decision Making, Patient Adherence, Dental Implant, Bone Regeneration, Risk Communication*

(EP003) NURSES' KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING PRESSURE ULCER PREVENTION: A COMPARATIVE ANALYSIS OF PRACTICES IN PRIVATE AND GOVERNMENT HEALTHCARE SETTINGS

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- ABSTRACT NOT AVAILABLE -

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(EP004) WHY QUIT SMOKING FAILS AND SUCCEEDS: BARRIERS AND FACILLITATORS OF SMOKING CESSATION IN PERAK TENGAH DISTRICT

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ABSTRACT

INTRODUCTION: Smoking cessation remains a persistent public health challenge in Malaysia despite the availability of structured cessation services. While national strategies emphasise individual knowledge and motivation, real-world quitting success is heavily influenced by behavioural, social, and health system factors at the community level. Understanding these local determinants is essential to improve the effectiveness of smoking cessation interventions

OBJECTIVE(S): This study aimed to explore the barriers and facilitators influencing smoking cessation practices among community members in the Perak Tengah District using a behavioural science framework.

MATERIALS & METHODS: A qualitative study design was employed using case study approach via semi-structured, in-depth interviews among nine adult male smokers which recruited from government health clinics. Interview guides were developed based on the Capability, Opportunity, Motivation Behaviour (COM-B) framework. All interviews were audio-recorded, transcribed verbatim, and analysed using thematic analysis following Braun and Clarke's methodology. Ethical approval was obtained from the Medical Research and Ethics Committee (NMRR ID-25-02152-I9Q).

RESULTS: 7 themes emerged with 3 related with barriers and 4 related with facilitators. Major barriers included Capability: Psychological and Physical Dependence, Opportunity: Social Environment Influence, Motivation: Automatic Self Habit. Facilitators of smoking cessation included Capability: Self Awareness, Opportunity: Supportive Relationships, Opportunity: Structured Medical Aid and Motivation: Significant Life Events. This study also disclosed that smoking cessation efforts are frequently undermined by social normalization of smoking and inconsistent follow-up within formal cessation services. Additionally, sustained quitting was more likely when personal readiness was reinforced by supportive relationships and significant life events rather than knowledge alone.

CONCLUSION: Smoking cessation among community members in Perak Tengah is shaped by a complex interaction of behavioural dependence, social environment, and health system delivery. While cessation tools are available, inconsistent human-centric support undermines their effectiveness. Interventions should prioritise continuity of care, family-based support, and community-focused strategies to bridge the gap between intention and sustained abstinence.

KEYWORDS: *Smoking Cessation; COM-B Framework; Behavioral Barriers; Behavioral Facillitator; Nicotine*

PENERBIT INSTITUT KESIHATAN NEGARA

(EP005) SAFETY LEADERSHIP AND PARAMEDIC SAFETY BEHAVIOUR UNDER RESPONSE TIME PERFORMANCE PRESSURE: A CONCEPTUAL ANALYSIS

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ABSTRACT

INTRODUCTION: Emergency Medical Services (EMS) operate under strict response time Key Performance Indicators (KPIs) aimed at improving efficiency and accountability. However, continuous pressure for rapid response may create performance–safety conflicts, particularly for paramedics working in time-critical and high-risk environments. Leadership is widely recognised as an organisational factor influencing safety perceptions and behaviours, yet its role in shaping safety behaviour under persistent response time pressure remains insufficiently explained. A behavioural science perspective is therefore needed to understand how leadership influences safety outcomes beyond procedural compliance.

OBJECTIVE: This conceptual paper aims to develop a theoretical framework explaining how safety leadership influences paramedic safety behaviour under response time KPI pressure, with safety climate and behavioural mechanisms as key pathways.

MATERIAL & METHODS: A conceptual synthesis of leadership theories, safety climate models, and behavioural frameworks—particularly Social Cognitive Theory and the Theory of Planned Behaviour—was conducted to construct an explanatory framework.

RESULTS: Conceptual framework proposes that safety leadership influences paramedic safety behaviour through two primary pathways:

1. Organisational pathway – through safety climate
2. Behavioural pathway – through psychological mechanisms including perceived behavioural control, outcome expectations, and safety motivation.

CONCLUSION: The framework highlights safety leadership as a key factor in managing performance–safety tensions in EMS and supporting sustainable safety behaviour.

KEYWORDS: *Safety leadership; Safety climate; Safety behaviour; Paramedics; Response time pressure; Emergency Medical Services (EMS).*

KEMENTERIAN KESIHATAN MALAYSIA
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(EP006) EXPLAINING LEPROSY STIGMA AND DELAYED DETECTION IN PAHANG: AN EXPLANATORY MIXED-METHODS STUDY

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ABSTRACT

INTRODUCTION: Delayed leprosy detection remains a persistent challenge in endemic settings, contributing to preventable disability and continued transmission risk. Grade 2 Disability (G2D) at diagnosis reflects late presentation and missed opportunities for early case detection. Beyond biomedical and service delivery factors, leprosy-related stigma operates as a behavioural and social barrier influencing disclosure, social distancing, and healthcare utilisation. While quantitative evidence describes the burden and distribution of delayed detection and stigma, further enquiry is required to explain how socially embedded norms shape stigma and care-seeking behaviour.

OBJECTIVES: To examine behavioural and social mechanisms underlying leprosy stigma and delayed detection using an explanatory sequential mixed-methods approach.

MATERIALS & METHODS: An explanatory sequential mixed-methods design was employed. The completed quantitative phase integrated: (1) analysis of *MyHansen* registry data (2014–2024) examining G2D patterns and associated factors; (2) a community stigma survey in Keratong (N=314) using the EMIC-CSS; and (3) comparative analysis between Orang Asli and Malay FELDA communities. Item-level EMIC-CSS analysis identified dominant behavioural domains of stigma. These findings informed purposive sampling and the development of targeted interview domains for the ongoing qualitative phase exploring disclosure practices, social avoidance, marital consequences, and livelihood-related interactions.

RESULTS: Among 394 leprosy cases, 7.1% presented with G2D at diagnosis, with passive case detection associated with higher odds of G2D (aOR 3.19; 95% CI 1.35–7.55; p=0.008), indicating delayed care-seeking. In Keratong (N=314), perceived stigma was high (73.6%) alongside uniformly poor knowledge (99.4%). Item-level analysis identified key behavioural expressions of stigma, including family-level disclosure concerns (65.3%), anticipated social avoidance (40.8%), household-level exclusion (39.2%), perceived threats to marriage prospects (37.9%), and economic interaction concerns (45.2–51.3%). No significant difference in stigma was observed between Orang Asli and Malay FELDA communities (p>0.05), indicating shared community norms. These findings highlight specific behavioural domains requiring qualitative exploration to explain how stigma-related expectations influence disclosure and delay care-seeking.

CONCLUSION: The quantitative phase demonstrates that delayed detection occurs within a context of strong stigma-related behavioural constraints, particularly around disclosure and anticipated social consequences. The ongoing qualitative phase will explain how these norms are socially produced and sustained. Integrating epidemiological patterns with socially embedded mechanisms can inform stigma-sensitive strategies for early case detection in Malaysia.

KEYWORDS: *Leprosy Stigma; Delayed Detection; Explanatory Sequential Mixed Methods; Behavioural Science; Malaysia*

BERTAMBAH MUTU
KEMENTERIAN KESIHATAN MALAYSIA
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(EP007) IMPACT OF SHOULDER DISORDERS ON PROFESSIONAL DEDICATION: A BEHAVIOURAL ANALYSIS OF MEDICAL LABORATORY SERVICE DELIVERY

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ABSTRACT

INTRODUCTION: Medical Laboratory Technologists (MLTs) are foundational to clinical service delivery, providing the diagnostic accuracy required for patient management. However, the high-precision tasks inherent in laboratories, such as prolonged microscopy and repetitive pipetting, place significant physical demands on the workforce. While clinical care models focus on technical proficiency, the behavioural impact of Work-Related Musculoskeletal Disorders (WMSDs) on staff engagement remains a critical gap.

OBJECTIVE: This study investigates the intersection of physical health and psychological professional drive, specifically examining how shoulder pain influences the three dimensions of work engagement: Vigor, Dedication, and Absorption.

MATERIALS & METHODS: A cross-sectional study was conducted among 115 MLTs within Malaysian clinical settings. Physical symptoms were screened using the Nordic Musculoskeletal Questionnaire (NMQ), while psychological engagement was quantified via the Utrecht Work Engagement Scale (UWES-17). To assess the impact on service-delivery mindsets, independent samples t-tests were performed to compare mean engagement scores between technologists reporting shoulder pain in the preceding 12 months and those reporting no symptoms.

RESULTS: The analysis revealed a statistically significant decline in Dedication among participants suffering from shoulder pain compared to the pain-free group ($p<0.05$). Interestingly, no significant differences were observed in the domains of Vigor (physical energy) or Absorption (cognitive focus) ($p>0.05$). This suggests a dissociative engagement pattern: technologists maintain the energy and focus required for immediate clinical tasks, but their long-term emotional investment, sense of professional challenge, and pride are selectively eroded by chronic physical discomfort.

CONCLUSION: Within the framework of clinical service delivery, shoulder pain acts as a significant behavioural barrier to workforce sustainability. The erosion of Dedication, without a concomitant drop in Vigor, indicates that workers may be physically present but are psychologically distancing themselves from their clinical roles due to physical strain. To ensure high-quality diagnostic services, healthcare administrators must integrate behavioural health strategies with ergonomic interventions.

KEYWORDS: *Clinical Service Delivery, Work Engagement, Dedication, Shoulder Pain, Medical Laboratory.*

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(EP008) MENTAL HEALTH PIT STOP: CHECK IN FOR A CHECK UP
A CONCEPTUAL MENTAL HEALTH INTERVENTION

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INTRODUCTION: Mental health help-seeking in schools, universities and workplaces is often delayed by stigma, privacy concerns, and limited access to timely support. An on-site "kiosk" format may normalise use while offering immediate support in everyday settings.
Our objective is to create and deploy an AI-powered mental health pit stop booth designed for placement in accessible settings (e.g. School libraries, and workplace common areas). The aim of the intervention is to;
(1) Provide immediate, mental health support through an AI conversational agent offering; (2) Promote user engagement by integrating age-appropriate wellbeing tools, such as meditative music, and gamified activities for stress regulation.

METHOD

CONCEPT DESCRIPTION
The concept specifies a dedicated private space with a self-check-in style interface and a programmed multilingual AI conversational agent delivering brief emotional support, screening, and signposting. To reduce stigma and broaden use, the booth also includes wellbeing-focused features. Users who choose to reach out can use a discreet referral pathway, which prompts completion of a brief screening form that is securely transmitted to a designated receiving service for the setting (e.g., a school counselling email).

EXPECTED OUTCOME
This innovation is anticipated to improve access to timely mental health support and facilitate early detection of psychological problems and linkage to appropriate services.

CONCLUSION: A mental health 'pit stop' booth is a potentially scalable, non-stigmatising approach that could improve access to therapeutic conversations and reduce the stigma surrounding mental health. To progress from concept to implementation, next steps include prototyping and feasibility piloting to assess real-world uptake.

KEYWORDS: *Mental health, AI-powered technology*

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(EP009) PLAY, LEARN, DECIDE: A GAMIFIED APPROACH TO SEXUAL AND REPRODUCTIVE HEALTH EDUCATION FOR MALAYSIAN BOYS

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ABSTRACT

INTRODUCTION: Early initiation of sexual activity among Malaysian adolescents remains a public health concern, with approximately one-third reporting sexual engagement before the age of 14.

OBJECTIVE(S): This study evaluated the effectiveness of a gamified sexual and reproductive health (SRH) education intervention, *ReReki*, in reducing early sexual risk behaviours among Malaysian adolescent boys.

MATERIALS & METHODS: The *ReReki* module was systematically developed and content-validated using the Analysis, Design, Development, Implementation and Evaluation (ADDIE) framework and guided by the Theory of Planned Behaviour. A quasi-experimental study was conducted among 257 adolescent boys assigned to an experimental (n = 130) or control group (n = 127). The experimental group received five structured gamified *ReReki* modules, while the control group received standard SRH education. Outcomes included sexual intention (SI) towards premarital sex, self-efficacy (SE) related to sexual activity, perceived social norms (SN) regarding premarital sex, permissive attitudes (PA) towards premarital sex, and SRH knowledge (KN). Assessments were conducted at baseline (P1), immediately post-intervention (P2), and at 10-week follow-up (P3). Repeated-measures analyses were used to examine changes over time.

RESULTS: The intervention resulted in significant reductions in key psychosocial risk factors. SI scores decreased from P2 to P3 with a small effect size ($\eta p^2 = 0.037$, $p < 0.013$). SE showed a sustained reduction from P1 and P2 to P3, with a large effect ($\eta p^2 = 0.210$, $p < 0.010$). SN scores also declined significantly across all time points ($\eta p^2 = 0.104$, $p < 0.010$), while PA decreased from P2 to P3 with a small effect ($\eta p^2 = 0.048$, $p < 0.002$).

CONCLUSION: In conclusion, the theory-driven, gamified *ReReki* intervention effectively modified behavioural determinants associated with early sexual engagement, supporting its potential for implementation in school and community based SRH programmes.

KEYWORDS: *Adolescent Boys; Gamified Sexual Health Education; Reproductive Health; Sexual Intention*

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(EP010) HARI RAYA CELEBRATION SPARKS FOOD POISONING OUTBREAK AT PRE-MATRICULATION INSTITUTION, KUALA LANGAT, SELANGOR ON 18-19 APRIL 2025.

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ABSTRACT

INTRODUCTION: On 19 April 2025, a food poisoning outbreak was reported among adolescent students at Kolej Matrikulasi Selangor, Banting, following the consumption of food prepared by an external caterer before the Hari Raya celebration. Although epidemiologically consistent with *Bacillus cereus* infection, the outbreak also provided insight into behavioural and psychosocial factors affecting adolescent mental wellbeing in institutional settings.

OBJECTIVE(S): This study aimed to investigate the food poisoning outbreak, identify the etiological agent, associated risk factors, behavioural and psychosocial factors associated with the incident.

MATERIALS & METHODS: A case–control study involving 63 cases and 126 controls was conducted. A case was defined as any Block Mira student who consumed the catered food on 18 April 2025 and developed at least one acute gastrointestinal symptom between 18 to 25 April 2025. Epidemiological, environmental and laboratory investigations were performed alongside an assessment of food handling behaviours and practices.

RESULTS: The overall attack rate was 13.88%, affecting female adolescents from Block Mira. Consumption of chicken rendang was significantly associated with illness (OR = 10.5; 95% CI: 3.11–35.50; $p < 0.001$), identifying it as the most probable vehicle of infection. While clinical specimens were negative, B. cereus was isolated from a serving wok and a food handler hand swab. Hazard Analysis and Critical Control Point assessment identified multiple behavioural and system-level failures including poor personal hygiene compliance, inadequate temperature control and prolonged food holding beyond recommended limits.

Beyond physical illness, the outbreak had potential mental health and behavioural implications for affected adolescents including increased anxiety, academic disruption and reduced concentration. Such experiences may have negatively influenced students perceived safety, emotional wellbeing and learning engagement.

CONCLUSION: The outbreak was consistent with a point-source event caused by *B. cereus* (diarrhoeal type) and was declared over after one incubation period. This incident highlighted the need to integrate behavioural science and mental health considerations into food safety management and outbreak preparedness in adolescent educational institutions during festive celebrations.

KEYWORDS: *Food poisoning, outbreak, chicken rendang, behavioural.*

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(EP011) TOWARDS ZERO CHILDHOOD BULLYING

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ABSTRACT

INTRODUCTION: Malaysia ranked 4th globally, with 56% of surveyed Form Two (eighth-grade) students reporting they had been bullied. 1 in 4 Malaysia's secondary school students had been bullied at least once during their school years. Students between 13-17 had been bullied, and are 3x at risk of developing depression or self harm. More than two thirds of students indicate they have witnessed bullying at school.

AIMS: This promotional material aims to achieve a 25% reduction in bullying incidents, ensure 70% attendance rate at PIBG workshops focused on prevention, and to implement anti-bullying programs at least one program every two years.

METHODOLOGY: It utilizes Social Cognitive Theory and Reciprocal Determinism to address bullying through interconnected factors. The intervention includes Olweus Bullying Prevention Framework which encompasses four levels of implementations, which are individual level, classroom level, school-wide level, and community level; and KiVa Antibullying Program where this intervention utilises the materials provided by KiVa Antibullying Program.

OUTCOMES: The outcomes of this project will be evaluated based on the the different target groups, i.e. students, teachers, and parents, and will be divided into short term outcomes which include participation in social-emotional learning (SEL) sessions and student engagement in bystander activities, participation in teachers and school counsellors in training workshop and number of bullying monitoring and supervision and participation of parents at PIBG workshops focused on prevention.

CONCLUSION: We aim for sustained behavioural change beyond the intervention period.

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KEYWORDS: *Childhood bullying, Olweus, bullying prevention, secondary schoolchildren, Social Cognitive Theory*

(EP012) WEIGHT STATUS MISPERCEPTION AMONG ADOLESCENTS IN MALAYSIA: SOCIO-DEMOGRAPHIC, LIFESTYLE AND MENTAL HEALTH CORRELATES

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ABSTRACT

INTRODUCTION: Adolescence is marked by rapid physical and psychosocial changes that shape body image and health behaviours. Weight status misperception during this stage may influence lifestyle choices and mental well-being, making it an important behavioural health concern.

OBJECTIVE(S): This study examined the prevalence of weight status misperception among school-going adolescents in Malaysia, and identified socio-demographic, lifestyle, and mental health-related factors associated with weight status underestimation and overestimation.

MATERIALS & METHODS: Data were derived from the 2022 National Health and Morbidity Survey (NHMS): Adolescent Health Survey, a nationwide cross-sectional school-based survey. A total of 33,523 adolescents aged 13–17 years from 239 randomly selected secondary schools completed self-administered Global School-based Student Health Survey (GSHS) questionnaires and anthropometric assessments. Actual weight status was classified using WHO BMI-for-age criteria and compared with self-perceived weight status. Multinomial logistic regression was performed to determine factors associated with weight status underestimation and overestimation.

RESULTS: Overall, 30.8% underestimated and 17.1% overestimated their weight status, while 52.1% perceived it accurately. Underestimation was more likely among younger adolescents (AOR:2.10, 95% CI:1.89-2.33), ever/current drug users (AOR:1.22, 95% CI:1.07-1.39), and those who frequently consumed soft drinks (AOR:1.10, 95% CI:1.02-1.18) and fast food (AOR:1.23, 95% CI:1.11-1.37). Overestimation was associated with female gender (AOR:1.95, 95% CI:1.75-2.16), inadequate fruit intake (AOR:1.16, 95% CI:1.07-1.25), frequent fast food intake (AOR:1.23, 95% CI:1.08-1.40), loneliness (AOR:1.16, 95% CI:1.02-1.32), depression (AOR:1.39, 95% CI:1.23-1.57), and suicidal ideation (AOR:1.16, 95% CI:1.03-1.32).

CONCLUSION: Nearly half of the adolescents in Malaysia misperceived their weight status. Weight misperception was closely linked to a complex interplay of socio-demographic, lifestyle and mental health factors, underscoring the urgency for holistic, behaviorally driven, and mental health-tailored interventions.

KEYWORDS: *Adolescents, Body mass index (BMI), Overestimation, Underestimation, Weight status misperception*

(EP013) DISCLO-LIGHT: A LOW-COST VISUAL NUDGE TOOL FOR IMPROVING PATIENT ORAL HYGIENE ADHERENCE

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ABSTRACT

INTRODUCTION: Conventional oral health instructions often fail to motivate lasting behavioral changes because they rely on passive auditory advice. Visual feedback serves as a powerful behavioral "nudge" that can improve a patient's self-monitoring capabilities.

OBJECTIVE(S): To develop and evaluate a low-cost LED-based tool (Disclo-Light) that enhances the patient's ability to visualize plaque and self-correct brushing deficiencies.

MATERIALS & METHODS: Disclo-Light (RM40.79) was developed using a plastic face shield and LED illumination. A cross-sectional survey (May–June 2023) involving 21 patients and 8 dental officers assessed usability and motivation via questionnaires. Additionally, an assessment of 427 students used the Gingival Index Score (GIS) to measure clinical behavioral shifts. Data were analyzed descriptively and through comparative GIS trend analysis.

RESULTS: Usability feedback showed most of 21 patients finding the tool easy to use and effective for identifying uncleaned areas. Significantly, most patients reported increased motivation to practice better oral care. All 8 dental officers confirmed the tool assisted in providing tailored health advice. Clinical measurements revealed a positive trend in gingival health across four schools, with improvements in the percentage of students achieving a healthy GIS score of 0 ranging from 0.05% to 1.10% after one year.

CONCLUSION: Disclo-Light is a feasible behavioral technology that empowers patients through self-monitoring. It demonstrates how low-cost innovation can successfully apply behavioral insights to improve clinical health outcomes.

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KEYWORDS: *Behavioural Technology, Visual Feedback, Oral Hygiene, Health Innovation, Nudging*

(EP014) DESIGNING BETTER HEALTH: A BEHAVIORAL INSIGHTS APPROACH IN PHARMACY INTEGRATED COMMUNITY CARE (PICC) TOWARDS DIABETES MANAGEMENT

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ABSTRACT

INTRODUCTION: According to the National Diabetes Registry Report 2023, there were 1,956,151 patients enrolled in the registry, with 870,771 active diabetes cases recorded. This highlights the critical necessity for sustainable management strategies. Pharmacy Integrated Community Care (PICC), a Terengganu State Health Department initiative, adopts a "diabetes tuition" approach to strengthen community-based diabetes management through behavioural empowerment.

OBJECTIVE(S): PICC establishes a support network that enhances patient confidence, improves health literacy regarding medication management, and promotes a healthy lifestyle. The programme aims to support participants in achieving significant reductions in HbA1c levels toward target ranges.

MATERIALS & METHODS: Structured using the five-stage D.D.D.I.E. (Define, Diagnose, Design, Implement, Evaluate) framework, PICC ensures interventions align with human behaviours. This framework transitions from defining uncontrolled HbA1c ≥ 7% as a challenge to diagnosing barriers iteratively. The programme utilizes Visualisation in Participatory Programme (VIPP) methodology and "idea clustering" across four sessions over six months. Participants with HbA1c ≥ 7% are recruited through clinical referrals and monitored for blood pressure and MedQuiz scores.

RESULTS: Nationally, PICC demonstrated sustained glycaemic control improvement from 2023 to 2025. In 2023, 67.98% of participants (n=276/406) achieved HbA1c reduction. This outcome improved in 2024 to 74.09% (n=549/741; mean reduction 1.58%). In 2025, 75.86% (n=729/961) achieved reduction, with an average reduction of 1.52%. Programme outcomes consistently exceeded the ≥ 65% target indicator.

CONCLUSION: PICC proves that a participatory, behaviourally-informed "tuition" model effectively improves glycaemic control. Integrating the D.D.D.I.E. framework and VIPP-based engagement successfully bridges clinical advice and sustainable behaviour change, ensuring structured behavioural insights significantly enhance public health outcomes.

KEYWORDS: *Behavioural Insights, D.D.D.I.E. Framework, Diabetes Mellitus, Pharmacy Integrated Community Care, Visualisation In Participatory Programme*

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(EP015) A BEHAVIOURAL ANALYSIS OF BARRIERS TO TREATMENT ENGAGEMENT IN MALAYSIAN PUBLIC RADIOTHERAPY: A SCOPING REVIEW

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ABSTRACT

INTRODUCTION: In Malaysia, public radiotherapy services are highly subsidised. Despite financial incentives such as the PeKa B40 scheme, treatment default persists. Behavioural science suggests affordability alone cannot ensure treatment engagement, as psychological and environmental factors influence decision-making.

OBJECTIVE(S): This review examines the 'friction' between policy intent and patient behaviour, focusing on the administrative, geographic, and psychological barriers affecting treatment engagement.

MATERIALS & METHODS: The PubMed, Scopus, Web of Science, Cochrane Library, and BioMed Central databases were searched for articles pertaining to patient engagement in radiotherapy that were published within the last decade. Google was used to search for additional web-based materials and information. Results were synthesized using the COM-B model.

RESULTS: Three behavioural "friction points" were identified. Capability-related barriers include patients' lack of knowledge regarding financial incentives and an inability to navigate complex application procedures. Opportunity barriers arise from limited oncology centres, requiring patients to travel distances exceeding 100 km, creating immediate burdens that outweigh perceived long-term treatment benefits. Motivational barriers, specifically unaddressed psychological distress and a lack of emotional support, act as critical frictions that drive patients to default from essential radiotherapy.

CONCLUSION: Improving engagement requires reducing behavioural friction rather than cost alone. Radiation Therapists, as primary points of daily patient interaction, can implement low-cost interventions such as clear navigational guidance and targeted emotional support to improve treatment engagement and patient outcomes. Additionally, future research should quantify treatment default rates and investigate their specific behavioural drivers to optimize care in public radiotherapy services.

KEYWORDS: *Behavioural Friction, Patient Engagement, Public Radiotherapy, Health Literacy, Psychological Distress*

PERPUSTAKAAN KESIHATAN MALAYSIA
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(EP016) ATTITUDINAL, BEHAVIORAL, AND TRUST DISPARITIES: A COMPARISON BETWEEN VACCINE-HESITANT AND NON-HESITANT MOTHERS IN MALAYSIA

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ABSTRACT

INTRODUCTION: Vaccine hesitancy threatens immunization programs and contributes to outbreaks of vaccine-preventable diseases. Despite high vaccination coverage in Malaysia, recent outbreaks of measles and diphtheria highlight the need to understand maternal attitudes toward vaccination.

OBJECTIVE(S): To compare attitudinal, behavioral, and trust-related differences between vaccine-hesitant and non-hesitant mothers in Malaysia.

MATERIALS & METHODS: A nationwide cross-sectional survey using random cluster sampling was conducted among 5,930 mothers with children under two years. Vaccine hesitancy was assessed using the validated 15-item Parent Attitudes about Childhood Vaccines (PACV) tool. Mothers with scores ≥50 were classified as hesitant. Differences in individual items were analyzed using the Rao-Scott chi-square test, accounting for complex sampling ($p<0.05$).

RESULTS: The prevalence of vaccine hesitancy was 4.6% (95% CI: 3.8, 5.5). Significant differences were observed across all PACV items ($p<0.001$). Hesitant mothers were more likely to report delaying (47.7% vs. 8.2%) or refusing (42.4% vs. 3.0%) vaccination. They also demonstrated lower confidence in immunization schedules (64.6% vs. 4.0%), stronger preference for natural immunity (50.6% vs. 27.3%), and greater concern about serious side effects (84.3% vs. 43.5%) and vaccine safety (87.1% vs. 35.1%). Trust-related disparities were evident, with lower reported trust in vaccine information (32.9% vs. 88.6%) and healthcare providers (41.7% vs. 92.4%).

CONCLUSION: Vaccine-hesitant mothers differ in their safety perceptions of safety, behavioral intentions, and trust. Given lower trust in formal healthcare providers, communication should incorporate peer-led and community-based approaches. Multi-level strategies leveraging that leverage trusted social networks are essential to strengthen vaccine confidence and prevent re-emergence of vaccine-preventable diseases.

KEYWORDS: *Vaccine Hesitancy, Childhood Immunization, Parent Attitudes About Childhood Vaccines (Pacv), Malaysia, Nationwide Survey*

INSTITUT KESIHATAN NEGARA

(EP017) HEALTH LITERACY TO ADHERENCE: MEDIATING ROLE OF SELF EFFICACY AMONG DIABETIC PATIENTS IN TERENGGANU

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ABSTRACT

INTRODUCTION: Type 2 Diabetes Mellitus (T2DM) remains a major public health concern in Malaysia. Although medication adherence is essential for good glycemic control and prevention of complications, many patients struggle to follow their treatment regimens.

OBJECTIVE(S): This study examined whether self-efficacy mediates the relationship between health literacy and medication adherence among patients with T2DM.

MATERIALS & METHODS: A cross-sectional study was conducted among 460 T2DM patients in Terengganu, Malaysia. Validated Malay versions of the Diabetes Health Literacy Scale (MyDHLS), Self-Efficacy for Diabetes (MySED), and Malaysia Medication Adherence Assessment Tool (MyMAAT) were used. Mediation analysis was performed using R with 500 bootstrap samples.

RESULTS: Health literacy was significantly associated with medication adherence (Total Effect = 0.176, $p < 0.001$). The indirect effect through self-efficacy was significant (ACME = 0.127, 95% CI [0.053, 0.199], $p < 0.001$). However, the direct effect was not significant (ADE = 0.050, $p = 0.372$). These findings indicate that self-efficacy fully mediates the relationship, accounting for 71.9% of the total effect.

CONCLUSION: Self-efficacy plays a central role in translating health literacy into medication adherence among patients with T2DM. Providing information alone may not be sufficient. Interventions should focus on strengthening patients' confidence in managing their treatment to improve adherence and clinical outcomes.

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KEYWORDS: *Type 2 Diabetes, Health Literacy, Self-Efficacy, Medication Adherence, Mediation*

(EP018) MENTAL HEALTH HELP-SEEKING INTENTION IN VOCATIONAL EDUCATION: A BEHAVIOURAL PERSPECTIVE

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ABSTRACT

INTRODUCTION: Mental health problems among young people are rising globally yet help-seeking remains low. Since help-seeking intention predicts service utilisation, identifying its determinants among vocational students is important for developing targeted interventions.

OBJECTIVE(S): To determine the level of mental health help-seeking intention and its associated behavioural and psychosocial determinants among students at a public skills institute in Selangor, Malaysia.

MATERIALS & METHODS: A cross-sectional study was conducted in May 2025 among 205 students aged 18–24 years at a public skills institute in Sepang, using proportionate stratified random sampling. Data were collected through a validated self-administered online questionnaire. The outcome variable was mental health help-seeking intention, measured using the General Help-Seeking Questionnaire (GHSQ). Explanatory variables included sociodemographic factors, mental health literacy, self-stigma, beliefs toward mental illness, perceived social stigma, perceived social support, and attitudes toward help-seeking. Simple and multiple linear regression analyses were performed, with statistical significance set at $p < 0.05$.

RESULTS: The response rate was 96.7%. The median help-seeking intention score was 37 (IQR = 23). Higher mental health literacy ($\beta = 0.336$, 95% CI: 0.13–0.54, $p = 0.001$) and greater perceived social support ($\beta = 0.161$, 95% CI: 0.04–0.29, $p = 0.012$) were significant predictors. The final model explained 13.8% of the variance in help-seeking intention.

CONCLUSION: Mental health literacy and perceived social support are key determinants of help-seeking intention among vocational students, supporting the need for behaviour-informed interventions in public skills institutes.

KEYWORDS: *Mental Health; Behavioural Determinants; Mental Health Literacy; Perceived Social Support; Vocational Students*

KEMENTERIAN KESIHATAN MALAYSIA
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(EP019) BARRIERS OF HOME INJURY PREVENTION PRACTICE AMONG PARENTS OF UNDER-FIVE CHILDREN

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ABSTRACT

INTRODUCTION: Home injury in the likes of fall, drowning, burns, suffocation, and poisoning remain a public health burden despite being largely preventable. When occured among under-five children, it is mostly fatal. The causes are multi-factorial but parents poor prevention practice was a huge contributor to its occurrence. Parents barriers and challenges are yet to be explored in the local setting.

OBJECTIVE(S): This study aimed to explore the barriers of carrying out home injury prevention practice among parents of under-five children.

MATERIALS & METHODS: A qualitative case studies purposively sampled 15 parents of under-five children with poor prevention practice in North Seberang Perai district, Penang, Malaysia using an in-depth interview method which was stopped after achieving saturation point. Thematic analysis was used to generate findings.

RESULTS: *Five themes that emerged reflect the lack of prevention motivation driven by educational disparities. Some of the main themes are normalization of injury and poor risk assessment where parents saw injury as a learning curve that is unpreventable due to child's young age and temperament. Many also considered unintentional injury is much more tolerable compared to non-accidental injury.*

CONCLUSION: This study highlighted the cultural norm among locals regarding injury and its prevention. These findings can be utilized by health authorities to raise awareness, improve literacy and empower parents to increase home safety. The commercial industry may promotes child-safe products that can replace hammock and propose protective designs at home such as a kitchen barrier to create a safer environment.

KEYWORDS: *Home Injury, Injury Prevention, Qualitative*

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(EP020) FROM USER TO RESPONDENT PERSONAS: A LEARNING EXPERIENCE IN BEHAVIOURAL SCIENCE FOR ENHANCING NATIONAL MENTAL HEALTH SURVEY PARTICIPATION

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ABSTRACT

INTRODUCTION: Population-level mental health surveys often face nonresponse, participation bias, and measurement error, especially when measuring stigma-sensitive topics such as mental health literacy. These issues are shaped by behavioural determinants that conventional survey frameworks frequently overlook.

OBJECTIVE(S): To present a learning experience from operationalising user persona frameworks into respondent personas to better understand and address behavioural drivers of participation in the Malaysia Mental Health Literacy Survey 2025 (MyMHL) (NMRR ID-25-01521-NAO).

MATERIALS & METHODS: MyMHL is a nationwide, community-based cross-sectional survey conducted through face-to-face data collection across urban and rural living quarters in Malaysia, targeting adults aged ≥18 years. Through an iterative learning process, respondent personas were developed by adapting user persona frameworks and grounding them in the COM-B model. Developing these personas helped the team uncover key barriers to participation, including stigma avoidance, time constraints, and cognitive burden. With a non-response rate of 35%, insights from field experiences informed persona-driven adaptations. Enumerators were trained to apply these personas in real time, tailoring communication, consent procedures, and engagement strategies to align with each respondent's motivations, concerns, and contextual constraints.

CONCLUSION: This learning experience demonstrates that integrating respondent personas into survey implementation offers a practical and behaviourally informed approach to improving participation and response validity in large-scale mental health surveys. This approach offers a scalable framework for embedding behavioural science into routine public health research, particularly in contexts where stigma and engagement barriers are significant.

KEYWORDS: *User Persona; Respondent Personas; Survey Methodology; Behavioural Science; COM-B*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP022) THE ROLE OF LIFE STRUGGLES IN SHAPING COPING STRATEGIES AMONG HEALTHCARE ASSISTANTS IN HOSPITAL KUALA LUMPUR

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ABSTRACT

INTRODUCTION:
Life struggles, encompassing personal, financial, and social challenges, require significant psychological adjustment. In Malaysia's post-COVID-19 landscape, depression rates have doubled (NHMS 2023). Despite their frontline role, Healthcare Assistants (HCAs) at Hospital Kuala Lumpur (HKL) remain an under-researched demographic regarding their coping mechanisms.

OBJECTIVE(S): This proposed study aims to investigate the impact of life struggles on coping strategies among HCAs at HKL, specifically focusing on religious coping.

MATERIALS & METHODS:
A quantitative cross-sectional design will be employed using purposive sampling (n=367) from a population of 1,217 HCAs. Data will be collected via online versions of the Malay Brief COPE and the Religious Coping Orientation to Problems Experienced (R-COPE). Descriptive statistics, Pearson correlation, and simple linear regression will be used to analyze the data.

RESULTS: The study expects to identify prevalent stressors and determine the distribution of adaptive versus maladaptive coping strategies. Findings from this proposal will provide empirical evidence on the relationship between life struggles and religious coping, informing the development of targeted psychological support modules for the HKL Psychology Counselling Unit.

CONCLUSION: Understanding coping responses among HCAs is essential for workplace resilience. This study will offer insights for structured mental health interventions and religious-integrated support systems to enhance staff well-being in healthcare settings.

KEYWORDS: *Healthcare Assistants, Life Struggles, Religious Coping, Psychological Distress Hospital Kuala Lumpur*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP024) WHAT FRUITS AND VEGETABLES DO ADOLESCENTS PREFER? INSIGHTS FROM STICKY NOTE–BASED FOCUS GROUP DISCUSSIONS

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ABSTRACT

INTRODUCTION: Adolescents consistently fall short of the recommended intake of fruits and vegetables despite ongoing nutrition campaigns. In Malaysia, existing evidence predominantly quantifies consumption patterns but provides limited insight into how adolescents interpret their preferences and the behavioural determinants shaping these choices.

OBJECTIVE: This study explored adolescents' preferred fruits and vegetables and identified personal, social, and environmental influences affecting their consumption.

METHODS: We conducted 13 focus group discussions involving 90 adolescents aged 13–16 years from eight secondary schools in Selangor, Malaysia. We selected schools using stratified random sampling and classes through random selection. We recruited participants using purposive sampling guided by gender and age matrices. Before each session, participants independently recorded their preferences and influencing factors on sticky notes to minimise peer conformity. We analysed the data using thematic analysis in ATLAS.ti version 25, integrating deductive and inductive coding with constructs from Social Cognitive Theory (SCT) and the Social Ecological Model (SEM).

RESULTS: Participants preferred imported, tropical, and seasonal fruits, while 17 reported consuming all fruit types. They grouped vegetables into leafy, root/tuber, and cruciferous categories. Influencing factors aligned with SCT and SEM constructs. Parental encouragement (observational learning and social reinforcement), while perceived health benefits (outcome expectations). Sensory appeal influenced preferences as an affective determinant. Self-image shaped motivation through self-evaluation and identity, whereas home availability functioned as an environmental determinant.

CONCLUSION: Adolescents' dietary behaviour reflects interactions across personal, behavioural, and environmental domains. Theory-driven interventions should address parental influence, sensory experiences, and self-perception to promote sustainable dietary change.

KEYWORDS: *Adolescents, Fruit And Vegetable Intake, Qualitative Study*

KEMENTERIAN KESIHATAN MALAYSIA
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(EP025) A MULTILEVEL CONCEPTUAL FRAMEWORK INTEGRATING eHEALTH LITERACY AND EDUTAINMENT STRATEGIES

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INTRODUCTION: Health literacy (HL) has evolved from a clinical communication concern into a multidimensional determinant of health equity, digital inclusion, and health system sustainability. As individuals increasingly rely on digital platforms for health information, the competencies required to access, evaluate, and apply health information extend beyond traditional literacy skills. Despite widespread access to information, substantial disparities in health and eHealth Literacy persist, particularly among youth and vulnerable populations.

OBJECTIVE: This conceptual paper synthesizes contemporary HL and eHealth literacy frameworks, examines structural and digital-era challenges, and proposes entertainment-education (edutainment) and healthcare gamification as innovative, scalable strategies to strengthen health literacy in digitally mediated environments.

METHODS: A narrative synthesis integrated established HL frameworks, eHealth literacy models, scholarship on misinformation and AI-driven health ecosystems, and evidence from narrative-based and gamified behavioural interventions. Conceptual domains were organized into multilevel determinants, digital competency integration, and strategic intervention pathways.

RESULTS: HL is a dynamic, multilevel construct encompassing functional, interactive, and critical competencies, expanded by digital, media, scientific, and information literacy domains. Structural barriers, including medical complexity, language inequities, digital exclusion, and algorithm-driven misinformation, limit effective engagement with health systems. Edutainment and gamification, grounded in narrative persuasion, behavioural economics, and motivational design, enhance engagement, experiential learning, and self-efficacy through interactive storytelling, feedback systems, and reward-based progression.

CONCLUSION: HL is a foundational digital-era infrastructure requiring coordinated action across education, healthcare, and digital governance sectors. Integrating narrative and gamified strategies with eHealth literacy interventions may strengthen population resilience, reduce inequities, and support sustainable health systems.

KEYWORDS: *Artificial Intelligence, Edutainment, Gamification, Health Literacy*

PERPUSTAKAAN KEBANGSAAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP026) LIFESTYLE DRIVERS OF ABDOMINAL OBESITY IN MALAYSIA: FINDINGS FROM THE NHMS 2024

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ABSTRACT

INTRODUCTION: Abdominal obesity is the main sign of metabolic syndrome, a major health issue in Malaysia. Moving toward retirement or balancing family and work roles can disrupt healthy habits. Updated NHMS 2024 findings are vital to identify high-risk groups and the behavioural patterns leading to metabolic health issues.

OBJECTIVE(S): This study aimed to determine the prevalence of abdominal obesity among Malaysian adults and identify sociodemographic and health factors that act as markers for behavioural risk.

MATERIALS & METHODS: This nationwide study used two-stage stratified random sampling. Abdominal obesity followed WHO Asian-specific waist circumference ≥ 90 cm for men and ≥ 80 cm for women. Complex sample logistic regression identified associated factors, reported as adjusted odds ratios (aOR) and 95% confidence intervals (CI).

RESULTS: The prevalence of abdominal obesity was 52.1% (95% CI: 47.86, 56.28). Females had a higher prevalence than males (58.9% vs 46.1%). The 50-59 pre-pension age group showed the highest prevalence at 67.5% compared to younger age groups, 40.2%. Significant independent predictors included age 50–59 (aOR: 2.11, 95% CI: 1.10–4.06), hypertension (aOR: 2.10, 95% CI: 1.20–3.68), hyperlipidemia (aOR: 1.94, 95% CI: 1.24-3.03) and female gender (aOR: 1.63, 95% CI: 1.08–2.46). These findings show that, female gender and pre-pension age are major risk drivers alongside hypertension and hyperlipidemia.

CONCLUSION: With over half of Malaysian adults affected, women and pre-pensioners (50-59 years) are at highest risk. Interventions should shift to targeted lifestyle coaching, helping these groups improve lifestyle behaviours and metabolic health during this transition.

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INSTITUT KESIHATAN AWAM

KEYWORDS: *Abdominal Obesity, Lifestyle Drivers, Malaysia, Metabolic Syndrome, NHMS 2024*

(EP027) SILENT STRUGGLES, INVISIBLE BARRIERS: BEHAVIOURAL INSIGHTS IN MEDICATION MANAGEMENT FOR DEAF AND BLIND POPULATIONS

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ABSTRACT

INTRODUCTION: Deaf and Blind populations are frequently facing “invisible barriers” that lead to suboptimal care and dependent medication management. Behaviourally informed interventions are essential to reduce reliance on assistance and improve patient safety.

OBJECTIVE(S): ‘Santuni OKU’ programme aims to enhance medication safety and autonomy for the Deaf and Blind by improving home-based medication management, treatment adherence, drug information accessibility, and bridging provider-patient communication gaps through evidence-based behavioural support.

MATERIALS & METHODS: The programme was developed using the D.D.D.I.E. (Define, Diagnose, Design, Implement, Evaluate) framework. To bridge communication gaps, nationwide sign language training for pharmacists and the Drug Information for Deaf Community (DIDCOM) platform were implemented. To address physical barriers, Braille-integrated labels and unit-dose packaging for liquid medications were introduced. An upgraded medicine label, piloted at six facilities, incorporates QR codes linking to accessible digital content. A social media education campaign featuring accessible video content complements these interventions.

RESULTS: By December 2025, 938 pharmacists have been trained in sign language. Evaluation of the DIDCOM platform showed a 96% "Very Satisfactory" rating. Braille-integrated labels are active in 250 facilities, while unit-dose dispensing is implemented in 240 facilities. 173 public health education videos featuring sign language and/or subtitles alongside audio were disseminated via social media.

CONCLUSION: By utilising environmental restructuring and multi-sensory nudges, this initiative reduces friction points in medication adherence. The interventions demonstrate how behaviourally informed design facilitates the Quality Use of Medicines and provides a holistic approach for inclusive healthcare delivery.

KEYWORDS: *Behavioural Insights, Disability Inclusion, Medication Adherence, Quality Use of Medicines (QUM), Health Services for PWD.*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP028) PREVALENCE OF NUTRITION INFORMATION PANEL (NIP) UTILISATION AMONG MALAYSIAN ADULTS: NHMS 2024 DESCRIPTIVE STUDY

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ABSTRACT

INTRODUCTION: The wide availability of processed foods in the Malaysian marketplace has created a nutritional environment where unhealthy choices are more prevalent. Despite mandated Nutrition Information Panels (NIP), a significant gap persists between label awareness and actual consumer utilisation.

OBJECTIVE: To determine the national prevalence of NIP utilisation across sociodemographic profiles, nutritional status, and lifestyle characteristics among Malaysian adults.

MATERIALS & METHODS: Data were derived from the National Health and Morbidity Survey (NHMS) 2024, a cross-sectional study utilising a two-stage stratified random sampling design. The study population for this analysis comprised adults aged 18 years and older. Utilisation of NIP was evaluated using a standardised questionnaire, specifically: "Do you read and check the nutrition facts of the food if you are buying or receiving it from others for the first time?" Complex sample analysis was performed using SPSS Version 26.0 to generate weighted prevalence estimates across independent variables.

RESULTS: Among 1,472 respondents, the overall prevalence of NIP utilisation was 31.9% (95% CI: 27.8 - 36.2), representing an estimated 7,852,262 adults in Malaysia. Utilisation was higher among females (37.7%) and Malay ethnicity (36.4%). A stark contrast was found between young adults aged 18-39 years (39.1%) and older adults (19.1%), as well as between tertiary-educated (64.8%) and those with no formal education (5.6%). Additionally, NIP utilisation was more prevalent among individuals with obesity (34.4%) and those who were physically active (34.6%).

CONCLUSIONS: This finding highlights the underutilisation of a mandatory nutritional tool, where profound age and educational disparities reveal critical health communication barriers.

KEYWORDS: *Healthy Food Choice, Nutrition Facts, Nutrition Information Panel, Nutrition Label*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP029) STAFF BEHAVIOURS INFLUENCE ON LEAN AND THEORY OF CONSTRAINTS IN HOSPITAL-WIDE PATIENT FLOW: SYSTEMATIC REVIEW

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ABSTRACT

INTRODUCTION: Hospital-wide patient flow remains a critical challenge in the hospitals globally which leads to overcrowding, prolonged wait times, and bed shortages. Improving patient flow has thus become a priority with Lean and Theory of Constraints (TOC) are widely applied to optimise patient flow. However, variability in implementation success suggests that staff behavioural determinants may play a critical role.

OBJECTIVE(S): To systematically review on how staff behavioural determinants influence the implementation of Lean and TOC initiatives aimed at improving patient flow outcomes in hospital settings, including length of stay, waiting times, and throughput.

MATERIALS & METHODS: A systematic literature review according to PRISMA guidelines was conducted. Six databases and grey literature sources published between 2010 and 2026 were searched to identify English language studies applying Lean or TOC in hospital settings. Two independent reviewers screened and assessed each study with discussions to resolve differences if any. Data were synthesized using a thematic synthesis approach.

RESULTS: Out of 1362 studies identified, 16 studies met the inclusion criteria and were synthesized. Two dominant behavioural determinants emerged. (1) active multi-level leadership engagement, characterised by visible, task-oriented, and relationship-oriented leadership behaviours and (2) interdepartmental collaborative behaviours. However, direct causal attribution to these determinants remain limited due to the predominantly qualitative nature of the included studies.

CONCLUSION: Staff behavioural determinants are central to the successful implementation of Lean and TOC initiative for improving patient flow. Therefore, future improvements efforts should integrate staff behavioural considerations alongside structural and process redesign strategies.

KEYWORDS: *Lean, Theory of Constraints, Staff Behaviours, Patient Flow, Hospital*

PERPUSTAKAAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP030) KNOWLEDGE, ATTITUDES, AND PRACTICES ON SEXUALLY TRANSMITTED DISEASES AMONG SCIENCE AND NON-SCIENCE UNDERGRADUATES AT UNIVERSITI KEBANGSAAN MALAYSIA

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ABSTRACT

INTRODUCTION: Sexually transmitted diseases (STDs) remain a significant public health challenge among young adults, particularly in developing settings. University students represent a high-risk group due to increased independence, sexual experimentation, and inconsistent health-seeking behaviours that predispose them to risky sexual practices and increased susceptibility to STD transmission. This study aimed to assess knowledge, attitudes, and practices (KAP) regarding STDs among undergraduates at Universiti Kebangsaan Malaysia (UKM) and to compare KAP levels between science and non-science students.

MATERIALS & METHODS: A cross-sectional study was conducted among 751 undergraduates from 12 faculties. Data were collected using a self-administered questionnaire adapted from the validated International AIDS Questionnaire – English Version (IAQ-E) and established KAP instruments. Descriptive statistics were used to summarise responses, and non-parametric tests were used to compare groups and evaluate correlations between KAP domains.

RESULTS: Overall, 58.6% demonstrated good knowledge of STDs, 57.5% reported positive attitudes, and 61.0% practised safe behaviours. Science students had significantly higher knowledge scores than non-science students ($U = 5277.5$, $Z = -5.822$, $p < 0.001$). However, no significant differences were observed in attitudes or practices between the two groups. A weak but significant correlation was found between knowledge and attitudes ($\rho = 0.082$, $p < 0.05$), whereas no significant associations were observed between the knowledge-practice and attitude-practice domains.

CONCLUSION: Although overall KAP levels were moderate to high, knowledge did not consistently translate into safer practices. Strengthening comprehensive sexual health education, particularly among non-science students, is essential to bridge the gap between awareness and behaviour and promote responsible health practices.

KEYWORDS: *Attitudes, Knowledge, Practices, Sexually Transmitted Diseases, Undergraduates*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP032) WHAT TYPES OF NUDGES ARE USED IN QUALITY IMPROVEMENT PROJECTS? A REVIEW OF THE GREY LITERATURE

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ABSTRACT

INTRODUCTION: "Nudges" are increasingly applied in Malaysian healthcare quality improvement (QI) projectsby modifying choice architecture to steer the behaviour of healthcare workers (HCWs) and patients towards better outcomes while preserving autonomy. However, the systematic categorisation of these nudges within QI remains underexplored.

OBJECTIVE(S): This study aims to systematically categorise QI project interventions in Malaysian health facilities into nudge-aligned and non-nudge using the Nuffield Intervention Ladder (NIL) framework.

MATERIALS & METHODS: A retrospective grey literature review was conducted on 37 QI projects published in the Ministry of Health's Q Bulletin from 2019 to 2025. Two independent reviewers mapped 513interventions to the eight NIL levels. Interventions involving "default change", "enabling choice" or "providing information" (Levels 5-7) were categorised as nudge-aligned. Conversely, "eliminate choice", "restrict choice", guide choice through disincentives / incentives" or "do nothing" (Levels 1-4 and 8) were non-nudge and analysed descriptively.

RESULTS: Findings showed that 74.7% were nudge-aligned, while 25.3% were non-nudge. Nudge prevalence was highest in health clinics (85.2%). Patient-targeted interventions were predominantly nudge-based (96.0%), compared to those targeting HCWs (65.8%). "Default change" and "enabling choice" were primary nudges in health clinics and hospitals. "Providinginformation" predomintaed in community-based and dental settings. HCW-targeted interventions mainly employed "default change" (50.2%), while patient-targeted interventions utilised "enabling choice" (59.0%). Among non-nudges, "eliminate choice" was the most common intervention (33.9%), followed by "disincentives" (24.6%) and "restrict choice" (23.9%).

CONCLUSION: While Malaysian QI projects predominantly leverage nudges, their guiding framework remains unclear. Systematically integrating nudge principles into QI methodology could enhance the effectiveness and sustainability of future initiatives.

KEYWORDS: *Nudge, Nuffield Intervention Ladder, Quality Improvement*

PERPUSTAKAAN INSTITUT KESIHATAN NEGARA

(EP035) RESTRUCTURING CHOICE ARCHITECTURE: A WHATSAPP-BASED DIGITAL NUDGE TO OPTIMIZE HOSPITAL DESPATCHER TIME MANAGEMENT

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ABSTRACT

INTRODUCTION: Hospital despatch services often struggle with "task-stretching" and prolonged completion times due to inadequate data capture in manual systems. Without formal timestamps, accountability diminishes. Behavioral technology, specifically digital nudging, can restructure choice architecture to improve time management (Cohen, 1988).

OBJECTIVE(S): This study evaluates the impact of a "one-click" WhatsApp digital nudge on reporting compliance and task duration behavior among hospital despatchers.

MATERIALS & METHODS: A pre- and post-intervention study compared operational data from April 2025 (baseline: passive WhatsApp messaging) and October 2025 (intervention: active digital nudge). Unlike the baseline's unstructured broadcasts, the intervention utilized standardized WhatsApp messages containing task details and a "one-click" URL to "Accept Task." This low-friction nudge triggered an automatic timestamp. Analysis focused on the "Send/Pickup" category (N_{total}=1,382), measuring behavioral consistency through the shift in standard deviation (SD) of task durations.

RESULTS: The digital nudge significantly increased behavioral compliance and data visibility. Task reporting rose from N=373 (April) to N=1,009 (October), a 170% increase in accountability. While the mean duration shifted from 35.04 to 40.00 minutes, the SD dropped from 46.21 to 31.16 minutes. This narrowing distribution indicates a reduction in "task-stretching" and the elimination of outliers, successfully nudging staff into a disciplined work rhythm and increasing service predictability.

CONCLUSION: WhatsApp-based digital nudging is an effective intervention to eliminate data gaps and standardize performance. Significant reductions in timing variance demonstrate that digital transparency fosters consistent, accountable staff behavior aligned with organizational efficiency.

KEYWORDS: *Digital Nudge, Behavioral Insight, Hospital Staff Behavior, Time Management, WhatsApp Technology*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP036) DO INDIVIDUALS WITH PRIOR MENTAL HEALTH ILLNESS ENGAGE DIFFERENTLY IN COPING BEHAVIOURS? EVIDENCE FROM MALAYSIA'S 10B INITIATIVE

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ABSTRACT

INTRODUCTION: Mental health disorders represent a growing public health challenge in Malaysia. The National Health and Morbidity Survey (2019; 2023) reported a doubling in depression prevalence among adults aged ≥16 years within four years. Behavioural science increasingly emphasises scalable, low-intensity strategies to strengthen psychological resilience. The *10B initiative* promotes ten brief self-regulatory coping behaviours to support stress management. However, little is known about whether individuals with prior mental health illness engage differently with such behavioural strategies.

OBJECTIVE(S): To examine whether engagement in 10B stress-reduction behaviours differs between adults with and without prior mental health illness.

MATERIALS & METHODS: A cross-sectional online survey was conducted among Malaysian adults aged ≥18 years (n=2,165). Participants self-reported history of mental health illness (yes/no) and engagement in ten coping behaviours. Descriptive statistics and Fisher's Exact Test were used to examine behavioural differences between groups.

RESULTS: Seven of ten behaviours showed significant associations with prior mental health illness ($p<0.01$). These included positive thinking, recreational activities, exercise, massage, resting/listening to music, sharing problems, and gratitude practice. Notably, only resting/listening to music was more frequently reported among individuals with prior mental health illness (91.7% vs 86.1%), suggesting selective behavioural preference rather than uniform coping engagement. No significant differences were observed for religious practice, self-talk, or controlled breathing.

CONCLUSION: Coping behaviour engagement is not uniform across populations but reflects heterogeneity in behavioural adoption linked to prior mental health experience. Tailoring low-intensity behavioural interventions to psychological vulnerability profiles may enhance effectiveness and scalability in mental health promotion.

KEYWORDS: *Behavioural Adoption; Coping Behaviours; Self-Regulation; Psychological Resilience; Mental Health Promotion.*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP037) FROM AWARENESS TO ACTION: INTEGRATING BEHAVIORAL INSIGHTS TO STRENGTHEN COMMUNITY-LED QUALITY USE OF MEDICINES

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ABSTRACT

INTRODUCTION: The Know Your Medicines Ambassador (DKUA) initiative was introduced to enhance existing awareness and education programmes. It integrates Behavioural Insights to further improve public understanding towards quality use of medicines and cultivate a health-literate community.

OBJECTIVE(S): The DKUA initiative aims to enhance consumers' knowledge and skills, enabling informed decision-making, increasing public engagement, and establishing a network of trained peer representatives to empower communities.

MATERIALS & METHODS: The DDDIE (Define, Diagnose, Design, Implement, Evaluate) framework was applied, starting with identifying behavioural bottlenecks such as communication barriers and social norms. Strategies were designed based on the Messenger Effect, positioning DKUA as trusted peer influencers rather than mere information providers. Environmental nudges including Meditips, infographics, and campaign kits were developed and deployed during community outreach activities to facilitate knowledge transfer. Impact was evaluated via surveys and the Integrated Data Quality Use of Medicines (IDQUMC) reporting system.

RESULTS: IDQUMC data reveal that DKUA activities increased from a baseline of 36 in 2012 to 6,650 in 2024 and 7,876 in 2025. The survey in 2024 showed 86.2% of the community demonstrated good knowledge, compared to 56.6% in the 2012 National Survey on the Use of Medicines. 68.8% of the community showed good practice. Overall, 65.4% of the community perceived the DKUA's role positively.

CONCLUSION: Integrating Behavioural Insights into peer-led frameworks successfully mitigates the value-action gap. This scalable model demonstrates that peer education and strategic nudging can shift public behaviour towards the quality use of medicines.

KEYWORDS: *Behavioural Insights, Community-Led Intervention, Know Your Medicines Ambassador (DKUA), Messenger Effect, Quality Use of Medicines (QUM)*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP038) "GAMIFICATION, ACCOUNTABILITY AND DIGITAL NUDGES: A BEHAVIOURAL APPROACH TO IMPROVE ADHERENCE IN A WORKPLACE WEIGHT LOSS PROGRAM"

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ABSTRACT

INTRODUCTION: Obesity prevalence in Malaysia is rising, driven by sedentary lifestyles and occupational stress. While the Ministry of Health (MOH) has introduced various health promotion initiatives, sustaining employee engagement remains difficult. At PKD Pekan, health screenings revealed that nearly 80% of staff were overweight or obese. Despite access to the Wellness Hub, previous programmes faced a 40% dropout rate, highlighting a clear need for improved behavioural engagement strategies.

OBJECTIVE: To increase adherence in the weight loss program among PKD Pekan employees by applying behavioural science principles.

METHOD: Interventions included **gamification** via a participant ranking board, food and activity diaries to **ensure accountability,** and weekly sessions with a trained counsellor for nutritional and psychological support. Furthermore, WhatsApp notifications served as **digital nudges**, providing motivational reminders and coordinating exercise sessions led by professional coaches**.**

RESULT: This implementation yielded significant improvements in adherence, with 80% of participants remaining active. Among these, over 90% achieved measurable weight reduction, indicating strong behavioural change.

CONCLUSION: Integrating behavioural science principles significantly enhances participation in workplace weight loss programs. These scalable, low-cost strategies offer a viable framework to strengthen existing MOH initiatives and support sustainable weight management among healthcare workers.

KEMENTERIAN KESIHATAN MALAYSIA
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KEYWORDS: *Behavioural Science, Workplace Intervention, Weight Management, Gamification, Digital Nudge*

(EP040) EXPLORING BARRIERS AND FACILITATORS TO HEALTHY LIFESTYLE: A QUALITATIVE PERSPECTIVES AMONG MULTIETHNIC MALAYSIANS

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INTRODUCTION: Healthy living reduces the risk of chronic diseases and premature mortality while improving quality of life. Understanding sociocultural barriers and facilitators across ethnic groups is essential for developing effective, context-specific interventions. This study explored these factors among multiethnic Malaysians using a qualitative approach.

METHODOLOGY: Forty-three focus group discussions were conducted, grouping participants by ethnic background (Malay, Chinese, Indian, and Bumiputera of Sabah and Sarawak) and generation. Trained moderators facilitated discussions in participants' preferred languages. Data were analysed thematically using the Socio-Ecological Model.

RESULTS: Five themes were identified across multiple levels. At the individual level, barriers included low motivation, poor self-regulation, knowledge gaps, and negative health beliefs, while facilitators included occupational influence and aspirations for healthy ageing and appearance. Interpersonal barriers involved cultural food practices, household diets, and generational differences, whereas facilitators included family support and role modelling. Organisational and community barriers included workplace pressures and urban constraints, while facilitators included workplace initiatives and access to digital health information. Societal barriers included low awareness of health programmes and financial constraints, while facilitators included subsidised screening and supportive infrastructure.

CONCLUSION: Addressing multilevel sociocultural influences is crucial. Tailored, culturally sensitive interventions across age groups are needed to promote healthy lifestyle adoption and improve population health outcomes.

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KEYWORDS: *Barriers, Facilitators, Health, Lifestyle, Multiethnic, Sociocultural*

(EP041) KNOWLEDGE, ATTITUDES AND PRACTICES REGARDING REPEATEDLY HEATED COOKING OIL AMONG MALAY ADULTS IN URBAN SETTING

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ABSTRACT

INTRODUCTION: Repeated use of cooking oil for deep frying is a common household practice that accelerates lipid oxidation and may generate harmful compounds associated with adverse health outcomes. However, evidence on consumers' knowledge, attitude and practices (KAP) regarding repeatedly heated cooking oil (RHCO) remains limited.

OBJECTIVE: This study aimed to assess the KAP related to RHCO among Malay adults in an urban setting.

MATERIALS & METHODS: A cross-sectional survey was conducted among 323 Malay respondents aged 25 years and above in Bandar Baru Bangi, Selangor. Participants who prepared meals for their families at least three times per week were recruited. Data were collected via an online survey using a validated questionnaire (Cronbach's Alpha = 0.801) covering sociodemographic characteristics and KAP regarding RHCO. Participants scoring >80% were classified as having good knowledge.

RESULTS: Overall, 88.2% of respondents reused cooking oil for deep frying, most commonly two (49.5%) or three times (43.9%) before discarding it. The main reasons were acceptable oil appearance (87.4%), concerns about wastage (55.8%) and cost savings (35.1%). Knowledge regarding RHCO was generally good, with 86.4% recognising its potential health risks. Notably, 95.0% of respondents expressed willingness to modify their cooking practices for health reasons and 85.8% indicated interest in receiving further information about RHCO.

CONCLUSION: Although knowledge of the health risks associated with RHCO is relatively good, the practice of multiple oil reuse remains widespread. Public health interventions should focus on practical strategies to bridge the knowledge-behaviour gap and promote safer cooking practices.

KEMENTERIAN KESIHATAN MALAYSIA
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KEYWORDS: *Cooking oil reuse, Deep frying, Knowledge, attitudes and practices (KAP), Lipid oxidation, Repeated heated cooking oil*

(EP042) PUBLIC AWARENESS AND PERCEPTIONS OF GENETIC COUNSELLING AND DIRECT-TO-CONSUMER GENETIC TESTING (DTC-GT) : A CROSS SECTIONAL SURVEY

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ABSTRACT

INTRODUCTION: Genetic counselling supports individuals in understanding genetic risks and making informed healthcare decisions. However, public awareness remains limited, particularly amid the increasing availability of direct-to-consumer genetic testing (DTC-GT).

OBJECTIVES: This study evaluated public awareness, attitudes, and perceived barriers related to genetic counselling and DTC-GT in a public health carnival.

MATERIALS & METHODS: A cross-sectional survey was conducted using a structured questionnaire distributed during a two-day public health carnival in Penang. The questionnaire collected demographic data and assessed awareness of genetic counselling services, understanding of genetic counsellors' roles, and awareness and perceptions of DTC-GT.

RESULTS: A total of 308 respondents participated, predominantly aged 35–54 years, female, and with secondary or higher education. Ethnic distribution included Chinese (47.5%), Malay (42%), and Indian/others. Awareness of genetic counselling was low, with 69% unfamiliar with the service. Although many recognized its role in genetic risk assessment and testing, fewer identified its psychosocial support function or its relevance to conditions such as recurrent miscarriages. Awareness of DTC-GT was also limited (70% unaware). Nevertheless, most believed DTC-GT could predict disease risk and identify carrier status. About 53% were willing to undergo testing if affordable, and 56% would verify results with healthcare providers. Only half trusted DTC companies to safeguard genomic data. Notably, 77% were unsure how to access genetic counselling. Key barriers included lack of awareness, perceived high cost, limited availability, and insurance concerns.

CONCLUSION: Public awareness of genetic counselling and DTC-GT remains inadequate. Educational initiatives and policy strategies are needed to enhance access and support informed genomic healthcare decisions.

KEYWORDS: *Genetic Counselling; Genomic Services; Direct-To-Consumer Genetic Testing; Public Awareness*

KEMENTERIAN KESIHATAN MALAYSIA
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(EP043) BRIDGING THE GENOMIC LITERACY GAP : A PROPOSED BEHAVIOURALLY-INFORMED INTERVENTION TO IMPROVE ACCESS TO GENETIC COUNSELLING IN MALAYSIA

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ABSTRACT

INTRODUCTION: Public awareness of genetic counselling and direct-to-consumer genetic testing (DTC-GT) in Malaysia remains limited, with notable gaps in knowledge, uncertainty regarding access pathways, and only moderate trust in genomic data governance. A community-based survey in Penang revealed low familiarity with genetic counselling (69%) and DTC-GT (70%), poor understanding of counsellors' psychosocial roles, and perceived barriers such as cost, limited service availability, and insurance concerns. These findings suggest that behavioural factors, rather than purely structural constraints, play a key role in limiting engagement with genomic healthcare.

OBJECTIVES: To design and evaluate a behavioural science–informed intervention aimed at improving public awareness, trust, and help-seeking behaviour related to genetic counselling and DTC-GT in Malaysia.

MATERIALS AND METHODS: The intervention is grounded in the COM-B model (Capability, Opportunity, Motivation–Behaviour), the Health Belief Model, and nudge theory. It targets three determinants: (1) psychological capability through simplified, narrative-based genomic education; (2) opportunity via clear, visualised referral pathways and QR-linked service directories to reduce access barriers; and (3) motivation through social norm messaging, trust-building information on data governance, and commitment prompts. Both gain- and loss-framed messaging are incorporated to enhance perceived relevance and risk appraisal.

RESULTS: The intervention is expected to improve awareness, increase intention to seek genetic counselling, strengthen trust in genomic services, and promote self-reported help-seeking behaviour.

CONCLUSION: A theory-driven behavioural intervention may effectively address key barriers to genomic healthcare engagement in Malaysia, supporting more informed and proactive public participation in genetic services.

KEYWORDS: *Genetic counselling; Behavioural intervention; Genomic literacy; Direct-to-consumer genetic testing; Public health.*

KEMENTERIAN KESIHATAN MALAYSIA
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(EP044) QUANTIFYING POTASSIUM DISPLACEMENT: BEHAVIOURAL INSIGHTS FROM 24-HOUR URINARY BIOMARKERS FOR TARGETED DIGITAL NUDGING

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ABSTRACT

INTRODUCTION: Despite established cardiovascular benefits, potassium intake in Malaysia remains critically low. This deficiency is driven by the "Potassium Displacement Effect," where a high-sodium food environment creates a dietary default that habitually replaces nutrient-dense options with sodium-rich alternatives. To design effective interventions, objective biomarkers are required to quantify the scale of this behavioral consequence.

OBJECTIVE(S): To quantify the behavioral failure of potassium displacement by evaluating the biological relationship between excessive sodium intake and deficient potassium levels using 24-hour urinary biomarkers from a national survey.

MATERIALS & METHODS: Data from the MyCOSS 2.0 study among Malaysian adults (n=886) were analyzed using IBM SPSS Statistics Version 31.0.0.0 with the Complex Samples module (CSPLAN). Sodium and potassium intake were measured via 24-hour urine collection. A Complex Samples General Linear Model (CSGLM) was employed to determine the displacement coefficient (β), acting as a mathematical proxy for the behavioral link between sodium and potassium excretion.

RESULTS: Mean urinary sodium and potassium excretion were 2892.19 mg/day (95%CI: 2758.30-3026.07) and 1141.25 mg/day (95%CI: 1096.50–1186.00). The resulting mean Sodium-to-Potassium (Na:K) ratio was 2.81 (95%CI: 2.64–2.98), nearly triple the WHO recommendation (≤ 1.0). The CSGLM confirmed a highly significant association ($\beta = 0.063$, $R^2 = 0.189$, $p < 0.001$), statistically validating that high-sodium behavioral patterns significantly displace potassium at the population level.

CONCLUSION: The identified biological gap validates the "Potassium Displacement Effect" as a dominant dietary behavior in Malaysia. Mainstreaming behavioural sciences through Digital Nudges—such as AI-driven prompts—offers a targeted strategy to rebalance the national diet by systematically overriding identified dietary defaults.

KEYWORDS: *24-hour Urine, Behavioural Nutrition, Dietary Defaults, Digital Nudges, Potassium Displacement*

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(EP045) WHICH HEALTH BEHAVIOURS ARE HARDER TO ACHIEVE? INSIGHTS FROM TUNAS DOKTOR MUDA PROGRAMME

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ABSTRACT

INTRODUCTION: Tunas Doktor Muda (TDM) Programme is a health promotion initiative implemented in selected preschools and kindergarten across Malaysia to cultivate healthy behaviours among children aged five to six years. The programme evaluates key health behaviours through structured health education activities to monitor children's acquisition of basic health practices. This analysis examines the achievement patterns of selected health behaviours among participating children using programme monitoring data over a three-year period.

MATERIALS & METHODS: Secondary data from programme monitoring records for the years 2023 to 2025 were analysed. Seven health behaviours were assessed, with a target of at least 80% of participating children achieving "Telah Menguasai (TM)" status in at least five out of the seven behaviours. A descriptive analysis was conducted to identify trends and variations in behaviour achievement across the three-year period.

RESULTS: Several behaviours consistently demonstrated high levels of achievement across all three years. Personal hygiene practices, including handwashing (90%), tooth brushing (86%) and proper waste disposal (94%) showed strong and sustained performance. However, certain behaviours recorded comparatively lower levels of achievement and did not meet the target of 80% throughout the observed period. These included consuming a variety of foods, particularly vegetables (73%), and the ability to distinguish between medicine and foods (51%).

CONCLUSION: The findings indicate varying level of achievement across different health behaviours. Identifying behaviours with lower achievement provides useful insights for programme enhancement and the development of more targeted health education strategies. Strengthening these areas may further support the consistent adaption of healthy practices among target group.

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KEYWORDS: *HePiLI, Tunas Doktor Muda, Health Behaviours*

(EP046) EVALUATION OF COMMUNICATION SKILLS STATUS AMONG NURSES IN TAWAU HOSPITAL

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ABSTRACT

INTRODUCTION: Communication is fundamental to the nurse-patient relationship and significantly influences patient outcomes and safety. Evaluating communication skills among nursing staff is vital for identifying barriers to high-quality care.

OBJECTIVE(S): This study is to evaluate the communication skills status of nurses in Tawau Hospital and analyse the associations between demographic characteristics and communication skills.

MATERIALS & METHODS: A quantitative cross-sectional survey was conducted among 233 Registered Nurses in Tawau Hospital. Data were collected via a validated self-administered online questionnaire (Cronbach's alpha 0.75–0.85). Statistical analyses included independent samples t-tests and one-way ANOVA.

RESULTS: Results showed that 92.7% of nurses demonstrated a high level of communication skills, while 7.3% exhibited a moderate level; none were classified as low. Statistical analysis revealed that gender ($p = 0.800$), age ($p = 0.088$), and total working experience ($p = 0.304$) were not significantly associated with communication scores. However, nurses with Post Basic training achieved significantly higher communication scores than those without ($p = 0.014$).

CONCLUSION: Communication skills among nurses in Tawau Hospital is high. While demographic factors such as age and experience do not significantly influence skill levels, Post Basic training is a key determinant of superior communication. These findings suggest that formalized specialized education is more effective than clinical experience in enhancing the communication skills that essential for patient-centered care.

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KEYWORDS: *Communication skills, Nurses, Hospital Tawau*

(EP047) EFFECTIVENESS STUDY OF THE INTENSIVE INTERVENTION PROGRAM FOR AVERAGE PERFORMANCE OFFICERS AT THE JABATAN KESIHATAN WILAYAH PERSEKUTUAN KUALA LUMPUR & PUTRAJAYA

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ABSTRACT

INTRODUCTION: This study was conducted to evaluate the effectiveness of the Intensive Intervention Program (IIAP) in addressing the issue of officers with moderate performance at the Federal Territory of Kuala Lumpur & Putrajaya Health Department. The program is designed as an initiative to enhance the work quality and personal conduct of the officers involved.

OBJECTIVE(S): The objective of this study is to evaluate the effectiveness of the intervention program by comparing officers' performance scores before and after the intervention, as well as assessing targeted behaviors post-intervention.

MATERIALS & METHODS: This study utilizes a pre- and post-intervention methodology involving 24 officers under evaluation (PYD) and 9 performance evaluators. The intervention program was conducted in May 2024 at the National Mosque, Kuala Lumpur. The session for the evaluated officers took place from May 7 to 8, 2024, while the session for the primary evaluators was held from May 28 to 29, 2024. After three months, evaluators conducted assessments using a post-intervention instrument via Google Forms to monitor progress in targeted behaviors. Data collection to evaluate the program's effectiveness was carried out between February and May 2025.

RESULTS: The findings indicate a significant increase in the mean performance score, rising from 74.80% to 84.11%. The percentage of appraisees (PYD) achieving high scores (80.00%–99.99%) surged from 0% to 91.7%. In terms of behaviour, 100% of the appraisees demonstrated positive changes in personality acceptance and motivation, while over 90% showed positive improvements in interpersonal relationships and attitude management.

CONCLUSION: The research findings demonstrate that the intensive intervention program for moderate-performing officers is an effective intervention for enhancing performance, especially when complemented by robust support from the management.

KEYWORDS: *Intensive Intervention Program, Employee Performance, Behavioral Change, Health Department, Effectiveness Study*

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(EP048) BULAN MALAYSIA SIHAT SEJAHTERA (BMSS)@HEPILI: AN INSTRUMENT TO ENHANCE HEALTH LITERACY

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ABSTRACT

INTRODUCTION: BMSS@HePiLI serves as a strategic tool to translate the Agenda Nasional Malaysia Sihat (ANMS) into the national education system. The programme focuses on improving health literacy through partnerships and face-to-face engagement in schools and higher education institutions, ranging from pre-schools to universities.

OBJECTIVE(S): This study aimed to assess participants' knowledge of healthy lifestyles, measure satisfaction, and evaluate the programme's impact on lifestyle behaviours.

METHODOLOGY: A quantitative cross-sectional design was employed using the health knowledge assessment tool (THM). The programme emphasises in-person delivery to enhance interpersonal interaction and communication effectiveness. Students were assessed across six key domains: physical activity, healthy and safe eating, mental well-being, high-risk behaviours, personal hygiene, and safe environments.

RESULTS: Data from 38,210 respondents across the country indicated a high level of health literacy, with over 85% demonstrating strong knowledge. "Be Active, Stay Healthy" messages recorded the highest recognition (98.1%), followed by "Avoid Smoking and Vaping" (96.7%) and "Eat Healthy and Safe" (96.6%). More than 97% of participants reported that the programme increased awareness and encouraged them to adopt and promote healthier lifestyles.

CONCLUSION: BMSS@HePiLI has contributed to the integration of health promotion within schools. While awareness levels are high, the relatively lower score in personal hygiene knowledge (85.7%) indicates a need for more targeted interventions. The integration of behavioural data into annual school planning is recommended to support sustained lifestyle changes. The Ministry of Health remains committed to leading HePiLI and fostering health-literate individuals to support the nation's long-term well-being.

KEYWORDS: *HEPILI, BMSS@HEPILI, Health Literacy, Healthy Lifestyle, Educational Institutions*

PERPUSTAKAAN KESIHATAN NEGARA MALAYSIA
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(EP049) THE MAGICAL OF RESILIENCE THERAPY INTERVENTION (RTI)

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ABSTRACT

INTRODUCTION: The increasing prevalence of adolescents engaging in risky behaviors indicates the need to enhance their resilience levels through a pre-post Resilience Therapy Intervention (RTI). Resilience Therapy Intervention (RTI) are structured, strength-based approaches designed to help individuals adapt to navigate and overcome adversity, trauma, or chronic stress. RTI is adapted from the Magic Box Model introduced by Angie Hart and Derek Blincow in 2007. The model comprises five main domains: Basics, Belonging, Learning, Coping Skills, and Core Self.

OBJECTIVE(S): The objectives were to identify the level of adolescent resilience using the MyRAT-25 instrument and to enhance adolescents' resilience skills through targeted interventions.

METHODOLOGY: This study was conducted among 2,476 Form 1 students from 39 schools nationwide, selected through convenience sampling. The students underwent a pre-post intervention using the Malaysia Resilience Assessment Tools 25 (MyRAT-25) form. They participated in 12 weeks of resilience intervention sessions based on 10 activities across the five RTI domains, implemented through tailored-based, focused, or routine approaches depending on the scores obtained from the MyRAT-25 screening.

RESULTS: Data obtained from 2,405 students who underwent post-screening showed that 29.3% of students successfully improved their level of resilience after participating in the 12-week intervention. Of this total, 26.4% of students increased their resilience by one resilience level, moving from moderate before the intervention to high after the intervention, and 2.1% of students progressed from low to moderate resilience. Meanwhile, 0.8% of students improved by two resilience levels, advancing from low to high following the post-intervention screening.

CONCLUSION: The findings demonstrate that the RTI approach, adapted from the Magic Box Model, is effective in enhancing students' resilience levels. These results underscore the potential of the intervention in fostering resilient future generations and reducing engagement in risk-related behaviors.

KEYWORDS: *Resilience, Resilience Therapy Intervention, Magic Box, Myrat-25, Pre-Post Intervention*

INSTITUT KESIHATAN NEGARA

(EP050) NUDGE TOWARDS HEALTH: APPLICATION OF COM-B MODEL IN ENHANCING COMMUNITY ENGAGEMENT THROUGH THE WELLNESS ON WHEELS PROGRAMME

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ABSTRACT

Community engagement is essential for the success of health promotion programmes, yet attracting participation and ensuring effective understanding of health messages remain key challenges. Wellness on Wheels (WoW) is an outreach initiative supporting the Agenda Nasional Malaysia Sihat, delivering mobile health services directly to communities, including body composition screening, healthy lifestyle consultation and interactive health education activities.

This study explores the application of behavioural science through the integration of nudge strategies and the COM-B Model (Capability, Opportunity, Motivation – Behaviour) to enhance community participation and evaluate health message exposure. Nudge elements such as simplified messaging, engaging visual environments, and interactive social engagement were embedded into WoW programme.

A programme evaluation approach was employed, using the Take Home Message instrument to assess three domains: understanding of health messages, perceived skills in practising healthy behaviours, and motivation for behaviour change. Data were analysed descriptively.

In 2025, a total of 63,383 visitors participated in the assessment. Findings indicate high levels of impact, with 97% of participants reporting increased exposure to healthy lifestyle practices, 97.2% gaining relevant skills, and 97.6% demonstrating motivation to adopt healthier behaviours. The majority of participants showed good understanding, increased awareness, and confidence to practise healthy lifestyles.

The integration of nudge strategies with the COM-B Model demonstrates strong potential as a behavioural science-based approach to enhance community engagement and support behaviour change. The Take Home Message instrument also serves as a practical rapid evaluation tool for health promotion programmes.

KEYWORDS: *Behavioural Science, Com-B, Nudge, Health Promotion, Behaviour Change*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP051) BUILDING MOTIVATIONAL INTERVIEWING COMPETENCY THROUGH ONLINE TRAINING: A PILOT STUDY AMONG TUBERCULOSIS (TB) CARE PROVIDERS

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ABSTRACT

INTRODUCTION: Patient-centred counselling is critical for treatment adherence in chronic disease management including tuberculosis (TB). Motivational interviewing (MI) supports behaviour change but few healthcare providers (HCPs) have received training. We evaluated self-reported MI competency and acceptability of an online training module among HCPs providing TB care in Hospital Sungai Buloh.

METHODS: The REDCap-hosted MI training module comprises a pre-course evaluation, introduction, four modules on MI principles, processes, skills and clinical application, and pre- and post-tests (5–6 questions each) with varied item order to minimise recall bias. An exit survey assessed perceived importance of MI, confidence, MI skills and course acceptability. Descriptive statistics summarised participant characteristics and acceptability; pre–post differences were analysed using paired t-tests and Wilcoxon signed-rank tests with Cohen's *d* and exact binomial confidence intervals.

RESULTS: Thirty-three HCPs participated (mean age 34.5 years, SD 6.2); most were female (81.8%) and pharmacists (81.8% vs 18.2% allied health practitioners). Two-thirds (66.7%) reported no prior MI experience. Among 25 participants with complete pre–post data, total MI competency scores increased significantly from 14.0 (SD 4.1) to 19.7 (SD 2.5) (mean difference (MD) 5.76, 95% CI 4.30–7.22; $p<0.001$; Cohen's $d=1.58$). Significant improvements were observed in perceived confidence (MD 2.0, $p<0.001$), MI skills (MD 2.70, $p<0.001$), and its importance (MD 1.0, $p=0.026$). Improvements did not differ between participants with and without prior MI experience ($p=0.79$). Acceptability was high, with 96% recommending the module.

CONCLUSION: The online MI training module was highly acceptable and improved healthcare providers' motivational interviewing competency, supporting scalable training for patient-centred TB care.

KEYWORDS: *Behaviour Change, Chronic Disease, Digital Learning, Healthcare Training, Motivational Interviewing*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN AWAM

(EP052) PROSIS INTERVENTION PROGRAMME: ENHANCING STUDENT FITNESS AND BMI AT IPG RAJA MELEWAR

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ABSTRACT

Overweight and obesity among students are rising due to sedentary lifestyles, unhealthy dietary habits, and high psychological stress, increasing the risk of non-communicable diseases and affecting wellbeing. Structured intervention programmes within educational institutions remain limited. To address this, the PROSIS (Program Siswa Sihat) intervention programme was introduced at IPG Raja Melewar to improve BMI, physical fitness, and overall wellbeing among students, particularly those with a BMI over 30.

A total of 20 students (8 male, 12 female; aged 20–22) participated in this 17-month programme (January 2024 to May 2025). The multi-component approach, assisted by PROSIS members included monthly body weight monitoring, weekly physical activity sessions (aerobics, Zumba, brisk walking), health education on weight management, and supplementary activities such as campus walking campaigns, fun runs, and social media health promotion. A WhatsApp support group was established to provide ongoing motivation and guidance.

Results showed that 50% of participants reduced their BMI, with 10 students achieving weight loss. Among all participants, the average BMI decreased by 0.92 kg/m² and average weight decreased by 2.43 kg. Among the 10 students who lost weight, the average BMI decreased by 3.4 kg/m² and weight decreased by 7.2 kg. Participants also reported increased engagement in physical activities and improved understanding of healthy lifestyle habits.

The PROSIS intervention programme demonstrates that a well-structured health intervention in educational settings can effectively support students in improving BMI, physical fitness, and overall wellbeing. Active engagement and continuous monitoring are essential for sustainability and long-term success.

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

KEYWORDS: *BMI Intervention, Healthy Lifestyle, Physical Fitness, PROSIS, Weight Management*

(EP053) THE POWER OF TRAINING OF TRAINERS APPROACH FOR PROGRAM SISWA SIHAT (PROSIS)

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ABSTRACT

INTRODUCTION: The training of trainer's approach aims to enhance health literacy among students in higher learning institutions and to equip them with the health skills to cultivate a healthy lifestyle, enabling them to serve as peer mentors on campus through the Program Siswa Sihat (PROSIS).

OBJECTIVE(S): The objective of this study is to measure and evaluate students' level of health knowledge regarding healthy lifestyle specifically on six health scopes namely self-appearance, environmental cleanliness, physical activity, healthy and safe eating habits, mental health and high-risk behavior.

METHODS: This study employed a quantitative pre-post design using a health assessment questionnaire encompassing six health scopes and a purposive sampling method was used. The training was conducted over three consecutive days for students from 27 Institute of Teacher Education Malaysia (IPGM). The students were divided into three groups, rotating through the specific six health scopes, with interactive sessions facilitated using the PROSIS module.

RESULTS: Data were collected from 93 respondents who completed the health knowledge assessment. Overall, the findings demonstrated an improvement in students' health literacy, particularly in environmental cleanliness, which recorded the highest increase of 30.1% (from 46.2% to 76.3%). This was followed by improvements in mental health (73.1% to 84.9%), high-risk behavior (67.7% to 77.4%), physical activity (65.6% to 73.1%), self-appearance for oral health (68.8% to 74.2%) and knowledge of medication (72.0% to 74.2%) as well as food safety (96.8% to 98.9%). However, the healthy eating domain recorded a significant decline, decreasing from 29.0% to 21.5%.

CONCLUSION: The training of trainer's approach has effectively shown its power in enhancing health literacy among students in higher learning institutions to cultivate a healthy lifestyle. Assessing and identifying literacy levels across the six health scopes with the least or no improvement offers critical and valuable insights for optimizing and refining more targeted and effective training in the future. This approach also aligns with the government's aspiration to nurture a healthier younger generation.

KEYWORDS: *Healthy Lifestyle, Hepili, Program Siswa Sihat, Prosis, Training Of Trainers*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP055) TRAUMA-RELATED IN-HOSPITAL MORTALITY (ROAD TRAFFIC CRASH, BURNS, AND DROWNING) PATTERN ANALYSIS AND VICTIM PROFILE (2016–2025)

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ABSTRACT

INTRODUCTION: Road traffic crashes (RTC), burns, and drowning represent critical trauma categories with significant public health implications. Analysing mortality patterns and victim profiles from hospital records enables evidence-based intervention and injury prevention policy development.

OBJECTIVE(S): This study aimed to describe the demographic and temporal distribution of trauma-related deaths and to diagnose associations between victim profile and type and location of death.

MATERIALS & METHODS: retrospective cross-sectional study was conducted on 2,694 hospital mortality records (2016–2025). Trauma cases were extracted (n = 405). Data were analysed using IBM SPSS Statistics via descriptive statistics, frequency analysis, cross-tabulation, and Pearson Chi-Square test ($p < 0.05$).

RESULTS: Trauma deaths constituted 15.0% of total hospital mortality. Mean age was 37.4 years (SD = 18.8), with age 18–39 years) as the predominant group (52.8%). Males represented 82.7% (n = 335). RTC was the leading cause (57.5%), followed by hanging (5.2%). Drowning and burns accounted for 2.5% and 1.7% respectively. The majority died out-of-facility (76.0%). Cross-tabulation revealed significant associations between gender and trauma subtype ($\chi^2 = 38.4$, $p < 0.001$), with males dominating RTC (84.4%) and drowning (90.9%) fatalities. Annual deaths declined during 2020–2022 before rising to 60 cases in 2025.

CONCLUSION: Trauma mortality disproportionately affects young adult males, predominantly through RTC. The high out-of-facility death rate underscores critical gaps in pre-hospital emergency response and highlights the urgent need for targeted road safety campaigns and injury prevention programmes among high-risk populations.

KEYWORDS: *Traumatic Injury Mortality, Road Traffic Crash, Victim Profile, Pre-Hospital Death, Injury Prevention*

PERPUSTAKAAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP056) X-BREAK: REFORMING SEDENTARY LIFESTYLE THROUGH PEER-LED PHYSICAL INTERVENTIONS IN MALAYSIAN LEARNING INSTITUTIONS

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ABSTRACT

INTRODUCTION: The "X-BREAK" Light Exercise Initiative was launched on February 20, 2025, by the Ministry of Health and Ministry of Education Malaysia. The intervention aims to diversify healthy lifestyles and mitigate sedentary behaviour by integrating physical activity within educational frameworks. This study evaluates the implementation and institutional reach of X-BREAK across primary schools, secondary schools, and Higher Learning Institutions (IPT) to determine its efficacy in fostering active lifestyle habits.

METHODOLOGY: Utilising a quantitative analytical approach, the study examined cumulative behavioural and skill-based data from 2025 across five institutional frameworks: PROSIS (IPT), Kelab Doktor Muda (Primary and Secondary), and HePiLI Packages (Primary and Secondary). Data metrics included social media engagement, peer-to-peer knowledge transfer, structured physical activity sessions, educational exhibitions, and multimedia screenings.

RESULTS: Findings demonstrated a substantial national impact, initiated by a virtual launch involving 620 Kelab Doktor Muda schools and approximately 420,000 students. By the end of 2025, the Kelab Doktor Muda (Primary School) segment recorded the highest engagement with 564,257 total engagements, followed by the secondary school division with 124,029. Primary schools facilitated 152,712 peer-led knowledge-sharing interactions and engaged 225,411 students in physical activities. The initiative successfully mobilised 3,530 primary and 900 secondary schools.

CONCLUSION: The X-BREAK initiative provides a robust and scalable framework for institutionalising physical activity within the Malaysian education system. The significant engagement levels, particularly in the primary education sector, suggest that peer-led intervention modalities and diversified delivery media are pivotal for the sustainable cultivation of a health-conscious culture.

KEYWORDS: *X-BREAK, Physical Activity, Healthy Lifestyle, Health Promotion in Learning Institution (HEPILI)*

BERTAMBAH MUTU
KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP057) DEVELOPMENT AND VALIDATION OF A SHORTENED DIABETES BEHAVIOUR DIAGNOSIS INSTRUMENT AMONG TYPE 2 DIABETES PATIENTS: A STUDY PROTOCOL

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ABSTRACT

INTRODUCTION: Effective diabetes management requires sustained engagement in self-care behaviours, including medication adherence, dietary control, and blood glucose monitoring. However, behavioural determinants influencing these practices are often not systematically assessed in clinical settings. Existing instruments are frequently lengthy and impractical for routine use. Therefore, a concise and valid tool is needed to assess behavioural determinants among patients with type 2 diabetes.

OBJECTIVE: To develop and validate a shortened version of the Diabetes Behaviour Diagnosis Instrument (DBDI) for assessing behavioural determinants related to diabetes self-management.

METHODS: A cross-sectional study will be conducted among adults with type 2 diabetes attending primary care clinics. Participants will be recruited through eligibility screening, and informed consent will be obtained prior to enrolment. Data will be collected using a structured questionnaire comprising the Shortened DBDI and sociodemographic information. Data cleaning procedures, including missing data checks and item screening, will be performed prior to analysis. Exploratory factor analysis (EFA) will be used to identify the underlying factor structure, followed by item reduction. Reliability of the instrument will be assessed using Cronbach's alpha to evaluate internal consistency.

EXPECTED RESULTS: The shortened DBDI is expected to demonstrate acceptable construct validity and good internal consistency reliability, with a clear factor structure representing key behavioural domains.

CONCLUSION: The shortened DBDI may serve as a practical and reliable tool for assessing behavioural determinants of diabetes self-management in clinical and community settings.

KEYWORDS: *Type 2 Diabetes; Behavioural Determinants; Instrument Validation; Exploratory Factor Analysis*

BERTAMBAH MUTU
KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP058) "SANTAU GARAM": CULTURAL METAPHOR AS A BEHAVIOURAL NUDGE IN HEALTH COMMUNICATION FOR SALT REDUCTION

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ABSTRACT

Excessive salt intake is a major risk factor for hypertension and cardiovascular diseases, contributing to the increasing burden of non-communicable diseases (NCDs). In Malaysia, findings from the Malaysian Community Salt Study (MyCoSS) indicate that the average daily salt intake among Malaysians is 7.9 grams, exceeding the World Health Organization (WHO) recommendation of less than 5 grams per day.

With the growth of digital communication, the application of Behavioural Insights (BI) has increasingly been used to enhance the effectiveness of health promotion messages. This study explores the application of this approach in the health promotion video "Santau Garam", which uses a local cultural metaphor to illustrate the hidden health risks associated with excessive salt consumption.

A qualitative content analysis was conducted to examine the narrative structure, visual elements, and message delivery strategies based on Behavioural Insights components such as *salience, reframing, simplicity,* and *cultural relevance*, as well as the EAST Framework**.**

As of March 2026, the video published on the Ministry of Health Malaysia's MyHealth TikTok platform has reached 356,500 views with high user engagement. The findings suggest that the use of cultural metaphors and creative storytelling can effectively capture audience attention and reframe public perceptions of excessive salt consumption risks.

KEYWORDS: *Behavioural Insights, Health Communication, Salt Reduction, Health Promotion, Behaviour Change*

KEMENTERIAN KESIHATAN MALAYSIA
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(EP059) ENHANCING PREVENTIVE SCREENING UPTAKE: THE ROLE OF QR CODE DIGITAL NUDGES IN CLINICAL TRIAGE.

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INTRODUCTION: Screening rates for cervical and colorectal cancers often lag behind national targets due to logistical "friction" and lack of timely reminders. Traditional verbal cues during consultations are frequently lost in the clinical workflow. Digital health interventions, such as those leveraging widely used mobile messaging apps like WhatsApp, have shown promise in enhancing screening accessibility and motivating proactive healthcare decisions.

OBJECTIVE: To assess the convenience of a QR-code-based triage tool combined with automated WhatsApp alerts in the uptake of cervical and colorectal cancer screenings among clinical outpatients.

METHODOLOGY: This study utilizes a "digital nudge" strategy by placing QR codes at clinical triage point.This strategy has been in place since August 2025 in KK Kota Sentosa. Intervention: When patients scan the QR code at triage, their eligibility for screening is identified, and they receive an automated WhatsApp alert containing personalized message. Behavioral Mechanism: This approach reduces "hassle factors" by simplifying the screening process and uses "salience" by delivering information through a platform (WhatsApp) that users check frequently. This utilizes "Task Shifting" and "Automation," which reduces the cognitive burden on the Medical Officer during the primary consultation. Measurement of Effectiveness: Patient Uptake: The primary outcome is the uptake rate—the percentage of patients who received the WhatsApp alert and successfully completed their Pap smear or colorectal screening. Provider Satisfaction: A secondary outcome measures Medical Officer (MO) satisfaction through a Likert-scale survey. This assesses the perceived reduction in consultation pressure and the ability to focus on the patient's immediate medical concerns.

RESULT : The QR-code digital nudge system successfully increased preventive care engagement, achieving a 50% uptake rate for cervical screenings and initiating colorectal screening process for 39% of eligible patients. By utilizing WhatsApp alerts to reduce "hassle factors," the intervention reinforced the importance of health screenings regardless of whether they were completed at our facility or an alternative location. This strategy optimized clinical workflows, with 64.3% of Medical Officers expressing satisfaction as the "Automation" and "Task Shifting" of screening advocacy effectively reduced their cognitive burden and consultation pressure. Ultimately, this digital triage approach ensured that critical preventive cues were no longer lost in the clinical workflow, allowing clinicians to focus more effectively on their patients' immediate medical concern.

CONCLUSION:
The "Enhancing Preventive Screening Uptake"confirms that QR-code-based digital nudges is an effective tool for overcoming logistical "friction" in clinical settings. By leveraging the high salience of Whats App, the intervention successfully simplified the screening process and delivered personalized reminders that motivated proactive healthcare decisions. The dual success in increasing patient uptake and improving provider satisfaction highlights the value of "Task Shifting" in modern primary care. We conclude that this digital triage strategy provides a scalable solution to reach national screening targets by ensuring that preventive health remains a priority without adding to the cognitive burden of front-line Medical Officer.

KEYWORDS: *Cancer screening, Digital screening, Cognitive overload*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP060) SUSTAINING SKIM PERUBATAN MADANI: GENERAL PRACTITIONERS' PERSPECTIVES ON PROGRAMME MAINTENANCE IN MALAYSIA

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ABSTRACT

INTRODUCTION: Skim Perubatan MADANI (SPM) is a public–private initiative expanding primary care access for B40 households in Malaysia through private general practitioner (GP) clinics. Sustained GP engagement is crucial, yet provider-level determinants of programme maintenance remain poorly understood.

OBJECTIVE(S): To explore barriers and facilitators affecting the sustainability of SPM from the perspective of GPs.

MATERIALS & METHODS: Sixty-three in-depth interviews were conducted with purposively sampled participating, dormant, and non-participating GPs across six Malaysian states. Interviews explored experiences with implementation, barriers, and behavioural drivers of sustained involvement. Data were analysed using abductive thematic analysis guided by the RE-AIM maintenance domain, with triangulation, peer debriefing, and validation by programme managers and policymakers, ensuring analytical rigor.

RESULTS: Five interrelated themes emerged central to programme continuity: financial sustainability, confidence and trust, service expansion, political commitment, and system collaboration. Funding disruptions and resource constraints were frequently cited challenges, creating uncertainty about revenue generation and limiting capacity for service and coverage expansion. Confidence and trust were undermined by inconsistent communication and abrupt programme changes, affecting future partnerships. Conversely, opportunities for service expansion, particularly in chronic disease management via PeKA B40 initiatives, strongly motivated continued participation. Integration with public health systems and collaborative networks was also perceived as enhancing the sustainability of SPM. Political commitment, though recognized as supporting healthcare equity, was perceived as inconsistent, generating uncertainty about long-term institutional support.

CONCLUSION: Maintaining SPM hinges on addressing the interconnected financial, relational, and systemic factors that drive sustainable public–private healthcare partnerships.

KEYWORDS: *Challenges, General Practitioner, Maintenance, Public-Private Partnership, Sustainability*

(EP061) WHEN CAREGIVING COMES FIRST: A CASE STUDY OF UNMET HEALTH NEEDS OF A RURAL MALAYSIAN INDIAN MOTHER

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ABSTRACT

INTRODUCTION: Unmet health needs disproportionately affect low-income, rural populations in Malaysia, especially women balancing caregiving with their own health and their health-seeking behaviours. This case study aimed to examine how unmet needs are experienced and negotiated by a rural Indian mother who is at risk of diabetes.

MATERIALS & METHODS: A qualitative case study approach was adopted to explore the lived experience of a 33 years old married rural Indian housewife with five children. Data generated through in-depth interviews and informal observations. The analysis focused on identifying barriers to healthcare access, competing priorities and expressions of unmet needs, guided by a reflexive and interpretive framework.

RESULTS: This case reveals a persistent tension between the participant's desire to seek information on diabetes and participate in health campaigns and her caregiving responsibilities. Despite awareness of potential health risks, she consistently prioritized her children's needs due to her husband's unstable income and lack of social support. This suggests a broader pattern in rural Malaysia where socioeconomic and contextual factors particularly a lack of support system, lead low-income individuals especially women in caregiving roles to delay or forgo essential health-seeking behaviors.

CONCLUSION: This case demonstrates how unmet health needs among rural women are shaped by structural and relational constraints. Effective interventions must be community-based, gender sensitive and account for caregiving burdens and socioeconomic realities to make preventive health services responsive to women's lives.

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KEYWORDS: *Unmet Needs, Rural Women, Competing Priorities, Community-based, Gender-Sensitive*

(EP062) HEALTH PROMOTION LITERACY AMONG MALAYSIAN ADULTS: 2019 VS 2023

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INTRODUCTION: Health literacy is a critical determinant of health outcomes, influencing individuals' capacity to access, understand, and apply health information, as well as to engage in health promotion activities. Monitoring trends helps identify gaps, and evaluate the impact of public health policies and interventions.

OBJECTIVE: This study aims to examine health promotion literacy among Malaysian adults by comparing findings between 2019 and 2023.

METHODS: A cross-sectional design was used, using a nationwide survey conducted in conjunction with the National Health Morbidity Survey (NHMS) in 2023 and NHMS in 2019 targeting adults aged ≥18 years. A two-stage stratified random sampling approach ensured representativeness. Health literacy was measured using the self-administered HLS-M-Q18 questionnaire, with an emphasis on the health promotion domain. Descriptive analysis summarized categorical variables using frequencies and percentages, while means and standard deviations were calculated to compare results between 2019 and 2023.

RESULTS: Item 18 demonstrated the largest improvement from 2019 to 2023. The proportion of respondents reporting that it was either "fairly easy" or "very easy" to take part in activities that improve health and well-being in their community increased from 70.8% to 84.7% between 2019 and 2023, with the mean score demonstrating the overall improvement from 3.00 (SD= 0.785) in 2019 to 3.14 (SD= 0.715) in 2023.

CONCLUSION: These findings indicate increased engagement in health promotion activities among Malaysian adults. Ongoing policy support and community-based strategies can further strengthen population empowerment and improve equitable access to health resources.

KEYWORDS: *Health Literacy, Health Promotion, Malaysian Adults, Population Empowerment*

PEMERKASAAN KESIHATAN NEGARA
INSTITUT KESIHATAN NEGARA

(EP063) BEHAVIOURAL INSIGHTS FROM COMMUNITY-DIGITAL INTEGRATION FOR COUNSELLING ACCESS IN SELANGOR

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ABSTRACT

INTRODUCTION: Community mental health service utilisation in Malaysia remains limited due to stigma, low perceived need, and structural barriers to access. Behavioural science highlights social norms engagement in shaping help-seeking behaviour. In response, Selangor state government introduced the SEHAT initiative, a counselling hub embedded within assemblymen service centres. Established in collaboration with PERKAMA counsellors in 2024 and later integrated with the SELANGKAH digital platform in 2025.

OBJECTIVE(S): This study examines how a digitally enabled, community-based counselling model influences professional help-seeking behaviour, service uptake, and user engagement, while generating behavioural insights for policymakers.

MATERIALS & METHODS: A descriptive study design was used. Quantitative data were collected through service utilisation records (2024) and SELANGKAH platform data (2025) using convenience sampling. The Health Belief Model was applied as a behavioural mapping framework to identify barriers and behaviours.

RESULTS: Findings indicate increased engagement through improved accessibility across 9 SEHAT Counsellor Hubs. Familiar community settings reduced stigma and enhanced trust, facilitating initial help-seeking. Integration of the SELANGKAH platform further improved engagement, particularly in appointment scheduling, follow-up, and continuity of care, while reducing administrative burden. In 2024, 332 clients registered with 243 sessions conducted; in 2025, registrations increased to 412 with 313 sessions, suggesting improved user adherence. Engagement among individuals aged 20–39 increased from 187 to 201, while those aged 40–59 rose markedly from 16 to 100, indicating growing digital health utilisation among both youth and time-constrained adults.

CONCLUSION: The SEHAT–SELANGKAH model demonstrates how integrating behavioural insights with community and digital infrastructure can improve mental health access. This hybrid approach addresses both psychological and structural barriers, offering scalable solutions for public mental health systems.

KEYWORDS: *Community Intervention, Digital Application, Early Counselling, Help-Seeking Behaviour, Mental Health*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP064) A MAPPING REVIEW OF BEHAVIOUR CHANGE TECHNIQUES IN DIGITAL DEPRESSION APPLICATION USING COM-B AND EAST FRAMEWORK

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ABSTRACT

INTRODUCTION: Digital mental health interventions (DMHIs) are a rising alternative to bypass stigma in depression management. While their clinical effectiveness is widely studied, the behaviour change techniques (BCTs) that drive these outcomes remain underexplored, particularly in terms of how they are integrated into DMHIs to achieve effective digital design and sustained user engagement. This review aims to map the BCTs used by current DMHIs to the domains of the COM-B (Capability, Opportunity, Motivation-Behaviour) model and the EAST (Easy, Attractive, Social, Timely) framework.

MATERIALS & METHODS: A systematic search in PubMed, Scopus, ScienceDirect, Cochrane, and Web of Science identified 712 articles. Following screening (2022–2026) and excluding COVID-19-specific interventions, 31 randomised controlled trials (RCTs) assessing mobile apps for adult depression (>18 years) were included. Digital features were coded with BCT Taxonomy v1 and aligned with COM-B and EAST frameworks.

RESULTS: Synthesis reveals that most apps target psychological capability (e.g., instruction [BCT 4.1], 81%, n=25) and reflective motivation (e.g., self-monitoring [BCT 2.3], 68%, n=21) in the COM-B domain, with few addressing the Opportunity and Extrinsic Motivation domains. For mapping into the EAST framework, the 'Easy' dimension dominates via simple interfaces, while 'Attractive' gamification or 'Social' opportunities, like Social Reward (BCT 10.4), appear in only 3% (n=1) of apps, highlighting a lack of peer support and reward-based features.

CONCLUSION: Current app designs mainly address capability and motivation BCTs. Future app development may consider integrating opportunity-enhancing and socially driven elements to support sustained behaviour change through a frictionless design.

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

KEYWORDS: *Behaviour Change Techniques, COM-B Model, Depression, Digital Mental Health Intervention, EAST Framework*

(EP065) OPPORTUNITIES TO IMPROVE FRUIT AND VEGETABLE INTAKE AMONG ADOLESCENTS: INSIGHTS FROM A QUALITATIVE STUDY IN KLANG VALLEY

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ABSTRACT

INTRODUCTION: Fruits and vegetables (FV) intake is for supporting adolescent's growth and development. However, consumption remain inadequate globally including in Malaysia and factors influencing intake among adolescents are understudied. Identifying these factors is critical for designing effective healthy eating interventions.

OBJECTIVE(S): This study aimed to explore and identify opportunities to improve fruit and vegetable intake among adolescents.

MATERIALS & METHODS: A qualitative study design was employed using purposive sampling based on a maximum variation matrix. The study population consisted of 20 students (aged 13–16 years) from public secondary schools in Selangor and Kuala Lumpur, who consume inadequate amounts of fruits and vegetables daily. Data were collected through semi-structured in-depth interviews (IDI) between July and September 2025 and analyzed using thematic analysis.

RESULTS: Two primary domains representing opportunities to improve FV intake were identified: environmental and personal factors, with the environmental domain emerging as the dominant influence.

- Environmental Domain: Caregivers play a pivotal role in shaping opportunities for intake through three key mechanisms - convenience, supervision, and elderly influence.
- Personal Domain: Ethnicity and religion emerged as the main personal factor often linked through religious practices or cultural dietary norms. Other factors - self-identity and taste preferences, which shaped adolescents' acceptance of FV.

CONCLUSION: Adolescent FV intake is influenced by the interaction of household dynamics and cultural practices. Interventions should extend beyond individual education to incorporate family-based approaches, empowering caregivers and leveraging culturally relevant practices to sustain healthy eating habits.

KEYWORDS: *Fruits, Vegetables, Facilitators, Adequate Intake, Adolescents*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP066) SURVEY ON SMOKING DURING THE LABUAN - MENUMBOK - LABUAN RORO FERRY SAILING

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ABSTRACT

INTRODUCTION: The ferry service in the Federal Territory of Labuan is one of the main transport routes connecting the island to mainland Sabah. The frequency of 2 to 4 crossings on weekdays connects Labuan - Menumbok - Labuan, and this number can increase threefold during school holidays or festive seasons. This service is the primary choice as it allows passengers to transport vehicles ranging from motorcycles up to industrial lorries. Similar to other modes of transportation, ferries are also listed as no-smoking areas. With a sailing time reaching up to 2 hours, most smokers continue to smoke despite no-smoking signs and notices being displayed.

OBJECTIVE: To ensure no smokers smoke during the ferry sailing or compliance with the no-smoking notice.

METHODOLOGY: A pilot survey was conducted to implement the nudge and to promote social norms. A narrative was circulated to local WhatsApp groups after several enforcement series were carried out during the ferry sailing, spreading the information like "several smokers have been compounded, so all passengers please be careful and do not smoke on the ferry" to create a new social norm. In addition, new motivational nudge signboards were installed inside the ferry with example statements such as "effects of 2 hours no-smoking: heart rate decreases to normal level," along with several other signboards, including the telephone line for the Labuan Health Clinic Smoking Cessation Clinic.

RESULTS AND DISCUSSION: The results from this survey can be seen through several subsequent enforcement series, with the rate of the total number of compounds issued decreasing, and are further supported by observations recorded during the survey period.

CONCLUSION: Although smoking remains an ongoing issue throughout the sailing period, the interventions implemented have shown positive results, and continuous monitoring is still being carried out.

KEYWORDS: *Ferry, Smoking, Change.*

BERTAMBAH MUTU
SEMINAR KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP067) THE ILLUSION OF WELLNESS: UNMASKING SELF-REPORTING BIAS AND THE KNOWLEDGE-ACTION GAP IN COMMUNITY HEALTH

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ABSTRACT

INTRODUCTION: Health campaigns successfully increase knowledge, but translating this into actual behaviour change remains challenging. This study explores a critical primary care challenge: patients perceive themselves as adopting healthy lifestyles, yet clinical data proves otherwise. The objective is to evaluate *Social Desirability Bias* by comparing self-reported dietary perceptions against objective clinical screenings and physical fitness tests.

MATERIALS & METHODS: A retrospective analysis involved 849 new clients registered at Wellness Hub Batu Pahat in 2024. Self-reported lifestyle surveys regarding daily habits were cross-mapped with clinical outcomes (BMI, Blood Pressure, Blood Sugar) and physical fitness assessments.

RESULTS: A significant discrepancy emerged revealing an "Illusion of Wellness". While 93.5% of clients claimed to reduce sugar, 89.9% reduced salt, and 77.4% practiced the "Quarter-Quarter-Half" healthy plate concept, the clinical reality starkly differed. Screenings revealed 68.4% were overweight or obese, 48.8% had abnormal blood sugar (≥5.6 mmol), and 61% recorded at-risk blood pressure (>140/90). This knowledge-action gap is compounded by widespread sedentary behaviour; notably, 100% of the tested clients (n=665) scored 'Weak' or 'Very Weak' in muscle strength.

CONCLUSION: Awareness alone fosters a false sense of wellness where theoretical knowledge fails to become practical action. Public health practitioners must shift from relying heavily on self-reporting to implementing structured behavioural interventions—such as choice architecture and nudges—to drive genuine lifestyle modifications outside clinical settings.

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KEYWORDS: *Self-Reporting Bias*, *Knowledge-Action Gap*, *Behavioural Interventions*, *Community Health*, *Sedentary Behaviour*

(EP068) CHILDREN'S EXPOSURE TO UNHEALTHY FOOD MARKETING AND PARENTS' ATTITUDES TOWARDS SUCH EXPOSURE

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ABSTRACT

INTRODUCTION: Exposure to unhealthy food marketing contributes to poor dietary habits, leading to childhood obesity. This study determines the prevalence of such exposure, its sociodemographic correlates among Malaysian children aged 5–9 years, and examines parental attitudes and concerns.

OBJECTIVE(S): To assess the prevalence and factors associated with unhealthy food marketing exposure among Malaysian children and evaluate parental concerns and support for regulations.

MATERIALS & METHODS: A cross-sectional survey was conducted involving 709 children. Data included sociodemographic characteristics, BMI-for-age, and exposure to unhealthy food marketing . Parents of exposed children (n=589) reported children's food requests, concerns regarding marketing impacts, and opinions on government regulations. Multiple logistic regression identified factors associated with children exposure to unhealthy food marketing.

RESULTS: Overall, 83.2% of children were exposed to unhealthy food marketing, with higher proportions among girls (86.7%) and rural residents (85.9%). Children of parents with higher educational attainment had significantly greater odds of exposure. Among parents of exposed children, 16.7% reported frequent requests for unhealthy foods, while 78.4% expressed concern over negative health impacts. Furthermore, there was overwhelming support for government regulations (95.6%) and television marketing restrictions (93.7%).

CONCLUSION: Unhealthy food marketing exposure is highly prevalent among Malaysian children, particularly in households with higher parental education. This may reflect a grater acess to digital devices among those children, which increases exposure to unhealthy food marketing .These findings underscore an urgent need for comprehensive regulations and targeted interventions to reduce such exposure and safeguard children's dietary quality.

KEYWORDS: *Children's Exposure, Parents' Attitudes, Unhealthy Food Marketing*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP069) DIGITAL HEALTH ADOPTION AS BEHAVIOR CHANGE: INSIGHTS FROM MPIS IMPLEMENTATION

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ABSTRACT

INTRODUCTION: Digital transformation in healthcare is often approached as a technology deployment exercise. However, successful implementation depends on how users and institutions respond to change. The implementation of the Medical Programme Information System (MPIS) across Ministry of Health facilities in Malaysia provided a practical opportunity to observe digital adoption as a staged behavior change process.

OBJECTIVE(S): This study aimed to describe MPIS implementation using a behavior change perspective and to interpret facility adoption patterns through the Diffusion of Innovation concept.

MATERIALS & METHODS: A descriptive implementation review was conducted using MPIS adoption data across targeted healthcare facilities. Adoption progress was interpreted conceptually against adopter categories in the Diffusion of Innovation curve, namely innovators, early adopters, early majority, late majority, and laggards. The analysis focused on observable phases of early uptake, accelerated adoption, and slower late-stage uptake during implementation.

RESULTS: MPIS adoption did not occur uniformly across facilities. Early uptake was limited to a smaller group of facilities, followed by wider expansion as confidence, familiarity, and operational acceptance increased. The pattern suggested transition from early adopters to majority adopters once implementation momentum was established. Later slowing of uptake indicated persistent barriers among remaining facilities, likely related to workflow inertia, differing readiness levels, and resistance to change.

CONCLUSION: MPIS implementation demonstrates that digital health adoption is not purely a technical rollout, but a behavior change journey. Understanding adopter groups may support more targeted implementation strategies, including champions, leadership support, and tailored engagement to improve sustainable uptake.

KEYWORDS: *Behavior Change, Digital Health, Diffusion Of Innovation, Health System Transformation, MPIS*

KEMENTERIAN KESIHATAN MALAYSIA
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(EP070) COMMUNITY EMPOWERMENT THROUGH RISK ASSESSMENT FOR COMBI UNITED (RACUN): BATU PAHAT PILOT PROJECT

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ABSTRACT

INTRODUCTION: Dengue fever remains a major public health concern despite widespread awareness of its transmission via *Aedes* mosquitoes. Persistent increases in cases are largely driven by behavioural factors, including low risk perception, poor environmental hygiene, and inconsistent preventive practices. Communication for Behavioural Impact (COMBI) provides a structured approach to promote behaviour change through community engagement. This study assessed the effectiveness of the Risk Assessment for COMBI United (RACUN) programme in enhancing community empowerment, improving preventive behaviours, and reducing dengue risk through the integration of behavioural insights.

MATERIALS & METHODS: Since 2020, RACUN has engaged COMBI groups across seven residential neighbourhoods in Batu Pahat, Johor. The intervention lasted three months, featuring an eight-week risk assessment phase using standardised tools to identify indoor and outdoor mosquito breeding sites. Behavioural strategies included risk perception enhancement, traffic-light visual cues, peer accountability, and routine habit formation via weekly inspections.

RESULTS: Although sporadic dengue cases still occurred, RACUN significantly enhanced community empowerment and responsiveness. Communities demonstrated faster reaction times and proactive participation in managing breeding sites, particularly discarded tyres, polystyrene containers, and flower pots. Observed behavioural changes included community participation increased to 30%, swift action towards environmental hygiene issues within two weeks and stronger ownership of dengue prevention activities.

CONCLUSION: Integrating behavioural insights into community-based dengue interventions successfully builds a resilient community capable of rapid response. RACUN shifted behaviour from mere awareness to consistent preventive action through cues, social norms, and empowerment strategies. Despite limited volunteerism, RACUN demonstrates strong potential for scalability across districts to foster proactive communities.

KEYWORDS: COMBI, *Behavioural Insights, Community Participation, Dengue, Risk Assessment*

PERSEKUTUAN KESIHATAN MALAYSIA
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(EP071) PREVALENCE OF OBESITY AND ITS ASSOCIATING FACTORS IN PERSON WITH PHYSICAL DISABILITIES

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ABSTRACT

INTRODUCTION: Obesity is a growing global health concern and a major contributor to non-communicable diseases such as cardiovascular disease, stroke, and diabetes. Persons with physical disabilities are at risk of obesity due to reduced mobility and lower level of physical activities. However, there is limited data in Malaysia regarding prevalence of obesity and its associated factors among this population in rehabilitation settings.

OBJECTIVE(S): This study aimed to determine the prevalence of obesity among adults with physical disabilities, and to measure its association with sociodemographic and lifestyle factors.

MATERIALS & METHODS: This cross-sectional study will be conducted over 12 months in Rehabilitation Medicine Clinic, UMMC. Adults aged 18–60 years with physical disabilities (stroke, acquired brain injury, spinal cord injury, and amputation) will be recruited. Estimated sample size 190 participants, calculated using single proportion formula with finite population correction and adjusted for non-response. Data collection includes anthropometric measurements for BMI classification and structured questionnaire assessing sociodemographic characteristics (age, gender, education, marital status, occupation, income) and lifestyle behaviors, including physical activity measured using International Physical Activity Questionnaire (IPAQ), alcohol consumption and smoking status. Data will be analyzed using descriptive statistics, bivariate analysis, and multivariable regression.

RESULTS: The study is expected to establish prevalence of obesity in this population and identify key associated factors, particularly modifiable lifestyle behaviours such as physical inactivity.

CONCLUSION: Findings from this study will provide baseline local data to inform targeted screening, prevention, and rehabilitation-based weight management strategies, and support future research in disability and non-communicable diseases in Malaysia.

KEYWORDS: *Obesity, Physical Disability, Rehabilitation, Prevalance, Physical Activity*

KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT KESIHATAN NEGARA

(EP072) ROAD2KEBAYA : THE REAL GAME - BMI VS BODY FAT %

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ABSTRACT

INTRODUCTION: Weight management program or as known as *IFitEr* had been started among the nurses located at Johor Bahru District Health Office. A total number of 530 nurses and only 402 were present for screening and special for nurses, the initiative was named *Road to Kebaya* to build a motivation and engagement.

METHOD: At the initial phase, all the nurses will undergo screening session and this screening is carried out over a period of three weeks. Starting the journey, the nurses will provide a diary book to record daily food intake, BookDoc application also was utilised to monitor step count challenges and structured exercise guideline and score-card to track individual progress. A structured intervention strategy was developed to facilitate programme implementation, taking into consideration potential challenges faced by the participants.

RESULT: Baseline the initial findings, that 125 of nurses was classified with obese, meanwhile 127 nurses were overweight and 107 nurses had normal BMI readings. However, body fat percentage analysis revealed a discrepancy when compared to BMI classifications. A total of 307 nurses recorded body fat percentage exceeding 32% and only 43 fell within the normal range.

DISCUSSION: Through the fitness assessments enabled participants to identify their physical health status and exercise capacity. By the end of the programme, there will be a significant reduction in body fat percentage among the nurses, indicating improved body composition and overall health outcomes.

KEMENTERIAN KESIHATAN MALAYSIA
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KEYWORDS : *Ifiter, Road2kebaya, Nurses, BMI, Body Fat Percentage*

(EP073) UNDERSTANDING ADOPTION AND SUSTAINED USE OF BRUHEALTH IN BRUNEI DARUSSALAM: A QUALITATIVE STUDY OF USER AND STAKEHOLDER PERSPECTIVES

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ABSTRACT

INTRODUCTION: BruHealth, launched by the Ministry of Health Brunei Darussalam in 2020 as part of the national COVID-19 response, has evolved into the country's central digital health platform. While digital health technologies are increasingly used to improve healthcare access and population health management, sustaining engagement beyond emergency contexts remains a challenge. This study examines behavioural and implementation factors influencing the adoption and sustained use of BruHealth across user groups and stakeholders.

MATERIAL & METHODS: A qualitative exploratory design was employed. Five focus group discussions (N=25) were conducted between December 2025 and January 2026 with frequent users, seldom users, non- users or uninstallers, health system stakeholders, and digital health partners. Data were analysed using thematic analysis and mapped onto the Capability, Opportunity, Motivation– Behaviour (COM-B) model and the Consolidated Framework for Implementation Research (CFIR). Ethical approval was obtained from the Ministry of Health Research Ethics Committee (MHREC), Brunei Darussalam (MHREC/MOH/2025/42(1)).

RESULTS: Five overarching themes and thirteen subthemes were identified. Initial uptake was largely policy-driven, while sustained use was shaped by perceived functional value, particularly for appointment management and access to personal health records. Barriers to adoption included limited feature awareness, digital literacy challenges, and usability issues. Stakeholders highlighted implementation constraints related to workflow compatibility, system integration, staff workload, and the need for clearer governance and strategic direction.

CONCLUSION: Adoption and sustained use of BruHealth are shaped by interacting behavioural and implementation factors. Strengthening system integration, improving usability and feature awareness, and aligning stakeholder coordination may enhance long-term sustainability within Brunei's healthcare system.

KEYWORDS: *Behavioural Science, BruHealth, Digital Health, Implementation Science, Qualitative Study*

KEMENTERIAN KESIHATAN MALAYSIA
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(EP074) MAPPING "SLUDGE" FACTORS: THE PSYCHOLOGICAL AND OPERATIONAL FRICTIONS IN NATIONAL EMERGENCY TRIAGE SERVICES

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ABSTRACT

INTRODUCTION: "Sludge" refers to administrative frictions and cognitive burdens that complicate human interactions with systems. In emergency triage, sludge acts as a negative "nudge," increasing the cognitive load on healthcare providers, fostering decision fatigue, and potentially compromising patient safety through behavioral workarounds.

OBJECTIVE(S): This study aimed to identify and map "Sludge" factors that create psychological and operational bottlenecks, influencing staff behavior and efficiency within national emergency triage services.

MATERIALS & METHODS: Findings were derived from a national survey of 140 Ministry of Health (MOH) hospitals in 2025. Using the Donabedian quality framework, qualitative feedback and statistical data were mapped to identify critical areas where systemic friction triggers suboptimal behavioral responses among clinical staff.

RESULTS: Critical sludge factors include infrastructure-driven anxiety and cognitive overload. Notably, 69.3% of primary triage counters lack CCTV monitoring, contributing to a diminished sense of safety and increased occupational stress. Regarding human capital, 54.3% of hospitals face high patient volumes with only one staff member at Primary Triage; this environment facilitates decision fatigue and hurried clinical judgments. Documentation frictions persist, with 59.3% of hospitals relying on manual forms—a high-friction task that promotes data silos and administrative burnout. Furthermore, the "No Wrong Door Policy" creates a behavioral "moral hazard," where the lack of friction for non-emergency cases leads to system overcrowding, further taxing the mental resilience of triage officers.

CONCLUSION: Dominant sludge factors in infrastructure and human resources significantly hinder triage efficiency by depleting the psychological resources of staff. Addressing these frictions requires a transition toward behaviorally-informed digitalization and optimized staffing ratios to reduce cognitive taxing and improve Emergency Medical and Trauma Services (EMTS) outcomes.

KEYWORDS: *Behavioral Friction, Cognitive Load, Decision Fatigue, Emergency Triage, Healthcare Digitalization, Sludge Factors*

KEMENTERIAN KESIHATAN MALAYSIA
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(EP075) DAILY STEPS ACHIEVEMENT: SIMPLE STRATEGIES TO REDUCE SEDENTARY LIFESTYLES IN WORKPLACE

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ABSTRACT

INTRODUCTION: Sedentary behaviour in the workplace is a growing risk factor for non-communicable diseases. Simple and scalable strategies such as step-count challenges are increasingly used; however, approaches that integrate motivational elements such as recognition and leadership support require further practical evaluation.

OBJECTIVE: To evaluate the effectiveness of a structured step-count challenge combined with recognition strategies and leadership involvement in increasing daily physical activity among employees.

MATERIALS AND METHODS: A 900,000-step virtual challenge, *Step It Up 2.0*, was conducted from August to October 2025 among staff of the Pejabat Kesihatan Daerah Seremban. Participants were categorised into (i) individuals at risk of non-communicable diseases and (ii) healthy workers in groups of five. The intervention included step tracking using the BookDoc application, health screenings, and online health education (nutrition and mental health) for individual category while for group category only involved steps tracking. Leadership participation and recognition strategies (achievement boards, awards, and infographics) were incorporated to enhance motivation and engagement.

RESULTS: Retention rates were 84% (121/144) for individuals and 100% (130 participants from 29 groups). Overall, improvements in daily step counts were observed across categories, with notable increases in individual participants achieving ≥7,500 and ≥10,000 steps. Among individuals, 33.9% (41/121) achieved at least 1 kg weight loss and 57% (69/121) reduced body fat percentage over three months. In the group category, 30% (39/130) exceeded the 900,000-steps target.

CONCLUSION: A structured step challenge integrating recognition strategies and leadership support is a practical and low-cost approach to improving physical activity and selected health outcomes in the workplace. This model has potential for wider implementation in similar settings to address sedentary behaviour.

KEYWORDS: *Step Count, Sedentary Behaviour, Workplace Intervention, Recognition, Physical Activity*

KEMENTERIAN KESIHATAN MALAYSIA
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(EP076) SYNAESTHETIC SYMPHONY OF SOUND AND SIGHT (4S): AN INCLUSIVE ARTS-BASED APPROACH TO BEHAVIOURAL TRANSFORMATION THROUGH MULTISENSORY ENGAGEMENT

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ABSTRACT

INTRODUCTION: Behavioural change in health and wellbeing is deeply shaped by cultural context, sensory experience, and inclusive participation. The Synaesthetic Symphony of Sound and Sight (4S) Project introduces an innovative arts-based intervention that integrates sound, visual art, and embodied experience to engage persons with disabilities (PWDs) and underserved communities.This study aims to examine how multisensory artistic collaboration fosters behavioural change, emotional resilience, and social inclusion within diverse community settings.

MATERIALS & METHODS: A 6–12 weeks practice-based participatory framework was implemented involving visually impaired artists and marginalised youth as co-creators. The intervention utilised synaesthetic translation methods, where sound was interpreted into visual forms and vice versa, supported by guided workshops, reflective sessions, and collaborative performance development. Qualitative data were collected through observation, participant feedback, and visual documentation.

RESULTS: Findings indicate significant improvements in participants' self-expression, confidence, and social interaction. The integration of sensory modalities enabled non-verbal communication pathways, enhancing empathy and mutual understanding across ability differences. Participants demonstrated increased adaptive behaviours, collaborative engagement, and emotional awareness.

CONCLUSION: The 4S Project demonstrates that culturally grounded, multisensory arts interventions can serve as powerful catalysts for behavioural change. This approach offers a scalable model for inclusive health promotion, reinforcing the role of arts in bridging social divides and transforming community wellbeing at a national level.

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KEYWORDS: *Behavioural Change, Inclusive Arts, Multisensory Engagement, Community Health, Synaesthesia*

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