Flaxseed (*linum usitatissimum*) ethanolic extract affects WNT signalling pathway-associated molecules; *β-catenin* and *DKK1* expressions, during osteoblast differentiation of SHED

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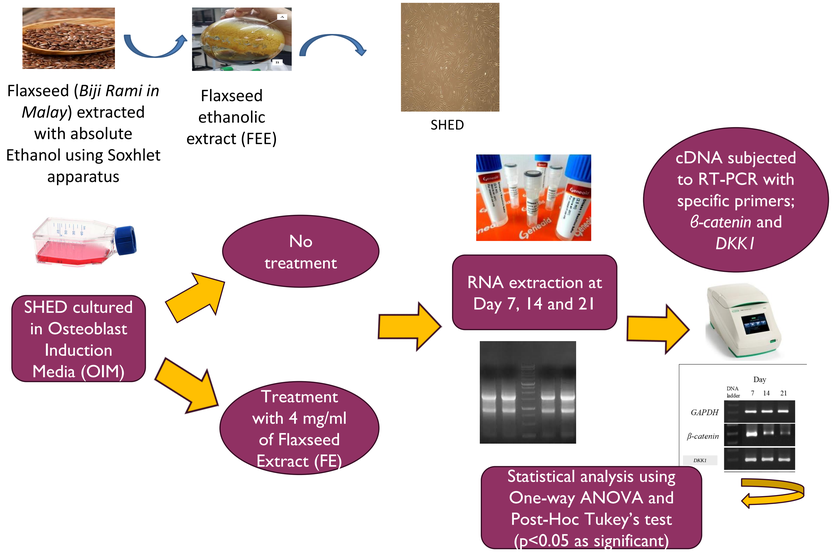
INTRODUCTION

WNT signalling is important in regulating developmental process including bone development. Additionally, WNT signalling also involves in lineage differentiation of mesenchymal stem cells (MSC), including osteogenic differentiation, through canonical WNT pathway. Flaxseed (*linum usitatissimum*) is a plant with many health benefits such as promoting bone health. Our previous study demonstrated that Flaxseed ethanolic extract (FEE) reduced the osteoblast differentiation potential of stem cells from human exfoliated deciduous teeth (SHED); a type of MSC, by a decreased in alkaline phosphatase (ALP) activity and reduction of calcium deposits (Nordin et al., 2018; Nordin et al., 2021). Therefore, flaxseed may as well affect the expression of Wnt pathway-associated molecules during the osteoblast differentiation process. *β-catenin*, and *DKK1* are part of WNT signalling associated molecules which are known to be involved in bone development (Maeda et al., 2019)

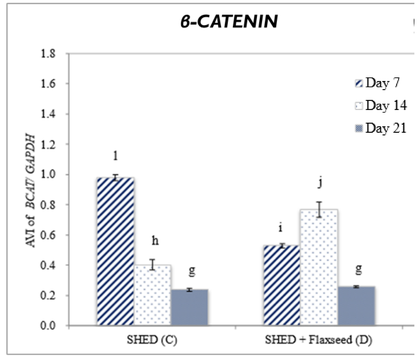
AIM

To determine the effect of FEE on WNT signalling pathway-associated molecules; *β-catenin*, and *DKK1* expressions, during the osteoblast differentiation of SHED.

METHODOLOGY



RESULTS



Expression of *β-catenin* in SHED (control) and SHED treated with 4 mg/ml flaxseed. The expression levels were measured and normalized to GAPDH (housekeeping gene) and expressed as average volume intensity (AVI) (means ± SD, n=3). *Values with different letter are statistically different according to Turkey test ($p < 0.05$).

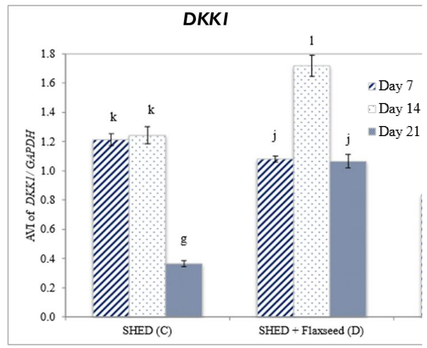
β-CATENIN was expressed in both groups (D7-21)

In control group (C):
Highest expression at D7.
Decreasing pattern from D7-21 ($p<0.05$)

In treatment group (D):
Increasing from D7-14 with highest expression at D14 but significantly decreased from D14-21 ($p<0.05$)

Between groups (C and D):
D7- expression is lower in treatment grp
D14- expression is highest in treatment grp
D21- expression is similar in both grps

**** Flaxseed extract reduced *β-CATENIN* expression in early phase of osteoblast differentiation while enhanced its expression at mid-phase and maintained at later phases.**



Expression of *DKK1* in SHED (control) and SHED treated with 4 mg/ml flaxseed. The expression levels were measured and normalized to GAPDH (housekeeping gene) and expressed as average volume intensity (AVI) (means ± SD, n=3). *Values with different letter are statistically different according to Turkey test ($p < 0.05$).

DKK1 was expressed in both groups (D7-21)

In control group (C):
No changes from D7-14 ($p>0.05$) but decreased from D14-21 ($p<0.05$)

In treatment group (D):
Increased from D7-14 ($p<0.05$) but significantly decreased from D14-21($p<0.05$)

Between groups (C and D):
D7- expression is lower in treatment grp
D14- expression is highest in treatment grp
D21- expression is highest in treatment grp

**** Flaxseed extract reduced *DKK1* expression in early phase of osteoblast differentiation while enhanced its expression at later phases.**

DISCUSSION AND CONCLUSION

Changes in *β-catenin*, and *DKK1* expressions levels at different time frame might explain how FEE reduced the osteoblast differentiation potential of SHED. Reduction of *β-catenin*, and *DKK1* expressions at early stage followed by higher expression of these molecules at later stage of osteoblast differentiation inhibit the normal process of osteoblastogenesis whereby:

- high expression of *β-catenin* reduced the osteoblasts differentiation and mineralization of SHED, which is consistent with Scheller et al. (2008)
- an elevated level of DKK1 inhibited the differentiation of osteoblast precursor cells in vitro. Rawadi et al. (2003)

Overall, FEE modulates the expressions of WNT signalling pathway-associated molecules: *β-catenin*, and *DKK1*, during the process of osteoblast differentiation of SHED which could possibly interrupt the process of osteogenesis as per demonstrated in the current environment.

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ABSTRACT BOOK

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ORAL PRESENTATIONS

OS2 i-SIHAT 2022

Association between Referral to Physiotherapy with Dyspnea, Coughing, and Sputum Production among Patients with Chronic Obstructive Pulmonary Disorder (COPD) at Health Care Facilities in Palestine

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Chronic Obstructive Pulmonary Disorder (COPD) symptom triad includes dyspnea, coughing, and sputum production. Physiotherapy is one of the most effective management procedures for patients with COPD. Despite its effectiveness, referral to physiotherapy is still limited in many countries due to various factors. In this study, we aim to examine the association between symptoms of COPD patients (dyspnea, coughing, and sputum production) and their likelihood of being referred to physiotherapy at health care facilities in Palestine. In this retrospective study, we reviewed medical records of patients with COPD attending hospital in Palestine in the year 2021. Out of 98 patients with COPD visiting the emergency unit, 55 of them were admitted to the chest disease and surgery unit. Symptoms that include dyspnea, coughing, and sputum production and their association with referral to physiotherapy were examined using the chi-square test. The mean length of stay of the patients with COPD who were admitted is 5.07 ± 0.47 days, and their mean age in SD = 67.16 ± 1.7. Results showed a low referral rate to physiotherapy; 63.8% of patients admitted to the chest disease and surgery unit were not referred. Particularly, 60%, 60%, and 64.3% (n=55) of patients experiencing dyspnea, coughing, and sputum production were not referred to physiotherapy. The association between dyspnea, coughing, sputum production, and the likelihood that patients are being referred to physiotherapy was not significant ($p > 0.05$). The study results suggest that the presence of dyspnea, coughing, and sputum production in patients with COPD were not the factors that influenced the referral to physiotherapy. Further analysis of the severity of these symptoms and other factors that influence physiotherapy referral in patients with COPD is required.

Keywords: chronic obstructive pulmonary disorder, physiotherapy, referral, health care facilities

OS3 i-SIHAT 2022

Local Diagnostic Reference Level for Whole Body ^{18}F-FDG PET/CT Examination for Adult Oncology Patients

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Many oncology diseases are investigated using positron emission tomography/computed tomography (PET/CT) scans. However, the radiation levels provided by a PET/CT scan are a cause for concern. The diagnostic reference level (DRL) was recommended by many radiation safety organizations as a tool for monitoring and optimizing radiation doses. This study aims to establish a local DRL (LDRL) for fluoride-18 fluorodeoxyglucose(^{18}F-FDG) PET/CT scan in Jordan. Data was collected based on a booklet questionnaire following a prospective approach over three months period. The LDRL (50th percentile) was calculated for PET administered activity (AA), CT doses index volume (CTDIvol) and dose length product (DLP). The details of demographic patient information, PET/CT protocol, and scanner data were collected. The LDRL for ^{18}F-FDG was (223 MBq) which is less than the median values for Greece (361.6 MBq), Korea (370 MBq), and USA (485 MBq). The LDRL from CTDIvol was (3.8 mGy) which was less than Greece (4.8 mGy) and Korea (4.1 mGy). The LDRL from DLP was (517.2 mGy.cm), which was less than Korea (750 mGy.cm) but higher than Greece (426 mGy.cm). The current derived LDRL for ^{18}F-FDG AA was less than most of the published data for oncology imaging; and that was due to the implementation of low MBq/kg in comparing to the other published peer-reviewed DRL methods. Even though the reported CTDIvol was lowered than the published identified data; that could be resulted from using low dose CT protocol parameters (e.g., mAs), the DLP value was higher than the reported Greece median value; and that was mainly due to the large scan length. There is a need to study and optimize CT scan protocol considers the patient's body habitus and the CT scan parameters (e.g., scan length).

Keywords: DRL, PET/CT, AA, CTDIvol, DLP

OS5 i-SIHAT 2022

Dual-Stage Carcinogenesis of NTCU-induced Lung Squamous Cell Carcinoma (SCC) Development in Mouse Model

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Mice have served as an excellent model to understand the etiology of lung cancer for years. However, data regarding dual-stage carcinogenesis of lung squamous cell carcinoma (SCC) using a mouse model remain elusive. Therefore, we aim to develop the benign and malignant lung SCC *in vivo* using *N-nitroso-tris-chloroethylurea* (NTCU). Female BALB/C mice were divided into two groups; benign and malignant groups which received treatment for 15 and 30 weeks, respectively. Then, the mice in each group were further divided into three groups (n=6); control, vehicle, and cancer which received normal saline, 70% acetone, and 0.04 M NTCU, respectively. The treatment was administered twice per week by skin painting, on the shaved dorsal area of the mouse. After the mice were sacrificed, hematoxylin and eosin (H&E) and immunohistochemistry (IHC) staining for cytokeratin 5/6 (CK 5/6) and Ki67 proteins were performed on lung tissues. Histopathologically, we discovered a mix of hyperplasia, metaplasia, and dysplasia lesions in the benign group, and SCC *in situ*/invasive features in the malignant group. The malignant group was stain positive for SCC biomarker; CK 5/6, which confirmed the histological characteristics of SCC *in situ*/invasive. We also found significantly higher ($p<0.05$) epithelium thickness, which was confirmed by increased proliferation biomarker (Ki67) in the cancer groups as compared to the vehicle groups from both stages of carcinogenesis. Briefly, NTCU can be used to develop a reliable benign and malignant lung SCC in mouse models at appropriate weeks and the vehicle group was suggested to be adequate as a control group for future research.

Keywords: lung squamous cell carcinoma (SCC), *N-nitroso-tris-chloroethylurea* (NTCU), carcinogenesis, benign, malignant

OS8 i-SIHAT 2022

Development, Validity and Reliability of Questionnaire on Knowledge, Attitude and Practice (KAP) of Preschool Teachers towards Vision Screening among Preschool Children in Malaysia.

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KAP study provides meaningful data for programme planning and implementation. The aim of this study is to develop, evaluate the validity and reliability of questionnaires to assess the KAP level of preschool teachers towards vision screening among preschool children in Malaysia. The process was carried out through 4 stages: development of questionnaire, content and face validation, construct validation and reliability evaluation. Content

validation was done by 10 panel experts while face validation by 10 preschool teachers. Pilot testing recruited 161 participants in which construct validation, internal consistency and test-retest reliability was conducted. The development stage resulted in a 4-section questionnaire, consisting of participants' information, knowledge, attitude and practice towards preschool vision screening. The content validity index for items was between 0.8-1.0 and content validity index for scale was 0.99. Item analysis for knowledge section (42 items) presented with item difficulty index of 0.80 and item discrimination index of 0.41. Exploratory factor analysis produced 3 factor-solution for both attitude and practice sections, with 12 and 14 items respectively. Internal consistency for each section was determined to be; knowledge (KR20= 0.93), attitude (Cronbach's alpha= 0.76) and practice (Cronbach's alpha= 0.86). The test-retest reliability was calculated using intraclass correlation coefficient resulting in 0.83 for knowledge, 0.68 for attitude and 0.52 for practice. The finalised questionnaire contained 42 knowledge items, 12 attitude items and 14 practice items. Based on the analysis carried out, the developed questionnaire is valid and reliable for assessing KAP of preschool teachers towards vision screening among preschool children in Malaysia.

Keywords: knowledge, attitude, practice, preschool teachers, vision screening.

OS9 i-SIHAT 2022

Profile of Peripheral Refraction in Myopic Malay School Children

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Numerous studies have shown the pattern of Peripheral Refraction (PR) could infer the retinal shape. This study describes the profile of PR in myopic Malay school children and can be used as reference for future research. Thirty myopic Malay school children (mean age=9.37±1.49) underwent horizontal PR measurement monocularly at six eccentricities with 10^0 of interval between each point under cycloplegia. Subjects were later divided into two groups, the Low Myopic Group (LMG) and the Moderate Myopic Group) (MMG) with the classification of -0.50D ≤ *LMG* -3.00D and -03.00D< *MMG* -5.00D respectively for further comparison. PR of both eyes were highly correlated, therefore only data form right eye was used for further analysis. Mean spherical equivalent (SER) of all subject were -3.07±1.20D with mean SER_{LMG} was -2.07±0.80D and mean SER_{MMG} was -3.90±0.70D. As the field increased, the horizontal PR became less myopic with reduction of 0.46±0.17D towards the temporal side and 0.57±0.19D towards the nasal side. The mean different in M

component between the nasal and temporal sides of the eye was 0.150±0.46, -0.063±0.63 and -0.003±0.87 at 10^0, 20^0 and 30^0 respectively and was not statistically different ($p>0.05$). However, more hyperopic RPR werefound in the MMG than in the LMG at each eccentricity and was statistically significant.
This study showed myopic Malay school children has similar PR pattern as found by previous researchers with other study population. The RPR is more hyperopic in the more myopic eye, indicating more prolate shape.

Keywords: peripheral refraction, myopic Malay school children

OS10 i-SIHAT 2022

Development and Validation of Knowledge, Attitude, and Practice Questionnaire on Eye Problems among Children for Parents.

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Parents, as primary caregivers, have enormous responsibility to make decisionsfor their child's eye health care to ensure children receive early eye care services, thus reducingavoidable causes of visual impairment**.** The objective of this study was to develop and validate knowledge, attitude, and practice (KAP) questionnaire for parents about eye problems among children. This study was conducted among primary school parents in Kuala Lumpur. A structured methodology was used for the questionnaire construction, including item generation, content validity, face validity, construct validity, and reliability. A systematic literature review was performed to generate the items for the questionnaire. The content and face validity evaluations were conducted by expert panels. Construct validity for attitude and practice domains was evaluated using exploratory factor analysis (EFA). The development process resulted in a questionnaire that comprised of four main sections: demographic, knowledge, attitude, and practice. Content validity index and modified kappa showed excellent values (more than 0.8) for most items in the knowledge domain. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was 0.84 and Bartlett's Test of Sphericity was highly significant (χ^2= 3172.09, $p < 0.0001$). The Kuder-Richardson-20 (K-20) for the reliability test of the knowledge domain shows 0.95 and the Cronbach's alpha for the reliability of the attitude and practice domains showed acceptable values (0.92 and 0.88 respectively). The newly developed questionnaire has a satisfactory psychometric property for measuring the KAP of parents regarding eye problems among children**.**

Keywords: exploratory factor analysis,

children, eye care, instrument development, and visual impairment

OS12 i-SIHAT 2022

Triphenyltin (IV) Diisopropyldithiocarbamate Induces Cytotoxicity in K562 Human Erythroleukaemia Cells Primarily via Mitochondria-Mediated Apoptosis

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Over the years, organotin (IV) compounds have been synthesized, characterized, and reported to exert effective antitumor activities and are regarded as promising candidates to be developed as metallopharmaceutical drugs with lower toxicity and fewer side effects. In this study, the antileukemic activities of five novel di- and triphenyltin(IV) dithiocarbamate compounds represented as R_nSnL_2 (where R=C_4H_9, C_6H_5; n= 2,3; L= *N*,*N*-dithiocarbamate), Ph_2Sn(*N*,*N*-diisopropyldithiocarbamate) (**OC1**), Ph_3Sn(*N*,*N*-diisopropyldithiocarbamate) (**OC2**), Ph_2Sn(*N*,*N*-diallyldithiocarbamate) (**OC3**), Ph_3Sn(*N*,*N*-diallyldithiocarbamate) (**OC4**) and Ph_2Sn(*N*,*N*-diethyldithiocarbamate) (**OC5**) in K562 cells were elucidated. At IC_{50} of 5.8 µM **OC1**, 0.55 µM **OC2**, 2.4 µM **OC3**, and 1.1 µM each of **OC4** and **OC5**, about 46-69% apoptotic events were induced as determined via MTT assay and Annexin VFITC/PI assay, respectively. **OC2** which showed the most potent cytotoxicity was selected for further studies. The results demonstrated that **OC2** induced apoptosis via a mitochondrial pathway which was triggered by DNA damage, followed by ROS accumulation that eventually activates the caspase cascade as well as cleaved-PARP, as determined via Alkaline Comet assay, TMRE staining assay, DHE staining assay, caspase (-9, -8, -3) activation assay and western blot analysis, respectively. The role of oxidative stress was corroborated by the significant reduction in GSH levels and percentage of apoptosis in NAC-pre-treated cells which were identified via GSH assay and NAC assay, respectively. **OC2** was also able to arrest the cell progression in the S phase, as identified in the cell cycle analysis. In conclusion, **OC2** has a potentially beneficial effect in treating leukaemia via inducing mitochondria-mediated apoptosis pathways and causing proliferation arrest of the cell cycle.

Keywords: organotin, cell cycle, caspase cascade, antileukemic activity

OS13 i-SIHAT 2022

Curcumin Piperidone Derivatives Induces Anti-Proliferative and Anti-Migratory Effects in LN-18 Human Glioblastoma Cells

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Curcumin has been found to have anti-cancer effect on many cancer cell lines. Despite this, the drawbacks involving curcumin having a poor bioavailability and rapid metabolism has prompted researchers to look for novel drug delivery systems and new synthetic curcumin analogues in order to overcome these problems. Therefore, our group have synthesized curcuminoid analogues with piperidone derivatives, FLDP-5 and FLDP-8 to overcome these limitations. In this study, the analogues were assessed on human glioblastoma LN-18 cells in comparison to curcumin. Results from cytotoxicity assessment showed that FLDP-5 and FLDP-8 curcuminoid analogues caused death in LN-18 cells in a concentration-dependent manner after 24-h treatment with much lower IC_{50} values of 2.5 µM and 4 µM respectively, which were more potent compared to curcumin with IC_{50} of 31 µM. Moreover, a significant increase ($p<0.05$) in the level of superoxide anion and hydrogen peroxide upon 2-h and 6-h treatment confirmed the oxidative stress involvement in the cell death process induced by these analogues. These analogues also showed potent anti-migratory effects through inhibition of LN-18 cells' migration and invasion. In addition, cell cycle analysis showed that these analogues are capable of inducing significant ($p<0.05$) S-phase cell cycle arrest during the 24-h treatment as compared to untreated, which explained the reduced proliferation indicated by MTT assay. In conclusion, these curcuminoid analogues exhibit potent anti-cancer effects with anti-proliferative and anti-migratory properties towards LN-18 cells as compared to curcumin.

Keywords: curcumin, curcuminoid analogues, cytotoxicity, anti-proliferation, anti-migration

OS16 i-SIHAT 2022

Non-Specificity of Human Mitochondrial DNA Primers towards Non-human Samples for Allele-Specific PCR Approach

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Human samples retrieved from crime scene often contaminated with non-human samples such as bacteria, mammals and insects which could produce false-positive results in sequencing. Therefore, this study aims to determine the non-specificity of human mtDNA primers towards non-human samples for allele-specific PCR (AS-PCR) approach. Non-human samples were obtained from relevant authorities

upon request. A total of twelve first round PCR primers that specific to human mtDNA were designed using NCBI Primer Blast. The produced fragments were later used as templates in AS-PCR. Prior to ASPCR approach, the non-specificity of first round primers were tested first with *Escherichia coli (E.coli)*, *Staphylococcus aureus (S.aureus)*, *Canis lupus familiaris* (dog), *Felis catus* (cat), *Macaca fascicularis*, *Spiniphora genitalis* (larva) and *Formicidae* (ant). The presence of amplification was confirmed by directly visualizing the DNA band under UV transilluminator after gel electrophoresis. The human mtDNA primers showed 100% (*n* = 12) non-specificity towards *Macaca fascicularis*, larva and ant meanwhile the percentage has been reduced to 83.3% (*n*=2; 10/12) towards *E.coli*, *S.aureus*, dog and cat samples. The annealing temperature was modified with differences by ±0.1°C to ±0.2°C that removed non-specific binding in non-human samples and retained the intensity of DNA band in 9947A positive control (human mtDNA). The changes in Ta made to non-specific human mtDNA primers had increased the non-specificity from 83.3% to 100% towards *E.coli*, *S.aureus*, dog and cat. Thus, slight modification in annealing temperature had increased the non-specificity of human mtDNA primers towards non-human samples without the need for sophisticated reoptimization. (250 WORDS)

Keywords: mitochondrial DNA, human, non-human samples, forensic science.

OS18 i-SIHAT 2022

Game-Based Circuit Exercise Enhances Function, Motivation Level and Self Efficacy of Stroke Survivors: Preliminary Findings of a Randomised Controlled Trial

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Combining game based and circuit exercises training creates a more enriched and motivating rehabilitation environment for stroke survivors, however studies on this approach is lacking. This study merged the two types of training and evaluates the effectiveness of game-based circuit exercise compared to conventional circuit exercise on the functional outcome (postural stability), motivation level and self-efficacy of stroke survivors. This study also assessed whether the interventions' outcomes could be sustained at week 12 and 24 post-trial. This research is an assessor-blinded randomized controlled trial involving 82 post-acute and chronic stroke survivors. Preliminary data were analysed involving 22 participants (mean age ± standard deviation =57.5 ± 6.1 years; mean Montreal Cognitive Assessment score = 26.6 ± 2.9) who received either a game-based circuit exercise (experimental group, n = 11) or a conventional circuit exercise (control group, n = 11) for 45 minutes, twice per week for 12 weeks. Interventions' outcomes were measured

using the Dynamic Gait Index (for postural stability), Intrinsic Motivation Inventory questionnaire (for motivation level) and stroke self-efficacy questionnaire (for self-efficacy). Analysis was done using the 'intention-to-treat' approach, using Mixed Model ANOVA. Results shown a significant time-effect (p<0.05), with a small effect size between 0.01 and 0.04, for all outcomes following the two therapies. We found no significant group and interaction effects for all outcomes (p>0.05). Game-based circuit exercise appears comparable to conventional circuit exercise and may be a relevant alternative for enhancing post-stroke postural stability, motivation level and self-efficacy. More study results are needed to confirm this observation.

Keywords: stroke, function, motivation level, self-efficacy

OS19 i-SIHAT 2022

EVNol SupraBio™ Ameliorates the Testicular and Prostate Morphology via Regulating the Reproductive Hormone in Bisphenol F-Induced Sprague Dawley Rats

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Bisphenol F (BPF) is an endocrine disrupting chemical which causes male reproductive toxicity through oxidative stress and morphological changes. EVNol SupraBio™ (EVNol) is a palm-oil based product which is known for its antioxidant properties. However, effects of EVNol towards BPF-induced changes on male reproductive system remain silent. Hence, the current study was carried out to investigate the effects of EVNol on regulation of hormones towards testis and prostate gland induced by BPF. Forty male Sprague-Dawley rats (age 4 to 6 weeks) were randomly assigned to five groups which are control group (1mg/ kg corn oil), EV100 (100mg/kg EVNol), BPF (10 mg/kg BPF), EV50 (50 mg/kg) +BPF (BE50) and EV100+BPF (BE100). (BE) rats were given EVNol 30 minutes before BPF administration and all treatments were administered daily via oral gavage for 28 days. Current findings showed no significant difference between groups for level of GSH, SOD, PC, and significant reduction in MDA level for BE100 group compared to BPF group ($p<0.05$). Significant increased levels of LH, testosterone and cholesterol in EVNol-treated groups compared to BPF-treated groups ($p<0.05$) and insignificant increased levels of estradiol in all groups were reported. Histological studies showed estrogenic-like effects through abnormal conformation structure of germinal cells were reduced in EVNol-treated groups. Thickness of prostate tissue significantly decreased in EV100 and BE100 groups ($p<0.05$) compared to BPF and BE50 groups. In conclusion, overall findings demonstrated that 100

mg/kg dose of EVNol ameliorates morphological abnormalities of testis and prostate gland in regulating reproductive hormones in BPF-induced rats.

Keywords: EVNol Suprabio™, Bisphenol F, male reproductive system, reproductive toxicity, oxidative stress

OS20 i-SIHAT 2022

Bisphenol F Exposure Induced Estrogen-Like Effect on the Testis of *Sprague-Dawley* Rats

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Bisphenol F (BPF) is an analogue of bisphenol A (BPA) which is similar in chemical structure. Because of the well-known toxicity effect on humans, BPA has been banned and replaced by BPF in production of food and beverage containers and thermal receipt paper. However, there is a lack of scientific evidence regarding the safety level of BPF on human health especially on male reproductive system. Therefore, this study was conducted to investigate the effects of BPF on testis and sperm by using 20 male *Sprague-Dawley* rats (weighing between 230-250 g). The rats were evaluated for oxidative stress status in testis and sperm, sperm characteristics, reproductive hormones, and testis morphology. All rats were divided into 4 groups: (i) Control (1 ml/kg/bw normal saline), (ii) BPF 1, (iii) BPF 5, and (iv) BPF 10, which were given 1, 5 and 10 mg/kg/bw, respectively. The rats were exposed to BPF for 28 consecutive days via oral gavage. BPF did not cause oxidative stress in the testis and sperm in all groups proven by no changes in MDA, GSH and SOD. Besides, BPF also did not induce any significant changes in the sperm characteristics of experimental rats. However, BPF showed an increasing pattern of estradiol in all BPF-treated groups without significant changes in testosterone. A significant change was found in BPF-treated rats, demonstrated by a significant increase in exfoliation and degeneration of seminiferous tubules ($p<0.05$). In conclusion, BPF exposure caused an estrogen-like effect without inducing oxidative stress in the testis of *Sprague-Dawley* rats.

Keywords: testis, sperm, Bisphenol F and estrogen-like effect

OS21 i-SIHAT 2022

EC Users' Profile and Its Association with Identified Impacts of COVID-19 on Vaping.

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The use of e-cigarettes (EC) or vaping has reached alarming proportions among Malaysians. In Malaysia, little is known about the profile and behaviour of EC users. This study aimed to explore EC users' profile and its association with related behaviour during the COVID-19 pandemic. This nationwide online questionnaire survey was administered among 351 EC users in Malaysia between June and August 2021. We obtained information on respondents' sociodemographic characteristics, EC users' profile and identified impacts of COVID-19 on vaping. We estimated the association between EC users' profile and its association with related behaviour during COVID-19 pandemic. Statistical significance was set at $p<0.05$. Respondents were predominantly of Malay ethnicity (90.6%), aged 31 to 35 years (27.6%), males (97.7%), married (68.7%) and tertiary educated (69.2%). The majority were employed in the private sector (47.9%) with a monthly household income ranging between 2000 to 3999 MYR (43.3%). About 80.3% were single users (use EC only) and most of the EC users purchased their vaping products online (77.2%), liked that they can vape while working at home (83.8%) and vaped more because of boredom (55.3%). The majority had a low motivation level to quit EC use (92.6%) and were more likely perceived that vaping did not increase the chances of complications from COVID. Government should encourage EC users to quit EC use especially during the pandemic period. Therefore, more active enforcement, health promotion, prevention and intervention programs for EC cessation needed to increase the awareness and motivation to quit among EC users in Malaysia.

Keywords: e-cigarette, vaping, behaviour, COVID-19, pandemic.

OS25 i-SIHAT 2022

Cytotoxicity, Apoptosis and Genotoxicity Study of Triphenyltin (IV) Dithiocarbamate Compound on Reh, Childhood Leukemia Cells

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Rapid development in medical technology provides the opportunity for physicians and scientists to seek new alternative treatment for leukemia. In this study, a series of organotin compounds known as triphenyltin(IV) diisopropyl dithiocarbamate (Compound **1**), triphenyltin(IV) diallyl dithiocarbamate (Compound **2**), and triphenyltin(IV) diethyl dithiocarbamate (Compound **3**) were assessed for their cytotoxicity effects toward B lymphoblast childhood leukemia cells, Reh and non-cancerous B lymphocyte childhood cells, WIL2-NS. The most selective compound was then chosen to

assess their mode of cell death and genotoxic effect. WST-1 assay was used to evaluate the cytotoxic effects of the compounds toward both cells for 24 hours. Mode of cell death induced by the compound was assessed using Annexin V-FITC/PI staining whereas genotoxic effect was evaluated using alkaline comet assay. The IC50 values obtained from Reh cells ranging from 0.16 to 0.25 µM while forWIL2-NS cells, ranging from 0.67 to 0.79 µM. Selectivity index showed that Compound **2** givethe most selective effect (SI=4.19) towards Reh cells. Further analysis revealed that Compound **2** caused cell death at late apoptosis phase and genotoxic effect as early as 1 hour. For conclusion, different dithiocarbamate ligand on triphenyltin(IV) compounds caused different cytotoxic effects on Reh cells. Compound **2** showed good potential to be developed into anti- leukemic agents by producing the most potent effects on Reh cells and causing cell death through apoptosis pathway with genotoxic effect on Reh cells. However, further studies are needed to determine the mechanisms of action and potential of these compounds.

Keywords: childhood leukemia, Organotin (IV) dithiocarbamate compounds, cytotoxicity, apoptosis, genotoxicity.

OS26 i-SIHAT 2022

Chloroquine-Induced Lysosomal Dysfunction Increased Amyloid-Beta Expression in Human Brain Endothelial Cells (HBEC-5i)

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Brain endothelial cells lining the cerebral blood vessels are the core anatomical structure of the blood-brain barrier. Vascular dysfunction has been known as a common feature of neurodegenerative diseases such as Alzheimer's disease (AD), characterized by the deposition of toxic β-amyloid-containing neuritic plaques. Impairment of lysosomal function that involves intracellular turnover could contribute to the pathogenesis. To understand the effect of lysosomal dysfunction on Aβ42 expression, chloroquine (CQ), a lysosome inhibitor was used in this in-vitro study. Human brain endothelial cells **(**HBEC-5i) were exposed to CQ for 24h, and doses were established using cell viability assay (MTT assay) to find the IC_{10}, IC_{25} and IC_{50} values. The morphology of treated cells was observed using an inverted microscope. Cell lysates and supernatants were collected and Aβ42 expression was measured using ELISA. CQ concentration, IC_{10} (17.5 µM), IC_{25} (70.5 µM) and IC_{50} (125 µM) caused cell shrinkage, cell death and accumulation of vacuoles in HBEC-5i that were more prominent at the higher concentration. The expression of Aβ42 in both HBEC-5i lysate and supernatant increased for

each dose, while in lysate at 70.5 µM of CQ showed significant difference increment ($p<0.05$) compared to negative control. CQ-induced lysosomal dysfunction led to increment of Aβ42 expression in the cells and the vacuoles formation suggest that fusion of lysosome with autophagy vacuoles (AVs) is blocked which led to the accumulation of potentially toxic proteins that are cytotoxic to the cells.

Keywords: Amyloid-β. autophagic vacuoles, cytotoxicity, lysosome inhibitor, neurodegenerative diseases.

OS27 i-SIHAT 2022

Effects of Intervention on Visual-Motor Integration and Visuospatial Skills of Typical Preschool Children with Reduced Visual-Motor Integration Skills

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One factor that makes learning difficult for preschool children is the reduced visual-motor integration (VMI) and visuospatial (VS) skills. Currently, in-depth studies on the assessment and intervention of VMI and VS skills among Malaysian preschool children are scarce. Thus, this study aimed to find the effects of an intervention kit on VMI and VS skills among preschool children with below-average VMI scores. The intervention was carried out for 12 weeks, three times each week, for 36 sessions. Before and after the intervention, all children had their VMI and VS skills evaluated using the Beery-VMI and Block Design test. The children were divided into a control group (n=19; mean VMI score: 88.79±2.30, mean VS score: 5.92±2.96) and an intervention group (n=19, mean VMI score: 87.05±4.30, mean VS score: 5.95±3.27). After a 12-week intervention, the control group's mean VMI and VS scores were similar to the pre-intervention levels: 89.63±7.50 and 5.26±2.79, respectively. For the experimental group, the VMI score increases significantly to 6.79±6.71 [$F(1,36=28.26$, $p<0.01$]. VS score also increased significantly to 8.47±2.74 [$F(1,30)=5.91$, $p=0.02$]. The Beery-VMI and Block Design scores of all the children who received the intervention improved statistically. In conclusion, this study has successfully provided an effective intervention program that improves VMI and VS skills in preschool children. Therefore, the program can be conducted in preschool children with reduced VMI and VS skills to help their school readiness.

Keywords: children, preschool, visual-motor integration, visuospatial.

OS28 i-SIHAT 2022

Risk and Protective Factors of Trauma and Suicide Potential among University Students

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Traumatic events and psychological trauma have been associated with suicidal ideation and suicide attempts. However, there is a need to further examine the factors associated with suicide potential among individuals whose suicidality stems from their traumatic experience. This study aims to examine whether risk (psychache, depression, family conflict) and protective (purpose in life, social support, self-esteem) factors of suicide are significantly associated with trauma and suicide potential among Malaysian university students. Conveniently sampled students from a public and private university answered a questionnaire regarding their trauma and suicide potential, psychache, depression, family conflict, purpose in life, social support, and self-esteem. After deleting missing data listwise, a total of 224 participants were retained for further analysis (Mean age = 19.0, *SD* =1.36). A multiple linear regression showed that the predictors accounted for 22.8% of the variance in trauma and suicide potential (R^2 = 0.228, $F(9, 210) = 6.90$, $p < 0.001$ after controlling for age and gender. Higher trauma and suicide potential was associated with higher psychache (β = 0.440, $p < 0.001$), lower intrinsic religiosity (β = -0.243, p = 0.004) and lower social support (β = -0.172, p = 0.012). Among individuals who have suicidal potential due to experiencing trauma, psychological suffering in the form of psychache may be a more important predictor than depression, whilst social support and religiosity may be employed to decrease suicide potential. Future studies need to further investigate these risk and protective factors influencing trauma and suicide potential in a post-COVID-19 era.

Keywords: trauma, suicide, university students, psychache, religiosity

OS30 i-SIHAT 2022

Visual Perceptual Skills of Malaysian Preschool Children with the TVPS-4: Comparison with US Norms

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The Test of Visual Perceptual Skills – Fourth Edition (TVPS-4) is an instrument to assess motor-free perceptual abilities. Standardised in the US, it consists of seven subtests to evaluate visual perception, namely visual discrimination, visual memory, visual-spatial relationships, visual form constancy, visual sequential memory, visual figure-ground and visual closure. Currently, there are no published data on Malaysian preschool children's performance on the TVPS-4. This study's aims are (1) to determine TVPS-4 scores in a sample of normally developing Malaysian preschool children and (2) to compare them with the test's normative scores obtained in American children. Seventy-two preschool children (mean age: 5.99±0.53 years) from six different preschools completed the TVPS-4 according to the prescribed procedures. The mean scaled scores for each subtest, and the overall composite score, were determined and compared with the US standard scores (10±3 and 100±15, respectively). There was no significant difference in TVPS-4 overall scores between girls (116.76±6.41) and boys (116.30±7.85), [t(70)=-0.26, p=0.796]. The mean scaled scores for all seven subtests were significantly higher than the US norms (all $p<0.05$, effect size between 1.21 and 1.73). The sample's TVPS-4 composite score (116.49±7.26) was also significantly higher than the US norm ($p<0.001$, effect size=2.27). In conclusion, typical Malaysian preschool children's TVPS-4 performance is significantly higher (i.e. better) than the US norms. Clinicians should exercisecaution when using the norms published outside of the local context when using the TVPS-4 for diagnosing and evaluating Malaysian preschool children's visual perception.

Keywords: visual perception, TVPS-4, preschool children

OS31 i-SIHAT 2022

Perceived Stress of COVID-19 Towards the Burden of Care and Psychological Distress among Caregivers of Haemodialysis Patients

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The provision of care for haemodialysis patients has affected the psychological wellbeing and burden of the caregivers. With the advent of the COVID-19 virus in Malaysia, drastic changes in caregivers' lifestyles can be observed. Thus, the purpose of this study aimed to examine the association between perceived stress related to COVID-19, burden of care and psychological distress among the caregivers of haemodialysis patients. Data were collected through purposive sampling in four government hospitals

and eight private dialysis centres in the Klang Valley. Those who agreed to participate answered the Perceived Stress Scale of COVID-19, Zarit Burden Interview, General Anxiety Disorder, and Patient Health Questionnaire. Results showed that a majority of the participants (*N*=125) were female, Malay and spouse of the patients. Most of the respondents experienced a medium level of perceived stress and minimal levels of care burden, anxiety, and depression. The multiple linear regression analyses showed that COVID-19 perceived stress significantly predicted care burden (R^2=.26, *F* (7,115)=5.85, β=.35, *p*<.001)), anxiety (R^2=.30, *F*(7,115)=7.03, β=.51, *p*<.001), and depression (R^2=.25, *F*(7,115)=5.59, β=.46, *p*<.001), after adjusting for age, gender and caregiving relationship. The results suggest that perceived stress due to COVID-19 was associated with care burden, anxiety, and depression. In conclusion, this study indicated that perceived stress attributed to COVID-19 remains an important factor associated with the caregiver burden and psychological distress of the caregivers caring for haemodialysis patients. Thus, healthcare authorities and policymakers may play a larger role in mitigating the distress felt by caregivers through interventional programs to strengthen their stress management.

Keywords: care burden, psychological distress, COVID-19, caregivers, haemodialysis.

OS32 i-SIHAT 2022

Health-related Quality of Life and Emotional Disturbance: A Cross-Sectional Study of Stroke Survivors

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The prognosis of post-stroke recovery has been largely influenced by the level of impairments such as functional dependency, and psychomotor and emotional disturbances. About 30 to 50% of stroke survivors have serious emotional dysfunctions which lead to physical inactivity and non-adherence to the therapeutic session during the early phases of rehabilitation. Proper identification and modification of these determinants and providing physical and emotional rehabilitation help a physiotherapist to ensure better outcomes. The aim of this cross-sectional study was to identify the association between post-stroke anxiety and health-related quality of life. A total of 64 subacute stroke survivors (35 males, 29 females) with mean age = 49.48 ± 8.54 years and post-stroke duration = 4 ± 2 months. were recruited in this study. Measurements of anxiety and quality of life were carried out with the use of the Hospital Anxiety and Depression scale -Anxiety (HADS-A) and EuroQol- 5D-5L (EQ5D5L), respectively. Analysis was conducted by using Pearson correlation test. Significant association was shown between HADS-A score and several dimensions of EQ5D5L, which is utility index (p=.034),

mobility (p=.009), and self-care (p=.001). However, no association was found in other EQ5D5L dimensions, namely usual activity (p=.195), pain discomfort (p=.273) and VAS scale score (p=.115). This result shows that, emotional disturbance is one of the obstacles to optimum recovery and achievement of quality of life among stroke survivors. Rehabilitation professionals should embed proper assessment and management of emotional dysfunctions in their overall rehabilitation program.

Keywords: physiotherapy, stroke, functional ability, quality of life, emotional disturbances.

OS33 i-SIHAT 2022

Multi-Kernel Machine Learning-Based Multi-Structural MRI Classification of Alzheimer's Disease and Healthy Control

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It is important to identify the most robust brain tissue type and region-specific structure for an improved classification of Alzheimer's disease (AD) and healthy subjects. In this study, voxel-based and deformation-based morphometric analyses of a 3.0 T MRI-acquired 3D T_1-weighted images were done using the Computational Anatomy Toolbox (CAT12) within the Statistical Parametric Mapping software (SPM12). Using the Pattern Recognition for Neuroimaging Toolbox (v3.0 beta), classification of 10 patients with AD and 14 healthy control (HC) was undertaken with a 5-fold cross-validation on subject per class out and an optimized hyper-parameter. We compared classification accuracy using the following segmented unsmoothed brain tissue types – spatially modulated normalized gray matter (GM), Jacobian-scaled spatially normalized GM, and spatially modulated normalized white matter (WM) – independently and all combined. GM and the Jacobian-scaled GM yielded equal balanced accuracy (BA) of 95% compared to that of WM (i.e. 76.67%); however, for the weights per feature voxel, the GM, Jacobian-scaled GM and WM identified the topmost weighted brain regions to be the right hippocampus (58.5%), right caudate (51.0%), and the left hippocampus (38.79%), respectively. For the combined tissues, although a reduced BA of 88.33% was achieved and the right hippocampus contributed the highest weight of 42.81%, we found that the GM contributed the highest weight of 78.24% compared to the Jacobian-scaled GM and WM of 12.90% and 8.86% respectively. Our study suggests that compared to the Jacobian-scaled GM and WM tissues, the GM hippocampus may provide a better

overall performance for the classification of AD and HC.

Keywords: machine learning, MRI, Alzheimer's disease

O36 i-SIHAT 2022

Validity and Reliability of Work Intention Questionnaire among Working Adults in Klang Valley During COVID-19 Pandemic

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During the COVID-19 pandemic, challenging conditions and uncertainties may have led to physiological distress and job insecurities among the working population, especially those exposed to COVID-19. However, the literature regarding workers' work intentions during the pandemic is limited to guide adaptive strategies. Hence, the Work Intention Questionnaire was developed based on the Theory of Planned Behaviour (TPB) to measure work intention during COVID-19. This study aimed to determine the validity and reliability of the questionnaire. This cross-sectional study was divided into two phases, (i) development and content validation of the questionnaire and (ii) construct validation and test-retest reliability. With two items deleted, the I-CVI for both relevance and clarity ranged from 0.83 to 1.00 while S- CVI/Ave were 0.94 and 0.97, respectively, indicating good content validity. The questionnaire had also shown good face validity. For validation of the measurement model, unidimensionality was achieved (factor loading >0.5) after excluding items with low factor loading, with good convergent validity (AVE 0.511 to 0.681), construct validity (RMSEA=0.078; CFI=0.905; PCFI=0.787; PNFI=0.738; ChiSq/df=2.420) and composite reliability (CR 0.805 to 0.912). Discriminant validity was achieved based on the Fornell-Larker criterion. Besides, the intraclass correlation coefficient ranged from 0.550 to 0.757, indicating moderate to good reliability with a relatively low standard error of measurement (1.98 to 3.54). In conclusion, the questionnaire showed good validity and reliability in measuring work intention among workers in Klang Valley during COVID-19 pandemic. Future studies involving more populations, such as different fields of occupation and working place, are recommended. (247 words)

Keywords: theory of planned behaviour, confirmatory factor analysis, work attitudes, job satisfaction

OS37 i-SIHAT 2022

Polyphenol-Rich Extract of Roselle Calyx (HPE) Mitigated Diabetes-Induced Cardiac Function and Structure Deterioration via Amelioration of Oxidative stress, Apoptosis and Inflammation

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Diabetes mellitus enhances heart functional and structural alterations caused by oxidative stress, inflammation, and apoptosis, leading to diabetic cardiomyopathy. This study aimed to determine the cardioprotective effects of polyphenol-rich extract of roselle calyx (HPE) in diabetic cardiomyopathy rat model. Type 1 diabetes mellitus (DM) was induced by a single intraperitoneal injection of streptozotocin (55 mg/kg). The non-diabetic rats (NDM) acted as a control group (n=6). All rats were left untreated for four weeks. After four weeks, the diabetic rats were randomly divided into three groups: diabetic group (DM), diabetic group treated with HPE (DMR) (100 mg/kg) and diabetic group treated with metformin (DMMet) (150mg/kg). Treatment for HPE and metformin were given daily for another four consecutive weeks. Results showed that HPE treatment was able to improve cardiac function, exhibited by a significant increase ($P<0.05$) in the left ventricular developed pressure (LVDP), cardiac contraction rate (+dP/dt) and coronary flow, along with significant decrease ($P<0.05$) in cardiac relaxation time (tau) compared to DM. Low malondialdehyde and advanced oxidation protein product levels and higher glutathione, catalase, and superoxide dismutase activity indicate attenuated myocardial oxidative damage. HPE reduced plasma interleukin-6 and -10, showing its ability to reduce heart inflammation. These findings coincide with reduced cardiac apoptosis, seen by enhanced BCL-2 expression and reduced Bax and Bax/BCL-2 ratio ($P<0.05$). Histological analysis showed a marked decrease in cardiomyocyte hypertrophy and fibrosis in DMR compared with the DM group. Overall, HPE showed the potential to improve diabetic cardiomyopathy condition via alleviating oxidative damage, inflammation and apoptosis.

Keywords: diabetic cardiomyopathy, cardiac dysfunction, structural changes, antioxidant, roselle

OS39 i-SIHAT 2022

Does Health Literacy Predict Cognitive Frailty? Answer from AGELESS Trial

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Ageing involves rising in challenges for health and wellbeing. Limited health literacy is most prevalence among older adults. Studies have shown associations between limited health literacy with poorer health-related knowledge, behaviour and higher mortality rates. It is also likely to be a determining factor for older adults to make lifestyle changes in combating NCD. It is still a question

whether the level of health literacy among older adults with Cognitive Frailty (CF) and if limited health literacy can be a predictor of CF. The purpose of this study is to assess health literacy level and its associated factors among older adults with Cognitive Frailty (CF) in Klang Valley and Rembau. We employed a cross sectional design and collected our data from April 2021 to May 2022.Citizen aged 60 years and above who are able to understand Malay and English languages were selected through purposive sampling from Ageless Trial Screening sample frame. Health Literacy questionnaire HLS-M-18 was administered. A total of 757 participants were included in the analysis. Those scored ≤33 were classified as having limited health literacy. The prevalence of limited health literacy was 76.5% in CF group. There was significant mean difference between CF and Non-CF group with HLS-M-Q18 Index Score 33.38 (S.D 8.64) and 36.12 (S.D 10.52) respectively, $p<0.05$. In binary logistic regression, we found that limited health literacy, age, locality and education level were independent predictors for occurrence of CF. These results show that limited health literacy may be a predictor of cognitive frailty. Health literacy assessment should be included in multidimensional geriatric evaluation.

Keywords: health literacy, cognitive frailty, older adults, predictors, risk factors

OS40 i-SIHAT 2022

Potential Photochemopreventive Effect of Fatty Acids and Terpenoid-Rich Leaf Extract of *Canarium odontophyllum* Miq. on UVB-induced Immortalized Human Keratinocytes (HaCaT) Skin Cancer Model

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Keratinocyte carcinoma is found in skin areas which are often exposed to the sun and a variety of natural products has been developed as a chemoprevention agent. One example is the *Canarium odontophyllum* Miq, or “Dabai”, which is an indigenous plant to Borneo, Sarawak. Fatty acids & terpenoid-rich extract from the leaf were obtained via extraction using hexane. FRAP assay showed antioxidant capacity for both 500 & 1000 µg/ml extract but not significantly different between doses. Untreated and treated immortalized human keratinocytes (HaCaT) were irradiated with UVB for 6 passages to a cumulative of 180 mJ/cm^2 UVB. Findings showed 1000 ug/ml of TRCO significantly reduced p53 expression compared to the untreated group. Both 500 & 1000 µg/ml

of TRCO significantly reduced the expression of Ki67 compared to the untreated group. Antioxidant and oxidative stress markers measurement revealed 500 µg/ml of TRCO significantly increased superoxide dismutase activity compared to the untreated group, both 500 & 1000 µg/ml TRCO significantly reduced catalase, glutathione peroxidase, glutathione S-transferase, and protein carbonyls compared to the untreated group. Reduced glutathione peroxidase activity is potentially due to depletion in glutathione by the UVB and extract. In vitro evaluations of TRCO on UVB-induced HaCaT skin cancer model revealed photochemopreventive properties. These promising findings validate further evaluation of *C. odontophyllum* Miq leaf extract as a potential therapeutic agent.

Keywords: Canarium odontophyllum, photochemopreventive, antioxidant, terpenoids, fatty acids.

OS41 i-SIHAT 2022

Effects of Orally Administered Pterostilbene in DMBA/TPA induced Multistage Skin Squamous Cell Carcinoma Mouse Model

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Skin squamous cell carcinoma (SCC) is one of the common types of skin cancer that has a risk of metastasis and is life-threatening if left untreated. Pterostilbene is a natural compound that has been proven to exhibit various pharmacological properties related to chemopreventive effects including anti-inflammatory, antioxidant, and anti-proliferation. Our study was conducted to investigate the chemopreventive effect of oral pterostilbene on initiation, promotion and continuous in multistage carcinogenesis of SCC induced by 7, 12-dimethylbenz[α]anthracene (DMBA)/ 12-0-tetradecaboylphorbol-13-acetate (TPA). A total of 30 female ICR mice were randomly divided into five groups with two control groups. Vehicle group that received corn oil orally and 70% acetone topically at shaved dorsal skin twice a week. The cancer group received the DMBA/TPA without pterostilbene. Three pterostilbene groups were treated with DMBA/TPA together with 50 mg/kg of pterostilbene orally twice a week during the initiation, promotion and continuous. The tumour formation was monitored weekly and after 24 weeks of treatment, all mice were sacrificed for histopathological observation using haematoxylin and eosin (H&E) staining. Results showed that oral pterostilbene significantly reduced the tumour incidence and volume. Histopathological observation revealed that vehicle group maintained the normal skin epidermis and the cancer group displayed highly pleomorphic cells and nuclei, epidermal thickening with hyperkeratinization, invasion of basement membrane and formation of keratin pearls. However, the

oral pterostilbene caused less pleomorphic in cells and nuclei with the intact basement membrane. In conclusion, oral pterostilbene suppressed skin carcinogenesis in the mouse model, hence further investigation on molecular pathways is needed.

Keywords: pterostilbene, skin squamous cell carcinoma, initiation, promotion.

OS42 i-SIHAT 2022

Gait Speed, Falls Risk, and Self-Efficacy Among Community-Dwelling Stroke Survivors Discharged from Physiotherapy Services: A Prospective Cross-Sectional Study

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Stroke survivors are at risk of functional decline post-discharge from rehabilitation. However, the functionality of local stroke survivors post-discharge from rehabilitation is still unclear. This study aimed to evaluate the gait speed, falls risk, and self-efficacy among stroke survivors and identify the predictors of their gait speed and falls risk. This prospective cross-sectional study recruited community-dwelling stroke survivors post-discharged from physiotherapy at two public hospitals between 2017 and 2018. Eligible survivors were invited for functional assessments at the hospitals. Timed 10-metre walk test, Time up and go (TUG) test and Stroke self-efficacy questionnaire (SSEQ) were used to measure the intended outcomes. A total of 73 subjects with a mean age of 60.29 (±10.53) years, predominantly male (n=43, 58.9%), who had an ischemic stroke (n=41, 56.2%) were assessed. Their mean comfortable gait speed was 0.72±0.38 m/s, where one-fourth (24.7%) of them were household ambulators. Thirty-three subjects (45.2%) have falls risk, shown by TUG > 14 seconds. Their mean SSEQ score was 29.96±7.29. An equation to predict the gait speed was derived: Gait Speed (m/s) = 0.756 – 0.190 (modified Rankin Scale) –0.002 (stroke duration) + 0.011 (SSEQ score). Meanwhile, stroke duration (aOR 1.030, 95% CI 1.001–1.060, P=0.045) and SSEQ score (aOR 0.870, 95% CI 0.796–0.950, P=0.002) were predictors for falls risk. In conclusion, the stroke survivors in this study have lower gait speed and apparent falls fall risk, but a moderate-high level of self-efficacy. These findings are useful in designing home-based exercise programs as a strategy for continuous rehabilitation.

Keywords: chronic stroke survivors, gait speed, falls risk, self-efficacy

OS43 i-SIHAT 2022

Medical Adherence among Adolescent Psychiatric Patients: A Multicentre Study

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The lockdown implementation during the COVID-19 pandemic has led to deterioration in adolescent mental health, particularly adolescent psychiatric patients, partly due to high treatment drop-out rates. This study aimed to investigate whether medical adherence influenced adolescent psychiatric patients' mental health in Malaysia. A cross-sectional study using the convenient sampling method was conducted among 150 adolescent psychiatric patients, aged between 11 to 19 years old from five Malaysian hospitals across Peninsular Malaysia. The Perceived Stress Scale modified for COVID-19 (COVID-PSS-10), Generalized Anxiety Questionnaire (GAD-7), Patient Health Questionnaire-9 (PHQ-9), and Malaysia Medical Adherence Assessment Tool (MyMAAT) were used to measure perceived stress, anxiety, depression, and medical adherence, respectively. Results revealed that moderately severe to severe depression levels were seen in 68 (43.9%) participants, and severe anxiety and high levels of stress were seen in 29 (18.7%) and 33 (21.3%) adolescents, respectively. The multiple regression analyses showed that higher medical adherence significantly was associated with lower depression symptoms (R^2=.16, F(6,148)=3.73, β=.37, *p*=.000), anxiety symptoms (R^2=.15, F(6,148)=4.22, β=.31, *p*=.01), and perceived stress (R^2=.13, F(6,148)=3.79, β=.28, *p*=.002), after adjusting for age, gender and race. The results revealed that participants with higher levels of medical adherence demonstrated better mental health. In conclusion, this study highlights the importance of medical adherence as a protective factor on psychiatric adolescent mental health during the COVID-19 pandemic. Therefore, implementing adherence interventions may increase mental health in the treatment of adolescents with psychiatric disorders.

Keywords: mental health, medical adherence, adolescent psychiatric patient, COVID-19, Malaysia

OS45 i-SIHAT 2022

Establishing a UVB-induced skin photoaging BALB/c mice model

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Prolonged ultraviolet (UV) exposure on the skin results in photoaging. Hence, our study aimed to establish a UVB-induced skin photoaging BALB/c mice model. About 16 female mice (7 weeks old) were divided into 2 equal groups. Group 1 was not exposed to UVB, while Group 2 was exposed to UVB. For the first 2 weeks, mice were given a daily oral treatment of corn oil via oral gavage, without UVB exposure. This was followed by 8 weeks with UVB exposure (Group 2 only) 3 times a week at increasing doses, totalling 3.7 J/cm^2. During the same 8 weeks, skin elasticity was measured once a week using a pinch test, which showed that Group 2 (5.071 ± 0.459 seconds) skin took significantly longer ($p < 0.01$) to return to its normal conformation compared to Group 1 (3.203 ± 0.186 seconds), indicating skin elasticity loss. Next, dorsal skin were observed just before the mice were sacrificed, whereby Group 1 showed fine wrinkles and no skin redness and Group 2 showed coarse wrinkles, skin redness and peeling. Histopathological changes were then identified via Hematoxylin & Eosin (H&E) staining and epidermal thickness was measured using ImageJ. Group 2 showed a significant increase ($p < 0.05$) in epidermal thickness (51.849 ± 7.461 µm) compared to Group 1 (15.172 ± 0.736 µm). In conclusion, a UVB-induced skin photoaging BALB/c mice model has been established.

Keywords: skin, photoaging, oral, ultraviolet, UVB

OS48 i-SIHAT 2022

Prevalence of Computer Vision Syndrome (CVS) and Its Associated Risk Factors among International Islamic University Malaysia Kuantan Undergraduates

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Excessive computer use has increased among workers and students, particularly during the COVID-19 pandemic. Computer vision syndrome (CVS) has previously impacted a large number of Malaysian undergraduates. However, International Islamic University Malaysia (IIUM), Kuantan has no prior or current data on CVS among their university students, raising the question of whether or not students are experiencing CVS symptoms when using computers, particularly during online teaching and learning. Thus, a cross-sectional study was conducted at IIUM Kuantan to determine the prevalence of CVS and its associated risk factors among undergraduates. A convenience sampling method was employed to recruit study participants,

and data was collected using a self-administered validated questionnaire. The prevalence of CVS was calculated and its association with ergonomics and non-ergonomic risk factors was determined using statistical analysis. The data showed that the CVS prevalence was 69.3%, with a higher prevalence among female (p= 0.003) and Kulliyyah of Medicine students (p= 0.048) than other kulliyyahs. The majority of CVS cases were classified as mild, with tired eyes (89.9%), neck and shoulder pain (88.7%), and headache (73.4%) among the most commonly reported symptoms. The severity of the CVS symptoms was found to be significantly correlated with ergonomics practices (r= - 0.137, p= 0.034). Despite good ergonomics practices reported by the participants, a weak correlation between these factors raises the question of whether the participants have a correct practice of computer ergonomics. Hence, the present findings suggest that training in good computer ergonomics practices is necessary.

Keywords: prevalence, computer vision syndrome, undergraduates

O53 i-SIHAT 2022

The Effectiveness of Orthokeratology in Reducing Axial Length of Myopic Children Living in Kuala Lumpur

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High myopia can lead to blindness, thus controlling myopia progression is essential. Myopia progression is monitored by changes in axial length (AL). Orthokeratology (OK) is shown to be effective in reducing myopia, but limited reports are available with reference to Malaysian population. This study examined changes in AL in local myopic children undergoing OK treatment within 12 months and compared to single vision spectacles (SVS). Inclusion criteria was age ranged 7 to 9 years, myopia <-5.00DS, astigmatism ≤1.50D, best corrected vision acuity (BCVA) 6/6 in each eye, no history of ocular or systemic diseases and never undergoing any myopia treatment prior to this study. Cycloplegic refraction, high and low contrast VA, corneal topography and AL were measured throughout the study. Results were analysed using t-test and ANOVA. 70 myopic children (45 OK, 25 SVS) with mean age 8.31±0.37 years participated in this study. Mean refraction at baseline

for OK and SVS were -3.22 ± 1.11 D and -3.03 ± 1.35 D respectively (p>0.01). At 12 months myopia had increased by -1.26±1.01D in SVS (p<0.01) and -0.06±0.12D in OK (p<0.01). No significant change was found in high and low contrast VA (p>0.01). AL increased by 0.48±0.47 mm in SVS (p<0.01) but decreased by 0.18±0.38 mm in OK (p<0.01). This study concludes that OK lens is effective in reducing AL without compromising visual functions and should be considered by Optometrists when managing myopic children.

Keywords: myopia, axial length, orthokeratology

O54 i-SIHAT 2022

Radiomics Features Classification of Atherosclerosis in Coronary Computed Tomography Angiography (CCTA) Images Using Automated Machine Learning (TPOT) Algorithms

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Radiomics is the process of extracting numerous quantitative features of high-dimensional data that allow automated classification of the disease including atherosclerotic. This research aimed to evaluate radiomic features extracted from segmented regions of Coronary CT Angiography (CCTA) images and to determine the performance of quantitative information in classifying the atherosclerotic plaques. In accordance with inclusion criteria, 202 CCTA images were collected retrospectively from Institut Jantung Negara (IJN), Malaysia. 3 main coronary arteries were segmentized on the axial view which resulted in a sum of 606 volume of interest (VOI). The Automated machine learning (AutoML) method via Tree-based Pipeline Optimisation Tool (TPOT) was utilized to construct 4 types of classification models with different input datasets, namely Model 1, Model 2, Model 3 and Model 4 corresponding to first-order, second-order, shape-order features, and control group, respectively. The supervised classification performance was evaluated in terms of heatmap confusion matrix, recall (sensitivity), precision (PPV), F1-score, accuracy, receiver operating characteristic (ROC) and area under the curve (AUC). Overall, model 1 had the best performance with the highest accuracy of 77%, as well as the highest weighted average of precision, recall, and F1-score at 0.77 respectively compared to that of other models. We also observed the superiority of first-order features in classifying the normal coronary arteries and abnormal as well

as calcified and mixed plaques. Meanwhile, the second-order features were proved to be useful in classifying the non-calcified plaques which is a significant predictor of major cardiac events. Overall, TPOT showed promising capacity in searching the most optimum pipeline and customizing the model based on CCTA-based radiomic dataset.

Keywords: atherosclerosis, CCTA, radiomics, AutoML, TPOT

O55 i-SIHAT 2022

The effects of okra peel powder on high fat diet-induced cognitive impairment in C57BL/6J mice

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Over the years okra has been presented with various medicinal values. In line with this, we explored the potential of okra peel powder in ameliorating the high-fat-diet (HFD)-induced cognitive impairment and hypercholesterolemia. In the present study, thirty-six C57BL/6J male mice were randomly divided into six groups (n = 6 per group), such as control: mice fed with a normal diet; HFD: mice fed with HFD, HFD-SIM: mice fed with HFD and given simvastatin (20 mg/kg/day), and HFD-OP1, HFD-OP2, HFD-OP3: mice fed with HFD and okra peel (200, 400, or 800 mg/kg/day, respectively). Throughout the treatment period, we assessed their food intake, changes in body weight, and blood lipid levels. The mice were tested for spatial learning using the Morris water maze (MWM) following 10 weeks of treatments. As expected, the HFD group recorded elevated low-density lipoprotein concentration and total cholesterol. Whereas, in the MWM test, during acquisition trials, the HFD-SIM and all okra-treated mice performed better than the HFD group. However, during the probe trial, only the mice treated with the lowest dose of okra peel powder produced a significantly higher number of entries into the platform zone. Our results indicate that okra peel powder improved the mice' learning ability, however, only the lowest dose of okra significantly improved the retention of spatial memory.

Keywords: okra; high fat diet; cognitive impairment; spatial memory

O56 i-SIHAT 2022

Heavy Metal Speciation of Sediment in Chini Lake, Pahang, Malaysia

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Speciation of heavy metals such as zinc (Zn), cadmium (Cd), copper (Cu), lead (Pb), manganese (Mn), iron (Fe), chromium (Cr) and nickel (Ni) was performed on sediment in Chini Lake, Pahang, the second largest natural lake in Malaysia. This study was conducted to determine the concentration of heavy metals in some fractions in sediments and to determine the solubility of heavy metals due to changes in pH and ionic strength. The method used is the sequential extraction procedure which involves a five-step of sequential extraction which are exchangeable fraction, the fraction bound to carbonate, the fraction bound to Fe and Mn oxides, the fraction bound to organic matter, and residual fractions. The sediment samples were analyzed using Induction Coupling Plasma-Mass Spectrometer (ICP -MS). Overall, iron is the most metal detected in sediment at all sampling stations with a range of 2356.18 µg/g to 8959.02 µg/g. This is followed by Zn (91.67-221.02 µg/g), Mn (30.83-79.11 µg/g), Cu (23.66-79.02 µg/g), Pb (22.99-51.95 µg/g), Cr (19.35-31.44 µg/g), Ni (4.87-10.42 µg/g) and Cd is the lowest metal detected by the range of 0.14 µg/g to 0.91 µg/g. Determination of the solubility of heavy metals toward pH changes show that heavy metals are dissolved by increasing the acidity of the sediment. Ion strength also plays a role in determining the solubility of heavy metals. The analysis showed the sequential extraction of metal was mainly in the residual fraction. Sources of the contamination may consist of human activities around the lake including logging, mining, and commercial agriculture.

Keywords: heavy metals, metals speciation, lake sediment.

O57 i-SIHAT 2022

Compound Identification and Biocompatibility of Effective Eco Produce on Mouse Fibroblast

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The endodontic irrigant, sodium hypochlorite, has potential adverse effects on the patient, operator including the environment. Effective eco produce (EEP), an organic-based solution produced from household vegetable or fruit waste shows potential as an alternative environmentally friendly endodontic irrigant. Antibacterial and anti-biofilm activities have been found in EEP fermented for 3 and 6 months, from pineapple and orange peels in a 6:4 ratio. However, the exact chemical compounds of EEP that contribute to these activities

and the biocompatibility of EEP on human cells are still unknown. This study aimed to determine the constituents of EEP of 3- and 6-month mixed pineapple and orange peel in a 6:4 ratio and the cytotoxicity of EEP against human tissues. The EEP was separated using liquid chromatography-mass spectrometry. MTT Assay and Inhibition Concentration at 50% (IC_{50}**)** on mouse fibroblast was used to conduct a pilot cytotoxicity test of EEP. This study demonstrated that 3 and 6 months old mixed pineapple and orange (6:4 ratio) EEP are composed of predominantly sugar alcohol. Preliminary inference of its antibacterial and anti-biofilm activities could be due to iditol, stachydrine, choline and/or pantolactone. As for the cytotoxicity test, the IC_{50} for 3-month-old EEP was 66.06 ± 0.920% (v/v), while the IC_{50} for 6-month-old EEP was 19.065 ± 0445% (v/v). Although the EEP of both fermentation periods was cytotoxic to the fibroblast cell, in clinical practice, endodontic irrigant is used within the confines of the root canal system. Further studies are needed to prove EEP's potential as an endodontic irrigant.

Keywords: endodontic, effective eco produce, irrigant, mixed pineapple and orange

O58 i-SIHAT 2022

Children's Resilience and Happiness during the Pandemic of COVID-19

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The pandemic of COVID-19 impacted the whole world. Children are the most vulnerable due to the confinement orders implemented. This collaborative research with Child Research Network Asia (CRNA) examined the state of Malaysian children's resilience and happiness, and its relationship during the pandemic COVID-19. Five hundred mothers of children aged 5 and 7 years old completed the Malay version of Person Most Knowledgeable–Child & Youth Resilience Measure-Revised' (PMK-CYRM-R) Questionnaire, and Kiddy-KINDL^R Health-Related Quality of Life in Children and Adolescents online. Findings showed that the personal resilience of 5-year old children was lower (M = 2.51, SD = 0.89) than 7- year old children (M = 3.36, SD = 0.89). For the happiness measure, 5-year old children's level of self-esteem (M = 3.87, SD = 0.82) was higher than 7- year old's (M = 3.45, SD = 1.00). For both family and friend subscales, 7- year old children were reportedly to have higher mean level (M_{family} = 4.10, SD_{family} = 0.65; M_{friend} = 3.73, SD_{friend} = 0.75) compared to 5-year old's (M_{family} = 3.43, SD_{family} = 0.58; M_{friend} = 3.18, SD_{friend} = 0.65). Meanwhile, there were positive correlations in the range of small to medium strength between personal resilience and children's happiness in relation to family and friend ($p < 0.01$, r_{family} = 0.314; r_{friend} = 0.28) for children aged 5 years old, and all three subscales for children aged 7

years old ($p < 0.01$, $r_{self} = 0.36$; $r_{family} = 0.31$; $r_{friend} = 0.42$). Findings suggest that the pandemic has a negative impact on children and follow-up actions should be planned to mitigate the psychological impact on children.

Keywords: COVID-19, children's resilience, children's happiness, Malaysian, parents-report.

O59 i-SIHAT 2022

Knowledge and Perception of Fluoride in Drinking Water Among Residents of Precinct 9, Putrajaya, Malaysia

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The knowledge and beliefs on the presence of fluoride in drinking water, its purpose and associated health risks aids in equate water fluoridation and effective prevention programs. Therefore, this study identifies the level of knowledge and perception of fluoride in drinking water among residents living in Precinct 9, Putrajaya and determines the association of knowledge and perception with the socio-demographic characteristics. A cross-sectional, self-administered online questionnaire was used to examine knowledge and perception of fluoride in drinking water of 240 Precinct 9 residents. Descriptive analysis was applied for socio-demographic data and Chi-square was used to compare discrete data. All data obtained were further analyzed using SPSS Version 23.0. Results: The highest frequency (percentage) of residents were 213 (88.8%), aged 18-64 years old, 141 (58.8%) female, 214 (89.2%) have tertiary education and 125 (51.1%) lived in Precinct 9 for more than 10 years. Of all participants, 137 (57.1%) and 83 (34.6%) have poor knowledge and medium perception regarding fluoride in drinking water respectively. There was a significant association between those with higher education level with knowledge (p=0.02) and perception (p=0.005) where they were more likely to know about overall fluoride in drinking water. Most participants had limited knowledge and negative perception of fluoride beyond a general sense it was beneficial. It appears that in moving forward to receive the water fluoridation support will need to attend to the challenge of anti-fluoride sentiment influence.

Keywords: knowledge, perception, fluoride, drinking water, Putrajaya

O60 i-SIHAT 2022

Arterial Spin Labelling Cerebral Blood Flow Imaging to Define Reperfusion After Acute Ischaemic Stroke

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Arterial spin labelling (ASL) magnetic resonance perfusion imaging allows non-invasive quantification of cerebral blood flow (CBF) without contrast administration and may offer a tool to define reperfusion. We investigated ASL-measured CBF in patients 48 – 72 hours afterstroke onset. Patients were part of prospective, single centre pilot observational study of late time window perfusion 4.5-24 hours after symptom onset. Patients who received revascularisation therapy were excluded. Baseline CT perfusion (CTP) imaging was conducted. Pulsed ASL (PASL) perfusion imaging was acquired at 48 – 72 hours using a 3T-Tesla MRI scanner. ASL images without their calibration images were excluded from CBF quantification. ASL perfusion maps were post-processed using BASIL software pipelines which include motion correction and image registration. The post-processed perfusion maps were used to quantify the CBF in grey (GM) and white matter (WM). In 20 patients, mean age68 ± 10 years and median National Institutes of Health Stroke Scale (NIHSS) of 6 ± 2. ASL was acquired median 52 hours after symptom onset. Mean baseline core volume (CTP CBF <30%) was 4.5 ± 18 ml. The mean whole brain CBF measured by ASL for GM was 49±15 ml/100g/min and 16± 6 ml/100g/min for WM. The CBF for GM ranged from 28 ml/100g/min to 74 ml/100g/min. For WM, the CBF ranged from 16 ml/100g/min to 39 ml/100g/min. Reperfusion was observed in one patient. onset. ASL MRI scans allow evaluation of CBF 48 to 72 hours after stroke onset. Measured CBF values varied widely.

Keywords: arterial spin label, reperfusion, ischemic stroke.

O63 i-SIHAT 2022

Development of Interactive 3D Virtual Reality in Radiography Education

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In coping with the fast-paced industrial revolution 4.0 (IR 4.0), the Malaysian Ministry of Education (MOE) has introduced future education models that incorporate the use of technology in education. One of these models is virtual education, where students learn in virtual environments. However, most virtual education software in radiography education is relatively expensive. This problem poses a challenge to us where financial resources are limited. Hence, we developed our version of interactive three-dimensional (3D) virtual reality (VR) e-learning content using freely available software. Panoramic digital images were captured using the Google Street View application and edited using an open-source learning platform to create interactive virtual environments of the different radiography examination rooms. Students then learn by mounting their mobile phones on a VR Box, where

they see the radiography examination rooms as if they are inside them. Students can also interact with the objects within the virtual rooms to make learning interactive and engaging. Through this innovative e-learning approach, students may learn different imaging modalities available at most healthcare centres before attending clinical practices. A prominent advantage of our method is that it allows students to virtually enter rooms that are not easily accessible in most hospitals, such as the operating theatre and cardiac catheterization laboratories. Most importantly, our method is cost-effective and can easily be used by students and lecturers, particularly those with limited resources. We believe that the interactive 3D e-learning content developed in this project may facilitate students' learning in the digital era.

Keywords: 3D, cost-effective, education, interactive, radiography, virtual environment

OS66 i-SIHAT 2022

Dimeric Sesquiterpene (DS) Compound from Basidiomycetes Strain Frim550 Revealed Potential Activity Against Methicillin Resistance *Staphylococcus Aureus*

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Multi-drug *Staphylococcus aureus* infections are on the rise in both hospitals and the public, necessitating research into novel antibacterial treatments. A dimeric sesquiterpene (DS) compound derived from the Basidiomycetes strain FRIM550 has demonstrated in vitro efficacy against Gram positive bacteria. This study focused to evaluate the compound individually, and in combination with selected antibiotics, namely vancomycin, oxacilin, gentamicin, linezolid, fusidic acid, rifampicin and mupirocin against methicillin resistant (MRSA ATCC 43300 & ATCC 33591), vancomycin intermediate resistant (VISA ATCC 706690), fusidic acid resistant (FRSA BD 15358 & BD 16876) and methicillin susceptible (MSSA ATCC 25923) strains. Microbroth dilution was used to determine the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC), and the microdilution checkerboard assay was used to determine the fractional inhibitory concentration (FIC) index values. The MIC values of DS against MSSA and VISA were 3.91 µg/mL, while MICs against both MRSA and FRSA strains were 7.81 µg/mL. The MBC values against all the strains were

7.81 µg/mL, except VISA which showed a MBC of 3.91 µg/mL. According to the findings of this study, the DS compound exhibited bactericidal activity against all strains. Except for VISA, a combination of DS-oxacilin showed synergistic interaction (FIC 0.50). DS-vancomycin was synergistic against MSSA (FIC=0.50) and DS-gentamicin was synergistic against FRSA BD 16876. Against both MRSA strains, the DS-linezolid combination acted synergistically and partially synergistically. The MIC of fusidic acid reduced to 2 to 16 folds when combined with DS compound and the combination acted partially synergistic against MSSA, MRSA ATCC 33591, and both FRSA strains. A promising *in-vitro* anti-MRSA action was demonstrated by the DS, in conclusion. It is intriguing to develop a topical form of the DS compound in order to thoroughly investigate its potential as a novel anti-MRSA medication.

Keywords: MRSA, Basidiomycetes, MIC

OS68 i-SIHAT 2022

Clinacanthus Nutans Induces Apoptosis in Triple-Negative Breast Cancer Cells, MDA-MB 231 by Enhancing M1 Macrophage Polarization in Co-Culture Setting

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Triple negative breast cancer (TNBC) is a clinically heterogenous and highly aggressive disease with no targeted therapies. Tumor associated macrophages (TAM) are key components of the tumor microenvironment and can be classified into two subtypes; antitumor M1 phenotype and pro-tumor M2-phenotype. Growing evidence indicates that reprogramming macrophages to M1 phenotype reduces tumor growth. *Clinacanthus nutans* (CN) has gained much attention because of its anti-cancer properties but the underlying mechanism in the tumor microenvironment remains unclear. Here, we investigated the effect of CN treatment on ameliorating chronic inflammation in tumor microenvironment,

macrophage polarization and apoptosis following the co-culture of MDA-MB-231 and THP-1 macrophages. THP-1 cells induced macrophages (Mθ, M1 and M2) were treated with 100µg/ml CN, either alone or cocultured with MDA-MB 231 cells for 48 h. Flow cytometry analysis of treated macrophages was performed using HLA-DR and TLR-4 markers to identify M1 macrophages and CD206 marker to identify M2 macrophages. The cytokine expression levels of IL-6, MMP-9 and MMP-2 were determined in the supernatant using ELISA assays. MDA-MB 231 cells were assessed for apoptosis and necrosis by flow cytometry after labelling with Annexin V-FITC and propidium iodide. The results revealed that CN treatment significantly enhanced M1 macrophage polarization which led to the increase in apoptosis of MDA-MB 231 cells. Furthermore, CN extract significantly reduced the expression of IL-6 ($p<0.05$), MMP-9 ($p<0.0001$) and MMP-2 ($p<0.0001$). Taken together, the findings elucidated the potential anti-cancer mechanism of CN through reprogramming macrophage polarization and suppressing the inflammatory cytokines which favours tumor suppression.

Keywords: *Clinacanthus nutans*, tumor microenvironment, TAM, apoptosis, TNBC

OS70 i-SIHAT 2022

Effect of Multicomponent Training Module for Family Caregiver of persons with Parkinson's disease: A systematic literature review

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Education and training to the family of persons with Parkinson's disease (PD) is crucial to equip the family caregivers with adequate knowledge and care skills in preparation of the disease progression. This review systematically evaluates the effect of multicomponent training module for family caregivers of persons with PD. A systematic search of relevant studies using electronic databases (Google Scholar, PubMed and Cochrane Library) between November 2021 and July 2022 was conducted. Title, abstract, Keywords and full texts screened for eligibility. Selected studies were full text interventional, evaluation or review studies from 2009 until 2022 in either English or Malay language. Only study which consist of multicomponent training or program provided to either adult PD patients or adult caregivers at any stage were selected. Based on selected articles, authors extracted information on outcome measure, intervention, settings and results for tabulation. Only 10 papers were selected after screening for eligibility, which were two evaluation, one review, and seven experimental studies. Number of participants range from 39 to 140 with stages of PD majority in Stage 1- III of Hoehn and Yarr scale. Majority studies included quality of life measures, but none measured mobility or function of

persons with PD. This review found that training for persons with PD or their caregiver is available and feasible but lacks home based multicomponent and structured training among family caregivers. Family training module has a significant positive effect on the quality of life of persons with PD and reduces caregiver burden. In conclusion, there is no structured multicomponent family caregiver training module available in Malaysia. There are positive effects of such module on quality of life and caregiver burden, but none reported for functions and mobility for persons with PD. More studies evaluating effect of structured home home-based multicomponent training module for family caregiver of persons with PD are warranted.

Keywords: burden, knowledge, mobility, Parkinson's disease, quality of life

OS72 i-SIHAT 2022

Correlation between Knee Osteoarthritis Symptom with Resilience Level: Cross-Sectional Study

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The advantages of resilience include the ability to overcome adversity and overcome difficulty. It has not yet been determined how resilience affects those who are experiencing knee osteoarthritis symptoms more so it's bidirectional associations. This study aims to determine the association of resilience with osteoarthritis (OA) and further investigate the correlation between OA symptoms such as pain, stiffness and physical function towards their resiliency as well as symptoms level with resilience in older people with and without knee osteoarthritis pain. The study involved community-dwelling older adults aged 50 years old and above residing in Kuala Lumpur and Selangor areas. Osteoarthritis was defined using self-reported physician-diagnosed osteoarthritis and the symptom severity was measured using the Knee Injury and Osteoarthritis Outcome Score (KOOS) while Connor Davidson Resilience Scale 10 (CD-RISC 10) was used to measure resilience level. Other variables were measured such as Depression, anxiety, stress scale 21 (DASS-21) for the psychological test, Control, Autonomy, Self-realization, and Pleasure (CASP-19) for quality of life, and others. Out of 235

older adults who were recruited from December 2021 until June 2022, 170 participants with a mean age of 66 years old (SD=5.68) were included in this study. Seventy-eight participants (45.35%) reported knee osteoarthritis diagnosed by a physician and ninety-four participants (54.65%) had no knee OA. There was no significant difference in resilience levels in osteoarthritis and non-osteoarthritis older adults. Interestingly, in those with knee osteoarthritis increase in symptoms was shown positively correlated with resilience level, nevertheless, it turned out not to be statistically significant. There is no significant association between the presence of knee osteoarthritis and resilience. However, it is rather puzzling that an increase in symptoms will increase the level of resiliency, suggesting the uniqueness of older Malaysian. A future study with a larger sample size is needed to confirm the relationship between symptoms severity and resilience.

Keywords: osteoarthritis, resilience, older adults, knee pain

OS74 i-SIHAT 2022

Job Satisfaction among the Hard of Hearing and Deaf Employee: Preand Post Covid-19 Pandemic

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The COVID-19 pandemic has affected lives of many, including people with disabilities (PWDs), those with hard of hearing (HH) and deaf (D) communities. We aimed to investigate communication, received employer support and job satisfaction among HH and D employees pre- and post- Covid-19 pandemic. Research questions were; Does the pandemic affect the (1) mode of communication, (2) employer support and (3) job satisfaction among HH and the D employee? A Cross sectional online survey involving 58 hearing disabled residing in Kuala Lumpur and Selangor. This report is part of an ongoing study on PWDs employment challenges and experiences. Only 35 respondents fulfilled the study inclusion criteria. Eight (23%) identifies themselves as HH and 27 (77%) as D. Deaf employee uses sign language dominantly, with 26% increment post Covid-19. Comparatively 50% HH group showed changes from oral and online communication to the use of Sign Language. Fifty-four percent of them reported face mask as impeding factor for their communication. During post-pandemic, 49% reported of receiving support from their employer, in comparison with 50% pre-pandemic. There is 5.0% reduction in job satisfaction post pandemic among D (64% pre- and 59% post-pandemic) whereas 7.5% reduction observed among HH (65% pre- and 57.5% post-pandemic). Covid-19 pandemic has an influence on both HH and D employees. However, more exploration is needed to understand key factors that leads to thesuccess of adaptation and resilience to the pandemic among the HH and D community.

Keywords: hard of hearing, deaf, employment, covid-19, job satisfaction

OS75 i-SIHAT 2022

Evaluation of RULA and NDI for Assessment of Neck Musculoskeletal Disorder among Medical Laboratory Scientists' Occupational Risk and Job Scopes that contribute to Neck Musculoskeletal Disorders.

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Medical Laboratory Scientists (MLS) are known as sedentary workers that involve pipetting tasks, microscopy, validating reports and repetitive work. Work-Related Neck Disorders (WRNDs) are parts of Work-Related Musculoskeletal Disorders (WRMSDs) that deal with injuries or disorders of musculoskeletal tissues associated with workplace-related factors in the neck. MLS with sedentary work activities is prone to gain WRNDs, due to repetitive stagnant posture in the long term, but is left ignored. Chronic WRNDs may cause occupational disabilities that affect quality of life and work performance. Although it is a crucial problem, there are not many studies on WRNDs. Therefore, this study is aimed to evaluate WRND among medical laboratory scientists using Rapid Upper Limb Assessment (RULA) and Neck Disability Index (NDI). Thirty-one (31) medical laboratory scientists from four (4) laboratory sections: Haematology, Microbiology, Blood Banking and Urinalysis were involved in this study. Rapid Upper limb Assessment (RULA) will identify postural risk among MLS job scopes that contribute to awkward postures and Neck Disability Index (NDI) score shows the prevalence and severity of neck pain among the subjects. The results pointed out that the NDI score was strongly correlated with the RULA score. The microbiology section job scope showed the highest RULA score and NDI score compared to other job scopes. Based on the analysis, it is known that the current microbiology job scope setting requires investigation and changes in order to ensure a healthy working environment, especially during this Covid 19 pandemic and endemic period with higher volumes of covid laboratory samples to be tested and diagnosed by MLSs.

Keywords: Medical Laboratory Scientist (MLS), Work Related Neck Disorders (WRNDs), job scopes, Rapid Upper Limb Assessment (RULA), Neck Disability Index (NDI).

OS76 i-SIHAT 2022

Exploring the Antidiabetic and Antioxidants Effects of *Centella asiatica L.* in Streptozotocin-Nicotinamide (STZ-NA)-Induced Diabetic Rats

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Diabetes mellitus (DM) alters the pancreatic beta-cells and insulin production, leading to the production of free radicals and reactive oxygen species (ROS), hence, oxidative stress. Many of the currently available diabetes medications have undesirable side effects. Thus, interest in the scientific exploration of alternative therapeutic strategies for diabetes treatment has become inevitable. This study aimed to explore the antidiabetic and antioxidant properties of *Centella asiatica L.* aqueous extract (CAAE) in STZ-NA-induced diabetic rats. The antidiabetic and antioxidant activities were investigated in STZ-NA-induced rats. Diabetic rats were orally administered with glibenclamide (GLY) (0.6mg/kg b.wt) and CAAE (250 and 500mg/kg b.wt) for 51 days. Further, the changes in the fasting blood glucose (FBG) level, body weight, serum liver markers, hepatosomatic index (HSI), and antioxidant enzyme levels were observed. The findings of the study indicated that FBG, HSI, and liver serum markers (ALT, AST and ALP) were significantly (P<0.05) decreased in CAAE-treated diabetic groups as compared to disease control groups (STZ+NA). The body weight of the STZ+NA group was significantly (P<0.05) lowered than the CAAE-treated groups. The GLY- and CAAE-treated groups showed a significant (P<0.05) increase in SOD, CAT and GSH-Px activity compared with the STZ+NA group, whereas a significant reduction (P<0.05) in MDA activity was observed in GLY- and CAAE-treated groups compared to STZ+NA group. The results of the present study demonstrated that CAAE administration ameliorated DM and alleviated reduced antioxidant activities in STZ-NA-induced diabetic rats. The CAAE could be a potential natural and safe alternative for the management of DM.

Keywords: liver, oxidative stress, *Centella asiatica L.* aqueous extract, antioxidant, antidiabetic

OS77 i-SIHAT 2022

Barringtonia racemosa **Aqueous Extract (BRAE) Attenuate Oxidative Stress and Testicular Damage in Streptozotocin-Nicotinamide (STZ-NA) Induced Diabetic Rats**

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The prevalence of diabetes mellitus has escalated locally and globally. Consistent condition of hyperglycemia in diabetes mellitus causes impairment in the male reproductive system and infertility later. A traditional herb that is known for its effective traditional uses, *Barringtonia racemosa* (BR) have has become an interest in this study. The aim of this study is to observe the protective effects of *Barringtonia racemosa* aqueous extract (BRAE) towards on oxidative stress and testicular damage in streptozotocin-nicotinamide (STZ-NA) induced diabetic rats. 30 adult male Sprague Dawley rats were divided into 5 groups. Group I (normal control); group II (diabetic control); group III (diabetic + 250 mg/kg BRAE); group IV (diabetic + 500 mg/kg BRAE); group V (diabetic + standard drug - glibenclamide). Glucose metabolism, tissue somatic index, histopathology of testes, morphology of sperm, sperm count, antioxidant activities, and serum hormone level were measured and compared. Fasting blood glucose showed significant results for group III ($p<0.01$). Histopathology structures of testes were improved in group groups III, IV, and V. Sperm count for group groups III, IV, and V also showed significant results ($p<0.001$). Lipid peroxidation activity showed significant results in group groups IV, and V ($p<0.01$). While catalase activity showed significant results in group IV ($p<0.01$), and group groups III and V ($p<0.001$). Superoxide dismutase activity showed significant results in group IV ($p<0.05$), and group V ($p<0.01$). The significant results clearly show BRAE can give effective effects towards on oxidative stress and testicular damage in STZ-NA inducedSTZ-NA-induced diabetic rats.

Keywords: Diabetes mellitus, *Barringtonia racemosa*, male reproductive system, antidiabetic

OS78 i-SIHAT 2022

A Transfer Learning-Based Approach with Deep Convolutional Neural Network for COVID-19 Detection

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Artificial Intelligence (AI) in healthcare has transformed many aspects of patient care, particularly for diagnosis and therapeutic effectiveness. Generally, the fundamental of AI lies in machine learning and deep learning subfields. Both technologies utilise algorithms to improve disease diagnosis, prognosis, classification, and prediction. Recently, studies have shown that using deep learning in diagnosis has equal or greater precision, sensitivity and accuracy output. In this study, we have reviewed some of the work that employed the optimised deep learning systems for the effectiveness of chest pathology (COVID-19) diagnosis. Five models (ResNet-101, InceptionV3, Inception-ResNetV2, Xception, and DarkNet-53) were tested and evaluated on the standard segmented lung CXR images. All models showed excellent accuracy, sensitivity, and specificity value. Notably, the DarkNet-53 architecture has the highest accuracy and specificity score. On the other hand, the ResNet-101 architecture showed the highest score for sensitivity. In conclusion, this study validates AI technology in medical imaging with a good potential for diagnosis that offers early intervention and supports clinical decision-making.

Keywords: COVID-19**,** deep learning, convolutional neural network

O81 i-SIHAT 2022

Googling Telehealth and Telemedicine during COVID-19 Pandemic waves in Malaysia: A Infodemiological study

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The online consultations and online health information-seeking behavior greatly changed during the time of the COVID-19 pandemic. So, understanding the emergent role of the internet in the field of infodemiology is crucial concerning online health information-seeking behavior. This study aimed to investigate the relationship between the daily reported number of new COVID-19 cases and the corresponding change in Google Trends search volume of Telehealth and telemedicine over 4 COVID-19 waves. A retrospective data of daily reported COVID-19 cases (CPRC Hospital System, MKAK, and MySejahtera) was considered from the first wave to the fourth wave spanning January 2020 to December 2021 and analyzed relative search volume (RSV) of search terms “telehealth’ and “telemedicine” using Google Trends© tool to determine the strength of the relationship between new cases and RSVs related to telehealth/telemedicine. Among the two searched terms, telemedicine (RSV=27) yielded a higher search volume relative to telehealth (RSV=20). The term ‘telehealth’ is more popular in Selangor (100) followed by Kuala Lumpur (78), Terengganu (46), and telemedicine is popular in Selangor (100) followed by Penang (80), Kuala Lumpur (79), Johor (55) and Kedah (17). Pearson correlation of public interest in telehealth and new cases was found to be low positive and statistically significant (r = .334; p< .05)

during the fourth wave relative to other waves (low negative correlation with no statistical significance). On the other hand, the spearman's correlation between the public interest in telemedicine and new cases was found to be low positive and statistically significant ($r = .335$; $p < .05$) during the fourth wave. A moderate positive correlation was also established between telemedicine and the new cases and no statistical significance ($r = .660$; $p > .05$). This study highlights the rising public interest in telehealth and telemedicine during the fourth COVID-19 pandemic wave.

Keywords: telehealth, telemedicine, Google trends, Malaysia, search volume index (SVI)

OS82 i-SIHAT 2022

The Effects of 17βh-Neriifolin on Cardiac Na^+/K^+-Atpase Expression, Cardiac Structure and Function in Heart Failure Rat Model

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Cardiac glycosides such as digoxin has been commonly used for heart failure patients, however, its toxicity remains as a main concern due to its side effects. Recently, a cardiac glycoside compound identified as 17βH-neriifolin (SNA209) isolated from *Ceberrra odollum* was shown to inhibit Na^+-K^+-ATPase in vitro. Thus, this study was aimed to investigate the potential use of SNA209 as a treatment for isoprenaline (ISO)-induced cardiac hypertrophy rat model. Male Wistar rats (200-250g, n=56) were randomly divided into seven groups. Cardiac hypertrophy was induced by ISO (10 mg/kg/s.c) for 14 days daily, followed by SNA209 treatment (5 mg/kg; p.o) for another 14 days daily. Control rats were given saline as vehicle for ISO, and DMSO as vehicle SNA209. Statistical analysis was performed by using one-way ANOVA and $p<0.05$ was considered as significant. Systolic blood pressure (SBP) in ISO groups were all significantly increased compared to control group ($p<0.05$), and SNA209 treatment managed to reduce the SBP. Besides that, SNA209 treatment also reversed the decrease in rat's heart rate (HR) significantly in ISO rats. Cardiac injury marker (pro-BNP) level was remarkably reduced by SNA209 in ISO group. Cardiac hypertrophy was evident by increased cardiomyocytes size. The left ventricle developed pressure (LVDP) in ISO treated with SNA209 was raised significantly, indicating chronotropic effect. Cardiac Na+/K+-ATPase expression of the α1 subunit, SERCA2a and NCX subunit were significantly increased in treatment groups. In conclusion, SNA treatment was able to reverse the cardiac function, structure possibly through the intracellular calcium handling; hence, highlighting its potential

use as treatment for heart failure condition.

Keywords: cardiac glycoside, isoprenaline, cardiac hypertrophy, heart failure

O84 i-SIHAT 2022

Features Of Digoxin Toxicity in Congestive Heart Failure or Atrial Fibrillation Patients: A Systematic Review

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Digoxin is a cardiac glycoside with inotropic effects. It is widely used to treat heart failure and atrial fibrillation. The adverse effects of digoxin are presented as mild nausea and vomiting to severe arrhythmias. This systematic review aims to summarize the cases of digoxin toxicity including the risk factors, possible drug-drug interactions and presenting symptoms of digoxin toxicity. A literature search was conducted through PUBMED and Ovid Medline (2010-2020) using the Keywords “digoxin” and “toxicity”. Only the full-text case reports published were considered for this systematic review. The search generated 2399 articles and after the exclusion, only 10 articles were included in this review. Four out of 10 cases reported diuretics medications as a possible interacting drug. The symptoms that are usually reported in most cases were nausea and vomiting, change in vision, bradycardia and increased serum digoxin level. The main risk factors that could lead to digoxin toxicity were female, elderly (60-91 years old), possible drug-drug interaction and renal problems (renal disease/ renal impairment/ renal insufficiency). Digoxin toxicity could occur in either low, normal or high levels of serum digoxin level with the presence of concomitant drugs or could be influenced by underlying risk factors. Monitoring for signs and symptoms and serum digoxin levels are important to prevent toxicity cases in patients.

Keywords: digoxin, toxicity, systematic review, case reports

O85 i-SIHAT 2022

Fungal Nail Infection: Essential Oils as Therapeutic Options

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Fungal nail infection or onychomycosis is a common infection among people that results in nail disfigurement. Toenail onychomycosis is especially difficult to cure. Essential oils that inhibit fungal growth is a more acceptable therapeutic option compared to long- term oral or topical anti-fungal medication. To determine the most effective essential oil treatment for fungal nail infection, *in vitro* and *ex vivo* evaluation of essential oils was performed prior to a clinical evaluation. Lemongrass, eucalyptus, patchouli and thyme essential oils were evaluated *in vitro* for antifungal activity against the fungal species *Trichophyton rubrum*, *Fusarium solani*, *Aspergillus niger* and *Candida albicans*. The oil with the broadest antifungal activity was tested in *ex vivo* experiments using nail clippings inoculated with fungi to simulate infection. Eucalyptus essential oil was the most effective in inhibiting fungal growth in both *in vitro* and *ex vivo* experiments, at 1% and 10% concentrations, respectively. Therefore, toenail infection in 16 volunteers recruited at UKM Medical Centre was treated with 20% eucalyptus essential oil for up to six months. Nail samples were tested prior to and after treatment, while nail morphology was observed. The nail morphology showed the efficacy of eucalyptus essential oil treatment in 70% of nail samples while a reduction in the fungal load was observed in 55% of nail samples. Therapeutic failure may be due to treatment inconsistency or duration. The study results suggest that 20% eucalyptus essential oil is effective in treating toenail infection, synergistic activity with other oils should be explored.

Keywords: fungal, nail, eucalyptus, essential oil, treatment

O86 i-SIHAT 2022

COVID-19's Movement Control Order: Impacts of School Closure on Visual-Motor and Visual-Spatial Skills in Preschool Children

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The Malaysian Government imposed the Movement Control Order (MCO), where all educational institutions, including preschools, were closed from 18 March 2022 for an extended period to contain the spread of COVID-19. We hypothesised that the interruption of physical interactions and face-to-face learning in children could have detrimental effects on their development of crucial learning-related skills, including visual-motor integration (VMI) and visual-spatial skills. This cross-sectional study compares VMI and VS scores between two *KEMAS* preschool children's groups: those who attended preschool in 2019 before the pandemic and those who attended fully re-opened preschools after the MCO was eased. VMI and visual-

spatial skills were measured according to the prescribed procedures with the Beery-VMI and Block Design Test (BDT), respectively. The pre-COVID-19 group (n=202, mean age=69.72±5.44 months) was part of an earlier 2019 study conducted by the authors. The post-COVID group (n=197, mean age: 71.30±6.85 months) were children who attended preschool for the first time. The post-COVID-19 group had a similar but significantly lower VMI score [96.10±8.75] than the post-COVID-19 group [98.84±9.16] (p=0.002). 22.3% of the post-COVID-19 group had Below Average VMI scores compared to only 13.9% for the pre-COVID-19 group. For the BDT, the post-COVID-19 group also scored significantly lower (7.31±3.42) compared to the pre-COVID-19 group [9.07±2.74] (p<0.001). In conclusion, preschool children whose face-to-face learning ceased due to MCO had lower VMI and visual-spatial scores than their pre-pandemic peers.

Keywords: movement control order, COVID-19, visual-spatial skills, visual-motor integration, preschool children

OS87 i-SIHAT 2022

Network Analysis of COVID-19 Genes for Long COVID

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COVID-19 has had a huge impact on people's lives all over the world, with over 430 million reported cases and over 5 million deaths as of early 2022. Recent clinical research has revealed specific circumstances in which this disease's symptoms tend to continue in the affected individual. Long COVID refers to a situation in which a variety of persisting symptoms are detected long after the acute SARS-CoV-2 infection. With bioinformatics tools, this study attempted to explain long COVID symptoms following post-covid recovery and identify the genes associated with long COVID symptoms. Various bioinformatics techniques and databases were used to compare symptoms between the acute stage of infection and long COVID, as well as identify genes responsible for persistent long COVID symptoms. A list of biomarkers was identified for each manifestation, as well as potential therapeutic alternatives that could be used to alleviate each condition. The hub genes for all symptoms collectively, GNGT1, GNG12, GNB3, GNB4, GNG13, GNG8, GNG3, GNG7, GNG10, and GNAI1, were found to be related to G-protein coupled receptors, thus confirming that long COVID clinically impacts multiple organ systems and causes post-infectious chronic inflammation. They were found to be involved in the positive regulation of protein localization to cell cortex, regulation of triglyceride metabolic process, G protein-coupled receptor binding, G protein-coupled serotonin receptor binding, heterotrimeric G-protein complex, and the cell cortex region, among others. These biomarker findings, together with gene ontology and pathway insights, are intended to aid in determining the aetiology and in tailoring treatment.

Keywords: SARS-CoV-2, long COVID, COVID-19, biomarkers, therapeutic alternatives

OS88 i-SIHAT 2022

The Correlation between the Intensity of Social Media Instagram Usage and Orthorexia Nervosa in Gadjah Mada University Students

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Background: Orthorexia nervosa is an eating disorder characterized by an obsession with consuming healthy foods. Orthorexia nervosa has a physical, psychological, and social impact. The use of social media Instagram is suspected to be one of the risk factors of Orthorexia Nervosa, which health information on Instagram can reach and affect thousands of people and even millions, even though the source of the information is doubtful. Objective: To determine the correlation between the intensity of social media Instagram use and Orthorexia Nervosa in Gadjah Mada University students and determine the correlation of confounding variables (gender, monthly income, age, faculty cluster and nutritional knowledge) with Orthorexia Nervosa. The research design used is an observational study with cross-sectional design that involved 529 students. Samples were taken by stratified random sampling. Data was collected online, Orthorexia Nervosa data was collected through the ORTO-15 questionnaire, while demographic data and the intensity of social media Instagram use were collected using a questionnaire. Chi square test with α = 0.05 is used in this study. Results: The results showed that most of the students had moderate intensity of using social media Instagram and as many as 55% of students experienced Orthorexia Nervosa. There is a correlation between the intensity of using social media Instagram and Orthorexia Nervosa in Gadjah Mada University students (p value = 0.037 < 0.05) and there is no correlation of confounding variables (gender, monthly income, age, faculty cluster and nutritional knowledge) with Orthorexia Nervosa. There is a positive correlation between the intensity of social media Instagram use and Orthorexia Nervosa in Gadjah Mada University students and no confounding variables (gender, monthly income, age, faculty cluster and nutritional knowledge) were found in this study.

Keywords: Orthorexia Nervosa, instagram, social media, eating disorders

OS89 i-SIHAT 2022

Relationship Of Nutritional Status With Quality Of Life Of Elderly Patients Cancer At RSUP Dr. Sardjito Yogyakarta

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As the population ages, cancer becomes an increasingly important health burden in all countries. The occurrence of cancer in individuals is often associated with age because most of the incidence of cancer increases with age. Cancer has a close relationship with a decrease in nutritional status, so ensuring good nutritional status in elderly cancer patients is important. Good nutritional status can affect the survival of elderly cancer patients which has an impact on their quality of life. This study aims to determine the relationship between nutritional status and quality of life in elderly patients with cancer. This study used primary and secondary data with a cross-sectional study design conducted from April to May 2022 on 68 subjects aged 60 years who underwent cancer treatment at Dr. RSUP. Sardjito Yogyakarta. The independent variable is the nutritional status (assessed by Patient-Generated Subjective Global Assessment (PG-SGA)), the dependent variable is quality of life (assessed by (The World Health Organization Quality of Life (WHOQOL-OLD)), and the confounding variable is education level, income, cancer stage, and type of cancer treatment. The results showed a significant relationship between nutritional status and quality of life of elderly cancer patients ($p<0.01$). Nutritional status and quality of life were not significantly different based on education level, income, cancer stage, and type of cancer treatment, but there was a trend that good nutritional status was in line with better quality of life. As for the conclusion, there is a significant relationship between nutritional status and quality of life of elderly cancer patients.

Keywords: nutritional status, quality of life, cancer, elderly

OS90 i-SIHAT 2022

The Effect of Butterfly Pea Flower (*Clitoria Ternatea L.*) Extract Subtitution on Macronutrient, Antioxidant Activity, Total Anthocyanin, and Physical Characteristics of Soylang Drinks (Soyghurt Telang Drinks)

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Yogurt is a functional food that has health benefits. Substituting soymilk in making yogurt has advantages such as having a lower fat content than cow's milk and containing active compounds (isoflavones, polyphenols, phytosterols). Butterfly pea flower

contains anthocyanin pigments which are antioxidants. Antioxidant activity neutralized free radicals and take a role in preventing degenerative diseases**.** To study aimed to determine the effect of substitution variations concentration butterfly pea flower extract on macronutrient (protein,fat, carbohydrate content) antioxidant activity, total anthocyanin, and physical characteristic (viscosity, pH, and color) in Soylang Drinks**.** This study was a true experimental study with Completely Random Design 1 factorial. There are 4 formulas, soygurt with flower extract substitution 0% (F1), 4% (F2), 6% (F3), and 8% (F4). Macronutrient, antioxidant activity, and total anthocyanin ware determined by proximate analysis, DPPH and Spektrofotometer, respectively. Viscosity, pH, and color were determined by Viscometer, pH-meter, and Chromameter. The results were tested statistically using One Way ANOVA with the Post hoc Duncan test. The substitution of flower extract in soyghurt affects the fat,carbohydrates, total anthocyanin, pH, and color ($p<0.05$). Fat, carbohydrate, and pH decreased significally with increasing levels of extract, but total anthocyanin increased significantly. Value of L*(lightness) and b*(yellowness) of Soylang Drinks decreased, but a*(redness) increased. However, there were no effect on protein content, antioxidant activity, and viscosity of Soylang Drinks ($p>0.05$). There were significant differences on fat, carbohydrate, total anthocyanin, pH, and color. However, there were no differences between groups on protein, antioxidant activity, and viscosity.

Keywords: soygurt, butterfly pea flower, isoflavone, total anthocyanin, antioxidant activity

OS92 i-SIHAT 2022

The Relationship between Food Handlers' Knowledge Level and Hygiene and Sanitation Practices with *Escherichia Coli* Contamination on Barbecue Meat in Korean Restaurants

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Korean barbecue meat becomes popular as the enthusiasm of Korean culture fans increases. Meat is easily damaged due to microbial activity, including *Escherichia coli*. *E. coli* is an important cause of food borne disease and as an indicator of hygiene and sanitation of food products. *E. coli* contamination was shown to be related to the knowledge level and sanitation practices of food handlers. There have not been many similar studies done in Korean barbecue restaurants. This study aims to determine the relationship between the food handlers' knowledge level of hygiene and sanitation facilities, practices of hygiene and sanitation with *E. coli* contamination in barbecue meat, as well as to describe the fulfilment of sanitation facilities in Korean barbecue restaurants. This study used a quantitative method with a cross sectional design. The research samples were 4 Korean barbecue restaurants in Yogyakarta. The research respondents were 13 food handlers, while the food samples tested were 8 barbecue meat menus. The research variables were the

knowledge level of hygiene, the knowledge level of sanitation facilities, hygiene and sanitation practices, and the results of the *E. coli* test with the pour plate colony method. Bivariate analysis used was Spearman test. The results of statistical tests showed that there was no significant relationship between the knowledge level of hygiene, the knowledge level of sanitation facilities, and hygiene and sanitation practices with *E. coli* contamination on barbecue meat in Korean restaurants (p>0,05). The fulfilment of sanitation facilities in Korean restaurants is included in the good category.

Keywords: level of knowledge, practice, hygiene and sanitation, food handlers, *E. coli*

POSTERS PRESENTATIONS

PS1 i-SIHAT-2022

Calculated vs Clinically Measured Axial Length in Myopic Malay School Children

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Axial length (AXL) is an important parameter in monitoring myopia progression. However, it is not routinely measured mainly due to instrument unavailability in many clinical practices. Since the outbreak of COVID-19 in December 2019, studies have shown the increased burden of myopia and its rapid progression due to increase in the screen time and less outdoor activities. Therefore, it is crucial for all eyecare practitioner to closely monitor myopia progression in children even in limited resource. This study aims to compare the different between the calculated and the clinically measured AXL in myopic Malay school children. A total of 30 myopic Malays school children (mean age=9.37±1.49) with mean spherical equivalent (SER) of -3.01±1.23D underwent AXL measurement using optical biometry and cycloplegic

refraction. The calculated AXL was later obtained from the AXL calculation formula used in predicting AXL for ophthalmic lens design derived from the original Gullstrand simplified schematic eye. All data were normally distributed. Data from both eyes were used for further statistical analysis. The calculated AXL was 24.66±0.97mm, which was 0.18±0.31mm longer than the clinically measured AXL of 24.48±0.97mm ($p<0.001$). However, 81.67% are within 0.00mm 0.50mm range. Only 16.67% and 1.67% are within 0.51mm-0.75mm and 0.76mm-1.0mm range different respectively. The measured and the calculated AXL were also highly correlated ($r=0.947$, $p=0.000$). In conclusion, this study showed this calculated AXL formula may not be adequately accurate but it can be useful as an alternative method in estimating AXL to monitor myopia progression when the actual instrument is not available.

Keywords: Calculated AXL, clinically-measured AXL, myopic Malay school children

PS2 i-SIHAT-2022

Optometric Problems in Children with Dyslexia

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Dyslexia is a specific neurological learning disorder characterized by persistent problems in the acquisition of reading skills which result in poor academic performance. Vision plays a direct role in the reading process but little is known about the integrity of visual function in these individuals. Vision related optometric treatment could be the multidisciplinary management approach in dyslexia treatment. To review the relationships between dyslexia and visual function. Inclusion criteria for this review studies were careful evaluation of subjects' recruitment (children age and gender matched, sample size), dyslexia diagnosis, optometric tests, diagnosis and conclusion. Studies including patients with neurological conditions were excluded. Information on this review was retrieved from Google Scholar, Pubmed, Research Gate, PLOS One and Science Direct within the 1990-2022 publication year A total of 40 journals were reviewed, the majority of the journals showed a relationship between visual functions and dyslexia, thus recommending vision assessment for every child. Binocular vision anomalies were the most common. Recent literature shows that the areas of vision that impact on reading ability includes reduced visual acuity, refractive error, binocular vision anomalies and ocular pathology. However, all the studies acknowledged the complexity of the condition, and the need for a comprehensive multidisciplinary

management approach for its diagnosis and management.

Keywords: Dyslexia, Optometric, Binocular Vision Anomalies, Visual Functions.

PS3 i-SIHAT-2022

Efficacy of Zinc Carnosine in the Treatment of Colorectal Cancer and Its Potential in Combination with Immunotherapy In Vivo

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A complex of Zn and carnosine, called Zinc-L-carnosine (ZnC), has been extensively employed within Zn supplement therapeutic method and the treating approach for peptic ulcers. Recently, it has also been reported on alleviating the side effects of cancer treatment. However, the biological functions of ZnC and tumor immune microenvironment in colorectal cancer (CRC) remain unclear. Cell counting kit 8(CCK8), 5-ethynyl-2'-deoxyuridine (EdU), transwell and wound healing assays were conducted to study the influence of ZnC in the proliferating, invading and migrating processes of CRC cell lines (HCT116,LOVO) in vitro. The antitumor activity ZnC as well as its effects on tumor immune microenvironment were then assessed using CRC subcutaneous tumors in the C57BL/6 mouse model. Mass cytometry was used to validate the CRC tumor immune microenvironment after treatment with ZnC. The results of CCK8, EdU, transwell and wound healing assays indicated that ZnC inhibited the proliferation, invasion and migration of CRC cell lines. ZnC could up-regulate PD-L1 expression via inhibiting miR-570. In vivo experiments showed that gavage (100 mg/kg, once every day) of ZnC inhibited the tumor growth of CRC, and when combined with anti-PD1 therapy, it significantly improved the efficacy of anti-PD1 in the treatment of CRC. In addition, mass cytometry results showed that immunosuppressive cells including regulatory T cells(tregs), bone marrow-derived suppressor cells (MDSC), and M2 macrophages decreased whereas CD8+ T cells increased after the addition of ZnC. The present study reveals that ZnC slows the progression of CRC by inhibiting the proliferation, invasion and migration of CRC cells and up-regulates PD-L1 expression via inhibiting miR-570. The combination of ZnC and anti-PD1 therapy is beneficial to synergically increase efficacy of anti-tumor in CRC therapy.

Keywords: ZnC; colorectal cancer; PD1; PD-L1; immune.

PS4 i-SIHAT-2022

Eyeball Shape and Sizes in Myopic Children Using Magnetic Resonance Imaging (MRI)

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Recent studies reported that the 3D eyeball shape is also an important parameter and may directly influences the ocular refractive changes in myopia progression. The objective of this study is to investigate the association between eyeball size and myopia in primary schoolchildren using MRI. Fifty Chinese myopic children age 8 to 9 years were recruited. Refractive error was determined using cycloplegic refraction and VA was taken using Log MAR chart. Axial length measurement was taken by A-Scan. Eyeball shape and size was assessed qualitatively using three dimensions MRI 3.0 tesla (3T). The longitudinal AL, sagittal width and height were obtained from the MRI images. Mean age for all subjects was 8.40± 0.49 years. Mean refraction (DS) for all subjects was-2.75 ± 1.31. Measurements from MRI images showed that Axial length is the longest -24.08mm (0.48mm/D) followed by vertical height 23.38mm (0.32mm/D) and horizontal width 23.19mm (0.32mm/D). Significant correlation was found between longitudinal AL and A-scan AL (r=0.940**). Analysis of the MRI images in this study showed variations in the eyeball size of the subjects. Chinese myopic children's eye dimensions appeared to be posterior pole elongations. With increasing myopia, eyeball shape and were elongated more in axial length compared to vertical height and horizontal width, leading to a prolate shape.

Keywords: myopia, height, children, MRI analysis, axial length

PS5 i-SIHAT-2022

DNA Damage in Buccal Cell Among Paint Manufacturing Workers

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Paint manufacturing involves various types of chemicals that present occupational exposure to the worker involved. Previously, researchers found exposure to a complex mixture of chemicals can induce health damage in the workers exposed to them. The aim of this study was to assess the early DNA damage in buccal cells among the paint manufacturing workers in selected paint factories in Bangi, Selangor, Malaysia. A total of 40 workers, 19 of them working in the paint manufacturing area were categorized as exposed workers, and another 21 working at the office area were categorized as a control group or labeled as non-exposed workers involved in this study. All respondents answered a questionnaire to gather their demographic information and awareness of occupational hazards, usage of the personal protective device and their serious illness history. Buccal samples were collected from all workers in the early morning during the working day to avoid their first smoking of the day. The buccal cell sampling was repeated 3 times per worker to get the average damage of the worker. Results: The results showed that 63% of the respondents have had formal training on hazards and safety measures, 30% are smokers and only 30% of respondents are aware of the hazard associated with their jobs. There was a slightly significant increase in percentage length of a tail moment in exposed workers with ($P<0.05$) compared to the control group with mean value of exposed was 2.27% which was higher than the mean value of non-exposed 0.64%. In conclusion, exposure to a complex mixture of chemicals induce damage in a buccal cell among paint manufacturing workers.

Keywords: Paint manufacturing worker, DNA damage, Occupational Exposure

PS6 i-SIHAT-2022

Review of Synthesized, Characterization and Cytotoxicity Study Of Organotin (IV) Dithiocarbamate Compounds

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Organotin compounds were first synthesized by Frankland in 1849 and their wide range of applications, including in industry and agriculture, resulted in a significant increase in demand for organotin(IV) compounds after the 1940s. Tin and its alloys, in particular, have aided in the achievement of human objectives following the transition to post-transition metals. The structural chemistry of organotin(IV) compounds is of great interest due to their astounding structural diversity, which includes a range of coordination numbers and the unique molecular geometry, which could result in a variety of features. Organotin(IV) compounds have also been found to have a wide range of cellular, biochemical and molecular effects, with their toxicity largely determined by their structure. Several cancer cell lines, including those linked to

ovarian, colon, lung, prostate, pancreatic, and breast cancer have shown substantial suppression when treated with organotin(IV) compounds. Among organotin(IV) compounds, organotin(IV) dithiocarbamate has gain attention recently as therapeutic agent. The individual properties of organotin(IV) and the dithiocarbamate moieties create a synergy of action in the hybrid complex, hence promoting increased of biological activity. Dithiocarbamate ligands are metal- chelating substances that also demonstrated anti-tumor properties. In cytotoxicity studies, the components of organotin(IV) are said to have an important role in causing cytotoxicity and the ligands are said to involve in delivering the molecule to the target and addressing it while preventing unfavourable alterations in the biomolecules. In this review, we will focus on synthesis, characterization, and cytotoxicity studies of organotin(IV) dithiocarbamate compounds.

Keywords: Organotin(IV), dithiocarbamate, synthesis, cytotoxicity

PS7 i-SIHAT-2022

Strategies to Reduce the Rate of Plate Waste in Hospital Food Service to Increase Patient Satisfaction-A Scoping Review

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Individual plate waste refers to the quantity of food that patients leave unfinished or untouched. Malnutrition results from the patient not receiving the proper amount of energy and other nutrients, which can cause morbidity, mortality, fatigue, and prolonged hospitalisation. This review aims to map the current strategies that have been implemented and to classify the types of strategies to reduce the rate of plate waste in hospitals. The search was conducted in 3 selected databases following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for the scoping review process (PRISMA-ScR). The duplicate articles were removed (n= 80), and a total (n=441) remained for the title and abstract screening. After a total of (n=400) was excluded, 41 full-text articles were assessed for eligibility criteria. Of these, full articles were excluded for reasons (n=29). Only (n=12) articles were finally included in the review to demonstrate that strategies such as menu modification, hiring a foodservice dietitian, implementation of room service model, improvement in menu presentation and meal serving system, and the use of dietary monitoring tool, food audit tool will reduce the rate of plate waste in hospitals. The review strength was carried out twice for duplicate extraction and to ensure consistency and eligibility. In conclusion, this review suggests that many strategies have the potential to reduce the rate of plate waste in hospitals. However, staff training is not yet part of an intervention strategy to

combat the plate waste problem. In the future, training for healthcare staff could be explored and should include a discussion on the obligations and duties placed on them in foodservice operations.

Keywords: hospital food waste, hospital plate waste, malnutrition, foodservice

PS8 i-SIHAT-2022

Binocular Vision Functions among Malay Myopic School Children

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This study aims to determine the mean value for binocular vision functions among Malay myopic school children with careful consideration of tests orders to limit the tests invasiveness. Twenty-three Malay children aged 7-12 years, with myopia between -0.50D to -5.00D and astigmatism of ≤-1.50DC were selected. The lag of accommodation was measured using open field autorefractor with letter target located at 40cm, followed by stereopsis using Frisby, amplitude of accommodation (AA) and near point of convergence (NPC) using push-up method (RAF rule). Distance and near phoria was measured with Howell card at 3m and 33cm, while relative accommodation, monocular and binocular accommodative facility (AF) were measured using plus and minus lenses, and ±2.00DS flipper lens, respectively. Near and distance fusional vergence reserves were measured using prism bar, and AC/A ratio was calculated using calculated method. The mean age of the participants was 10.20±1.47 years. The mean and standard deviation was 1.24±0.35D for lag of accommodation, 1.50±0.13 log sec of arc for stereopsis, 5.46±3.33cm for NPC, 14.87±2.97D and 16.96±2.91D for monocular and binocular AA respectively. The distance phoria was -0.22±1.59PD, while near phoria was -1.30±1.89PD. The mean value was +2.76±0.43D for positive relative accommodation, -2.54±0.59D for negative relative accommodation, 11.09±3.30D and 9.52±3.67D for monocular and binocular AF. The calculated AC/A ratio for this sample population was 5.45±0.50PD. The binocular visual functions among Malay myopic school children differ slightly compared to other studies on Asian children. The lag of accommodation is relatively higher and Malay myopic school children were less exophoric.

Keywords: binocular vision, myopic school children, Malay children

PS9 i-SIHAT-2022

Physical Activity, Cardiorespiratory Endurance and Quality of Life Among Children with Physical Disabilities

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Obesity in children and adolescents leads to many health and social consequences that often continue into adulthood especially in physical disabilities (PD) children. Perhaps this population have greater risk for obesity compared to typically developing peers due to low physical activity (PA) levels. The main aims of this study are to determine the difference between the groups classified by ambulatory status in terms of Body Mass Index (BMI)-percentile and the relationship between the BMI-percentile on PA levels, cardiorespiratory endurance and quality of life (QoL). 172 children and adolescents with PD aged between 5-17 years old from Hospital Tunku Azizah were included in this cross-sectional study. The BMI-percentile was used as an indicator for body weight status. PA levels were assessed with the Physical Activity Questionnaire for Older Children (PAQ-C), cardiorespiratory endurance was measured by 6 Minute Walking Test (6MWT) and QoL was measured by using Paediatric Quality of Life Inventory version 2.0 (PeadsQL2.0). Majority of the participants had normal BMI-percentile (70.3%), (11.6%) were overweight, (11%) were underweight and only (7.0%) were obese. The number of participants who were obese was higher and there was a significant difference in children who ambulate without any walking aids than those walk with walking aids (n=72), p =.000. Weak positive correlations between the BMI-percentile and PA levels with r=.209, p<.001, cardiorespiratory endurance r=.217, p<.001 and QoL with r=.189, p<.001. This study suggests that obesity is higher in children who walk without aids than those walking with aids. BMI showed a weak correlation with PA levels, cardiorespiratory endurance and QoL. Although this study found a small number of participants who were overweight and obesity, prevention measure should be taken at the individual/family, school and community levels.

Keywords: Obesity, Physical activity, Endurance, Physical Disabilities, Quality of Life

PS10 i-SIHAT-2022

Student's Acceptance Towards the Use of Chatbot in Diagnostic Imaging Subjects

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Although the quantity of resources available to students has expanded dramatically, the use of chatbots in diagnostic imaging courses remains limited. The objective of this study is to develop artificial intelligence chatbot called Dibot that can assist students by answering queries about diagnostic imaging studies. Dibot was implemented on the Snatchbot platform and later

deployed on a Telegram channel and Facebook Messenger. Student's interaction, perceived ease of use and perceived usefulness were used to measure the effectiveness of Dibot. Result show Dibot is helpful in assisting students to review diagnostic imaging subjects, including general x-ray, CT scan, and MRI. Students perceive that using this chatbot for their learning process is easy to use.

Keywords: chatbot, digital learning tool, diagnostic imaging

PS11 i-SIHAT-2022

A Scoping Review of Food Texture Modification for Individuals With Cerebral Palsy

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Individuals with cerebral palsy (CP) frequently present with multiple feeding problems which may require food texture modification to ensure safe feeding. Currently, there is a paucity of research that focuses on food texture modification, especially in food preparation in this group of individuals. Hence, scoping review is conducted to explore the nature of food modification and its effectiveness on the nutritional status of individuals with cerebral palsy. A systematic search was carried out through four databases (i.e., EBSCO (Medline), PubMed, Science Direct, and Web of Science) between January 2011 and May 2022 using the following Keywords: "cerebral palsy", "swallowing difficulties", "dysphagia", and "food texture modification". Out of 86 articles retrieved, seven were selected - two cross-sectional studies, one qualitative study, two sections of books, and two educational materials. The findings suggest that while feeding problems among individuals with CP is an important aspect to be addressed, there is a lack of relevant literature and guidelines. The positive outcomes for the individual with CP are notable with food texture modification, but greater research is needed to support the findings on how it can prevent morbidity and mortality in

this population. There is a substantial knowledge gap on nutrition intervention related to food texture modification for individuals with cerebral palsy which may hinder the development of nutrition management guidelines for this population. Hence, standard guidelines relating to food texture modification that focuses on food preparation and menus with calorie and nutrient information are timely to be developed.

Keywords: Cerebral Palsy, swallowing difficulties, dysphagia, food texture modification

PS12 i-SIHAT-2022

What Predicts you to have Colorectal Adenoma? – Findings from Preliminary Case Study

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Colorectal cancer developed from colorectal adenoma (CRA) – the benign and non-cancerous tumor growth – that later progressed to become malignant and invasive form adenocarcinoma. A case control study was conducted to compare sociodemography, anthropometry and health behaviours (smoking, alcohol intake) among colorectal adenoma and control group. An interviewed questionnaire was used to obtain information on sociodemographic, anthropometry, family history and health behaviours involving 48 participants at Hospital Canselor Tuanku Muhriz (HCTM). A sample of 20 participants with CRA (case) and 28 participants without CRA (control) participated in this study. Mean age is 62.5 ± 8.5 and 67.1 ±7.0 ($p<0.05$), body weight 63.7 ± 12.4 and 65.7± 16.2, body fat percentage 29.7± 10.5 and 31.7± 9.8 for case and control group respectively. A total of 71% from the case group and 29% of the control group do not have family history of cancer. Majority of the case group were Chinese (63%) ($p<0.05$) had CRA which could be due to their type of diet. For supplementation intake, 52% of the case group 48% of the control group had taken supplement before and 69% of the case group is/were smokers. Meanwhile 67% of the case group and 33% of the control group took alcoholic drinks. However, no obvious difference was found for waist-hip ratio between case and control group. Risk factors which include age, races, smoking and family history of cancer, have significant differences between both groups. The results of this study act as a predictive of an individual's future well-being.

Keywords: anthropometry, lifestyle, colorectal adenoma, polyp

PS13 i-SIHAT-2022

The Impact of Parkinson's Disease on Quality of Life of Patients: A Narrative Review

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Parkinson's Disease has been claimed to cause a significant effect on quality of life (QOL), due to its progressive nature as well as the presence of motor and non-motor symptoms that manifests with the disease. This literature review evaluates studies that were identified using Google scholar and PubMed database relating to the effects of PD on patients' QOL.. A total of nine papers were retrieved from the search engines, among which five were quantitative cross-sectional studies, three were qualitative studies, while one was a systematic review published between the year 2012 and 2021. Five of the studies were based in Asian countries, two of which were local Malaysian papers. The four remaining studies were carried out in Western countries. The tools used to assess QOL in the studies include The Parkinson's Disease Questionnaire (PDQ-39), Parkinson's Impact Scale (PIMS), PDQoL questionnaire, WHO QOL questionnaire, and EuroQol-5D (EQ-5D). All studies reported a significantly decreased physical and mental QoL in persons with PD. The studies also documented that both motor symptoms and non-motor symptoms (NMS) negatively impact patients' QoL, with the most significant motor issue is physical disability. The most common non-motor symptom is gastrointestinal disorders, while depression had the most negative impact on a person's QoL. In conclusion, the QoL of persons with PD is markedly affected due to both motor and non motor symptoms. Therefore, NMS need to be recognized and addressed in clinical practice alongside the motor symptoms of PD.

Keywords: impact, Parkinson's disease, Quality of life, motor symptoms, non- motor symptoms

PS14 i-SIHAT-2022

Knowledge, Current Practices, and Perceived Topics for Training on Children with Hearing Loss in Malaysia Primary Care Physicians'

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Early identification of hearing loss in children is essential since it has an impact on their future quality of life. The goal of newborn hearing screening, which has been the standard of care in hospitals, is to identify newborns who are likely to have hearing loss and who need additional assessment. Since only a few major hospitals in Malaysia offer newborn hearing screening programmes, primary care doctors are in a prime position to refer children with high-risk factors for hearing loss for additional diagnosis and screening. This is because they regularly see the newborn and parents during the early stages of the child's development. The goal of this study is to understand primary care physicians' current knowledge and practises regarding childhood hearing loss, as well as to identify the topics related to the issue that primary care physicians require training in order to provide the medical care required for children with hearing loss. A cross-sectional study was conducted on the 139 primary care professionals who attended the Centre for HEARS's awareness seminar on hearing loss in children from 2017 to 2019. A

questionnaire was distributed and collected either online using Google Forms or on paper and pencil. The response rate was 54.67 percent (76). The findings revealed that primary care providers' overall knowledge of hearing loss in children is adequate (51%). Despite that most of participants reported making an immediate referral for children with suspected hearing loss, there is a lack of understanding in referring children to the correct specialist. Furthermore, primary care providers indicated a lack of confidence in talking with parents about childhood hearing loss and expressed a great interest in learning more about the subject. In conclusion, by developing structured learning materials or offering training, primary care physicians' knowledge may be further improved so that they are better equipped to treat children who have hearing loss.

Keywords: knowledge, practice, primary care physicians, childhood hearing loss

PS15 i-SIHAT-2022

Comparison of Plate Waste between In-House Pureed Diet and Newly Developed Pureed Diet (Dys-Puree) Among Dysphagia Patients.

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Pureed diet is one of the textures modified food (TMD) served for dysphagia patients with difficulty to chew or swallow. High plate is usually associated with pureed diet, and it is the key sign of patient acceptance and directly contributed to food quality. The objective of this study is to compare plate waste between in-house pureed diet and newly developed pureed diet (DYS-Puree) among patients with dysphagia. The study was conducted in 3 institutions which are nursing home, patient's home, and hospital ward. A total of 48 patients (n = 48) were selected who met the criteria will be selected to participate in this study. Weighing and visual estimation method were employed to quantify the plate waste of pureed for lunch and dinner only. The overall mean percentage of plate waste for both in-house lunch (50.7 ± 26.3) and dinner (49.9±26.8) are high compared to DYS-Puree lunch (19.2±12.3) and dinner (18.8±13.8). One -way ANOVA showed that the p value was significant for the DYS Puree diet meal for lunch (F (x, xx) = 6.19, p = 0.008) and dinner (F (2, 24) = 4.40, p = 0.025). Beferroni's post hoc paired analysis showed hospital ward had higher plate waste (29.5±15.8) compared to patient's home (14.4±5.2) and nursing home (13.7±5.9) during lunch. While for dinner hospital ward also showed higher plate waste (29.1± 1.92) compared to home institutions (13.8±7.8) and nursing institutions (18.8±13.8). In conclusion, this study found that DYS-

Puree can assist patients enhance daily meal consumption, improve nutrition intake, and reduce plate waste on pureed diet.

Keywords: pureed diet, plate waste, dysphagia, texture modified food,

PS16 i-SIHAT-2022

Influence of Creativity Stimulation on Brain Connectivity during Divergent Thinking Tasks

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Different facets of divergent thinking have been associated with connectivity between different cerebral areas. However, the causality of the connections that exist has yet to be explored. It is hypothesised that with creativity stimulation, changes in effective connectivity among regions will be observed. Thus, using control (n = 26) and experimental (n = 24) group of participants, this study aimed to investigate the effective connectivity between brain areas associated with divergent thinking tasks that accentuate fluency, flexibility, and originality. The experimental participants attended a two-day creativity stimulation, followed by three task-based fMRI sessions for all participants, which included basic use (BU) identification, alternative use (AU) generation and unusual use (UU) determination tasks of the common household items. Dynamic causal modelling (DCM) was used to determine the most optimal causal model to represent the intrinsic connection between medial prefrontal cortices (mPFC), inferior frontal gyrus (IFG), inferior parietal lobule (IPL) and precuneus. The experimental participants scored higher fluency and flexibility than the controls ($p < 0.05$). At neuronal level, significant differences between both groups were seen in mPFC→IFG and mPFC→IPL couplings, in which the controls showed bilateral couplings in AU but more left lateralised in UU task, while the experimental participants exhibited more symmetrical network for both tasks. These differences may be caused by different cognitive strategies based on the episodic versus semantic associative processing by control and experimental participants, respectively, to achieve task goals. Findings also suggested that the

cognitive processing areas are more symmetrically recruited in higher creativity individuals.

Keywords: Alternative use task, Bayesian, divergent thinking, dynamic causal modelling, effective connectivity.

PS17 i-SIHAT-2022

Association between Psychological Distress and Emotional Eating with Weight Change among Malaysian Youths throughout the Covid-19 Pandemic

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Stay-at-home orders have abruptly altered the psychological distress, eating behavior, and weight status of youths. Therefore, this study aims to investigate the association between psychological distress and emotional eating with weight change among Malaysian youths throughout the COVID-19 pandemic. Youths were required to self-report their demographics, socio-economic status, body height, body weight during the Movement Control Order 3.0 (MCO 3.0), and current body weight (as of January 2022). Psychological distress and emotional eating were assessed using the validated Depression, Anxiety, and Stress Scale (DASS-21) and Three-Factor Eating Questionnaire-R18 (TFEQ-R18), respectively. This study revealed that 49.4% of youths gained weight due to the pandemic confinement, with an average weight gain of 3.60 ± 2.53 kg. Of the 235 youths, 18.7% had mild-to-moderate depression, 19.6% had mild-to-severe anxiety, and 2.1% had mild stress after the pandemic. In addition, the standardised mean score for emotional eating in the aftermath of the COVID-19 pandemic was 36.41 ± 28.88. A path analysis was built to investigate the relationship between psychological distress, emotional eating, and weight change throughout the pandemic. The findings of path analysis showed that depression (β= 0.219, *p*= 0.024) and stress (β= 0.229, *p*= 0.046) were positively correlated with emotional eating in this unprecedented pandemic. However, emotional eating was not significantly correlated with weight change throughout the pandemic (β= 0.083, *p*= 0.246). To mitigate emotional eating in youths, the federal government of Malaysia must take necessary measures to provide mental health support to those with psychological distress in the post-pandemic era.

Keywords: Psychological distress, emotional eating, weight change, youths, COVID-19

PS18 i-SIHAT-2022

Blood Pressures and Anthropometric Indicators among Malay Adolescents in Kuala Nerus, Terengganu

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Childhood obesity is an epidemic that occurs worldwide and is considered as potential predictor of hypertension (HPT) among children and adolescents. This study aims to investigate the association of anthropometric indicators (BMI, waist circumference (WC), waist-height ratio (WHtR), waist-hip ratio (WHR), fat mass index (FMI), fat-free mass index (FFMI), fat-to-fat free mass ratio (FFFMR), body fat (BF) percentage) on blood pressure among Malay adolescents in Kuala Nerus, Terengganu. This cross-sectional study was conducted among 309 Malay adolescents (84 boys, 224 girls) aged 18 to 19 years old in a public university. Anthropometric assessment comprised weight, height, WC and hip circumference. Body composition was measured using bioelectrical impedance analysis (BIA) techniques while blood pressure was measured using a blood pressure monitor. BMI, WHR, WHtR, FMI, FFMI, FFFMR and BF percentage were calculated. Based on the WHO-Asian BMI classification, some 40.7% of the participants were overweight/obese and 42.1% were in normal range. The prevalence of elevated blood pressure (EBP) and HPT was 21.4% and 15.5% respectively; the proportion of boys with EBP (29.8%) and HPT (35.7%) were much higher compared to the girls (18.2% and 18% respectively). Binary logistic regression revealed obese adolescents were 7.0 times more odds in developing EBP/HPT compared to other BMI ranges (aOR 6.97; 95% CI 2.92, 16.6; p<0.05). In conclusion, blood pressure monitoring is crucial, early screening and routine measurement for high blood pressure risk needed to be carried out among this population.

Keywords: Blood pressure, anthropometric adiposity, adolescents, obesity.

P19 i-SIHAT-2022

Indoor Air Quality Assessment in Selected Research and Teaching Laboratories at Faculty of Health Sciences, Universiti Kebangsaan Malaysia

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The IAQ in these five laboratories was determined by measuring physical parameters, chemical pollutants, biological pollutants, and ventilation performance indicators. Walkthrough inspections have been conducted as well as the questionnaire forms have also been used in identifying potential causes for IAQ contamination materials. Sampling for physical and chemical parameters was done by direct readings using the instruments and method of colony count for biological parameters.

Relative humidity parameters showed KU, KA, MPG2_1 and MPG2_2 exceed the acceptable range.
Air movement parameters indicated that KU, KA, and KP are not within the acceptable range. Chemical, biological, and ventilation performance indicators results were below the acceptable limit at all sampling locations. In addition, statistical analysis showed significant differences ($p<0.05$) between selected laboratories for all parameters except carbon dioxide (CO_2), carbon monoxide (CO) and total volatile organic compounds (TVOC). In addition, there was also a significant correlation ($p<0.05$) between temperature, Rh, air movement, PM and biological pollutants. In conclusion, the IAQ in all selected laboratories is poor, especially for physical parameters. Among the suggestions for improving the IAQ obtained from this study are to ensure that the ventilation and air conditioning systems are operating properly, and regular monitoring of indoor air quality should be carried out.

Keywords: Indoor, air, quality, IAQ, laboratories

P20 i-SIHAT-2022

Evaluation of Genotoxicity of Triphenyltin(IV) Dithiocarbamate Compounds in Acute Lymphoblastic Leukemia (Jurkat E6.1)

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Etoposide is a chemotherapeutic agent used in the treatment of acute lymphoblastic leukemia (ALL). Etoposide has shown good results over the decades of its use in the treatment of ALL. However, side effects and susceptibility to cancer cells in a number of ALL patients have been reported. Therefore, drug research for better chemotherapy needs to be conducted. Various studies that used organotin (IV) dithiocarbamate compounds have shown positive results. Therefore, derivatives of these compounds were selected in this study to look at the effects of genotoxicity on Jurkat E6.1 cells. The triphenyltin (IV) diisopropyldithiocarbamate (C1) and triphenyltin(IV) diallyldithiocarbamate (C2) compounds were used in the evaluation of cell cycle arrest as well as genotoxic effects on Jurkat E6.1 cell lines. Cell cycle analysis was performed to determine the cell cycle arrest. Meanwhile, the genotoxic effects of DNA damage were determined by evaluating the average DNA tail moment score. Both analyses were performed using inhibitory concentration (IC_{50}). The IC_{50} for C1 is 0.1 µM, while IC_{50} for C2 is 0.2 µM. The IC_{50} for etoposide that was used as a positive control was 0.87 µM. The results of the study showed that both triphenyltin (IV) dithiocarbamate compounds and etoposide compounds caused the occurrence of cell cycle arrest with a significant difference ($p < 0.05$) in the S phase after treatment for 4 hours. The genotoxicity assessment results showed significant DNA damage ($p < 0.05$) after etoposide treatment for 4 hours and similar DNA damage was also seen in the C1 and C2 treatment. However, no significant difference (p >

0.05) was shown when the statistical analysis was performed on the comet assay results. In conclusion, etoposide, S1, and S2 induced cell cycle trapping as well as DNA damage in Jurkat E6.1 cells.

Keywords: Acute Lymphoblastic Leukemia (ALL); Triphenyltin(IV) dithiocarbamate; Genotoxicity; DNA Damage; Cell cycle arrest

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Pandemic Problems: Does E-Learning Induces Digital Eye Strain?

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Digital eye strain (DES) defines one or more visual symptoms experienced due to prolonged use of digital devices (DD). The higher education transition from traditional to e-learning during the COVID-19 pandemic, forcing all students using DD most of the time. This study aimed to explore the relationship between e-Learning screen time and digital eye strain among students in Universiti Kebangsaan Malaysia, Kuala Lumpur Campus (UKM-KL). A cross-sectional study was carried out with undergraduate students in Faculty of Health Sciences UKM KL. Questions pertaining to the DD used during e-Learning and the Computer Vision Syndrome Questionnaire (CVS-Q) were distributed online to consented participants. Data collected from 303 students were analysed. The result showed most of the students preferred to use smartphones during e-learning (50%). Meanwhile, 93% of students spent 4 hours and more on DD for e-learning. Furthermore, the incidence of DES was 82.5% with headache being the most prevalent symptom (80%), while coloured halos around objects were the least reported by students (27%). These research findings showed that DES is highly prevalent among FSK undergraduate students on the UKM KL campus. Interestingly, there is no significant relationship found between screen time during e-learning, the type of digital device with digital eye strain ($p > 0.05$).

Keywords: e-Learning, digital eye strain, computer vision questionnaire,

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Investigation of Production Threshold for Positron Range Modelling in Geant4 Application of Emission Tomography (Gate)

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In nuclear imaging, Monte Carlo simulations are extensively utilized to develop, validate, and evaluate scanner devices, image reconstruction algorithms or data correction techniques where the physical experiment study is not practical. During positron emission tomography (PET) imaging, the positron range imposes a blurring effect on the image, therefore, limiting the spatial resolution. Knowledge of the positron range model would allow for PET image quality improvement. Positron range simulation requires a well-designed script parameter to simulate the photon tracking in various settings accurately. In the GATE Monte Carlo simulation package, the optimised production thresholds parameter was critical to suppress the generation of soft electrons and gammas. Those particles increase the computational load while not contributing to the desired positron-range information. This simulation study investigates the production threshold's effect on positron range modelling. A simulated point source of 18 F, 11 C, 15 O and 68 Ga was positioned at the centre of the simulated homogeneous medium; water, bone and lung, respectively. The physical interaction processes included were ionisation, Bremsstrahlung, positron annihilation and multiple scattering. The production threshold tested was 0.01 mm, 0.10 mm and 1.00 mm. Results show that the positron range estimation, gammas, electrons and positron energy ranges were proportional to the production thresholds. The gammas, electrons and positron energy range were also proportional to the density of the medium travelled, regardless of the type of radioisotope used. In conclusion, the optimised production threshold was determined to accurately simulate the positron range in GATE for future investigation.

Keywords: production threshold, GATE, Monte Carlo simulation, Positron emission tomography, positron range.

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Augmentative and Alternative Communication for Adults with Complex Communication Needs: Experience of Speech Therapists and Caregivers

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Augmentative and Alternative Communication (AAC) is an approach that incorporates strategies and technology to compensate for temporary or permanent communication impairments, activity limitations, and participation restrictions of individuals with complex communication needs (CCN). The aim of this study was to explore the perspectives of speech therapists (STs) and caregivers of adults with acquired complex communication needs regarding the use of AAC. This mixed-methods study had two phases.
For Phase 1, a survey was distributed to Malaysian STs and 37 STs who worked with adults responded and provided information about their use of AAC. For Phase 2, eight caregivers of adults with

CCN who had been introduced to AAC were interviewed to obtain information about their experience using AAC with the individual under their care. Findings from Phase 1 indicated that most STs who worked with adults felt that they had yet to acquire sufficient knowledge and skills on the selection and use of different AAC systems. While they recognized the many advantages of using AAC with this population, they also faced many challenges in using it. Qualitative content analysis of interviews conducted on caregivers in Phase 2 produced three themes which were: (a) impact of the use of AAC, (b) challenges faced when using AAC, and (c) hopes for the future. Findings of this study suggest that both STs and caregivers recognize the importance of AAC for adults with CCN but require additional support and training; STs through professional development course and caregivers through STs themselves.

Keywords: augmentative and alternative communication, complex communication needs**,** adults with acquired communication disorders**.**

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Occurrence of Antibiotic Resistant Bacterial Contamination in Aquaculture Products and its Environment: A Scoping Review in Malaysian Context

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Increased demand in the aquaculture and fisheries sectors in Malaysia contributes to greater usage of antibiotics and may lead to an increase in resistance in bacteria towards antibiotics. Currently, knowledge of the extent of the antibiotic resistance issues in aquaculture products and the aquaculture environment in Malaysia is fairly limited. Therefore, this study is done to review the occurrence of antibiotic resistant bacterial contamination in aquaculture products and their environment in Malaysia. A scoping review approach was used, with three databases (Scopus, PubMed and EBSCOhost) as the medium for article searches. From the final total of 31 articles reviewed, 68 types of antibiotics that were tested, were identified. A huge portion of the studies (64.5%) focused on aquaculture products only and followed by 9.7% of articles that studied on both water and aquaculture product samples. Only 16.1% of the articles studied all three types of samples (water, sediment, and aquaculture products). None of the selected articles only studied sediment samples or the combination of sediment and aquaculture product samples. Most studies targeted on a specific bacterium (88%) with Vibrio parahaemolyticus being the most common targeted species

(40%). Overall, bacterial isolates sampled from water, sediment and aquaculture products in Malaysia reported a high prevalence of resistance toward ampicillin. Ampicillin recorded the highest incidence of resistance in water (71% articles), sediment (2/2 articles) and aquaculture products (15/20 articles). Continuous monitoring and surveillance are needed in aquaculture products and the aquaculture environment, especially on the resistance issue in ampicillin and tetracycline antibiotic.

Keywords: Antibiotic resistance; aquaculture products; aquaculture environment, Malaysia

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SARIMA Models to Forecast the Covid-19 Outbreak in Malaysia.

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Forecasting the COVID-19 outbreak is crucial in assisting health authorities in controlling the current as well as future resurgence of COVID-19 infections. This paper aims to develop SARIMA models using appropriate covariates and smoothening strategies to provide a 28-day COVID-19 daily cases forecast in Malaysia. This study develops Seasonal Autoregressive Integrated Moving Average (SARIMA) models to produce a 28-day forecast of COVID-19 case trends from 6 September to 3 October 2021. The SARIMA model was developed using 593 daily cases data points sourced from Ministry of Health official website. To improve model accuracy, both the dependent and independent variables were smoothened, and several daily subnational data covariates were utilized. The model was trained and validated from 22 January 2020 to 5 September 2021 using daily COVID-19 case data. SARIMA model generated with the best goodness of fit (lowest root mean square error, RMSE = 73.374, mean absolute percentage error, MAE = 39.716, Bayesian information criterion, BIC = 8.656) were chosen. The observed daily cases and forecasted cases showed a similar downward trend of COVID-19 cases and the observed (7-day moving average) cases were within the 95% confidence interval. Majority (89%) of the difference between the observed and forecasted cases was well within a 25% deviation index. In conclusion, using the strategies mentioned above, SARIMA model generated in this paper closely represent the observed actual cases during the forecast period.

Keywords: SARIMA model, COVID-19, forecast

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Mental Health Mobile Apps during Covid-19 Pandemic to Evaluate Stress Level in Selangor

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The COVID-19 pandemic has impacted negatively on public mental health. As a result, monitoring the level of the population mental health is a priority during crises. This study aims to measure stress during the COVID-19 pandemic in Selangor. Cross-sectional study was done using SELANGKAH apps, where users are Selangor citizens. Data was collected from September 2021 until March 2022. This app was initially used as contact tracing and mental health modules (SEHAT) were added, consisting of a validated Perceived Stress Scale (PSS-10) questionnaire. Out of 42072 SEHAT users, 6411 people had completed the questionnaire. Majority were female (53.6%), Muslims (79.6%), had formal education up to secondary (49.0%), low income (89.9%), and young and middle- aged adults (59.7%). Majority have a moderate stress (66.8%), while 23.3% and 9.9% are low and high levels, respectively. High stress is significantly associated with females, high education, younger age groups, and low monthly income. Several factors could have contributed to this throughout the COVID-19 pandemic, such as online learning, uncertainty on study duration, financial constraints and limited social interactions. Moreover, as an effect of prolonged pandemic and MCO, a surge in the number of job terminations has also affected the source of income, which contributed to high levels of stress among the general population. The level of stress in Selangor was high during the pandemic as an effect of MCO.

Keywords: Public mental health, Stress, Covid-19, pandemic, Digital health, mobile mental health

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Impact of Nutritional Intervention on the Weight of B40 Children in Selangor

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Nutritional status is a significant measure of the overall health of the population. Among children of the most vulnerable groups to have malnutrition are those in the B40 group, with Selangor being the most populous state that has these vulnerable populations. This study aims to assess the impact of nutrition intervention in reducing underweight prevalence among children in the Selangor B40 group. The data was collected from June 2022 until October 2022 from 500 children aged 1 to 6 years

old. Intervention includes a monthly food pack consisting of specialised formula milk and multivitamins alongside nutrition counselling Monthly weights were taken for 5 months using the SECA weight scale model 874 and it was monitored using the WHO AnthroPlus. The majority of the respondents were male (51.3%). Baseline results showed 20.6% underweight respondents with 14.4% moderately underweight and 6.2% who were severely underweight. Mean weight increment was observed the highest during the fifth month with 1200g, followed by 510g, 450g, and 110g for the fourth, second, and third month, respectively. A declining prevalence of underweight was observed by the fifth month (10.9%) with 9.2% moderately underweight, 1.7% remains severely underweight and 9.7% children progressing to normal weight. By giving nutrient supplementation, it helps to improve the weight of these children. However, other factors that may contribute to undernutrition such as maternal diet, food insecurity, nutrition education and complications from a variety of diseases should not be overlooked.

Keywords: malnutrition, nutrition intervention, nutritional status, underweight, childhood nutrition.

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Epidemiological Characteristics of the First Wave of Covid–19 in Malaysia: A Descriptive Study

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COVID-19, first identified in China in late December 2019, has affected and claimed millions of lives globally. In Malaysia, the first wave of COVID-19 began on 25 January 2020. We aim to describe the characteristics of COVID-19 cases and close contacts during the first wave of COVID-19 in Malaysia (23 January 2020 to 26 February 2020), and to analyse the reasons why the outbreak did not continue to spread and lessons that can be learnt from this experience. Data on COVID-19 cases and close contacts from the first case detected until 26 February 2020 were analysed. The characteristics of cases and close contacts, spatial spread epidemiological link and timeline of the cases were examined. An extended SEIR model was developed to determine the basic reproduction number and trajectory of cases during the first wave. A total of 22 cases with 368 close contacts were traced, identified, tested, quarantined and isolated. Due to the effective and robust outbreak control measures put in place such as early case detection,

active screening, extensive contact tracing, testing and prompt isolation/quarantine, the outbreak was successfully contained and controlled. The SEIR model estimated the R0 at 0.9 which further supports the decreasing disease dynamics and early termination of the outbreak. As a result, there was a 11-day gap (free of cases) between the first and second wave which indicates that the first wave was not linked to the second wave.

Keywords: COVID-19; epidemiology; disease transmission; first wave

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Current Use of Fluorodeoxyglucose Pet/Ct scan in the Management of Differentiated Thyroid Cancer Patients: Local Experience of A Tertiary Hospital

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Although most differentiated thyroid cancer (DTC) cases respond well to standard treatment of surgery followed by course of radioactive iodine ablation with post therapy whole-body scan, some may later turn aggressive and refractory. Assessment using fluorodeoxyglucose positron emission tomography/computerised tomography (FDG PET/CT) is well established in oncology and may be warranted among selected DTC patients particularly in biochemical failure or recurrence. We aimed to evaluate the indications of this imaging modality among DTC cases in our institution, characteristics of patients and scan findings. Cross-sectional study of DTC patients who were referred for FDG PET/CT between November 2017 and April 2019 (n=125). Biochemical failure is determined by elevated serum thyroglobulin or anti-thyroglobulin. Those who defaulted PET/CT appointment and follow up with incomplete documentation were excluded. Altogether 113 cases were included. Clinical parameters, laboratory results, scan indications and findings were then collected, audited and statistically analysed. Majority were middle-aged females (71.7%). Mean cancer duration was 9.3 years. Papillary thyroid carcinoma was predominant (78.8%). Majority had stage I-II disease (77%) and ≤4 radioiodine treatment sessions (70.8%). Residual disease shown on radioiodine whole-body scan was demonstrated in only 31%. Indications for FDG PET/CT were elevated serum thyroglobulin (68.1%) and raised anti-thyroglobulin titre (21.2%). FDG-avid malignancy was observed in 56.6% with predominantly neck lesions (51.3%). Several parameters including baseline nodal involvement were significantly associated with FDG-avid malignancy ($p<0.05$)..In conclusion, FDG PET/CT plays important role in evaluating suspected refractory DTC cases. Several clinical characteristics were associated with FDG-avid malignancy particularly baseline nodal involvement.

Keywords: Thyroid cancer, refractory, fluorodeoxyglucose PET/CT.

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Psychological Distress and Social Support of Healthcare Workers in Early Stage of Pandemic: A Cluster Analysis

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Despite the salient role of healthcare workers in pandemic management, their psychological experience and the social support received during this trying time remains relatively unclear. Objective: To determine whether distinguishable profiles exist in a cohort of healthcare workers associated with psychological distress and social support during early stage of pandemic. Method: An online cross-sectional survey was distributed among healthcare workers in university hospitals. The survey consisted of two parts: Part A assessed demographics characteristics of participants and Part B assessed their psychological experience as well as social support during the pandemic. A two-step cluster analysis was used to determine the homogeneity of sample cohort associated with psychological distress and social support. Result: There are three distinguishable clusters of healthcare workers affected by COVID-19 pandemic characterised by their psychological distress and degree of social support: High vulnerability (n = 115), Moderate vulnerability (n = 85), and Low vulnerability (n = 150). Model of clusters is categorised as fair at 0.3 (Akaike's = 1631.96, Log-likelihood = 1.60). Findings indicated that psychological distress and the degree of social support received were significantly different across clusters; Cluster 2 is the most affected whereas Cluster 1 is the least affected. Conclusion: Findings pointed out that healthcare workers are differentially affected during the early stage of the pandemic. The ability to identify their psychological and social support characteristics may facilitate custom tailored intervention sensitive to their need.

Keywords: psychological distress, social support, healthcare workers, COVID-19, cluster analysis

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Picky Eaters: Exploring Nutritionists' Understanding and Case Management in The Klang Valley.

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Children aged three to five years old who are picky eaters (PE) are typically associated with malnutrition. The

prevalence of PE children in Malaysia ranges from 30-60% depending on age group and region. However, little is known about the picky eater case management protocol among nutritionists in the government sector, where they are more focused on the weight problem instead. Therefore, this study aimed to investigate knowledge on of PE and case management strategies among nutritionists in the Klang Valley. Using semi-structured questions, seven nutritionists were invited to participate in three online Focus Group Discussion (FGD) sessions (3, 2 and 2 nutritionists, respectively). The FGD sessions were subsequently transcribed and analyzed using thematic analysis. Results showed nutritionist defined picky eaters as lack of food diversity and food neophobia as being the primary characteristics and other factors including environmental, social economy, parental approach, and personal characteristics. As for the detection of detecting PE, diet recall, diet history, and interview sessions are the most common assessment techniques conducted. Management was more focused on the limited guidelines, references and available interventions from literature and experience. In addition, parents were found to have a crucial role in the success of their children's PE intervention programs. In conclusion, the definition of PE varies from a one nutritionist to another, and there is no standard case management method for PE children. It is therefore important to have a more similar definition and management which is believed can be implemented in future research focusing on developing intervention modules for the picky eaters.

Keywords: picky eaters, nutritionist, factors influence, detecting case, parenting and qualitative

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Benzene Metabolite 1,4-Benzoquinone Promotes DNA Repair Mechanism Via Nonhomologous DNA End Joining in Mouse Bone Marrow and Hematopoietic Stem/Progenitor Cells

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Benzene is a known hematotoxic and leukemogenic agent with hematopoietic stem/progenitor cells (HSPCs) niche being the major target. However, knowledge concerning the DNA repair mechanism of benzene-induced genotoxicity targeting HSPCs niche consisted of multi-lineages populations remains obscure. Thus, this study aimed to elucidate the effects of benzene metabolite, 1,4-benzoquinone (1,4-BQ) exposure on DNA repair mechanism in HSPCs niche comprised of myeloid, erythroid and Pre-B lymphoid progenitors. Isolated mouse bone marrow (BM) cells were cultured and exposed to 1,4-BQ at 0, 1.25, 2.5, 5, 7 and 12 μM for 24 h followed by colony forming cells assay (CFC) for 14 days for myeloid progenitor; and 7 days for both

erythroid and Pre-B lymphoid progenitors. DNA repair pathway pathways involving two mechanisms namely homologous recombination repair (HR) via RAD51 and nonhomologous DNA end joining (NHEJ) via DNA-PKcs protein expressions were studied. Results showed that the expression of DNA-PKcs protein were was significantly (p <0.05) increased in in a dose-dependent manner in BM cells and HSPCs for myeloid, Pre-B lymphoid and erythroid following 1,4-BQ exposure; with significantly higher level of expression (p <0.05) was evidenced in myeloid progenitors than in other group of cells. Meanwhile, a significant increase in RAD51 protein expression (p <0.05) was only observed in myeloid (5, 7, 12 µM) and Pre-B lymphoid (7, 12 µM) progenitors at selective 1,4-BQ concentrations; with myeloid progenitor showed the significantly higher RAD51 expression in comparison to other group of cells. In conclusion, 1,4-BQ exposure induced DNA repair mechanisms mainly via NHEJ with remarkable effect on myeloid progenitor.

Keywords: 1,4-benzoquinone, DNA repair, hematopoietic stem/progenitor cells, lineages, genotoxicity

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S-Allylcycteine Ameliorates Cardiovascular Fibrosis and Hypertrophy via the Modulation of cystathionine-γ-lyase (CSE)

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Cardiovascular diseases disease (CVD) is the top cause of deaths death in Malaysia. Past The past record suggests that premenopausal women have a reduced incidence of cardiovascular disease compared to age-matched males, however, the incidence and severity of CVD increases after reaching menopause. Hormone replacement therapy has shown to have side effects, hence an alternative natural adjunctive with minimal side effects such as S-Allylcysteine (SAC) is explored. SAC has been found to show cardioprotective evidence but it has yet to be sought in the model of ovariectomized rats mimicking menopausal condition. Thus, this study is to investigate the effect of SAC on the cardiovascular cystathionine-γ-lyase (CSE) enzyme and its histological effect on ovariectomized rats with myocardial myocardial injury. Forty female Wistar rats were acclimatized before ovariectomy surgery. Rats that went through the surgery without getting their ovary removed were served as Sham. After three weeks of recovery, rats received either normal saline or isoprenaline (85 mgkg, s.c, twice) for myocardial injury induction. Rats then received either SAC (100 mg/kg, p.o) or distilled water for one week. Rats were sacrificed and hearts were harvested. CSE protein expression and activity were shown to have a trend of increase in those treated with SAC. Cardiomyocyte size were was reversed to normal after being given SAC. Collagen deposition

was also shown to reduce in the SAC group. This study suggests that SAC may have ameliorated cardiovascular fibrosis and hypertrophy induced by isoprenaline via the modulation of CSE.

Keywords: cardiovascular, fibrosis, hypertrophy

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Composition of Metals in Pm 2.5 And Their Emission Sources in Kapar, Klang, Malaysia

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A study was conducted to determine the concentrations, chemical compositions, and sources of PM2.5 in Kapar. PM 2.5 were collected from four sampling stations from June to November 2018. Backward HYSPLIT was conducted to identify the trajectory of air mass during the study period. Results showed that air mass originated from Sumatra, Indian Ocean, and South China Sea. Mean concentration of daily PM 2.5 during southwest monsoon (June – September), inter monsoon (October) and northwest monsoon were 14.68 ± 5.06 µgm -3 (range 0.76 – 43.15 µgm -3) , 11.05 ± 3.61 µgm -3 (range 7.44 – 14.67 µgm -3), and 16.41 ± 2.30 µgm -3 (range 14.11 –18.71 µgm -3) respectively. PM2.5 concentrations were below Malaysian national standard (MAAQS) for 24-Hour mean PM 2.5 concentration (25 µgm -3) except for one sample in September from Station 3 (43.15 µgm -3). Metals were extracted from PM 2.5 samples through sonication with ultrapure water as solvent. A total of 29 samples were analyzed for 19 elements (Al, As, Ba, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Pb, Rb, Sr, V, and Zn) via ICP-MS. Na K, Ca, Zn, and Mg exhibited high average concentrations compared to other metals. Principal Component Analysis (PCA) was conducted to determine the sources of PM 2.5 and identified four factors which were a) Mixture of coal combustion and vehicular emissions (34%), b) soil (12%), c) oil combustion (17%), and d) mixture of biomass burning and sea salt (37%). Understanding of the contribution of the major sources to PM 2.5 exposures is the basis for air quality management interventions aiming to deliver improved public health outcomes.

Keywords: PM 2.5 , trace metals, PCA, water-soluble, coal power plant

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In Vivo Study on Effects of Canarium Odontophyllum Leaves Extracts against Plasmodium Berghei Nk 65

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Malaria is still considered a life-threatening vector-borne disease in Malaysia although there's a decrease decreased number of cases with the help of current treatment. However, the emergence of antimalarial drug resistance is a major concern. Hence, medicinal plants are the unquestionable source of effective antimalarials. This study was conducted to evaluate the antimalarial activity in Canarium odontophyllum leaf extracts against Plasmodium berghei NK65 via liver function test, renal function test, and lipid profile. Plasmodium berghei NK65 (1 x 10 7) were inoculated into ICR mice intraperitoneally. Methanol and hexane leaf extracts of Canarium odontophyllum with concentrations,100 mg/kg, 300 mg/kg and 500 mg/kg were orally administered in P. berghei infected mice for four days of the suppressive test. Chloroquine (10 mg/kg) was used as the standard drug. One-way Variance Analysis (ANOVA) test was used to analyse the relative activity of the parasite between the control group and different types of treatment doses. Although there was a significant (p < 0.05) body weight reduction for all treatment doses, the highest survival rates were recorded for methanol leaf extracts (100 mg/kg and 300 mg/kg) and 300 mg/kg for hexane leaf extracts. The biochemical profile observation of 100 mg/kg concentration from both extracts showed the highest activity of alkaline phosphatase, aspartate aminotransferase, alanine aminotransferase, urea level, and creatinine. Meanwhile, there is no significant changes were observed in the lipid profile test. In conclusion, both methanol and hexane extracts were effective at 500 mg/kg, 100 mg/kg and 300 mg/kg respectively in parasite activity inhibition with potential as an antimalarial drug.

Keywords: Canarium odontophyllum, antimalarial, Plasmodium berghei NK65, liver function test, renal function test

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Association between Sociodemographic Variables and Nutritional Status with Food Security among Older Adults in Klang Valley During Covid-19: A Cross-Sectional Study

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The objective of this study was to determine the relationship between food security with sociodemographic variables and nutritional status among the older population in Klang Valley. This cross-sectional study utilised data from the screening phase of the Ageless trial which was conducted from October 2021 till March 2022. Older people aged 60 years and above, fluent in dual languages and community-dwelling were included. Data was collected through interviews that included sociodemographic variables and nutritional status. A questionnaire that comprised 6-items short-form food security scale was administered. Sociodemographic data and nutritional status was analysed descriptively while Chi-square test was used to determine the association between food security and food insecurity among older adults. Additional analysis was conducted using Pearson's correlation to evaluate the relationship of the sociodemographic variables and their food security. Data was obtained from 260 older adults (67.02 years old ± 5.605) residing in Klang Valley. Majority of the participants were females (57.7%), from Malay ethnic group (84.6%), married (68.8%), received secondary education level (51.2%) and residing in urban areas (62.3%). Overall, participants were classified as overweight (44.6%), no risk of malnutrition (70.0%) and had less risk of food insecurity during COVID-19 (94.6%). Those who were living in urban areas were more likely to have higher food security compared to those residing in rural areas ($r=0.186$, $p<0.05$). There was no significant relationship between other sociodemographic variables, nutritional status and food security among older adults in Klang Valley. Our findings imply that the majority of older adults were overweight, had no risk of malnutrition and lower likelihood of food insecurity during COVID-19, particularly among those residing in the urban areas. Reinforcement on nutrition education and training based on Malaysian Dietary Guideline 2020 should be implemented among the older population residing in rural areas.

Keywords: nutritional status, food security, older adults, COVID-19

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Mental Health Status Of Older Adult In Malaysia During Covid-19 Pandemic: Its Relationship With Resilience

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The detrimental impact of Covid-19 pandemic on the general population has been thoroughly discussed previously. However, researches have shown that older adults may exhibit a higher resilience trait as compared to the younger population. The goal of this study is to determine the mental health status of older adults during Covid-19

pandemic and its relationship with self-perceived resilience and other socio-demographic factors. The cross-sectional study using convenience sampling method was conducted among 167 community dwelling older adults, aged 60 years old and above. The Beck Depression Scale (BDI) and 10 item Connor Davidson Resilience Scale (CD-RISC 10) were used to measure levels of depression and resilience. Socio-demographic factors being assessed were gender, race, history of head trauma, work status, household income, smoking, alcohol consumption, living arrangement, as well as multimorbidity and polypharmacy issues. Majority of the participants were men (55%), Malay (92%), live with family (87.4%), Currently not working (81%), from B40 household (90%), not a smoker (86%), not an alcoholic drinker (97%), have no history of head trauma (89%), don't take more than 4 medicine daily (92%) and having multimorbidity (63%). 96% of the participants had good mental health status. However, those with multimorbidity experienced a significantly higher level of depression than those who did not have multimorbidity (p<.001). Depression and resilience showed significant but weak negative correlation (p=.028, r= -.170). Multiple linear regression analysis indicates that multimorbidity will increase the likelihood of experiencing depression by 1.8 times in older adults. Despite the multiple challenges they faced during the pandemic, Malaysian older adults had been able to maintain good mental health, but those with multimorbidity seem to be at risk of depression; and depression related to a lower resilience. There is a need to identify those at risk of poor mental health and depression early for an appropriate intervention strategy.

Keywords: older adult, depression, resilience

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Association between Body Composition and Cognitive Frailty Among Older Adults in Malaysia

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Cognitive frailty has been associated with increased risk of dementia, disability and mortality. Identifying early risk factors for cognitive frailty are crucial for effective preventive measures. The study aimed to investigate the association between body composition and cognitive frailty among older adults in Malaysia. This study was conducted as part of the ongoing Ageless trial randomized control trial. A total of 979 Malaysians, community dwelling, older adults aged 60 years and above from three states in Malaysia (Kuala Lumpur, Selangor and Negeri Sembilan) were included in this study. Cognitive

frailty was assessed by Clinical Dementia Rating Score and Fried's Criteria Score. Sociodemographic, health status and anthropometric measurements were evaluated. Body composition was assessed by bioimpedance analyzer (InBody 270), including skeletal muscle mass, body fat mass, fat free mass and percent body fat. Binary logistic regression was used to analyze the association between body composition and cognitive frailty. Results showed that cognitive frailty was present in 37.7% of the participants. Cognitive frail older adults showed significantly lower fat free mass and skeletal muscle mass as compared with non-cognitive frail group ($p < 0.001$). Low fat free mass (OR=0.97, 95% CI:0.94–0.99, $p < 0.05$) and skeletal muscle mass (OR=0.94, 95% CI:0.90–0.98, $p<0.05$) were found to be significant factors for cognitive frailty. In conclusion, low fat free mass and skeletal muscle mass were identified as significant factors associated with cognitive frailty among older Malaysian adults.

Keywords: Body Composition, Cognitive Frailty, Older Adults, Malaysia

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Nutritional Status of Picky Eaters Aged 3 To 5 Years Old and The Relationship between Eating Behavior with Sensory Profile and Parenting Style.

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Picky eating is common among children, characterised by lack of diversity in food intake, fear of trying new foods and having strong food preferences. Nevertheless, limited studies were found relating to the incidence of picky eating and its associated factors among preschool children in Malaysia. This study aims to understand nutritional status of picky eaters and the relationship of eating behaviour with sensory profile and parenting style. A cross-sectional study was conducted among 100 preschool children aged 3 to 5 years old in the Klang Valley area. A set of online questionnaires consisting of Child Eating Behaviour Questionnaire (CEBQ), Child Sensory Profile-II (CSP-II), food list form, and Parenting-Style Questionnaire (PSDQ) was administered online. Height and weight measurements were also collected. Results: 56% children were identified as picky eaters. Their weight-for-height -0.46 z-score was significantly lower than non-picky eaters -0.19 z-score ($p<0.05$). Higher scores of food fussiness together with lower scores of food responsiveness, enjoyment of food and emotional overeating were prevalent among picky eaters ($p<0.05$). Picky eaters were shown to have low consumption of fruits, vegetables, milk and milk products. No relationship was found between picky eating behaviour with sensory profile and parenting styles. Conclusion: This study revealed that picky eaters have lower nutritional status than normal children, but no association was found between eating behaviour with

sensory and parenting styles. Further studies are needed to investigate this incidence for future interventions.

Keywords: child eating behaviour, nutritional status, picky eating, parenting style, sensory

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The Effects of Carvacrol Within the Cardiovascular System in Doxorubicin-Induced Cardiotoxicity in Rats

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Globally, cancer survival rates have been improving, however the side effects of cardiotoxicity associated with chemotherapy treatment such as doxorubicin has been a burden socioeconomically. Carvacrol is a phenolic monoterpenoid found in essential oils of oregano,thyme and other plants that possess a wide range of bioactivities including antioxidant, cardioprotective and anti-apoptotic effects. Therefore, this study explores the cardioprotective effects of carvacrol against cardiotoxicity caused by doxorubicin. A total of 24 male Sprague-Dawley rats (200-250g) were randomly divided into three groups: control, cardiotoxicity (DOX) and treatment group (CAR+DOX) with each group consisting of 8 rats. The treatment group was pretreated with carvacrol (50 mg/kg/daily, p.o) for 14 consecutive days, whereas the cardiotoxicity and control group were given the vehicles DMSO 0.5% and corn oil, respectively. The DOX group was given doxorubicin (15 mg/kg, i.p) on day-15 to induce cardiotoxicity, and then left to recover for 2 days. The blood pressure for all groups was taken via tail-cuff method on day-0, day-14 and day-18. All rats were sacrificed on day-18 of the experiment. The results showed that systolic blood pressure decreased significantly ($p<0.05$) in the cardiotoxicity group compared to the control group, indicating possible cardiac damage. The CAR+DOX group showed normalized blood pressure as in the control, suggesting that the treatment managed to reverse the blood pressure changes. There were no significant changes with the cardiac function parameters from the Langendorff isolated heart perfusion, as well as oxidative stress (MDA) and antioxidant enzyme (GSH). However, the structural changes involving fibrosis and hypertrophy were significantly higher ($p<0.05$) in the cardiotoxicity group compared to the control group, and the CAR+DOX group showed significant reversed effects. In conclusion, these findings have proven the possible cardiotoxic effects by doxorubicin, and carvacrol supplementation managed to at least prevent the histological alteration cardiotoxicity.

Keywords: doxorubicin, carvacrol, cardiotoxicity, rat model

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Relationship between Ocular Surface Disease Index and Self-Reported Night Driving Difficulty in Malaysian Drivers

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The ocular surface disease index (OSDI) questionnaire is a common tool for subjective dry eye syndrome assessment. Dry eye syndrome is a multifactorial condition which can cause symptoms like blurred vision, eye pain and discomfort. These dry eye syndrome- related visual impairments are more noticeable under dim illumination, especially when driving at night. This study aimed to investigate the relationship between OSDI and self-reported night driving difficulty in Malaysian adults. This was a cross-sectional study involving 253 drivers aged 19 to 40 years. OSDI questionnaire was used to evaluate the subjective dry eye symptoms while Vision and Night Driving Questionnaire (VND-Q) was used to assess the self-reported night driving difficulty score. The drivers were categorized into four groups based on OSDI, which were asymptomatic group (n=98), low OSDI (n=78), moderate OSDI (n=31), and high OSDI (n=46). There was a statistically significant difference in self-reported night driving difficulty score between the different levels of OSD ($p<0.05$). Post-hoc testing for all between-group differences was significantly different ($p<0.05$) except for low and moderate OSD groups. A significant positive correlation was found between the OSDI and self-reported night driving difficulty score ($r = 0.61$, $p <0.05$). Drivers with higher OSDI tend to experience more difficulty in driving at night. These findings highlight the importance of elucidating drivers with dry eye symptoms about the limitation of vision in night driving and provide suggestion that dry eye management can be of great benefit to drivers' vision at night.

Keywords: dry eye, night driving, questionnaire, measurement of symptoms

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Navitoclax Hinders Il-3-Induced Human Umbilical Vein Endothelial Cells Migration and Angiogenesis

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Navitoclax causes cancer cell death in solid and non-solid tumors. Pathological angiogenesis in cancer is comparable to intraplaque neovascularization, which is largely contributed by endothelial cell activation. The pro-apoptotic effect of navitoclax on tumor cells allows cancer metastasis inhibition; therefore, it is expected to affect endothelial cell activity and may develop as a novel therapeutic agent for advanced atherosclerosis. Nevertheless, navitoclax action on endothelial cell motility is yet to be determined. This study demonstrates the navitoclax effect regulating IL-3-induced endothelial cell migration and angiogenesis. An in-vitro study was conducted using primary endothelial cells isolated from human umbilical veins. Three groups were included in this study; i) control; ii) 25 ng/ml IL-3; iii) 25 ng/ml IL-3 with 0.9µM navitoclax. Scratch wound assay was conducted 24 hours, and images at 0, 12 and 24 hours were captured. Next, tube formation assay on matrigel was carried out for 8 hours, and the images were saved. After the treatment, the expression of mmp-3 and mmp-10m mRNA were detected using real-time qPCR. The images were analyzed by ImageJ- Angiogenesis analyzer, and the statistical analysis was performed using GraphPad prism. Navitoclax had a significant ($p<0.05$) large wound area after 24 hours treatment compared to the IL-3 group. Furthermore, navitoclax treatment reduced the tube formation induced by IL-3 significantly ($p<0.05$) within 8 hours. Lastly, mmp-3 and mmp-10 gene expression were decreased in the navitoclax group. In conclusion, navitoclax inhibition on endothelial cells motility and angiogenesis are associated with metalloproteinase expression, specifically mmp-3 and mmp-10.

Keywords: ABT-263, HUVEC, motility, interleukin 3, tube formation.

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The Association of Depression With Cognitive Performance In Older Adults With Dementia

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Dementia is the leading cause of disability worldwide and it is associated with declined cognitive function.

However, the association with coexistence of depressive symptoms remain to be explored. Therefore, this study was conducted to examine the association of depression with cognitive performance in demented older adult. This was a part of the Malaysian Towards Useful Aging (TUA) study involving community welling older adults in Malaysia. This cross sectional study was participated by 894 (meanage= 69.05±6.23) older adults. Dementia was classified based on Clinical Dementia Rating (CDR) Scale with a cut off score of 1. Depression was assessed with Malay Version of Geriatric Depression Scale – 15 (GDS-15), in which a score of 5 and above indicates depression. A series of test were administered to evaluate cognitive performance; digit span (working memory), digit symbol (processing speed), Mini Mental State Examination (MMSE), and Montreal Cognitive Assessment (MOCA) for global cognition. Results: A total of 48 (mean age: 79.13 ± 5.33) older adults were reported to be demented, in which 52% were presented with depression. Independent T-test showed a significant difference t(46)= 2.39, p<0.05. However, MMSE, MOCA and digit span showed no significant differences between groups, p>0.05. Linear regression indicated that older adults with CF and depressive symptoms were associated with reduced processing speed in comparison to those with only CF (B=-0.72, 95% CI:-1.32–0.11, p<0.05). In CF, depression is associated with poorer cognitive functioning, especially processing speed. Therefore, there is a need to provide multimodal treatment strategies integrating physical, cognitive, and psychological functioning.

Keywords: dementia, cognitive performance, depression, older adults

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Urine Guanidinoacetate and Creatine Reference Values in Malaysian Population

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Guanidinoacetate (GAA) and Creatine (Cr) is a biochemical marker for the diagnosis of Inborn Errors of Creatine Metabolism and Transport (IECMT). This disease is one of a relatively new potentially treatable group of inherited metabolic disorders that involve disturbances due to a lack of production

or use of energy. Urine analysis for diagnosis of IECMT using flow-injection analysis tandem mass spectrometry (FIA-MS/MS) was developed using a published method with some modification. The purpose of this study was to establish reference values for GAA and Cr in urine for our local population and explore the age, gender and race differences. This cross-sectional study included samples from 1320 outpatients with no neurological symptoms aged between day 1 to 50 years old from Kuala Lumpur Hospital (HKL) and Women and Children Hospital (WCH), Kuala Lumpur. Samples from four molecular confirmed patients prior to treatment initiation were also included for cut-off verification. Data analysis was performed using IBM SPSS statistics version 25. Referral intervals were derived from non-parametric analysis. Reference values were partitioned into three age groups for GAA and Cr. There is no difference in reference values between gender and race. In conclusion, age-related reference values have been successfully established for the diagnosis of IECMT in Malaysia.

Keywords: creatine, Guanidinoacetate, reference values, urine, inborn errors of creatine metabolism and Transport

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Development of Hyperphagia from Infancy to Adulthood in Prader Willi Syndrome: A Scoping Review

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Prader-Willi Syndrome (PWS) is a rare genetic neurodevelopmental disorder that results in physical, mental and behavioural problems. Two different nutritional stages are reported in PWS; first, during infancy marked by feeding difficulties and second stage where hyperphagia starts and leads to obesity. Hyperphagia is the endless pathologic urge to consume food and constant hunger that can lead to obesity that is a primary phenotypic component. However, the exact mechanism for the development of hyperphagia from infancy to adulthood is still largely unknown. This scoping review was hence conducted to collate findings of potential mechanisms of hyperphagia in PWS from year 2016 to 2021. Keywords with synonyms such as hyperphagia, binge-eating disorder, excessive eating were used for searching relevant studies in three databases chosen; PubMed, Scopus and ScienceDirect. A total of 30 studies were selected. The possible mechanism of hyperphagia can be classed into hormonal abnormalities such as abnormality in ghrelin, leptin, insulin level and neuronal abnormalities which are contributed by Orexin A and brain structure alteration. Treatment in the form of drugs such as livoletide, topiramate, diazoxide could potentially correct these abnormalities and make hyperphagia less prominent in PWS. Currently several in vivo models targeting the gene Snord116 and Magel2 are used to investigate PWS. In conclusion, hyperphagia and obesity occur due to disturbance in the hypothalamic satiety regulatory mechanisms contributed by several hormones, body composition

differences and altered feeding behaviour. However, the exact mechanisms responsible remain to be determined and need to be further evaluated potentially by using in-vivo models.

Keywords: ghrelin, leptin, obesity, animal model

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Thermoluminescence Performance of Tld-100 for Radiotherapy Dose Audit With Irregular Multileaf Collimator Fields: A Preliminary Study

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As part of the extension of independent dosimetry audits by the International Atomic Energy Agency (IAEA), a preliminary study of the dosimetry audits for photon beams shaped with multi-leaf collimators (MLC) was first conducted in Malaysia. Five basic dosimetric characteristics of TLD-100 were investigated, including linearity, energy dependence, reproducibility, repeatability, and fading. The calibration curves were established using 6 MV and 10 MV beams, following the TRS 398 Code of Practice. A preliminary study was conducted with seven different field arrangements, concentrating on the beam axis of dosevariation with field size and shape for a variety of MLC-shaped regular and irregular fields, including wedged fields. The absorbed dose measured by the TLD-100 was compared to the calculated dose by the in-house treatment planning system (TPS). TLD-100 showed an excellent dose-linearity ranging from 100 cGy to 500 cGy with R^2 values of 0.99 for both 6 MV and 10 MV. The reproducibility and repeatability were found to have a coefficient of variation of less than 5%, with a maximum TL signal depletion of 10% over 35 days post-irradiation. The calibration curve was established against the NE 2571 ionization chamber. For all seven fields shaped by the MLC, the percentage variation between the absorbed dose determined by the TLD-100 and the TPS was within the tolerance limit of ±5%. The methodology for TLD audits for photon beams shaped with the MLC has been tested and is ready to be

used in the national dosimetry audits for radiotherapy centres.

Keywords: TLD-100, Radiotherapy dose audit, MLC.

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Knowledge and Perception of Presbyopia Patients towards Near Correction Options after Covid-19 Pandemic

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In Malaysia, there is a scarcity of evidence on presbyopia-related knowledge and perception. The aim of this study was to assess patients'; knowledge on presbyopia as well as their preferred near refractive correction options after the impact of the COVID-19 pandemic. The knowledge and perception assessment were done through an online questionnaire. In Gombak, Selangor, 65 participants completed an online questionnaire consisting of six questions. Participants from 40 to 70 years old represented presbyopia population. More than half of the respondents were not familiar with the term 'presbyopia' (52.3%) and, nearly all respondents agreed that presbyopia is associated with age (98.6%). Majority of the respondents were aware that spectacles could correct presbyopia (94.2%), and almost half of them acknowledged that contact lens could treat presbyopia (49.3%). Thirty-eight percent felt the lack of need to wear any correction (35.5% of them experienced headache). Wearing distance spectacles separately with reading glasses (68.6%) was the most preferred mode of near correction. This study showed hat the level of knowledge on presbyopia does not associate with one's occupation (p=0.145). The preferred modes of near correction was not shown to be related to knowledge on presbyopia (p=0.711). Despite their familiarity with the most participants were aware that the blurriness was due to the ageing process. Additionally, this study showed that spectacles are the most opted method of near vision correction. The limitation to go outdoor, mental stress and rapid digitalization related to strict quarantine due to infectious diseases control might be among the contributing factors to the increase of presbyopia during the pandemic.

Keywords: presbyopia, near vision, near corrections

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Aza-Bodipy based Carbonic Anhydrase Ix (Caix) Conjugate to Target Hypoxic Tumor Microenvironment in Photodynamic Therapy

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Tumor hypoxia occurs when solid tumors rapidly proliferate that restrict the availability of oxygen and blood supply. Limitation in oxygen supply elevates glycolysis that creates intracellular acidic pH to cause tumor death. Cancer cells overexpressed Carbonic Anhydrase IX (CAIX) to maintain intracellular alkaline pH to sustain their growth. This provides a targeting opportunity against cancer cells expressing CAIX. This study was aimed to enhance delivery of CAIX inhibitor-targeted Aza-BODIPY conjugate (AZB-CAIX 2) into hypoxic tumor microenvironment and suppress the tumor through photodynamic therapy (PDT). In this study, 4T1 tumor bearing Balb/c mice at the size of 150-180mm 3 were treated intravenously with AZB-CAIX 2 (30mg/kg), AZB-Control-I (24.60 mg/kg equiv. to 30 mg/kg AZB-CAIX 2) and CAIX inhibitor Acetazolamide (3.75 mg/kg equiv. to 30 mg/kg AZB-CAIX 2 -I). After 1 hour, the mice were irradiated at 80J for 8 minutes (fluence rate: 160mW). Based on the data obtained, no toxicity was observed at mice treated with 30mg/kg AZB-CAIX 2 throughout 14 days of observation. For antitumor efficacy, 30mg/kg of AZB-CIX 2 treated mice showed significant tumor shrinkage at day 3 post-PDT, with 76.38% tumor inhibition. Administration of CAIX inhibitor Acetazolamide at 3.75 mg/kg (equiv. to 30mg/kg AZB-CAIX 2 -I) has delayed tumor growth rate by 51.90% post PDT, compared to saline-treated PDT mice. These findings suggested that the CAIX-targeted AZB-CAIX 2 conjugate is a promising agent in targeting CAIX expressing tumor cells and may be potent to become a novel treatment option for CAIX-expressing cancer cells.

Keywords: Carbonic Anhydrase IX (CAIX), Hypoxia, Photodynamic therapy (PDT), Active targeting, Aza-BODIPY.

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Anti-Tumor Activity of Lignosus Rhinoceros Sclerotial Water Extracts Onimplanted Human Hct116 Colon Tumor in Chick Embryo

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Tumor angiogenesis is the formation of neo-vasculatures surrounding the tumor cells which aid in transportation of oxygen and nutrients for the tumor survival. However, anti-angiogenic drugs have drawbacks in inducing post-therapy complications. This study aimed to evaluate anti-tumor activity of hot- and cold-water extracts of wild and cultivated Lignosus rhinoceros sclerotium through inhibition of angiogenesis on implanted xenograft human HCT116 colon tumor in

chick embryo chorioallantoic membrane (CAM). In this study, chick embryo at embryo development day (EDD)-10 was implanted with HCT116 tumor cell, by mixing cell suspension with Matrigel and culture media (1:1), with and without sclerotial extracts. Tumor volume were measured daily until EDD-14, then harvested for gross and histological examination. Based on the data obtained, unlike cold-water sclerotial extracts, which are toxic to cancer cells, hot-water sclerotial extracts dose-dependently delayed the tumor growth, with tumor volume of 2.626 mm 3 at 1 µg/embryo, 0.452 mm 3 at 10 µg/embryo, treated with wild-sclerotium; 1.396 mm 3 at 1 µg/embryo and 0.392 mm 3 at 10 µg/embryo, treated with cultivated-sclerotium; compared to saline-treated control (7.885 mm 3) and retinoic acid positive control (0.986 mm 3), across 4-days of observation. Gross appearance and histological examination of all hot-water sclerotial extracts treated group showed reduction in tumor size and vasculatures. These finding suggested that hot-water sclerotial extracts suppressed tumor growth by inhibiting angiogenesis.

Keywords: Anti-tumor, Lignosus rhinoceros, sclerotium water extracts, HCT116 colon tumor

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Mosquito Insecticide Resistance Status and Species Composition at Taman Tasik Seksyen 14, Shah Alam

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In Malaysia, mosquito borne disease is one of the biggest concerns of public health, especially in the urban areas such as Selangor and Kuala Lumpur. The heavy usage of insecticide lead to the development of insecticide resistance in mosquitoes towards the commonly used insecticides. Therefore, this study was conducted to determine the species composition and ovitrap index (OI) of mosquito population at Taman Tasik Shah Alam, Malaysia. In addition, the insecticide resistance status of the mosquitoes towards 0.25% permethrin was determined using WHO adulticidal bioassay. Ovitraps were placed around the park in three consecutive trips from 27 September 2021 to 18 October 2021. A set of 40 ovitraps were placed for 7 days and retrieved and replaced with new ovitrap. A total of 2125 of mosquitoes were obtained with 2073

Aedes albopictus (98%) and 52 Culex quinquefasciatus (2%). The OI of all three trips exceed the transmission threshold of 10% with the first trip having the highest ovitrap index (28/40 ovitrap retrieved, OI = 77.77%), followed by second trip (20/40 ovitrap retrieved, OI = 50.00%) and third trip (15/40 ovitrap retrieved, OI = 37.50%). WHO adulticidal bioassay was done with 0.25% permethrin against Ae. albopictus collected. Test 1 shows 100% mortality, while test 2 shows 66% mortality. This population might be moderately resistant towards 0.25% permethrin. These findings shows that Taman Tasik Shah Alam might be at high risk of dengue transmission and there was a potential insecticide resistance in Ae. albopictus towards permethrin. Therefore, review of insecticide program should be carried out and vector control should be conducted in the area.

Keywords: Aedes albopictus, species composition, ovitrap surveillance, WHO Adulticidal Assay, permethrin

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Diagnosis of Pneumonia using Deep Convolutional Neural Network

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The global trends of viral pneumonia infection are now at an alarming state. Therefore, an early diagnosis and accurate prediction of viral pneumonia are crucial and could reduce the risk of mortality. Furthermore, the patient's treatment success greatly depends on the correct diagnosis. This research aims to optimize the detection process by using several deep learning convolutional neural networks on chest x-ray images to classify them as viral pneumonia or normal images. The researcher identified five deep learning networks (ResNet-101, InceptionV3, Inception-ResNetV2, Xception, and DarkNet-53) and evaluated the chest x-ray images. All networks' accuracy, sensitivity, and specificity values showed excellent results. This research indicates that the DarkNet-53 network scored the highest for accuracy and specificity. While, for sensitivity, ResNet-101 and Inception-ResNetV2 achieved the highest score. In conclusion, this study has demonstrated that optimizing deep learning networks could facilitate detecting disease with high accuracy, thus improving patient treatment.

Keywords: Pneumonia, Deep Learning, Convolutional Neural Network

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Strategies for Drug Delivery Across Blood-Brain Barrier: A Review on Nanoparticle Approaches

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The blood-brain barrier (BBB) is the most extensive interface between blood and the central nervous system. The unique characteristics of the blood-brain barrier are crucial in maintaining the highly regulated microenvironment and it also limits the delivery of drugs to the Central Nervous System (CNS). However, its sophisticated structure gives a challenge for drug to reach the site for therapeutic purposes for brain-related diseases. Thus, research has been conducted to invent drug delivery approaches that can penetrate the BBB. To identify the current approaches used in the drugs delivery, this review was conducted. Articles being searched from PubMed database from 2018 to 2020 to identify the current nanoparticles used. Development of nanotechnology has contributed to a variety of nanoparticles that are being used for therapeutic drug delivery such as lipid nanoparticle, polymeric nanoparticle, carbon nanotube, nanogel and nanoemulsion. The development of nanoparticle drug carrier is not only ease the drug delivery, but also helps to reduce the adverse effect, as well as increase drug stability and drug delivery efficiency. Nevertheless, these available nanoparticles still have disadvantages, such as causing aggregation and difficult for physical handling. Thus, its application should be handled with precaution as it has a great potential as a treatment of brain related diseases in future.

Keywords: neurovascular, unit, permeability, transport, neurodegenerative

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Public Awareness of Hearing Health in Malaysia

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The awareness of hearing health among the public in Malaysia is vital to plan for prevention and support programs to reduce the incidence of hearing loss in Malaysia. This study aimed to measure the Malaysian awareness level of the audiology profession and general facts about hearing, hearing loss, and noise exposure. A cross-sectional survey was conducted on 450 participants recruited from all states in Malaysia. The questionnaire comprised of 20 questions and was disseminated to the public through email and social media. Results showed that 64% of the participants were aware of the audiology profession, while 53% knew the role of audiologists. Moreover, most participants (>80%) also knew that hearing tests could be conducted on all age groups including babies (62%). Although 419 participants (93%) agreed that hearing tests are essential, only 9.1% have undergone the assessment. The majority also knew that noise (96%) and ear infection (87%) could cause hearing loss, but 36.4% were not aware of heredity as the

causative factor. In conclusion, the results obtained in this study were generally positive. An ongoing collaborative effort among governmental and non-governmental agencies is recommended to educate and improve Malaysians about hearing health loss at all levels.

Keywords: general public, awareness, hearing health.

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Parents' Perspectives and Understanding of Information Delivery on Childhood Hearing Loss

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Hearing care professionals usually will provide lots of information to parents once hearing loss diagnosis is confirmed. This study aimed to investigate parents' perspectives and understanding of information delivered on childhood hearing loss. A total of 11 parents of children with hearing loss were recruited from Universiti Kebangsaan Malaysia Audiology Clinic and were in-depth interviewed. Interview data were transcribed and coded using thematic analysis. Six questions were asked, which included their understanding on the effect of childhood hearing loss, the barriers, satisfaction on information delivered by hearing care professionals, parents' perspectives on how to improve information delivered, any additional information needed and steps to be taken to improve their child's speech and language development. Most parents believe that hearing loss in children leads to listening difficulties and speech delay. Every parent indicated individual barriers that could not be grouped as common issues. Almost all parents (10/11) were satisfied with the information delivered by professionals with no additional information requested by seven out of 11 parents. Four of the participants requested further information on handling amplification devices, making decisions for cochlear implantation and dealing with child behavior. Five out of 11 parents indicated that training is essential in developing their hearing-impaired child's speech and language. Majority of the parent satisfied with the information from professional and understand the impact of childhood hearing loss but barriers identified were unique and to be managed individually. Therefore, current approach can be

continued to educate parent about childhood hearing loss.

Keywords: parents', perspectives and understanding, Information delivery, childhood hearing loss

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The Impact of Quick Weight Loss with VLCD in Improving Quality of Life of a Super Obese Individual: A Case Study

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A Very Low Calorie Diet (VLCD) is a diet with total daily energy consumption of 800kcal or less. It promotes quick short-term weight loss for an obese individual, especially pre-bariatric surgery. VLCD should be practiced under clinical supervision. A 23-year-old Malay lady with underlying of Super Morbid Obesity (BMI was 53.4kg/m^2), bilateral Developmental Dysplasia of the Hip (DDH) with Congenital Talipes Equinovarus (CTEV) and elevated lipid profile, was presented to Dietetic Clinic for preoperative weight loss management before undergoing bariatric surgery. She had a history of right tibia fracture and left ankle subluxation that resulted in physical impairment and required a wheelchair for ambulation. During the first visit, she reported following a self-restricted diet from habits of binge eating with frequent snacking for about 1-month, and she was ready for further action with high scoring for on the Readiness-to-Change Scale. She was then prescribed a Low Calorie Diet on first visit and proceeded with a Very Low Calorie Diet (VLCD) at the next follow up session. In a total of 4 visits within a duration of 5-months before the scheduled operation, she managed to achieve a total of 9.4kg (8.7%) weight loss, improved lipid profile and physical function, was able to mobilize without assistance and do simple household chores. VLCD promotes quick weight this improving quality of life in a short duration. However, a longer duration of caloric restriction may affect nutritional status. Hence, a healthy lifestyle modification should be prioritized for long term management.

Keywords: Very Low Low-Calorie Diet, super Obesity, quick weight loss

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Readiness and Barriers to Primary Eye Care Practice in Malaysia: A Pilot Study

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The increased demand for eye care services has reduced the quality of tertiary care due to the limited number of ophthalmologists in the country. Even though optometrists are trained to deliver parts of these services, their full potential is not fully utilized for reasons that remain to be investigated. The study aimed to determine the readiness and barriers faced by optometrists within their scope

of practice as primary eye care providers in Malaysia. Optometrists registered under the Malaysian Optical Council were invited via email to participate in an anonymous online survey. The survey consists of questions regarding services provided, the current scope of practice, self-rated primary eye care knowledge and confidence in screening minor eye conditions. A total of 249 optometrists completed the survey. Almost 100% of the participants reported that they were ready and confident to practice primary eye care. However, only 71% are really implementing primary eye care in their practices. Lack of instruments (81%), lack of cooperation from patients (59%) and restriction from management (48%) are the key barriers faced by optometrists practicing primary eye care. In conclusion, optometrists in Malaysia can fully perform their role as primary eye care providers given that steps are taken to overcome the barriers.

Keywords: primary eye care, readiness, barriers

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Longitudinal Analysis of Speech Perception, Spatial Hearing and Quality of Hearing in a Group of Children with Cochlear Implants

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The *Pediatric Implanted Recipient Observational Study* (P-IROS) under the Universiti Kebangsaan Malaysia Cochlear Implant Program commenced in 2017 and ended in 2022, with 40 children implanted between 9 to 100 months (mean=36.9±19.9 months old) enrolled into the study. Parents must consent to participate in this prospective, longitudinal study. Analysis of their development of speech perception, spatial hearing and quality of hearing at 6 and 12 months post-cochlear implant activation was performed using the standardized Speech, Spatial and Quality of Hearing (SSQ) questionnaire as reported by parents. Data at 24 and 36 months were relatively small and not analysed in this study. The improvement in the overall SSQ scores over time was significant (p=0.001). Pairwise comparisons with Bonferroni correction showed the overall score at baseline and at 12 months was significant (p=0.006).

Further analysis of each of the domains revealed significant improvement for in speech perception ($p<0.001$), spatial hearing ($p=0.006$) and quality of hearing ($p=0.001$). Pairwise comparisons with Bonferroni correction analyses showed for speech perception and quality of hearing domains, the significance was contributed by the difference in scores at baseline and at 12 months post-fitting. For the spatial hearing, the scores at 6 months post cochlear implant fitting was significantly higher than at baseline. The results suggest the ability of our young cochlear implant users in spatial hearing mature faster than the other two domains. The speech perception and quality of hearing skills continued to grow and were significantly higher than the baseline performance after a year of cochlear implant experience.

Keywords: paediatric, cochlear implant**,** speech perception, spatial hearing, quality of hearing

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Evaluation of Online Training of Trainers (E-ToT) for World Health Organisation's Caregiver Skills Training Programme in Malaysia

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World Health Organization (WHO) developed Caregiver Skills Training Programme (WHO-CST) for families of children with developmental delays or disorders. The programme adopted a family-oriented approach and was designed to be delivered by trained non-specialists. WHO counterparts trained Master Trainers before implementing the

programme in the community. However, due to the Covid-19 pandemic outbreak, training was conducted online using Zoom platform. The objective of this study was to evaluate the effectiveness of online training of trainers for WHO-CST programme in Malaysia. Mixed A mixed method sequential qualitative study was used. Kirkpatrick Training Evaluation Level 1 questionnaire was adapted and validated. Eight experts were invited to validate the content of the questionnaire. Subsequent toAfter validation, the questionnaire was given to trainees to answer upon completing their training. The qQuestionnaire was acceptable for relevance (I-CVI = 1), simplicity (I-CVI = 1), clarity (I-CVI = 0.99), and ambiguity (I-CVI = 0.99) and met the criterion of more than 0.83. The dDescriptive analysis had shownshowed that Item 1 ('…was relevant to my job') (mean = 9.7, SD = 0.67) received the highest scoring score while Item 8 ('Online platform is suitable …') (mean = 5.7, SD = 2.26) received the lowest scoring score within 14 items. The average scoring of the effectiveness of training (mean = 7.6, SD = 1.26) that rated bytraining effectiveness (mean = 7.6, SD = 1.26) was rated by a total of 10 trainees. This study revealed that online training may might not be the best strategy for effective hands-on training. Further study should investigate the barriers and challenges encountered during the online training of WHO-CST Master trainers.

Keywords: WHO-CST, online training, caregiver, children with developmental delay, training evaluation.

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Awareness on Availability of Optometry Practices and Its Profession among Residents in Dungun, Terengganu

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Eye and vision care are generally delivered predominantly by ophthalmologists, optometrists and opticians. Despite differences in training and licensing requirements, their roles in providing eye care services are overlapping. The aim of this study is to assess the public knowledge of the differences between optometrist, ophthalmologist, and opticians, evaluating public perception regarding optometrists' job scope and determining the reasons the public seeks for optometrist's services. This study adapted a questionnaire from a previous study to construct a survey. This survey was administered among residents in Dungun. The questions prominently focus on knowledge regarding the differences between optometrist and other eye care providers, optometrist job scope and reasons people visit optometrist. This study shows that 70% (n=157) of respondents were not aware of the differences between optometrist, ophthalmologist, and optician and 56.7% (n=127) of participants were unfamiliar with the optometrist as the primary eye care provider in the eye care system. The significance of this study reveals the need to educate the public on the role of

optometrist in eye vision care and ocular health examinations. The outcome of this study reveals that the level of awareness and knowledge of optometrists, and its role is still low among the residents in Dungun, Terengganu.

Keywords: optometrist, job scope, role, eye care provider

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The Impact of COVID-19 Movement Control Order (MCO) on Optometry Practice: A Survey in Klang Valley, Malaysia

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The Malaysian government has enforced a statewide Movement Control Order (MCO) as a preventive measure to combat the prevailing COVID-19 pandemic. This study aimed to assess the impact of COVID-19 MCO on optometry practice and characterize the experiences of Klang Valley, Malaysia-based primary care optometrists. A survey questionnaire was distributed across several social media platforms to optometrists in Klang Valley, Malaysia. A total of 105 optometrists took part in the research. The majority of the participants (56.5%) work in private practice. During the COVID-19 MCO, vision (84%) and spectacle-related (77%) issues were the most frequently reported, whereas contact lens-related issues were the least (64%). Most respondents asked patients to use hand sanitizer (98%) and wear masks at the start of the examination (99%). Some respondents also changed their face-to-face assessments by simplifying the subjective routine (79%) and using alternatives to direct ophthalmoscopy to check ocular health (24%). The most financially impacted during the COVID-19 MCO is investing in more expensive testing equipment to facilitate socially distanced testing (55.3%), followed by cutting down workers (35.2%). Most of the teleconsultation is done through a telephone (64.2%) and only 35.8% made a video call. In conclusion, the findings provide an overview of how optometric practice in Klang Valley, Malaysia changed during the COVID-19 MCO. The results are useful for developing appropriate guidance and allocating resources for safe and effective eye care during this and any future pandemics.

Keywords: optometry practice, COVID-19, MCO, Klang Valley

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Buddy Program Training Module Among Older Adults in Residential Aged Care Homes: A Qualitative Feasibility Study

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The development of the buddy program training module is crucial to improve the activities of daily living function, social participation, and emotional status of the older adults residing in residential aged care homes. However, the availability of the module that can be used as guidance to provide assistance to older adults with more significant disabilities is still underexplored. Therefore, this study evaluated the feasibility of using the newly developed buddy program training module in residential aged care homes. A qualitative study involved a semi-structured interview with four pairs of buddies-older adults for two weeks was conducted. Cognitive interviewing was done, audio-recorded, and the data were transcribed verbatim. Thematic analysis was used to analyze the data from the Malay language version of the original transcript. Three themes emerged: 1) the strength of the buddy program training module, 2) the limitation of the buddy program training module and 3) improvement of the buddy program training module. The buddy program training module showed that it is acceptable, useful,and understandable for the intended participants. Next, a future study can be conducted to identify the effectiveness of the module to enhance the daily living function, social participation, and emotional status of the older adults in residential aged care homes.

Keywords: older adults; buddies; training module; residential aged care homes; feasibility

PS65 i-SIHAT-2022

Ex-vivo study of *Canarium odontophyllum* Miq Leaf Extracts Against Erythrocyte Infected with *Plasmodium berghei* NK65.

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Malaria is one of the most important tropical diseases caused by Plasmodium parasites. 80% of world population still depends on existing medicine as a source of treatment. However, most of the malaria parasite have developed resistance towards available antimalarial drugs. *Canarium odontophyllum* (dabai) belongs to Burseraceae family, where their leaves are proven to have antimicrobial and antioxidant properties. This study was conducted to evaluate the antimalarial activity of *Canarium odontophyllum* leaf extracts against *Plasmodium berghei* NK65.An eight-fold serial dilution of *Canarium odontophyllum* leaf extracts; methanol and hexane ranging from 1 mg/ml to 0.0000001 mg/ml were tested

against erythrocyte infected with *Plasmodium berghei* NK65 using plasmodium lactate dehydrogenase (pLDH) assay via ex-vivo.Through PLDH assay, the IC_{50} recorded for methanol leaf extracts (0.008236 mg/ml), hexane leaf extracts (0.00049 mg/ml) and chloroquine (0.00037 mg/ml), as positive control. Based on the IC_{50} reading, it showed that hexane leaf extract was more potent compared to methanol leaf extracts. However, One-way Variance Analysis (ANOVA) shows there is no significant difference between these treatment groups, where both extracts have similar antimalarial effect compared to control group (chloroquine). In conclusion, both methanol and hexane leaf extracts showed inhibitory activity against P*.berghei* NK65 and were potential to be further develop into an antimalarial drug.

Keywords: *Canarium odontophyllum*, antimalarial, *Plasmodium berghei* NK65, PLDH Assay

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Feeding and Eating Problems in Persons with Dementia: Caregiver's Perception

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Feeding and eating are the daily functioning activities that may deteriorate in persons with dementia as the condition progresses. The decline in cognitive function, behavioral symptoms and physical problems frequently result in feeding and eating difficulties. The difficulties encountered during mealtimes can result in other negative consequences if the caregivers provide inadequate support. This study aimed to explore the caregiver's perception related to problems in feeding and eating in persons with dementia, the support provided to them, and the caregiving burden and distress. A cross-sectional study was carried out with 31 caregivers of persons with dementia through an online questionnaire consisting of 3 sections; section A (sociodemographic), section B (feeding and eating problems and support required by persons with dementia) and section C (caregiver's perceived burden and distress). For the feeding and eating problems, the Appetite and Eating Habits Questionnaire (APEHQ) was adapted to be the questions in this study. Results indicated that all of the persons with dementia in this study showed some symptoms of feeding and eating problems and most of them had problems in the appetite change domain. Besides, nearly all the persons with dementia also required any kind of support from their caregivers during feeding and eating activity including verbal, visual, partial physical and full physical support. Most of the caregivers reported a high level of caregiving distress and the caregiver's level of burden was positively correlated with the severity of dementia ($r(29) = .450$, $p = .011$). The findings may be significant in raising the caregiver's awareness of the dementia impact has on the changes in eating and feeding behavior. This as well is important to gain information regarding the suitable and practical strategies to

promote mealtime care and to meet the nutritional needs of a person with dementia.

Keywords: feeding and eating problems, caregiver burden, dementia.

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A Comparative Study of Resilience Level in Typically Developing Children and Children with Cleft Lip Palate Post COVID-19 Pandemic

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Children's daily activity had greatly affected by the pandemic COVID-19. Changes in the educational policy of confinement and social distancing in the learning environment influence children's social activity. Resilience refers to an individual's ability to thrive despite adversity. This study aims to identify school-age children's resilience levels post-pandemic that attend mainstream education. The resilience scale comprised the instrument items that indicate the inner strengths and weaker areas. This is a pilot data finding. A total of 70 typically developing children and 27 children with cleft lip and palate answered the resilience scale questionnaire. The reliability of the resilience scale was found to be good (Cronbach's α = .877). The analysis revealed that 53% of typically developing children are at the emerging stage, 29% at developing, 11% at growing and 7% at the thriving stage. Meanwhile, children with cleft lip and palate reported 44 % at emerging, 26% at developing, 15% at growing and 7.7% at the thriving stage. The total mean score of typical developing and school-age children with cleft lip palates are 30.49 ± 4.91 and 30.52 ± 7.07. The t-test results showed no significant differences in overall scores between typically developing children and children with cleft lip and palate in this study ($p > 0.05$). These findings indicate that the majority of the children aged 7 to 12 years old resilience level is at the emerging stage. Despite cleft lip and palate condition, children with cleft lip and palate can overcome difficulties as the typically developing children.

Keywords: cleft lip palate, resilience, school-age children

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Feasibility and Impact Study of a Cultural-Based Cognitive Stimulation Technique for Older Adults with and Without Cognitive Disorders: A Study Protocol

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The world is getting older, and individuals worldwide are living longer. The number of older adults aged 60 and above are expected to proliferate in the upcoming years, and the ageing population poses a multitude of challenges to society. Cognitive Stimulation Technique (CST) was shown to be effective for geriatric-related cognitive disorders such as Mild Cognitive Impairment (MCI) and dementia. Older adults aged 60-89 will

be recruited in this sequential explanatory research design study. Phase 1 will include 112 Indian participants in treatment and usual care groups, divided based on gender and cognitive functioning (MCI, dementia and Healthy Individuals). Phase 2 will include 24 participants in the treatment group, divided by race (Malay and Chinese) and gender. In both phases, pre and post-test assessments will be conducted to measure the quality of life, cognitive functioning, mood, self-esteem and social interaction. A follow-up assessment 14 weeks from baseline will be conducted. The CST intervention ('Dayakattai') will be carried out for eight weeks. A qualitative assessment will be conducted for each participant in the form of an interview, in which they will be prompted to recollect and share their personal experiences during the period of intervention. This study aims to determine the effectiveness of a cultural-based cognitive stimulation technique using an ancient Indian game, 'Dayakattai', in improving the quality of life, cognition, mood, self-esteem and social interaction among older adults with and without cognitive disorders in aged care facilities. This will be the first study to investigate the feasibility and impact of an Indian cultural game as a cognitive stimulation technique. Therefore, this study is expected to provide an evidence basis for the use of 'Dayakattai' in elderly care in Malaysia.

Keywords: Dayakattai, cognitive stimulation, older adults, dementia, care home

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Meaning in Life and Happiness as Predictors of Life Satisfaction Among Young Adults in Kuala Lumpur During the COVID-19 Pandemic

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Although it has been shown that the COVID-19 pandemic negatively impacted a number of mental health-related conditions, little is known regarding the influence of meaning in life and happiness on life satisfaction among young adults during this difficult time. Meaning in life and happiness is viewed as a characteristic that has a great influence on the sphere of satisfaction with life. Therefore, this cross-sectional study aimed to investigate the role of meaning in life and happiness as predictors of life satisfaction among young adults during the early stage of the COVID-19 pandemic. Data were collected through convenience sampling. Participants (*n*=140) of age 19 to 25 years old answered an online questionnaire that included the Meaning in Life Questionnaire, Subjective Happiness Scale and Satisfaction with Life Scale. Most of the participants were students (*n*=96), female and Chinese.

The analysis demonstrated that 14.2% of the participants were either dissatisfied or extremely dissatisfied with their lives. The results showed that there was a positive and significant association between subjective happiness (r=.38) and meaning of life (r=.22) with life satisfaction. However, the multiple linear regression analysis showed that only subjective happiness (R^2=15, F (2,137) =11.99, β=.34, p<0.001) significantly predicted and is the most influential predictor of life satisfaction. The findings in this study demonstrated that during the pandemic, happiness continues to play an important role in life satisfaction among young adults. In conclusion, an individual's subjective happiness is very much related to one's life satisfaction.

Keywords: meaning in life; subjective happiness; life satisfaction; COVID-19

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Diagnostic Reference Level In Percutaneous Coronary Intervention Procedures: A Single Healthcare Facility

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Diagnostic reference level (DRL) is a useful tool to investigate optimisation of radiation dose. Factors such as operator and cardiologist experience, machine aging and type, imaging time, and body mass index (BMI) all have an impact on DRL. Kerma-area product (PKA) and fluoroscopic time (FT) are two methods used in interventional procedures to evaluate radiation optimization. There has been limited published research on this topic in Malaysia. Therefore, the purpose of this study is to compare the dose received by patients during percutaneous coronary intervention (PCI), to MOH-established DRLs and those reported in the literature The relationship between PKA and FT; and PKA and BMI, was also evaluated. Retrospective data of 214 patients who underwent cardiovascular intervention procedures were randomly collected from Clinical Information System (CIS). The study included adult patients aged 30 and above who had single-vessel PCI from April 2021 to April 2022. Of the 214 patients reviewed, 17 patients were included. The median (interquartile range) of PKA and FT for PCI procedures were reported as 101.76 Gy.cm2 (range: 26.97-212.42 Gy.cm2) and 20.65 min (range 5.9-35.2 min) respectively. The acquired PKA was higher than the established DRL of the Malaysian MOH, 5.4 x 10^{-7} Gy.cm2. However, the acquired DRL was lower when compared to published literature. Spearman's rho was tested and revealed that there was no significant correlation ($p < 0.001$) between PKA and FT; and PKA and BMI. In conclusion, the DRL in this study did not adhere to the established DRLs.

Keywords: PCI, DRL, PKA, FT, Ministry of Health

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Measuring Home Literacy Environment of Preschool Children: A Scoping Review

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As seen in the literature, the measurement dimensions of the home literacy environment are diverse and variable. The objective of the present scoping review was to catalogue the measurement dimensions of the home literacy environment of typically developing preschool children and those with disabilities. Articles for inclusion were searched from five databases: Jstor, Science Direct, Proquest, Taylor and Francis, and Scopus. The included articles were peer-reviewed literature published between 2012 to 2022 and those identified from the reference list of meta-analysis studies found in the primary search. Thirteen articles were analysed in this review. Five key thematic dimensions of the home literacy environment, namely; literacy resources, formal literacy, informal literacy, parental beliefs and attitude, and children's interests were identified. The most frequently measured dimensions were the frequency of informal literacy, followed by the literacy resources and the children's interests. The minimum number of measurement dimensions in a single reviewed study was two and the maximum number was four. Most of the instruments used a 5-point Likert scale to measure items in each dimension. The variety of measurement dimensions of home literacy environment offered various views and perspectives into the home literacy environment, however many other aspects of the home literacy environment remained unexplored. This scoping review of the measurement dimensions of the home literacy environment may be useful as a reference for evaluation tools development and support programs designation for the home literacy environment in future research.

Keywords: home literacy environment, preschool, disabilities, scoping review

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Association Between Religiousness-Spirituality and Depression-Anxiety among Pharmacist Students in Indonesia

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Pharmacist Professional Study Program (PPSP) students must pass the Indonesian Pharmacist Competency exam to get the title of pharmacist. They feel the burden and fear of not passing the exam, in addition to covid-19 pandemic, which can trigger anxiety and depression. Religion also provides a perspective that people can use to reduce their distress when faced with

many stressors, while Indonesia is one of the multireligious countries in the world. The study aims to determine the relationship between religiosity and spirituality with the level of depression and anxiety in PPSP students in Indonesia. The method used in the research is observational analytic with a cross-sectional design. The research was carried out in all regions of Higher Education in the Association of Indonesian Pharmacy (APTFI) which has 12 universities in Indonesia as representatives. The sampling technique uses a cluster random sampling technique with the number of samples being 325 students. The retrieval of data in this study uses four scale questionnaires, namely DUREL (Duke University Religion Index), DSES (Daily Spiritual Experience Scale), SAS (Zung Self-Rating Anxiety Scale) and SDS (Zung Self-Rating Depression Scale). The data were analyzed using the Spearman correlation technique.
The study found Indonesia's PPSP students had mild-moderate anxiety (21%). Fortunately, the relationship between the level of spirituality depression and anxiety represents negative values, with a correlation R = -0.123 ($p < 0.05$) and -0.115 ($p < 0.05$), which indicate indicates that religiosity and spirituality in PSPP students are associated with lower levels of depression and anxiety. Therefore, developing spirituality and religiosity for PPSP students and improving mental welfare is essential.

Keywords: mental health, pharmacy student, religiousness. Indonesia

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Anthropometry, Physical Activity, and Mental Health Status of Psoriasis Patients

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Psoriasis is an immune-mediated skin disease caused by the rapid growth of skin cells which makes the skin appear as a red spot with thick silverish scales. Psoriasis patients tend to have larger body mass index, more susceptible to metabolic syndrome and cardiovascular disease. This study aims to identify factors of nutritional status, physical activity, mental health and their association with the risk of psoriasis. This is preliminary data of a case-control study on 20 plaque psoriasis patients and 15 healthy controls. Anthropometry measurements such as height, weight, fat percent (bioimpedance), waist circumference, and blood pressure were measured by the investigator. International Physical Activity Questionnaire (IPAQ) and Depression,

Anxiety, Stress Scale 21 (DASS-21) questionnaires were filled out by the subjects. The mean BMI of case subjects was 29.5 while those of control were 26.1. Both subjects reported a high mean fat percent (33.8% vs 33.6%) but no significant difference in fat percentage was found. Higher mean physical activity level is reported among control subjects compared to case subjects. No significant difference was found in the depression, anxiety and stress level scores of case vs control subjects where the mean score was normal for depression (5.8 vs 5.9) and stress level (7.8 vs 7.1) and mild for anxiety level (10.1 vs 11). From these preliminary findings, psoriasis patients have higher BMI and lower physical activity levels compared to healthy control. More subject is needed to validate these preliminary findings including comparing the psoriasis severity score of the case subject to the variables. The limitation of this study is retrospective.

Keywords: Psoriasis, BMI, fat percentage, physical activity, DASS-21

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Brain Activation Due to Backward Repeat Test Conducted in The Presence of Comforting and Noisy Background of Different Intensity Levels.

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Noise is often coined as a stressor. Less is known about the other side of noise's feature that could provide benefit to human such as sleeping, relaxing and importantly brain performance. This functional magnetic resonance imaging (fMRI) study explores brain activation patterns of human auditory working memory (AWM) areas. The activation was evoked by a backward repeat test (BRT) conducted in the presence of comforting and noisy background

intensity levels of 45 dB, 50 dB, 55 dB and 60 dB. The intensity level of the audio stimuli used in BRT was delivered to the participants in random fashion. The fMRI scans were performed on five healthy young adults (mean age = 23 years) using a 3-T MRI system. Six regions of interest (ROIs) related to AWM were investigated which are bilateral superior temporal gyrus (STG), Heschl's gyrus (HG) and inferior frontal gyrus (IFG). Data were analysed using Statistical Parametric Mapping (SPM) version 12.0. Brain activations were obtained at a corrected threshold ($p_{FWE} < 0.05$) via a fixed-effects (FFX) analysis. The number of activated voxels (NOV) for all ROIs averaged over 5 participants peaked at 55 dB for BRT conducted in both comforting and noisy backgrounds. The BRT score shows similar behaviour but with a peak at 50 dB instead for both types of background sound. We hypothesised a phenomenon known as stochastic resonance (SR) that can be discussed based on the framework of moderate brain arousal (MBA). The results should be more convincing when a few more participants are added.

Keywords: Auditory Working Memory, Functional MRI, ROI analysis, White Noise, Natural Sound.

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Evaluation of Mean Glandular Dose Delivered in Different Mammographic Techniques

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This study aimed to compare the mean glandular dose (MGD) across 2-Dimensional (2D), 3-Dimensional (3D), and Contrast-Enhanced Digital Mammography (CEDM) mammographic techniques at different age groups and compressed breast thickness (CBT). The metadata, including MGD, current (mAs), kilovoltage peak (kVp), anode filter, entrance surface dose (ESD), age, and CBT of craniocaudal (CC) view of each mammographic procedure, were extracted from the Hologic Selenia Dimensions unit's DICOM image header. The age and CBT were categorized into 5 and 3 groups, respectively. Pearson's correlation and non-parametric Kruskal-Wallis with pairwise comparison tests were performed. Average MGD for 2D, 3D, and CEDM was 1.54mGy, 1.81mGy, and 0.87mGy respectively. The MGD of 2D, 3D, and CEDM was positively correlated with CBT but inversely correlated with the age factor. A significant difference (P<0.05) was seen in the MGD value for all CBT categories (<40mm, 40–50mm, and >50mm) and age groups (<40, 40–49, 50–59, 60–69, and >70) across 2D, 3D, and CEDM techniques. This study found that the MGD of CEDM mammographic techniques was 16% and 22% lower than 2D and 3D techniques, respectively, for all age groups and CBT categories.

Keywords: mean glandular dose; age; compressed breast thickness (CBT); mammography.

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Global online search interest in online speech therapy and autism before, during, and after COVID19 pandemic: an infodemiological study

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The online health information-seeking behavior using Google Trends, focus on internet search frequency and search trends that may reflect public interest and awareness. This study aimed to investigate whether the global online search behavior (i.e, search volume, interest overtime & seasonal trends) of internet health-seekers on search terms related to online speech therapy and autism have increased after the COVID-19 pandemic outbreak. The study used the Google Trends© tool to analyze the weekly search volume indices (SVI) of search terms online speech therapy, virtual speech therapy, telespeech therapy, remote speech therapy, autism, and autism spectrum disorder' for 10 years spanning June 2012 to July 2022 to depict the transition into the pandemic. among the four online therapy-related terms searched, online speech therapy had an SVI ranging from 25 to 50 before the pandemic (i.e., 2012–2019) relative to other search terms, and suddenly peaking in April 2020 (SVI=100) coinciding with the COVID-19 pandemic. The SVI for online speech therapy gradually decreased since May 2020 but remained higher relative to the pre-pandemic period. It was most searched in Ireland, Australia, United Kingdom, Canada, India, Philippines, Vietnam, and Indonesia. Meanwhile, virtual speech therapy ranked second worldwide, with the highest SVIs coming from the United States. Among the two autism-related terms searched, autism had an SVI ranging from 50 to 80 with a seasonal trending peak in April month before the pandemic (i.e., 2012–2019) relative to autism spectrum disorder, and a suddenly decreasing trend in April 2020 (SVI=65) due to limited autism awareness month events coinciding with the COVID-19 pandemic. The SVI for autism gradually increased since April 2021 but remained higher relative to the pre-pandemic period. This study showed that there was a worldwide increase in the SVI for the search terms at the start of the pandemic in 2020 and remained higher relative to the pre-pandemic period. This might signify an increase in the interest in these terms during and post-pandemic.

Keywords**:** online speech therapy, Google trends, autism, seasonal trends, search volume index (SVI)

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Knowledge And Application of Constraint-Induced Movement Therapy in Stroke Rehabilitation Among Physiotherapists and Occupational Therapists

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Constraint-induced movement therapy (CIMT) is an effective intervention for upper extremity recovery following stroke. Despite strong evidence, the use of CIMT in practice is limited. The purpose of this study is to determine the current knowledge and clinical application of CIMT by physiotherapists and occupational therapists within Selangor, Malaysia. A quantitative, non-experimental study was conducted among physiotherapists and occupational therapists currently working within stroke rehabilitation. Subjects were selected using convenience sampling. An online survey questionnaire was distributed through established therapist's groups for six weeks. All data were analyzed descriptively. A total of 65 eligible therapists participated, which culminated 61.5% (n=40) physiotherapists and 38.5% (n=25) occupational therapists. The application of CIMT in clinical practice was stated by 76.9% (n=50) of therapists. The most source of knowledge was in-service training (n=19, 29.2%), read papers (n=18, 27.7%), and study day/course (n=13, 20.0%). A total of 18 (27.7%) therapists applied task practice of the CIMT components package. While 10 (15.4%) therapists mentioned 2-3 components, and 8 (12.3%) indicated using the shaping. Mitt and Sling combined have been the preferred type of constraint. Although 72.3% (n=47) of therapists identified their clinical site as adequately resourced, 50.8% (n=33) of therapists perceived no safety regarding utilizing the CIMT. Therapists identified three main barriers to the implementation of CIMT: lack of training (n=21, 32%), lack of knowledge (n=7, 10.8%), and time constraint (n=12,18.5%). In conclusion, over three-fourths of therapists reported usage of CIMT. The main barrier to the application of CIMT is a lack of training.

Keywords: Stroke, constraint-Induced movement therapy, rehabilitation, survey, upper extremity.

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Development of the Malay Version of the Program for Education and Enrichment of Relational Skills (PEERS)

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It is flawed to assume that any efficient social skill training manual in one culture would be as effective in another culture. The effect of culture in interpersonal communication is an important aspect for consideration in any social skill training manual. This paper clearly describes the process of translation and cultural adaptation of the PEERS Social Skill Training Manual to Malaysian culture and language. A questionnaire was developed through a focus-group discussion to conduct a survey among 72 typically developing (TD) peers to elicit the needed cultural information and interpersonal communication and preferences to build friendship, that will be incorporated into the manual to be used to train autism adolescents in terms of social skills. Some important cultural adaptations were made, and some similarities in effective social behaviours across cultures were striking.

Keywords: autism adolescents, social skill training manual, PEERS

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Facilitating And Barrier Factors of The Weight Management Program.

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Obesity is rising in many countries, including Malaysia. Research showed the importance of understanding the factors that contribute to the effectiveness of the obesity prevention program. Facilitating factors such as self-efficacy and social support help motivate individuals, while a hostile environment discourages them in their weight loss journey. Hence, this study investigates the facilitating and barrier factors of weight management program that has been organized among overweight and obese adults in Klang Valley. An in-depth interview was conducted using semi-structured questions to understand this situation from the practitioner's perspective. Practitioners from various backgrounds such as nutritionists, dietitians, and fitness instructors with at least one year of experience in weight management programs were selected for this study. Nvivo 12 software was used to assist in generating themes from the interview. The result showed that the facilitating factors for the weight management program were (i) expertise of the practitioner, (ii) participant's commitment and motivation, (iii) fundamental and personalization activities in the program, (iv) monitoring and improvement of the program, and (v) supportive surroundings. Meanwhile, barrier factors were (i) physical, mental and resources of the participants, (ii) technology and marketing, (iii) lack of facilities, systems and policy, (iv) program's structure, approach and appointment, and (v) individual's uniqueness. Therefore, the program planners can use the identified facilitators and barriers when planning the program to ensure its effectiveness.

Keywords: obesity, weight management, facilitators, barriers, prevention.

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Malay Happiness at Workplace Index: Validation Study

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There are limited studies that measure happiness at the workplace. There is an urgent need to validate happiness at a workplace scale that is able to measure happiness at work during covid-19 pandemic. This study aims to validate Happiness at Workplace Index scale into

the Malay version. This is a cross-sectional survey study with a convenience sampling method. The sample population is UKMMC staff. Happiness at Workplace Index scale has been translated into a Malay version and distributed to respondents. Analysis was done using Exploratory Factor Analysis and Confirmatory Factor Analysis. The reliability for Happiness at Workplace Index is α= 0.95. The EFA shows 2 distinct factors which are individual factors and environmental factors. CFA shows that the model is fit (RMSEA= 0.076, CFI= 0.978, x^2/d*f*= 3.31). The Malay version of Happiness at Workplace Index has a good validity and reliability. This scale is suitable to be used in the general population to measure happiness at the workplace based on individual factors and environmental factors. This will help organizations to detect employee's unhappiness and provide suitable intervention to improve employee's happiness.

Keywords: happiness, workplace, scale.

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Face-to-face, online, and hybrid speech-language therapy: How satisfied are the consumers?

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Consumers' satisfaction is a measure of the quality of health services, which considers the perception of service recipients. Recently, online and hybrid (combination of face-to-face and online modes) speech-language therapy services have increased and been applied in clinical education. Despite evidence of the feasibility of teletherapy, knowledge of the satisfaction of clients and caregivers receiving this type of service is limited. In this cross-sectional study, we aim to determine the level of satisfaction among clients and caregivers at the UKM's Speech Sciences Clinic with speech-language intervention delivered via face-to-face, online, and hybrid modes, and to compare the satisfaction levels between those three modes. A total of 70 participants (61 caregivers and nine clients) completed an online survey that focused on their satisfaction with the three modes of speech-language therapy. Half participants attended the face-to-face therapy program (*n*=36, 51.5%), while the rest attended the hybrid program (*n*=23, 32.9%) and the online program (*n*=11, 18.4%). Data analyses revealed no significant differences between overall satisfaction across the three therapy modes (*F* [2, 67] = 0.05, *p*=0.953), as well as for each of the client group *(F* [2, 6] = 0.97, *p*=0.433) or the caregiver group (*F* [2, 58] = 0.18, *p*=0.839). This study demonstrated similar levels of satisfaction among the clients and caregivers toward speech-language therapy services across different service delivery modes. Teletherapy may be a viable option for those who require speech-language therapy in addition to conventional intervention.

Keywords: satisfaction, teletherapy, hybrid, speech-language therapy.

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Mobile Apps (mHealth apps) for Common Non-communicable Diseases: Systematic Search in App Store

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Mobile apps (mHealth apps) offer an opportunity to improve the lifestyle of patients with chronic diseases. To date, no study has reviewed the available mHealth apps that provide self-management for chronic diseases such as cardiovascular diseases (CVDs), diabetes, hypertension and obesity for Malaysian users. We aimed to investigate the availability and characteristics of mHealth for common chronic diseases health management based on the description provided by the developer and their features for promoting health outcomes and self-monitoring. A cross-sectional and systematic search of apps available on Google Play Store was conducted between 7th July 2022 and 14th July 2022. The title and content of the identified mHealth apps were screened. We analysed the types of mobile health apps category, the healthcare expert involvement, scientific testing, self-monitoring features. The search terms were weight loss, obesity, diabetes, hypertension and cardiovascular diseases, stroke, weight management and diet. Overall, 46 apps were identified. About 41% of the apps belonged to chronic diseases health management while 59% were characterized in the weight management category. mHealth apps designed specifically for diabetes account for 16%, CVDs (10.5%), hypertension (10.5%) and 63% were account for general NCDs management. Self-management features such as weight tracking, BMI calculator, diet tracking and fluid intake was seen in 83% of the apps. Most mHealth apps (80%) did not indicate the involvement of health professional in apps development. Further, 100% of the apps did not report the scientific evidence to indicate its effectiveness in health management. Most of the mHealth app for chronic diseases health management have limited functionality and lack of scientific evidence proof. mHealth app should be optimized by involving health professional to gain user's confidence level and achieve desired health outcomes.

Keywords: mhealth, mobile health, health apps, chronic diseases, self-management

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The Prevalence and Distribution of High-Risk and Low-Risk Human Papillomavirus (HPV) Infection in Women with Normal and Abnormal Cervical Samples: A Retrospective Study in Malaysia

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The human papillomavirus (HPV) accounted for 99 % of all cervical cancer cases, making it the third most common type of cancer among Malaysian women. Persistent high-risk HPV (HR-HPV) infection is a major contributor to the development of cervical cancer. Thus, determining the prevalence and distribution of HPV genotypes in Malaysia is critical in identifying the pattern and disease association. This retrospective study was carried out to determine the prevalence of HPV genotypes among Malaysian women. Pantai Premier Pathology provided clinical pathology data on 3031 liquid-based cytology samples collected from all over Malaysia between December 2021 and March 2022. HPV genotypes were determined using the Seegene Anyplex II HPV 28 assay on all patient samples. Complete data from a total of 325 samples were collected and analyzed. The prevalence of HR-HPV infection was 60.7 % (197/325), and low-risk HPV (LR-HPV) infection was 21.5 % (70/325). HPV52 (14.6%, 54/371)), HPV58 (10.1%, 37/371), and HPV53 (9.4%, 35/371) were the most common HR-HPV genotypes, while HPV42 (18.3%, 43/235), HPV54 (16.6%, 39/235), and HPV61 (14.0%, 33/235) were the most common LR-HPV genotypes. Most The most common cervical lesion detected within HPV-positive patient was ASCUS (12.9%, 42/325) and LSIL (12.6%, 41/325). The percentage of HPV-positive women with normal cervical (68.3%, 222/325) is high compare compared to -positive women with cervical lesions. Cervical lesions have a significant correlation ($p<0.05$) with HPV genotypes. According to this study, the most common HR-HPV genotypes in Malaysian women were HPV52 and HPV58, while HPV42 and HPV54 were the most common types of LR-HPV genotype. These findings may contribute useful information to health care providers and may assist in determining further treatment, vaccination programme or screening measures for patients in the prevention of cervical cancer in Malaysia.
Keywords: HPV genotypes, high risk HPV, low risk HPV, prevalence, Malaysia

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Development and Usability Testing of a Web-Based Intervention for Obesity Module CoPT Nutri Trail©

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Online intervention has become an innovation to treat health problems such as obesity to minimize face-to-face contact in the current endemic Covid-19 situation. In order to fit the present circumstances and target users, the urgency of the online module, inclusive of the content and implementation of the intervention as a web application is a crucial element. This study aims to describe the development process and the usability of the online Canteen Operators, Parents and Teachers (CoPT Nutri Trail) module for upcoming school-based obesity intervention. The module development methodology consists of four phases, namely, user requirement analysis, design, web app development, and expert evaluation in usability testing through the content validation index for content structure and alpha testing score. The web application was designed to personalize usage and monitor the students' nutrition intake. Thirteen experts including teachers, nutritionists, and IT professionals participated in the evaluation phase. Overall, all experts agreed that the web app design meets the targeted users' requirements and is suitable for school-based obesity interventions with a slight improvement in the graphic, language, and informational elements. The alpha score for all interface elements of more than 65%, and the content validation index values of more than 0.78 indicate that the intervention tool is acceptable. In conclusion, the CoPT Nutri Trail web app is ready to be implemented for obesity intervention in a school setting.

Keywords: obesity module, web-based intervention, usability testing, monitoring, nutrition intake.

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Physico-chemical Interaction of Limestones-based Nanohydroxyapatite /Hyaluronic Acid Composites for Bone Regeneration

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Hydroxyapatite (HA) is a calcium-based biomaterial, abundantly found in Malaysian limestones, that mimics the composition of human bone and is widely used as a bone graft for the replacement and reconstruction of alveolar bone. However, hydroxyapatite alone as an alloplastic bone graft has weak regenerative abilities. The addition of natural biodegradable polymers such as hyaluronic acid (HYA) has been shown to improve the osseointegration and overall structure of the composite. With the improved porosity, initial adsorption is foreseen to be improved as well. This study is aimed to evaluate the porosity of different formulations of limestone-based nanohydroxyapatite/hyaluronic acid (HA/HYA) composites scaffolds.

Different formulations of HA/HYA composites, consisting of various percentages of hydroxyapatite, hyaluronic acid and alginate were prepared by using a direct mixing technique. These mixtures were freeze-dried and cross-linked prior to the assessment of porosity and density. The morphology and pore configurations of the composite scaffolds were examined through field emission scanning electron microscopy, while the water displacement test was used to evaluate the porosity and density. The composite with the highest porosity was further evaluated for the protein adsorption capacity. All composites showed the presence of pores with similar size and configuration of pores. The composite with 30% of HA has the highest porosity while the composite with 45% HA has the highest density. The protein adsorption for 30% of HA showed similar outcomes when compared to pure hydroxyapatite. In conclusion, HA/HYA composites showed acceptable porosity with a good protein adsorption ability for the development of synthetic bone grafts.

Keywords: bone graft, hyaluronic acid, nanohydroxyapatite, porosity, protein adsorption

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The Prevalence of Multiple Myeloma ytogenetics in Malaysia

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Multiple myeloma (MM) is caused by cytogenetic abnormalities (CAs) that occur during the development of plasma cells in bone marrow, resulting in uncontrollable abnormal plasma cells (myeloma cells). Cytogenetic testing can be used to identify the CAs that occur in MM, using karyotyping and fluorescence in situ hybridisation (FISH). Cytogenetic approaches assist in the diagnosis, prognosis, and treatment of MM patients. However, there is no comprehensive data on CA types of MM in Malaysia. Thus, this study is carried out to identify CAs in MM patients from Pantai Premier Pathology. A total of 207 patients' archival data (from March 2016 to May 2022) were retrieved with most of the patients being males, 117/207 (56.6%) followed by females, 90/207 (43.5%). From a total of 159 patients with karyotype analysis, 32/159 (20.1%) have abnormal karyotypes that include hyperdiploidy 20/32 (62.5%), hypodiploidy 7/32 (21.9%), pseudodiploidy 4/32 (12.5%) and tetraploidy 1/32 (3.1%). Of 93 patients with FISH analysis, 49 (52.7%) patients show positive abnormal results with 14/49 having a gain of centromere 15 (28.6%), 12/49 with a gain of 1q21.3 (24.5%), and 10/49 having a gain 11q13 (20.4%). Chi-square analysis was conducted to identify the association between the CAs obtained from the karyotyping and FISH tests to their prognosis. CAs from both cytogenetic tests were significantly associated with

the prognosis (both poor and good) ($\chi 2$= 116.31;15.716, $p<0.005$). In a conclusion, hyperdiploidy cases are the most common form of CAs in MM, in Malaysia. The findings from this retrospective study will enhance the understanding of CA patterns in Malaysia, as well as how to manage the best treatment options for MM patients, future therapeutic interventions, and prospective clinical trials.

Keywords: cytogenetic abnormalities, fluorescence in-situ hybridisation (FISH), karyotyping, structural abnormalities, hyperdiploidy

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Textural Features Extraction of Colony Forming Unit for Mouse Myeloid Progenitors Using Gray Level Co-Occurrence Matric (GLCM)

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The colony forming unit (CFU) is a functional assay to assess the ability of hematopoietic stem/progenitors cells (HSPCs) to proliferate and differentiate. The technique is able to distinguish progenitors from erythroid, myeloid, and lymphoid lineages. Manual colony quantification by morphological inspection under a microscope is the mainstay of CFU analysis. However, manual analysis is time-consuming, operator-dependent, and prone to errors. Thus, these limitations can be overcome through an automated bio-imaging system. This study is part of the steps in the development of such a system by extracting textural features for identification of CFU for myeloid progenitors which are CFU-granulocyte (CFU-G), CFU-macrophage (CFUM) and CFU-granulocyte/macrophage (CFU-GM). Images of CFU myeloid are obtained from a pre-established CFU images database which underwent pre-processing and textural features extraction using Matlab 2021 software. The gray level co-occurrence matrix (GLCM) approach was used to extract textural information. A total of 14 texture characteristics were retrieved at 16 offsets representing four angular orientations (0°, 45°, 90°, 135°) which then analysed using Kruskal-Wallis. Result reveals that all 14 features are significant ($p<0.05$) to distinguish differential CFU-myeloids at 4x, l0x, and 20x magnification, while only 7 features are significant at 40x magnification. Moreover, angular, variance, sumaverage, sumvariances, sumentropy, entropy and information II are the potential textural features to be developed in an automated bio-imaging system for the identification of CFU for myeloid progenitors. In conclusion, textural features offer great potential to be applied in the development of an automated bio-imaging system for the identification of CFU myeloid, particularly at 4x, 10x, 20x magnifications.

Keywords: Myeloid Progenitors, colony forming unit; Bio-imaging; machine learning; textural features

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Association between Abdominal Adiposity, Physical Activity and Mental Health Status in Psoriasis Patients

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Obesity, adiposity, mental stress and low physical activity (PA) increase the risk of psoriasis in patients. This study aimed to determine the association between anthropometry, PA level, body mass index (BMI) and mental health status among psoriasis patients. A pilot study was conducted with 20 psoriasis patients and 15 healthy volunteers (HV), where adiposity was measured using waist circumference and body fat percentage. The PA level and mental health status were assessed using the International Physical Activity Questionnaire, long-form (IPAQ-LF) and the Depression, Anxiety, Stress Scale 21 (DASS-21) questionnaire. The data was analysed using the statistical package SPSS 26.0. Preliminary findings showed psoriasis patients with a mean age of 43.5±16.4 years had a higher BMI (29.5±8.7 kg/m2) compared to HV (35.7±7.2 years; 26.1±4.0 kg/m2). A higher mean PA level was reported in HV compared to the patients. No significant difference was found in the depression, stress and anxiety level between patients and HV. Pearson's correlation analysis showed statistically significant relations ($p<0.05$) in patients' body fat, which was positively associated with moderate PA (0.481) including PA in housework (0.472) and PA during leisure time (0.463); while, waist circumference was also positively associated with moderate PA (0.462). Additionally, multiple linear regression analysis of anthropometry and PA level on depression, anxiety and stress indicated no association between anthropometry and PA. However, more subject is needed to validate these preliminary findings by comparing the psoriasis severity score of the case subject to the variables.

Keywords: Psoriasis, abdominal adiposity, waist circumference, physical activity, DASS-21

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Development, Validation and Reliability of Knowledge, Attitude and Practice (KAP) Questionnaire on Melioidosis Among Paddy Farmers and Officers

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Melioidosis is an occupational infectious disease caused by *Burkholderia pseudomallei*, a disease that affects those working closely with soil/ water and is possibly fatal if diagnosis and treatments are not done on time and accurately. Melioidosis is less recognized by the public due to its low prevalence in Malaysia. Hence, we aimed to develop a questionnaire and determine the validity and reliability of the knowledge, attitude and practice (KAP) towards melioidosis among farmers. Questionnaire development was performed through literature from related studies and questionnaire validity was done using the content validity index (CVI) with six field experts. The reliability process was performed by face-to-face questionnaire distribution among 38 paddy farmers and officers in northwest Selangor. A valid questionnaire was developed with CVI= 1.0. The reliability values were 0.944, 0.834 and 0.920 for the knowledge (Kuder-Richardson's 20 formula), attitude and practice domain (Cronbach Alpha), respectively. All respondents were Malay (100%) with 72.4% paddy farmers having secondary school education and 66.7% officers having a degree. In general, the KAP levels were similar for both paddy farmers and officers. Paddy farmers (89.7%) and officers (88.9%) had a low level of knowledge; an intermediate level of attitude (65.2% paddy farmers & 66.7% officers). However, it was noticeable that they had a high level of practice (76.9% paddy farmers & 66.7% officers) towards melioidosis. Overall, we successfully developed a valid and reliable questionnaire that can be used as an instrument to measure and evaluate KAP levels toward melioidosis among farmers generally in Malaysia.

Keywords: knowledge, attitude and practice (KAP); melioidosis; questionnaire; farmers

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Solitary Ethanol Extraction of Zerumbone and Its Identification Using LC-TOF-MS/MS and NMR

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Ethanol is becoming one of the most popular solvents because it is safe for the extraction of edibles. Ethanol also provides congruent results and is effortlessly recovered. Zerumbone (ZER) is an oxygenated sesquiterpenoid isolated from *Zingiber zerumbet* (*Z. zerumbet*), a well-known ginger plant that helps with inflammation and ulcers in traditional medicine. Zerumbone also showed substantial anti-inflammatory activity and significant antioxidant properties. The aim of this study was to extract, isolate and purify zerumbone from 50 kg of fresh rhizomes using 95% ethanol using cold maceration and chromatographic techniques. The extraction method of the rhizome using ethanol as solvent yielded a thick, gummy crude extract (464.63 g, 4.89%). Column chromatography of the 146.56 g crude extract yielded zerumbone as a white crystalline solid (57.72 g, 39.38 %). LC-TOF-MS/MS analysis showed that zerumbone has generated a high fragment with molecular ions at m/z 219 $(M+1)^+$ under positive scan modes. ZER was also characterized by NMR 1H/13C spectroscopy. The results of the present study confirmed that ethanol extraction yields a greater amount of zerumbone, so this extraction method can be used for extracting large amounts of zerumbone in the future.

Keywords: *Zingiber zerumbet*, zerumbone, sesquiterpenoid, ethanol, LC-TOF-MS/MS, NMR

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Phytochemical Profiling of *Zingiber zerumbet* Polar Extract and Their Antileukemic Effects On CCL-119 Childhood Acute Lymphoblastic Leukemia Cell

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Zingiber zerumbet, a wild ginger, is widely used in traditional medicine. It has been reported to have anticancer, antioxidant and antiinflammation activities. The current drug treatment of leukemia may cause some adverse effects and resistance in the long-term. This study aimed to identify the phytochemical content and antileukemic effects of *Zingiber zerumbet* from different polar extracts on childhood acute lymphoblastic leukemia cells (CCL-119). The phytochemical profiling was identified using gas chromatography-mass spectrometry (GC-MS) analysis and suggested there was a presence of Zerumbone (2,6,10- Cycloundecatrien-1-one, 2,6,9,9-tetramethyl-, (E,E,E)- in 100% ethanol, 80% ethanol and aqueous extract. Cytotoxicity test was performed using an MTT assay, and IC_{50} values obtained for each polar extract were 16.81±4.81µg/ml (100% ethanol), 19.06±4.54µg/ml (80% ethanol) and 149.80±8.00µg/ml (aqueous). For apoptosis assay using

Annexin V FITC/PI method, the results showed an early apoptosis effect, that was significantly different compared to the negative control ($p<0.05$) for 100% ethanol, 80% ethanol and aqueous. As for 100% ethanol and 80% ethanol, both extracts showed significant differences at late apoptosis. The effects of extracts on cell cycle were performed using PI/RNase assay, which revealed a significant G2/M arrest ($p<0.05$) by 80% ethanol and aqueous extracts. Hence, the identification of the phytochemical content of *Zingiber zerumbet* extracts using different polar solvents has revealed the presence of its main bioactive compound which induced the cytotoxic effect through apoptosis and cell cycle arrest. Thus, further study needs to be carried out to evaluate its potential as new anticancer drugs.

Keywords: Zingiber zerumbet, phytochemical profiling, childhood leukemia, cytotoxic, apoptosis and cell cycle.

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Knowledge, Attitudes and Practices Associated with COVID-19 Among Undergraduate Students in Public Universities of Malaysia A Cross Sectional Study

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Coronavirus disease (COVID-19) has caused a major impact on global public health. Recently, Malaysia entered the transition to an endemic phase in April 2022. It is alarming that students, especially higher education institute students are among those who were highly affected by the COVID-19 outbreak and deserve further attention. Hence, this study aimed to assess the knowledge, attitude, and practice (KAP) associated with COVID-19 among public university undergraduate students in Malaysia. An online cross-sectional study was conducted among 273 public university undergraduate students in Malaysia from May until June 2022. KAP towards COVID-19 were measured using a structured Malay and English version questionnaire consisting of i) sociodemographic characteristics, ii) Knowledge (10 Items), Iii) Attitudes (Five items) and iv) practices (six items). Descriptive statistics, independent t-tests, one-way ANOVA, Mann-Whitney test, Kruskall Wallis test and Pearson correlation were conducted. Results showed that 72.9% of the respondents were having good knowledge, 58.6% possessed good attitudes and 54.6% were classified as having good practice on COVID-19 prevention. There was no significant difference in knowledge scores based on the sociodemographic data. A significant difference in attitude scores was observed among different races, university zone and household incomes. A significant difference was also observed in practice scores correlated with gender, races and accommodation. There was a weak positive correlation between knowledge and practices with $r=0.220$, $p< 0.001$. Meanwhile, there was no correlation observed between knowledge and attitude. In conclusion, undergraduate students from Malaysian public universities had good knowledge, attitudes and practices associated with

COVID-19.

Keywords: knowledge, attitude, practice, undergraduate students, COVID-19

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Identification of phytochemical contents in *Z. zerumbet* extracts using different polarity of organic solvents and their effects towards CCL-119 childhood acute *lymphoblastic leukemia cell*

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Acute lymphoblastic leukemia is a childhood cancer and can be fatal if not treated. Current chemotherapeutic drugs cause unwanted side effects and drug-resistant in children. Therefore, researchers are looking for alternative treatments, especially natural products with fewer side effects. *Zingiber zerumbet* is a medicinal plant that has been proven to have antiproliferation, anti-inflammatory and antioxidant properties that could fight cancer cells. This study was aimed to identify phytochemicals extracted from *Z. zerumbet* by the different polarity of organic solvents such as hexane, ethyl acetate and methanol and their effects on CCL-119 childhood leukemia cells. Analysis using gas chromatography-mass spectrometry (GC-MS) suggested that Zerumbone (2,6,10-Cycloundecatrien-1-one, 2,6,9,9-tetramethyl-, (E,E,E)-) was the main compound found in *Z. zerumbet* extracts. Cytotoxic effect of *Z. zerumbet* extracts through MTT assay produced IC50 values of 10.00±4.24 µg/ml (hexane extract), 16.00±3.80 µg/ml (ethyl acetate) and 12.00±5.07 µg/ml (methanol). Apoptosis assay using Annexin V-FITC/PI staining revealed that extract of hexane, ethyl acetate and methanol cause apoptosis in the early phase with hexane extract also involve in late apoptosis ($p<0.05$). Cell cycle arrest of *Z. zerumbet* extracts was identified using RNAse/PI staining. The result revealed that hexane extract causes cell cycle arrest at the G2/M phase ($p<0.05$). In conclusion, bioactive compounds from *Z. zerumbet* extracts show cytotoxic effects by inducing apoptosis and cell cycle arrest. Therefore, *Z. zerumbet* extracts have the potential to be developed as anti-childhood leukemia agents but further studies need to be performed.

Keywords: Childhood leukemia, *Zingiber zerumbet*, Phytochemical content, Cytotoxicity, Apoptosis, Cell cycle arrest, CCL-119 cell line

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Effects of Dimethyltin (IV) Diisoprophyl Dithiocarbamate and Dimethyltin (IV) Diethyl Ditiocarbamate On T-Acute Lymphoblastic Leukemia (All) Cell Line, CCL-119

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Acute lymphoblastic leukemia (ALL) is a common cancer affecting children worldwide, which current treatment has adverse effects such as neurotoxic. To overcome this problem, new compounds of Organotin (IV) dithiocarbamate were synthesized. In this study, the T-lymphoblastic leukemia cell line (CCL-119) was tested against new compounds, Dimethyltin (IV) diisopropyl dithiocarbamate (DMIT) and Dimethyltin (IV) diethyl dithiocarbamate (DMET) to determine and identify their cytotoxic effects (MTT assay), mode of cell death (Annexin V FITC/PI staining) and effects on the cell cycle (RNase/PI staining) as well as genotoxic effects (Alkaline Comet Assay). Results obtained for cytotoxic effect after 24 hours of exposure, showed DMET compound had a strong cytotoxic effect with a median inhibitory value (IC_{50}) of 0.5 µM compared to the DMIT compound, (3.1 µM). The selective index (SI) of both compounds was less than two indicating that the compounds are not selective towards leukemia cells. Next, the determination of the mode of cell death showed both compounds caused apoptosis in CCL-119 cells. In addition, these two new compounds also cause cell cycle arrest at the G0-G1 phase. However, these two compounds did not cause DNA damage after 1 hour of exposure because the average tail moment was less than 5 A.U. and the percentage of DNA intensity was also less than 10%. In conclusion, the compounds, DMIT and DMET have non-selective cytotoxic effects and caused apoptotic cell death as well as cell cycle arrest in the G0-G1 phase, but do not cause genotoxic effects against CCL-119 cells.

Keywords: organotin, dithiocarbamate, Acute lymphoblastic leukemia, MTT assay, Genotoxic Assay, Cell Cycle, Childhood Leukemia

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Determination of Knowledge, Attitude and Practice on Physical Health component of Huffaz ProHealth 1.0 Module: The Questionnaire Development and Validation

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Huffaz ProHealth 1.0 Module was developed as one of the alternatives to achieve a comprehensive and holistic level of health among Tahfiz students. This module covers the three main components of life, namely physical health, nutritional and psychological well-being. Based on the background of the study, this module has been built specifically for Tahfiz school students and its validity has also been studied. However, instrument to measure the effectiveness of the physical health component is not yet developed. Hence, this study is aimed to develop and evaluate the content validity of knowledge, attitude and practice (KAP) questionnaire on the physical health component of Huffaz ProHealth 1.0 Module. The first and second-time content validity involved six experts from public universities in Malaysia. The KAP questionnaire has been used in this study. The results showed that the S-CVI/UA index value for the first-time content validity was 0.4 for knowledge, attitude, and practice. While the S-CVI/Ave index value was 0.83. After improvement, all items in the questionnaire had an I-CVI value of 1. Meanwhile, the value of S-CVI/UA and S-CVI/Ave for the second-time content validity. In conclusion, the KAP questionnaire of the physical health component was successfully developed and has a high validity value. This questionnaire can be used to measure the effectiveness of Huffaz ProHealth 1.0 Module among Tahfiz students.

Keywords: validity, content validity, KAP, Huffaz, health module

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Cytotoxic And Genotoxic Effects Of Diphenyltin (IV) Diisoprophyl Dithiocarbamate And Diphenyltin(IV) Diallyl Ditiocarbamate on T-Acute Lymphoblastic Leukemia (All) Cell Line, CCL-119

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Acute lymphoblastic leukemia commonly occurs in children aged 15 and below, in which current treatment has severe side effects such as neurotoxicity. To overcome this problem, new compounds of Organotin (IV) dithiocarbamate were synthesized. In this study, new compounds, Diphenyltin (IV) diisopropyl dithiocarbamate (DFDI) and Diphenyltin (IV) diallyl dithiocarbamate (DFDA) were tested towards T-lymphoblastic leukemia cell line (CCL-119). MTT assay were used to determine and identify their cytotoxic effects, Annexin V FITC/PI staining also done to determine the mode of cell death and effects on the cell cycle are by using RNase/PI staining as well as genotoxic effects using Alkaline Comet Assay. Results obtained for the cytotoxic effect after 24 hours of exposure, showed that the DFDA showed a strong cytotoxic effect towards CCL-119 leukemia cells,

with a median inhibitory value (IC50) of 0.22 µM compared to the DFDI compound, which was 0.56 µM. The selective index (SI) of both compounds is more than 2 indicating that the compounds are selective towards leukemia cancer cell. Next, both compounds also caused apoptosis towards CCL-119 leukemia cell. They also caused cell cycle arrest at the G0/G1 and S phase respectively as shown in the cell cycle assay. Moreover, after 1 hour exposure of DFDI and DFDA has also caused DNA damage because the average tail moment is more than 5 A.U. and the percentage of DNA intensity also more than 10%. In conclusion, the compounds, DFDI and DFDA have selective cytotoxic effects via apoptotic cell death and cell cycle arrest at G0/G1 and S phase, and also causes genotoxic effects on CCL-119 cells. Therefore, these compounds have the potential to be developed as anti-leukemia agent in the future.

Keywords: Organotin,Dithiocarbamate, Diphenyltin, Acute lymphoblastic leukemia, MTT assay, Genotoxic Assay, Cell Cycle, Childhood Leukemia

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Lean Application in Hospital Laboratories: A Scoping Review

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This study aimed to review recent literature that reports on the lean application in hospital laboratories by looking into three elements: the lean techniques applied, the outcome of the application and the challenges during application. This scoping review was carried out using Arksey and O'Malley's framework and the Preferred Reporting Items for Systematic review and Meta-Analysis (PRISMA) guidelines. Using relevant Keywords and inclusion and exclusion criteria, a total of 21 articles were included in this study. The review found that value stream mapping, 5S and Kaizen were the most frequently applied lean techniques across the selected articles. The use of these techniques has reportedly saved time and improved the laboratory staff productivity and patient satisfaction. Among the challenges faced in lean application was staff resistance to changes. The review concluded that the application of lean could be a feasible approach to improve the hospital laboratory performance.

Keywords: lean, toyota production system, hospital, diagnostic, laboratory

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Methanolic extract of *Zingiber zerumbet* caused cytotoxic, apoptotic and genotoxic effects on Jurkat T-lymphoblastic Leukemia Cells

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Despite the massive advancement and intensive treatment, leukaemia continues to cause death worldwide. Conventional anti-cancer drugs are associated with high toxicity and non-specific targeting and affecting both normal and cancerous cells, resulting in acute side effects such as tiredness, hair loss, diarrhoea, mouth sores, and nerve damage. *Zingiber zerumbet* is used traditionally to cure swelling, sores, and loss of appetite due to its therapeutic properties. Many studies have reported its anti-proliferative, anti-inflammation, apoptotic, and genotoxic properties on various cancer cell lines. This study aimed to determine the cytotoxic and genotoxic effects of *Zingiber zerumbet* methanolic extract (ZZME) on Jurkat T-lymphoblastic leukemic cells. Using the colorimetric MTT assay the IC_{50} obtained is 31.25 ± 0.006 ug/mL. The apoptotic effect was determined by flow cytometry Annexin V-FITC/PI technique. The results showed that ZZME induced apoptosis in Jurkat cells with 55.88 ± 0.23% of early apoptosis ($p<0.05$) and significantly different to control cells. ZZME also caused only a small percentage of necrosis (0.17 ± 0.005%). While the genotoxic effect of the extract was evaluated by alkaline comet assay proving that the extract induces a significant DNA damage ($p<0.05$) in treated cells at different time points 2, 4 and 6 hours. The results obtained revealed that ZZME is a cytotoxic agent which has the capability to induce apoptosis in Jurkat T lymphoblastic leukemia cells via DNA damage.

Keywords: Childhood leukemia, lempoyang, Zingiberaceae, apoptosis, DNA damage

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THE EFFECT OF DIFFERENT CARDIOVASCULAR EXERCISE REGIMES ON COGNITIVE-RELATED NEUROBEHAVIOR IN RODENT ANIMAL MODELS: A SCOPING REVIEW

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The neurocognitive function usually deteriorates with advancing age. Ageing has also been identified as a risk factor for most neurodegenerative diseases, including Alzheimer's disease (AD). Many studies have shown that physical activity and exercise, particularly cardiovascular exercise, can help to prevent cognitive decline and AD. However, there has yet to be a comprehensive study that collates evidence on the effect of different cardiovascular exercise regimes on cognition. Thus, this scoping study is conducted to collect and analyse available evidence from 2010 to 2021 in order to demonstrate the effects of different cardiovascular exercise regimes on cognitive-related neurobehavior in rodent animal models. Relevant articles were discovered by searching specific databases such as PubMed and Cochrane Review, using search strings

generated from all related Keywords. Only 16 studies out of 1557 studies that investigated the effects of different cardiovascular exercises on cognitive-related neurobehavior in animal models met the inclusion criteria for this scoping review. Based on the scoping findings, different cardiovascular exercise regimes, such as using a running wheel or a treadmill, were able to improve the deterioration of cognitive function in cognitively dysfunctional rodents as minimum as in one week or enhance the cognitive function in normal rodents as minimum as in two weeks. All studies concluded that cardiovascular exercise has positive effects on learning and memory as evidenced by the neurobehavioural assessment conducted. Performing cardiovascular exercise is beneficial to the cognitive health and function of rodents and therefore provides the basis for further investigation on the impact of cardiovascular exercise on cognitive function in humans, particularly the elderly.

Keywords: Cardiovascular Exercise, running wheel, treadmill, cognitive function, learning and memory.

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The Relationship Between Eye-Related Quality of Life (Erqol) And Academic Performances among Chinese Primary School Children in Seberang Perai Utara District, Penang

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The aim of this study is to determine the relationship between eye-related quality of life (ERQoL) and academic performance among Chinese primary school children in Seberang Perai Utara district, Penang. The study involved Chinese children aged 7- to 11- years and their parents selected from Chinese national-type primary school in Seberang Perai Utara district, Penang. Demographic data and academic performances (Bahasa Melayu and Mathematics subjects) were obtained using google form. The English version of Pediatric Eye Questionnaire (PedEyeQ) was used in current study in a way of google form. Parents were requested to answer their English education level before answering the PedEyeQ. Children were requested to answer child PedEyeQ while parents were requested to answer proxy and parent PedEyeQ. Out of 394 respondents, 12 respondents were excluded. The results showed that there were statistically weak positive relationships between all domains in child ERQoL (0.108, 0.110, 0.165, 0.126, $p<0.05$) but not in proxy and parent ERQoL (0.103, $p<0.05$). This study also showed there was a statistically weak positive relationship between all the domains in child [0.243, 0.194, 0.230, 0.221, $p<0.05$], proxy [0.202, 0.194, 0.178, 0.173, 0.155, $p<0.05$] and parent [0.148, 0.166, 0.156, 0.173, $p<0.05$]. In conclusion, there is no strong relationship between child, proxy and parent ERQoL and children's academic performance in Chinese primary school.

Keywords: school children, academic performance, PedEyeQ, mathematics, Bahasa Melayu.

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Mental Health Crises of B40 Single-Mothers during COVID-19 Pandemic: A Case Study in Penang

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The Covid-19 pandemic has a negative impact on the mental health and well-being of single mothers, especially from the B40 income group. The position of single mothers as sole breadwinner is challenged due to the changes in daily routines and work routines during the pandemic. The reduction of income caused by the crisis has forced single mothers and their children to live frugally. They also had to perform more than one job at a time during the pandemic to meet their children's needs. Unfortunately, some single mothers found themselves in a desperate situation and had to quit their jobs to care for their young children. Thus, this study explored the mental health crisis faced by single mothers in Penang during the Covid-19 pandemic. This qualitative study involved a focused group discussion on ten (10) B40 single mothers from Penang who were selected based on inclusive criteria that have been set, using purposive sampling method. Thematic analysis technique was used to identify mental health crises experienced by B40 single mothers. Findings showed that single mothers from the B40 group experience stress, depression, bereavement, anxiety, and loneliness, in which these issues may have a long-term impact on their well-being. Job loss, financial instability, loneliness, and lack of food can exacerbate mental health problems. Moral and social support are important for single mothers to help them recover from mental health crisis after being affected by the pandemic. The findings of this study will help relevant parties understand the mental health challenges faced by the single mothers. It can also provide guidelines in designing appropriate intervention programs to improve the well-being and quality of life of single mothers from B40 group.

Keywords: single mother, B40 income group, mental health crisis, well-being

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The Effect of Administration of Equal Doses of Dietary Chemicals (Sulforaphane, Curcumin, Quercetin, Butylated Hydroxyanisole and Indole-3-Carbinol) on Body Weight and Food Consumption in Mice.

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The effect of administration of equal doses of dietary chemicals (sulforaphane, curcumin, quercetin, butylated hydroxyanisole and indole-3-carbinol) on body weight and food consumption in male ICR white mice was determined in this study. Mice were

randomly assigned to 6 groups (normal control group, sulforaphane treated group, quercetin treated group, curcumin treated group, BHA treated group and I3C treated group; n=6 for each group). All dietary chemicals were administered intraperitoneally at a dose of 50 mg/kg body weight for 14 days. The body weight of each mouse was recorded at 1, 5, 10 and 14 days after the start of the experiment. Food intake was measured daily. The results showed that administration of equal doses of dietary chemicals sulforaphane, curcumin, quercetin, butylated hydroxyanisole and indole 3 carbinol significantly ($p<0.05$) affect body weight and food intake in adult male ICR mice, compared to controls. In conclusion, the results suggested that supplementation of dietary chemicals could affect body weight and food intake in mice.

Key Words: - sulforaphane, curcumin, quercetin, butylated hydroxyanisole and indole-3-carbinol, mice, body weight.

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A Novel Method for Direct Scanning using Scanning Electron Microscopy from Archived Paraffin-Embedded Tissues

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Formalin-fixed paraffin embedded (FFPE) tissue technique is the culmination of histotechnology and is of paramount importance in its function. For the actual preservation of tissues, formalin: a preservative used since the 19th century, works well with light microscopy, whereas the nature of electron microscopy (em) which requires the addition of a preservative setting such as glutaraldehyde makes the use of formalin difficult. In addition, archived FFPE blocks follow a strict processing protocol if they are to be reused once more. Therefore, this study investigates the effectiveness of new SEM processing protocols on tissues obtained from archived paraffin blocks compared to the conventional method. The samples used for this study were fresh tissues and archived tissues. Both groups were stained with H&E stain and observed via light microscopy. Furthermore, the samples underwent conventional and the alternative SEM protocol that we have proposed. In this protocol, distilled water replaces xylene for the dewaxing and the post-fixation step is skipped. The microscopic images were observed, the landmark organelles were measured and the effects of processing temporal variations were assessed. Indistinguishable morphological organelle dimensions were observed from both the conventional as well as the alternative protocol for fresh and the decade old sample. To summarize, the alternative method for reusing archived FFPE blocks has successfully retained the ultrastructure of the tissues, thus proving to be a promising potential as a new protocol for reusing archived FFPE blocks.

Keywords: FFPE tissue, SEM processing protocol.

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Malay Happiness at Workplace Index: Validation Study

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Background: There are limited studies that measure happiness at the workplace. There is an urgent need to validate happiness at a workplace scale that is able to measure happiness at work during COVID-19 pandemic. Aim: To validate Happiness at Workplace Index scale into Malay version. Materials and Method: This is a cross-sectional survey study with a convenience sampling method. The sample population is UKMMC staff. Happiness at Workplace Index scale has been translated into a Malay version and distributed to respondents. Analysis was done using Exploratory Factor Analysis and Confirmatory Factor Analysis. Result: The reliability for Happiness at Workplace Index is α= 0.95. The EFA shows 2 distinct factors which are individual factors and environmental factors. CFA shows that the model is fit (RMSEA= 0.076, CFI= 0.978, x^2/d*f*= 3.31). Conclusion: The Malay version of Happiness at Workplace Index has a good validity and reliability. This scale is suitable to be used in the general population to measure happiness at the workplace based on individual factors and environmental factors. This will help organizations to detect employee's unhappiness and provide suitable intervention to improve employee's happiness.

Keywords: happiness, workplace, scale.

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Publication Trend, Impact and Performance in Mental Health during and Post COVID-19 Pandemic

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Studies on mental health is crucial to steer countries in the pursuit of overall well-being. As the subject matter has become more important especially during and post COVID-19 pandemic, this study aims to understand the state of the arts of the publication relevant to mental health in Malaysia. Particularly, this study focuses on analysing and classifying bibliographical data, examine the publication impact and performance as well as reveal the distribution of the extant literature. This study employs bibliometric analysis in order to analyse the bibliographical data, trend, productivity, and performance of the publications from the Scopus database by using two Keywords namely "*mental health*" and "*covid OR pandemic*". The search has been refined by limiting the publish year to 2020 – 2022 so as to focus on recent publications and found 145 research documents. The finding of this study presents descriptive and trend analysis including types of open access, publication by year, most active authors, subject area, document type, source title,

Keywords, affiliation, funding sponsor, country, and source type. This study also reports on the publication impact and performance based on citations metrics include total number citations, citations per year, citation per paper, authors per paper, h-index, g-index, and highly cited papers. The findings provide insights that might be useful for researchers by suggesting research directions in the field of inquiry. The findings would also benefit other stakeholders such as policymakers, associations, practitioners as the study reported relevant data in promoting the role of social and cultural in this field.

Keywords: mental health, COVID-19, pandemic, well-being.

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Antibacterial and Antibiofilm Efficacy of Selected Essential Oils Against Human Pathogenic Bacteria

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Multidrug-resistant bacteria are still considered as an emergent global disease and a major public health problem. Essential oils (EOs) may represent a promising source for new resistance modifying agents. This study aimed to investigate the antibacterial and antibiofilm efficacy of selected essential oils against four clinical isolates. A total of five plant EOs were procured from a local market. They were *Syzygium aromaticum* (clove, CEO), *Eucalyptus globulus* (EGEO), *Pelargonium graveolens* (geranium, GEO), *Cymbopogon citratus* (lemongrass, LGEO) and *Melaleuca alternifolia* (Teatree, TTEO) EOs. The antibacterial efficacy were evaluated using agar disk diffusion and broth microdilution methods against Gram-positive bacteria (*Staphylococcus aureus* and *Staphylococcus epidermidis*) and Gram-negative bacteria (*Escherichia coli* and *Klebsiella pneumoniae*). The antibiofilm efficacy of these EOs were assessed using crystal violet assay at 1×, 2× and 4× MICs. Antibacterial activity was observed for all five tested EOs. The antibacterial activity results demonstrated that the five tested EOs exhibited stronger antibacterial activity against Gram-positive bacteria than that against Gram-negative bacteria. The CEO exhibited significantly (P<0.05) higher antibacterial activity with largest inhibition zone (11.83-15.70mm), and lowest MIC and MBC (1.56-12.5µL/mL) values against all four tested bacteria, compared to other EOs. The five tested EOs showed good antibiofilm activity. Similarly, CEO displayed as the most potent antibiofilm agent with dual actions, inhibiting (up to 87.7%) and eradicating (up to 64.2%) the biofilms formed by the four tested bacteria, as compared to other EOs at concentration of 4×MIC. The findings highlighted the potential of these five EOs as potential alternatives for the treatment of microbial infections.

Keywords: antibacterial, antibiofilm, eEssential oils, human pathogenic bacteria.

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A Deep Learning Model for Detecting COVID-19 With Google AutoML Vision

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Coronavirus (COVID-19) is classified as a pandemic disease by the World Health Organization. In extreme circumstances, this virus causes many respiratory difficulties (e.g., influenza), including cough, fever and pneumonia. In this study, we explore the implementation of automated deep learning without requiring data scientist knowledge. The created methodology seeks to provide radiologists with a second opinion, significantly reduce doctors' burden, and assist them in making accurate diagnoses. We employed automated deep learning via Google AutoML for COVID-19 X-ray detection in order to provide a faster and more accurate diagnosis. The model is used to detect COVID-19 on X-ray pictures based on binary situation. A review of 625 chest X-rays demonstrates the effectiveness of the proposed approach. AutoML facilitates the performance of binary classification with an accuracy at 98.41 percent. Overall, this study showed Google AutoML Vision able to help radiologist to classified COVID-19 and normal X-ray with higher accuracy.

Keywords: COVID-19; deep learning; AutoML

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Dysfunctional Breathing Amongst a Healthy Population: An Untapped Potential for Opportunistic Screening.

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Dysfunctional breathing represents an individual who is a chronic mouth breather. Chronic mouth breathing has been shown to be strongly associated with sleep disordered breathing. Sleep disordered breathing can lead to neurocognitive and behavioural problems as well chronic systemic health problems Oral health practitioners play a fundamental role in airway screening as more than half of the anatomical factors that can lead to chronic mouth breathing are present in the oral cavity. Nasal obstruction has been shown to be one of the most common and easily treatable cause of chronic mouth breathing. This a cross sectional study. Patients were randomly selected from the dental outpatient setting. The study involved two phases and the examiners in each phase were blinded from each other. In the first phase they underwent a subjective and objective assessment at the dental clinical. The second phase involved

nasal endoscopy to look for nasal obstruction. The study aimed to identify the prevalence of undiagnosed nasal obstruction and possible dental parameters to improve opportunistic screening. Prevalence of undiagnosed nasal obstruction was found to high at 90.4%. There was a mixed pattern of dental morphometry changes in the dysfunctional breathers. A significant association between history allergy, tongue scalloping and snoring was seen in the presence of nasal obstruction. SNOT-22 is reliable questionnaire to be used by healthcare professionals for opportunistic screening of nasal pathology. Undiagnosed nasal obstruction can increase risk for sleep related disorder. Our study shows that oral healthcare professionals can be important.

Keywords: dysfunctional breathing, nasal obstruction, sleep disordered breathing, airway screening.

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Sleep Behaviors, Stress And Physical Activity Level Of Health Science Undergraduates: Do They Influence Academic Performance?

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Academic performance is an indicator of student achievement, and it can be influenced by sleep quality, stress as well as physical activity level. In this study, we aimed to determine the influence of sleep behaviors, stress level and physical activity level on academic performance of health science undergraduates. A cross-sectional study was conducted among 315 health sciences students. Participants were recruited from the Faculty of Health Sciences using stratified random sampling. All academic programmes located in Kuala Lumpur Campus were included. Data on sleep behaviors, stress level and physical activity level were collected online using PSQI, PSS and IPAQ-SF questionnaires respectively. Collected data were analysed by using SPSS 26. Majority of the students have mild difficulty in falling asleep (34.8%), moderate stress (69.9%) and low physical activity level (53.7%). There were significant differences in stress level and sleep behaviors between gender, as well as CGPA and physical activity level between years of study. However, there was no association between the academic performance with stress level, physical activity level and sleep behavior. Sleep behaviors, stress level and physical activity level do not influence academic performances in studied participants.

Keywords: academic performance, stress level, physical activity level & sleep behaviours

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A Study on the Readiness and Perception of Healthcare Students Towards COVID-19 In Malaysia

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The spread of Novel Coronavirus Disease (COVID-19) which is a type of respiratory virus that causes clinical manifestations such as fever, cough, dyspnea which may lead to acute respiratory syndrome (SARS) has triggered a global health crisis. This study determined the readiness and perceptions of healthcare students towards the COVID-19 pandemic in Malaysia. A prospective cross-sectional study was conducted among healthcare students from private and public universities in Malaysia. A set of validated semi-structured online questionnaires was distributed via social media platforms. It consists of two sections where the first section was on demographic factors and the second section consists of 8 questions regarding their perception on the current pandemic situation and their preparedness for any pandemic situation in the future. The snowball sampling method or chain referral sampling in which the existing study subjects recruited future subjects among their acquaintances was used for this study. An ethics approval was granted by the Ethics Committee of KPJ Healthcare University College. The majority of student come from KPJHUC (50.9%) and UKM (18.1%). The mean age of the students is 22.02 ± 1.919 years. Among the participants, 513 (84.5%) respondents were females. Result shows that 52.6% of healthcare students in Malaysia had positive perceptions on COVID-19 with sensitivity of 62.3% and specificity of 76%. Among them, 88.4% students were mentally and physically prepared for any out-break in the future have positive perception. While only 1.8% of those who regretted pursuing their studies in the healthcare industry and had negative perception. Covid-19 is a human tragedy as it causes the highest number of deaths to be reported in a short of time, however this study revealed most healthcare students have a high level of readiness to face pandemic disease in future.

Keywords: COVID-19; Perceptions; Readiness; Healthcare students.

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Quality of Life Status of Recovered COVID-19 Patients Among Hospital Canselor Tuanku Muhriz Staff and Risk Factors Influencing It

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COVID-19 can impact all aspects of physical, emotional, social, and quality of life. The purpose of this study was to determine the quality of life (QoL) and other factors that influence recovered COVID-19 patients among the Hospital Canselor Tuanku Muhriz (HCTM) staff from June 2021 to February 2022. A set of WHOQOL-BREF questionnaires for QoL were completed by 328 respondents who had passed four weeks from the onset of positive COVID-19. Data were analysed using SPSS Vers 25. The QoL was highest for environment (72.93 ± 13.45), followed by personal relationship (71.86 ± 16.82), psychological health (67.68 ± 12.15) and physical health (61.95 ± 12.03). The physical health domain score was highest for Indians and the psychology domain score was highest for respondents aged 20-29 ($p<0.05$). Respondents with cardiac problems and long COVID had the lowest domain score for psychological health. Respondents who are married scored the highest in the personal relationship domain. Doctors have the highest environmental domain score compared to other occupations. The quality of life is lowest in respondents aged 50-59 years old and with cardiac problems. The multiple linear regression test showed that all sociodemographic factors significantly affected the QoL of the respondent, except for gender. Comorbidity, occupation and COVID-19 disease category significantly affect the QoL, with a positive beta value, while long COVID, marital status, and age negatively affect the QoL. These results could suggest the administration of HCTM to improve the QoL of recovered HCTM staff.

Keywords: COVID-19, quality of life, long COVID

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Antimalarial Activity of *Zingiber Zerumbet* Rhizome Ethyl Acetate Extract Against Erythrocytes Infected with *Plasmodium Falciparum* 3D7

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This study was performed to identify antimalarial activity of *Zingiber zerumbet* rhizome in semi polar solvent ethyl acetate towards *Plasmodium falciparum* 3D7. Plasmodium Lactate Dehydrogenase (pLDH) assay was conducted to determine antimalarial activity. The effectiveness of an antimalarial activity was evaluated based on IC_{50} values. The IC_{50} value on ethyl acetate extract and chloroquine as as positive control was evaluated using a series of concentration doses from the lowest dose of 0.0001µg/ml, 0.001 µg/ml, 0.01 µg/ml, 1 µg/ml, 0.1 µg/ml, 1 µg/ml, 10 µg /ml and the highest dose is 100 µg/ml. Results showed the IC_{50} of ethyl acetate extract is 0.5869 µg/ml compared to chloroquine; 0.0001955g/ml. The effect of an ethyl acetate extract and chloroquine on infected erythrocytes was also visualised under light microscope for each dose ranging from the highest to the lowest dose. The results of morphological

observations showed the presence of gametocytes in infected erythrocytes for ethyl acetate extract starting at the highest dose of 100 µg/ml compared to chloroquine at the lowest dose; 1.0 µg/ml. Based on the qualitative and quantitative results on their antimalarial activity, ethyl acetate extract was less effective compared to chloroquine. In conclusion, ethyl acetate extract *of Zingiber zerumbet* rhizome still has a potential as an antimalarial in the presence of zerumbon bioactive compounds in the extract.

Keywords: *Zingiber zerumbet, Plasmodium falciparum* 3D7, Antimalarial

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Psychological Well-Being of UKM Undergraduates from Faculty Of Health Sciences During The Covid-19 Pandemic: A Cross-Sectional Survey

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The COVID-19 pandemic has recently had an impact on both physical and psychological well-being. Undergraduates are among those who are suffering psychological distress as a result of the disruption to their studies and internships. The aim of this research is to investigate the psychological well-being of undergraduates from the Faculty of Health Sciences (FSK) UKM during the COVID-19 pandemic. The study involves determining the subjects' psychological health and sleep quality levels, as well as the factors that contribute to their psychological well-being.In April 2021, a survey was administered via Google Form to 208 FSK undergraduates relating socio-demographic information, the General Health Questionnaire (GHQ-12), the Pittsburgh Sleep Quality Index (PSQI), and contributing factors involved in psychological health. 53.3% of respondents were found to obtain a score of more than 11 in GHQ-12, classified as poor psychological well-being. In contrast, 85.6% of the students are found to have poor sleep quality. Spearman's Rho indicated the presence of a strong positive correlation between psychological well-being level and sleep quality with 0.559, $p < 0.001$. Academic workload and isolation factors significantly contribute to psychological well-being. In conclusion, the COVID-19 pandemic has substantial impact on the psychological well-being of FSK undergraduates, and the university management should consider the special needs of the respondents.

Keywords: COVID-19 pandemic, psychological well-being, sleep quality, undergraduates.

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Antimalarial Activity of *Lempoyang* (*Zingiber zerumbet*) Extracts on Erythrocytes Infected *Plasmodium Berghei* NK 65

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Malaria is a major worldwide disease caused by parasitic infection particularly in equatorial and tropical countries. About 500 million new cases were reported; causing at least 2 to 3 million deaths annually. This study aims to determine the antimalarial activity of Z. *zerumbet* extracts on erythrocytes infected with *Plasmodium berghei* NK 65 using Plasmodium Lactate Dehydrogenase (pLDH) assay via ex vivo. Three types of solvent with different polarities; methanol, ethyl acetate and hexane of Z. *zerumbet* extract was prepared. Early antimalarial screening was tested on 10% parasitemia and result showed the methanol extracts inhibition activity (IC_{50}=55 µg/ml) was closer to positive control value, artemisinin (IC_{50} = 0.911 µg/ml) compared to the ethyl acetate extract (IC_{50} =100 µg/ml) and hexane extract of Z. *zerumbet* (IC_{50}= 325 µg/ml). Based on this screening test, the methanol extract of Z. *zerumbet* has been selected for antimalarial test at 5% and 30% parasitemia level. The results showed that the most efficient activity of methanol extract of *Zingiber zerumbet* was at 5 % parasitemia (IC_{50} = 0.09 µg/ml), 10% parasitemia (IC_{50} = 55 µg/ml), and at 30 % parasitemia (IC_{50} = 640 µg/ml). For synchronization test, the results showed that methanol extract of Z. *zerumbet* had the most effective inhibitory activity was without synchronization (IC_{50} = 0.0064 µg/ml), then schizont stage (IC_{50} = 1.9 µg/ml), young trophozoite (IC_{50} = 46 µg/ml) and mature trophozoite (IC_{50} = 640 µg/ml). In conclusion, Z. *zerumbet* methanol extract showed antimalarial effects and are potential to be developed as antimalarial drugs.

Keywords: *Zingiber zerumbet*, *Plasmodium berghei* NK65, pldh assay

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PHYTOCHEMICAL SCREENING AND GCMS ANALYSIS OF *Alocasia Denudata* Engler AQUEOUS EXTRACT

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A diabetic foot ulcer is one of the major healthcare problems which lead to hospitalization and amputation that involve such a high management cost. Therefore, an alternative treatment from the medicinal plant is sought to help reduce this management cost burden. In this study, a local plant known as keladi candik (*Alocasia denudata* Engler) which

is used traditionally as a wound healing agent was tested to determine its wound healing properties compounds. The purpose of this study is to identify the presence of the main phytochemical compound on the *A. denudata* stem through screening tests for phytochemical content and mass spectrophotometer gas chromatography-mass spectrophotometer (GC-MS) analysis. Qualitative phytochemical analysis on aqueous extract *A. denudata* showed a positive presence for saponins, tannins, triterpenoids, and phenolic compounds and negative for alkaloids and flavonoids. The phytochemical content of the stem juice was determined by GCMS and showed that there are 7 main compounds found in the juice; Tumerone (20.06%), 9,12-Octadecadienoic acid (Z, Z)-methyl ester (19.09%), Ar-tumerone (13.40%), 9-Octadecenoic acid (Z)-, methyl ester (8.96%), Curlone (7.51%), Hexadecanoic acid, methyl ester (4.90%) and Octadecanoic acid, methyl ester (0.58%). Based on the results of the studies obtained, it can be concluded that the content of phytochemicals and the main compounds present in the extract of *A. denudata* such as saponin, tannins, triterpenoids, phenolic compounds as well as ar-tumerone, turmerone and curlone are proven to be directly involved in the wound healing process.

Keywords: *Alocasia denudata* Engler, GCMS, wound healing

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Comparison on the Learning Methods towards Undergraduate Private Healthcare Institution: A Preliminary Study

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The study aims to compare between the live online lecture (LOL) and video-recorded lecture (VRL) for undergraduate students of Private Healthcare Institution. A total of 53 students answered the questionnaires distributed by the researcher, with the content of the 20 questions explained in detailed, are kept confidential and only be used for research purposes. All data collection is gathered from students via a google form. Then, the teaching and learning process via live online and video recorded lectures was given by the respective lecturer. There was a significant difference in the scored for LOL resulting of pre-test (M=45.28, SD=20.058); post-test (M=72.83, SD=17.139), and for VRL resulting of pre-test (M=42.26, SD=28.192); post-test (M=79.25, SD=21.825), respectively. The differences for both lecture methods were very small and neglected. This showed that video-recorded is also able to be used as an alternative method for lecturing, in comparison with the face-to-face or online lecture. This study suggested that the VDL could become as supportive to the LOL, thus promising approach for students' learning process and performance.

Keywords: 0nline learning, video-recorded lecture, live-online lecture, lecture, learning

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Retrocaval Ureter: A Case Report

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Retrocaval ureter (RCU) is a rare development anomaly of the inferior vena cava (IVC), occurring at 4th to 8th weeks of gestation. The proximal ureter passes posterior to IVC without circumscribing the vessel to lie medial to it. Distally it returns to its normal position, lateral to IVC. Commonly it is seen on the right side. The common complaint is lumbar pain caused by hydronephrosis secondary to compression of the right ureter between the IVC and psoas muscle. We present a case of a 21-year-old male who presented with pain at periumbilical region radiating to right iliac fossa. Abdominal ultrasound showed mild right hydronephrosis with proximal hydroureter. Subsequently contrast enhanced CT abdomen with delayed images in prone position showed a sudden change of caliber of the right ureter. This sudden change of caliber and course of the right ureter led to mild hydronephrosis and proximal hydroureter. During fetal development, the pre-renal, renal and the post renal segments of the IVC develop from the right vitelline vein, right subcardinal and the right sacrocardinal veins respectively. The aberrant embryology behind the preureteral vena cava is the persistence of the right posterior cardinal vein instead of the right sub cardinal vein as the renal segment of the IVC. As the right posterior cardinal vein lies ventral to the ureter, the ureter effectively comes to lie in a "retrocaval"position. Retrocaval ureter is caused by an error in the embryogenic development of the IVC. CT scan is the preferred imaging for diagnosis.

Keywords: Retrocaval, Ureter, Congenital, Inferior Vena Cava

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Flaxseed (*linum usitatissimum*) ethanolic extract affects WNT signalling pathway-associated molecules; *β-catenin* and *DKK1* expressions, during osteoblast differentiation of SHED

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WNT signalling is important in regulating developmental process including bone development. Additionally, WNT signalling also involves in lineage differentiation of mesenchymal stem

cells (MSC), including osteogenic differentiation, through canonical WNT pathway. Flaxseed (*linum usitatissimum*) is a plant with many health benefits including promoting bone health. Our previous study demonstrated that Flaxseed ethanolic extract (FEE) reduced the osteoblast differentiation potential of stem cells from human exfoliated deciduous teeth (SHED), a type of MSC. Hence, we aimed to analyse the effect of FEE on WNT signalling pathway-associated molecules; *β-catenin*, and *DKK1* expressions, during the osteoblast differentiation of SHED. SHED cultured in osteoblast induction media (OIM) was treated with FEE at 4 mg/ml. RNA extracted from cells cultured at day 7, 14 and 21 was subjected to reverse-transcriptase PCR for *β-catenin*, and *DKK1* gene expression analysis. FEE at 4 mg/ml significantly reduced *β-catenin* and *DKK1* expression of SHED at day 7 (0.5293 ± 0.01, 1.0792 ± 0.02 respectively, $p < 0.01$) but induced their expression at day 14 (0.7675 ± 0.05, 1.7176 ± 0.07 respectively, $p < 0.01$). The expression was later reduced at day 21 (0.2592 ± 0.01, 1.0653 ± 0.04 respectively, $p < 0.01$). Changes in the *β-catenin*, and *DKK1* expressions levels at different time frame might explain how FEE reduced the osteoblast differentiation potential of SHED. Overall, FEE modulates the expressions of WNT signalling pathway-associated molecules: *β-catenin*, and *DKK1*, during the process of osteoblast differentiation of SHED which could possibly interrupt the process of osteogenesis in the current environment.

Keywords: Flaxseed ethanolic extract, SHED, *β-catenin*, *DKK1*, osteoblast differentiation.

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Association Between ABO Blood Group System and COVID-19 Patients in University Malaya Medical Center (UMMC)

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The corona virus disease 19 (COVID-19) is a respiratory infectious disease that has caused a recent worldwide outbreak caused by the SARS-CoV-2 virus. The virus has a spike (S) protein that is important in the recognition and fusion process of cell membranes. ABO blood type being the red cell surface carbohydrate molecule is one of the suggested markers related to the susceptibility and severity of COVID-19. However, limited knowledge of epidemiological and demographic factors, expensive laboratory tests and limited Malaysian studies require this study to be conducted to find out the relationship between the ABO blood group system and susceptibility as well as severity of COVID-19 patients in

Malaysia. Therefore, this single centre observational case control study was conducted at UMMC on 196 warded and outpatient COVID-19 cases and 4858 controls were included. It was found that, in UMMC older female COVID-19 patients have a higher risk of being infected with the virus due to socio-economic factors and inflammation due to aging that affect the immune response ($p<0.05$). However, blood group A patients have a tendency to be associated with ICU admission and need for hospitalization. Blood groups O and AB patients are associated with milder form of COVID-19 infection ($p<0.05$). Based on this first Malaysian study, it is suggested that the ABO blood group has the potential to be used to stratify COVID-19 patients according to the risk for hospitalization and ICU admission which will have a positive impact on patient and resources management.

Keywords: COVID-19, ABO Blood group, Severity

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The Antibacterial Activity of Gum Arabic Acacia Senegal and Acacia Seyal

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Gum Arabic (GA) is traditionally used as medicine from Acacia Senegal and Acacia Seyal which consist of a complex mixture of polysaccharides and glycoproteins. It is commonly used for several diseases and is well known for protecting against bacterial infections. However, the empirical findings behind such observations are not comprehensive and still unclear. This study examined the antibacterial activity of Acacia Senegal and Acacia Seyal extract against Gram-negative (*Escherichia coli* and *Pseudomonas aeruginosa)* and Gram-positive (*Staphylococcus aureus* and *Bacillus subtilis*) bacteria using Mueller-Hinton agar diffusion method
. The minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of GA were also determined using a microdilution method. The gum extract was able to exhibit antibacterial activity. The highest antibacterial activity of Acacia Senegal with the zone of inhibition of 28 mm and Acacia Seyal with 22 mm of different microorganisms. The MIC and MBC values GA (Acacia Seyal) for *S.aureus, B. subtilis*, *E.) coli* and *P. aeruginosa* were 12.5 µg/ml, 25 µg/ml, 15.5 µg/ml and 15.5 µg/ml, respectively. Prebiotic Acacia Senegal and Acacia Seyal could be used as a source of antimicrobial agents to treat different medical cases.

Keywords: Gum Arabic, antibacterial activity, MIC, MBC.

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The Effect of *Eleusine indica* extract on Proliferation and Migration Rate Assesment on Human Dermal Fibroblast

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Eleusine indica Linn. Gaertn was proposed as an alternative to reduce the wound management cost in Malaysia. Our aim is to determine the effect of *E. indica* extracts on proliferation and migration of human dermal fibroblast adult primary cells. The leaves of the *E. indica* were cut and soaked in non-polar solvent (hexane and dichloromethane) to semi polar solvent (ethyl acetate) and lastly in polar solvent (methanol, ethanol, cold aqueous infusion and hot aqueous infusion). The extracts were used to treat the cells for cytoxicity, proliferation and scratch assays. The result indicated that cold infusion extract caused no IC50 value of the cells. However, the highest proliferation was shown highest using hexane, dichloromethane and cold infusion extract at 24 hours. The result for proliferation rate (24, 48 and 72 hour) and scratch assay are yet to be announced. Result of the in vitro assay strongly recommended that the extract of *E. indica* enhances the wound healing activity based on the increase in the number of cells in proliferation assay.

Keywords: wound healing, extraction, *Eleusine indica*, fibroblast

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Antibacterial Activities of Dr. Ridz Cleanser® Product against *Cutibacterium acnes, Staphylococcus aureus* and *Staphylococcus epidermidis*

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Cleanser is a skincare that routinely used to remove makeup, dead skin cells and impurities from the facial skin. The active ingredients normally include retinol, vitamin E, glycerin, alpha hydroxy acid and beta hydroxy acid. Skin problem that are often associated with the face is acne vulgaris. Bacteria that are commonly found in the sample of the acne vulgaris are *Cutibacterium acnes, Staphylococcus aureus* and *Staphylococcus epidermidis.* Therefore, the objective of this study is to determine the antibacterial activity of Dr. Ridz Cleanser® product that are enriched with natural ingredients such as *Piper betle* and *Senna alata* against *C. acnes, S. aureus* and *S. epidermidis.* Different concentration (1000 mg/ml – 1.95 mg/ml) of Dr. Ridz Cleanser® were used to evaluate the antibacterial activities on the bacteria. The minimum inhibitory concentration (MIC) was determined by broth microdilution method, while the

minimum bactericidal concentration (MBC) was determined by streak plate method. The zone of inhibition was determined using the Kirby-Bauer disk diffusion method. Result showed the largest inhibition zone for *S. epidermidis* compared to *C. acnes* and *S. aureus.* The MIC values showed that this product was able to inhibit *S. epidermidis* and *C. acnes* better than *S. aureus.* Finally, time-kill assay (TKA) of this product was tested at the concentration of 1x, 2x and 4x MIC with incubation periods of 0, 2, 4, 6 and 24 hours. Result showed the killing effect of this product was bactericidal for *C. acnes* and *S. epidermidis* and bacteriostatic for *S. aureus.* In conclusion, Dr. Ridz Cleanser® does exhibit the best antibacterial activities on *C. acnes* and *S. epidermidis* compared *S. aureus.*

Keywords: Dr. Ridz Cleanser®, antibacterial activities, Minimum Inhibitory Concentration (MIC), Minimum Bactericidal Concentration (MBC), Time-Kill Assay (TKA)

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Validation of Physical Tests in Predicting Maximal Oxygen Consumption Among Community Dwelling Older Men with Cognitive Frailty: Preliminary Findings

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Cardiorespiratory fitness is an independent risk factor for incident of dementia and this factor can be improved up to 30% among older persons via exercise intervention. Direct assessment of maximal oxygen consumption (VO2 max) is the gold standard to assess cardiorespiratory fitness, however, this requires a costly laboratory setting. Hence, a simple, robust and validated tool against VO2 max cardiovascular fitness test is needed to quickly estimate cardiovascular fitness of community–dwelling older persons. The objective of this study is to establish a validated screening tool for estimating cardiovascular fitness against gold standard measure of maximal oxygen consumption. In this validation study, 10 out of 20 community dwelling cognitive frail or prefrail (CF) individuals aged 60 years and above in Klang Valley, were screened for the eligibility using ECG tracings that met the criteria. Participants performed three physical tests namely two-minute walk, two-minute step and 1 minute sit to stand tests followed by treadmill- based maximal exercise testing on separate days. The mean age of the participants was 67.7(5.2) years, with three of them having hypertension (30%) and hypercholesterolemia (30%), two of them having diabetes (20%) and one with joint pain (10%). Among the endurance tests tested, two-minute walk test was significant and strongly correlated with VO2 Max (r=0.77, p-value: 0.03). Upon establishing predictive model of VO2 max among CF, two-minute walk test independently predict VO2 max (R^2=0.59, F (1,6) =8.53, p=0.03). The two-minute walk test is a valid tool in estimating cardiorespiratory fitness among men with CF, however it should be further tested among a larger population.

Keywords: handwriting intervention, pilot study, autism spectrum disorder, visual perceptual skills, occupational therapy

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Burden, Needs and Unmet Needs Among Informal Caregivers of Persons with Parkinson's Disease: A Narrative Review

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Parkinson's Disease (PD) is the second most common neurodegenerative disease after Alzheimer's Disease and its prevalence is expected to increase in an aging population. The unexpected presence of PD has negatively impacted the family, being the informal caregivers. Most frequently, their burden and needs are not well-recognized by the society, hence leaving their needs unmet unintentionally. This literature review was conducted, by searching Google Scholar, PubMed, and Cochrane Library for studies identifying the burden, needs, and unmet needs among the informal caregivers for persons with PD. The main search terms used were Parkinson's and (burden or challenges) and Parkinson's and needs. A total of 23 studies were retrieved from the search engines but only eight studies met the eligibility criteria for this review which discuss both the burden and needs from the perspectives of PD caregivers. Among the eight studies, three are quantitative cross-sectional studies, another three are qualitative studies, and the remaining two are scoping reviews published between the year 2012 and 2021. Two of the studies were done in Asian-based countries (Singapore and Korea) while the other six studies were conducted in Western countries. Results from the review showed that the obligation of caregiving has negatively affected the caregivers physically, emotionally, psychologically and economically, and left them isolated from society. The reported needs and unmet needs of the caregivers include the provision of more educational information regarding the PD, improvement in the healthcare system, needs for support system and emotional coping strategies, and financial assistance.

Keywords: burden, needs, unmet needs, informal caregivers, Parkinson's Disease

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The Effect of 'Fun Tulis' Intervention on Handwriting Performance and Visual Perceptual Skills: A Pilot Study

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The purpose of this study was to evaluate the effect of the 'FunTulis' handwriting intervention programme on children diagnosed with autism spectrum disorder

(ASD). The effect was measured to investigate handwriting performance and visual perceptual skills. This study employed a single-arm experiment with pre- and post-measure. A total of seven ASD children (n=7) with poor handwriting scores completed a 6-week handwriting intervention programme. The Print Tool (TPT) was used as an outcome measure to investigate the effect of handwriting intervention in capitals and lowercase writing. Test of Visual Perceptual Skills version 4 (TVPS-4) was utilised to measure the effect on visual perceptual skills. The study revealed that ASD children demonstrated positive effects in lowercase writing. However, there were no significant changes in capital writing. The effect of the 'FunTulis' handwriting programme was significant in lowercase writing ability but none in visual perceptual skills. The results of this pilot study contributed to the knowledge regarding the effects of the developed handwriting intervention programme for ASD children with handwriting difficulties. The results satisfied preliminary support for the developed handwriting intervention guideline to be used in professional practice among occupational therapists in Malaysia. Further research is needed to study its effectiveness in practice.

Keywords: handwriting intervention, pilot study, autism spectrum disorder, visual perceptual skills, occupational therapy

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Parents' and Teachers' Perspective in Exploring Attitude and Practice towards Motor Skills in Enhancing Self-care Skills Independence among Preschool Children in Malaysia: A qualitative study

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Self-care or also known as activities of daily living (ADL), refers to the ability to take care of oneself. Parents will take care of their children's self-care skills until they are well developed to perform the task independently. One of the crucial aspects to look for is having good motor skills and being independent in self-care skills. Teachers' and parents' lack of understanding of the children's motor skills and self-care development will further decrease the children's ability to perform self-care activities independently. This study aimed to explore and understand the attitudes and practices among parents and teachers regarding motor skills in enhancing self-care independence. Qualitative study using semi-structured interviews was conducted. Analysis was perform using NVivo software and data were analysed thematically. Parents and teachers involved in taking care of typical children aged 4-5 years were recruited. Findings

revealed two main categories, which are Attitude and Practice. Seven overarching themes emerged, each incorporating one to three sub-themes. Category one, Attitude;(i) Overlooking of a child, (ii)Overparenting, (iii)Parents count on teachers, (iv) Physical and mental exertion, (v)Being concerned to child's matter, and category two, Approaches; (i)Teachers' approaches, (ii)Parents' approaches and (iii)similar approaches. Motor skills and self-care skills are closely related and should be considered in the intervention plans for self-care skills. Parents and teachers require good attitude, supportive environment and consistent practice to embed self-care skills into a child's daily routine. Collaboration between teachers and parents with health professional support is essential for a child's improvement.

Keywords: Self-care skills; children; teachers; parents; occupational therapy

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Corneal Transplantation: What Stem Cell Has to Offer?

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Corneal blindness is one of the world's leading causes of visual impairment. It is commonly treated with corneal transplantation. Despite being the most common type of transplantation in the world, the scarcity of corneal grafts from deceased donors limits treatment efforts. In 2012, only less than 2% of patients that need corneal transplantation got the surgery. From 116 countries that perform corneal transplantation, only 82 countries supply it. Since WHO declared SARS-CoV-2 infection as a pandemic, travel restriction hampers the global chain supply and forced people to delay or avoid non-life-threatening procedures such as corneal tissue retrieval from donors and corneal transplantation. The shortage of corneal graft worsens and was believed to increase the waiting list of corneal transplantation around the globe. In addition, several reports on SARS-CoV-2 ocular route transmission and corneal transplantation rejection following vaccination hinder the effort of overcoming the shortage. Alternative sources for corneal graft are being sought due to the limited availability of donated cornea as well as the adverse post-treatment reaction/rejection. Thus, a vast avenue of stem cell research may provide solutions. This descriptive review summarizes the potentials of stem cells applications for corneal transplantation especially during this endemic period. Current reports on stem cells therapy to restore vision, from autologous stem cells transplantation to allogenic corneal epithelium transplantation since 2018 were reviewed. Nevertheless, some challenges such as development of scaffold materials, trophic factors affecting stem cells differentiation and ocular complications still need to be addressed to ensure its successful translation into clinical settings.

Keywords: Cornea, transplantation, stem cell, covid-19

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Quantifying Speech Entrainment in an Online Adult-Child Interaction

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During conversation, conversational partners subconsciously modify their verbal (i.e., speech rate, fundamental frequency) behaviours to become more similar to each other. This phenomenon, known as conversational entrainment, has been widely studied in adult-adult interactions. However, little is known about this pervasive phenomenon in online adult-child interactions. In the present study, we aim to explore the entrainment of speech rate in online adult-child interactions. This ongoing cross-sectional study recruited 45 Malaysian children aged 5 to 8 years who spoke English as their dominant language. Each child interacted with a familiar and unfamiliar adult confederate in two 10-minute interactive online activities (i.e. kitchen activity, find the difference activity). A total of 180 conversations were digitally recorded through Zoom. These recordings were manually coded, annotated and transcribed using PRAAT's Textgrid function by trained transcribers. Using Pearson's correlation, a synchrony score is generated for each dyad by measuring the coefficient between raw feature values of the two speakers at adjacent turns. Our preliminary descriptive analysis of speech rate entrainment of two participants from the two online activities revealed contrasting results. There is a moderate correlation between the child's speech rate and an adult's speech rate in the kitchen activity and no correlation in the find the difference activity. Further descriptive exploration of the individual utterance rates provides insights into the possible influence of conversational activities on children's entrainment skills.

Keywords: conversational entrainment, 0nline adult-child interaction, speech rate

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The Development and Validation of the *Persepsi Peranan Ibu Bapa danTerapis Pertuturan-Bahasa Ketika Intervensi (PPI-T)* Questionnaire

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Collaboration between parents and professionals has been identified as an essential component of intervention delivery in various early childhood intervention settings, including in

speech- language therapy. Therefore, speech-language pathologists (SLPs) and parents must discuss their anticipated roles and responsibilities to facilitate shared understanding and initiate collaboration. However, no known valid and reliable tool is readily available to assist in the discussion process. This study aimed to develop and validate a questionnaire, namely Persepsi Peranan Ibu Bapa dan Terapis Pertuturan-Bahasa Ketika Intervensi (PPI-T), to assess parents' conception of their and SLPs' roles during speech and language interventions. The PPI-T was developed based on the literature and experiences of parents and SLPs and underwent content and face validations. The questionnaire was then administered online to 247 parents of children with speech and language problems who had already met SLPs for intervention. Exploratory factor analysis suggested ten factors, six for the Roles of Parents domain and four for the Roles of SLPs domain, comprising 46 items in total. The inter-item correlation analysis also revealed that the PPI-T had good convergent and divergent validity.
The Cronbach's α values for the Roles of Parents domain and Roles of SLPs domain were 0.87 and 0.89, respectively, indicating good internal consistency reliability. The psychometric properties of the PPI-T were confirmed as it achieved all the necessary standards proposed by various researchers.

Keywords: Perception of roles, parents, speech-language pathologists

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Physical Function Among Persons with Parkinson's Disease Visiting Parkinson's Disease Clinic In Hospital Canselor Tuanku Muhriz, Kuala Lumpur.

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Parkinson's disease (PD) is a neurodegenerative condition which causes deterioration of motor function and negative life impact. Malaysian studies reporting functions of PD sufferers are limited. This study aimed to determine the state of physical functioning among persons with PD locally. This cross-sectional study involved 63 patients who visited the PD clinic of Hospital Canselor Tuanku Muhriz, Kuala Lumpur. Physical functioning was assessed through telephone interview using Movement Disorder Society-Unified Parkinson's Disease Rating Scale (MDS-UPDRS) Part II: Motor Aspects of Experiences of Daily Living (M-EDL). The patients' medical record was reviewed to obtain demographic and medical background data prior to the interviews. The participants' mean (SD) age was 68.75 (9.56) years. Majority of them were Chinese (n=38, 60.3%), followed by Malay (n=22, 34.9%). More than half, n= 42 (66.7%) patients were male. Over half of them (n=35, 55.6%) were in stage 2 of PD. Based on the MDS-UPDRS Part II, a substantial number of them reported

problems with chewing and swallowing (n=28, 44.4%), hygiene-related task (n=26, 41.3%), getting out of bed, a car or a deep chair (n=25, 39.7%), speech (n=23, 36.5%), dressing (n=23, 36.5%), turning in bed (n=22, 34.9%), eating tasks (n=21, 33.3%), doing hobbies and other activities (n=20, 31.7%) and walking and balance (n=19, 30.2%). More than 30% (n=22) also reported tremor. The results show that the persons with PD are functionally affected mainly in activities of daily living. Thus, rehabilitation should be intensified to maximize their physical functioning.

Keywords: physical function, Parkinson's disease, rehabilitation

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Quality of Life Post Total Knee Arthroplasty: A Mid Term Outcome Review

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Total knee arthroplasty (TKA) is a surgical treatment that involves the replacement of the damaged knee joint with artificial material. This study aimed to determine the quality of life at mid-term after total knee arthroplasty. This was a cross-sectional study conducted at the Orthopedic Clinic of a tertiary hospital. A total of 182 subjects who underwent TKA between 2014 and 2018 and matched the inclusion criteria were invited to participate in the study. The EuroQol-5Dimensions-5Levels (EQ-5D-5L) Questionnaire was used to evaluate the participants' quality of life. Data were analysed descriptively and presented as mean (standard deviation) or frequency (%). Ninety-nine subjects with mean (SD) age 71.82 (5.52) years responded to the questionnaire. Out of the 99 participants, 84.9% (n=84) were women and the majority were of Malay ethnicity (n=62, 62.6%). The mean (SD) post-TKA duration was 71.69 (12.85) months. Participants rated their overall quality of life according to EQ-VAS as mean (SD) = 83.88 (6.63). A total of 58 participants (58.6%) reported problems in mobility, usual activity and having pain or discomfort, while 30 participants (30.9%) have anxiety or depression and 26 participants (26.3%) have problems in self-care. The results showed that despite many years post-TKA, a substantial number of patients still experience problems in several dimensions of their health. The study findings indicate the need for long term post-TKA monitoring and possibly education on self-management by physiotherapists to address mobility and pain issues to ensure the patients live a good quality of life.

Keywords: total knee arthroplasty, quality of life, physiotherapy, rehabilitation

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A Review on Retinal Sensitivity, Macular Thickness, Foveal Thickness, and RNFL Thickness Changes in Amblyopia and Following Amblyopia Treatment

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Amblyopia is one of the major causes of vision impairment among children and it is avoidable should it was detected early. The Global prevalence of amblyopia ranges from 1.44% to 1.75%. Although there are different modes of treatment options are available for amblyopia, but still, the gold-standard amblyopia treatment for children consists of optical correction followed by occlusion therapy. An extensive literature search conducted by using the relevant clinical terms in various search platform like PUBMED, Google Scholar and MEDLINE and only relevant literatures from the past decade that stated the connection of retinal sensitivity, macular thickness, foveal thickness, and Retinal Nerve Fibre Layer (RNFL) thickness with amblyopia included in the review. A total of 35 literatures studied and some reported no significant difference in RNFL, macular, and foveal thickness between amblyopic and non-amblyopic eyes. However, various studies contradicted and reported higher macular, foveal and RNFL thickness in amblyopic eyes than non-amblyopic eyes. Macular sensitivity reduced in amblyopic eyes in comparison to normal eyes. Recent studies also reported a reduction in macular and foveal thickness after occlusion therapy in anisometropic and binocular amblyopia. However, the RNFL thickness was unchanged after occlusion therapy. In conclusion, retinal structural and functional changes occur in amblyopic eyes when compare with non-amblyopic eyes. Furthermore, amblyopia therapy alters the retinal structural and functional changes in amblyopia.

Keywords: retinal sensitivity, macular thickness, foveal thickness, retinal Nerve fibre layer thickness, amblyopia

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A Preliminary Study on Preparation and Evaluation of Medicago sativa Plant Extract Based Antioxidant Cream

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Natural plant extract-based cosmetics are gaining a lot of attention in cosmeceutical industry. Medicago sativa plant extract has been reported to have high antioxidant properties that makes it an attractive option as an active ingredient in developing new cosmeceutical products. The objective of this study is to prepare a skin cream formulated with Medicago sativa plant extract powder and to evaluate its

physiochemical and antioxidant properties. Base cream without the active ingredient were prepared as a control cream and three cream formulations (F1, F2, and F3) were formulated with 3%, 5% and 10% Medicago sativa plant extract powder respectively. An oil in water (o/w) emulsion-based cream was prepared and stored at different temperature (4°C and 28°C) for a period of 90 days and accessed for its stability. It was found that the control cream and Medicago sativa extract powder-
based formulation were stable in all conditions in aspect of colour and appearance that were evaluated using semi-quantitative scoring. pH evaluation on the formulated creams showed that the values were within normal human skin pH (pH<5) across all formulations. Hedonic evaluation used to determine spreadability of the creams showed that F3 formulation with 10% Medicago sativa extract powder had the highest value for spreadability (6.13 ± 2.168 cm) in regards to its duration and storage temperature. Stability test conducted showed that room temperature, 28°C
was the best temperature for storage of the formulated cream. DPPH assay done to determine the antioxidant activity of the creams formulated showed that 5%
Medicago sativa plant extract (F2) has the highest value for antioxidant activity at 84.00 ± 11.455%. This preliminary study showed that Medicago sativa plant extract could potentially be incorporated into a skin cream with antioxidant properties.

Keywords: Medicago sativa, antioxidant activity, cosmeceutical cream formulation, DPPH assay, stability testing.

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Formulation and Evaluation of Fenugreek Essential Oil Enriched Antioxidant Cosmeceutical Skin Cream

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The aim of this study was to formulate an antioxidant rich cosmeceutical skin cream using fenugreek seed essential oil (*Trigonella foenum-gracium)* and subsequently evaluate its physiochemical characteristics. A DPPH radical scavenging assay was performed on fenugreek seed essential oil dissolved in various concentrations of ethanol to determine the scavenging activity. A concentration of 300µL/mL showed the highest scavenging activity at 9.58% and was used in the formulation of the skin cream which was an oil in water emulsion with 3%, 5% and 10% of extract. The cream formulation with 3% extract concentration showed the highest antioxidant activity at 87% and exhibited satisfactory organoleptic properties and good spreadability with a pH of 4.55. Stability testing of all formulations was carried out for 90 days and formulations stored at 28℃ exhibited better pH and spreadability values compared to that at 4℃. pH values increased across all formulations stored at 28℃ after 90 days but were within the optimal pH range of skincare products while loss of pH stability was noted at 4°C. At 28°C, an increase in spreadability of the cream

was noted compared to a decrease at 4℃ ($p<0.05$). The cream was also subjected to preliminary in vitro hemolytic assay that indicated no irritants present. All formulations underwent skin sensitivity testing through consented volunteers who unanimously reported no skin irritations. The results revealed that fenugreek essential oil has high antioxidant properties that can be formulated into a safe antioxidant rich cosmeceutical skin cream with sufficient organoleptic properties for potential skincare application.

Keywords: Trigonella foenum-gracium, fenugreek seed essential oil, antioxidant activity, skin cream formulation, scavenging activity

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Review of Magnetic Resonance Imaging (MRI) Scan Mobile Applications for Paediatric Patients: A Room for Improvement

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This study aimed to review and provide insight into some of the available magnetic resonance imaging (MRI) mobile applications regarding their functionality, use, and shortcomings and some practical suggestions for future mobile application developers in the field. MRI mobile applications that are available on the two platforms of IOS and Android have been downloaded and tested to have the user experience and check them in terms of their functionality and overall use. Available MRI mobile applications designed for the paediatric community lack many features and functionalities in terms of appealing to the age groups they had been designed for (paediatric patients). Such features include the lack of availability of interactive games, aesthetic layouts, localisation to suit the culture, lack of dual language, etc. The review of the available MRI mobile applications that are designed for paediatric users clearly showed that more work should be done and there is room for improvement in terms of their designs and functionality.

Keywords: magnetic resonance imaging, general anaesthesia, paediatric, mobile application.

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The Effectiveness of *Hibiscus Sabdariffa* Aqueous Extract as an Anti- Obesity Agent and Enhancing Fertility Parameter in Obesity-Induced Male Rats

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Obesity increases the risk of getting disorders in spermatogenesis that can lead to a decrease in male fertility. *Hibiscus sabdarifa* has been found to reduce the percentage of lipids in the blood, however, the use of it as an enhancer of male fertility parameters is still unclear. This research was aimed to study the effect of aqueous calyx extract of *H.sabdarifa* in restoring fertility of obesity- induced male rats. A total of 36 male Sprague Dawley rats were used. The control group consisted of normal, negative (obesity-induced rats without treatment) and positive (obesity induced rats given 10 mg/kg body weight of orlistat) control groups. On the other hand, the treatment group of *H.sabdarifa* aqueous calyx extract was divided into three subgroups, namely Hs100(100mg/kg body weight), Hs200 (200 mg/kg body weight) and Hs300 (300 mg/kg body weight). All rats except the normal group were given a high-fat diet (HFD). *H.sabdarifa* aqueous calyx extract or orlistat was given orally for 14 days after induction of obesity. The rats of the Hs100, Hs200, and Hs300 treatment groups showed a significant decrease in weight ($p<0.05$), and only the Hs200 and Hs300 treatment groups showed a significant decrease ($p<0.05$) in Lee's index values compared to the normal and negative control groups. Analysis of sperm quality in the *H.sabdarifa* aqueous calyx extract showed a significant increase ($p<0.05$) compared to the normal, and negative control groups. Histological analysis of testis also showed *H.sabdarifa* aqueous calyx extract improved seminiferous tubule structure with high density of spermatozoa in the luminal space as well as increased in diameter of seminiferous tubule. In conclusion, treatment of *H.sabdarifa* aqueous calyx extract may serve as a remedy for fertility problems in overweight menor men with obesity.

Keywords: *H.sabdarifa*, high fat diet,obesity, male fertility

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Prevention of Stunting through Local Additional Food with Multisectoral Partnership

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The 3 main components of stunting prevention are changes in parenting patterns, improved diet and the provision of clean water and sanitation. To reduce prevalence of stunting, main strategy needed are multisectoral approach and integrated intervention which is divided into specific nutrition interventions (promotion of breastfeeding counseling and weaning food, nutritional supplementation in the form of blood boost tablets (TTD), vitamin A capsules, additional food for toddlers and pregnant women, management of malnutrition and fortification) and sensitive nutrition interventions (availability of food sources, availability of clean water and sanitation, community empowerment, improvement of care at the family and community level, and improvement of the welfare of the poor). Problems found in the program include inadequate dropping of weaning food from the Center, in areas with stunting coverage more than the target also found underweight toddlers,

low coverage of toddlers who are weighed every month, additional food for Cronic Energy Deficiency (CED) pregnant women are still below the minimum target of giving because they already giving birth, and also a pandemic situation that makes it difficult to meet face to face with the target.
The large number of targets for underweight toddlers who will be given local and the need for assistance by health personnel (doctors, nutritionists) will require financial support and this needs to be supported by various strategic partnerships
.

Keywords: stunting, weaning food, children

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Anemia Status and its Association with Nutritional Intake, Comorbidity Index, and Characteristics Factors in Geriatric Patients RSUP Dr. Sardjito Yogyakarta

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Anemia is a symptom depending on the decrease of hemoglobin and quite frequently diagnosed in older individuals. Anemia can increase morbidity, mortality, and reduce the quality of life in geriatric. The etiology of anemia in the geriatric is classified into nutritional deficiency, chronic inflammation, and unexplained anemia. This study is to Determine the relationship between nutritional intake, comorbidity index, and characteristic factors with anemia status in geriatric patients at hospital. This study used a cross-sectional analytic method at RSUP Dr. Sardjito Yogyakarta along November 2021- March 2022. A total of 68 patients complied for the inclusion criteria and were assessed for nutritional intake using the Brief Food Frequency Questionnaire, as well as the comorbidity index and pre-treatment history using a questionnaire form. Bivariate analysis using Chi-Square test to determine the relationship between variables with a significance value of $p<0.05$. The prevalence of anemia in geriatric patients is 64.7%. According to the data on anemia characteristics, most of the geriatric patients had normochromic normocytic anemia (63.6%). The results of Chi-Square analysis showed that there was a significant relationship between anemia status in geriatric patients with protein intake ($p=0.019$), iron intake ($p=0.014$) and tea consumption ($p=0.008$). However, there was no significant relationship between anemia status in geriatric patients with intake of vitamin C, vitamin B_{12}, comorbidity index, history of hospitalization and surgery ($p>0.05$). There is a relationship between protein intake, iron, and tea consumption with anemia status in geriatric patients at hospital.

Keywords: anemia, geriatric, nutritional intake, comorbidity index, characteristic factors

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The Relationship Between Initial Nutritional Status and Physical Activity During Therapy with the Incidence of Cachexia in Cancer Patients Undergoing Radiotherapy at Rsup Dr. Sardjito

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Cachexia occurs in most cancer patients, and it is the cause of death of 22% of cancer patients. Radiotherapy in cancer patients can affect nutritional status due to the side effects of therapy, as well as a reduction in physical activity due to the impact of radiotherapy. So far, there are still limited studies to prove the effect of physical activity on the incidence of cachexia itself as well as between the nutritional status at the beginning of therapy and the incidence of cachexia. This study was conducted to determine the relationship between nutritional status at the beginning of therapy and physical activity during therapy with the incidence of cachexia in cancer patients undergoing radiotherapy at Dr. Sardjito Hospital. This study is an observational study with a nested case control design. The subjects in this study were cancer patients who underwent radiotherapy and met the inclusion criteria of 78 respondents with 32 respondents in the case group (cachexia) and 46 respondents in the control group (not cachexia). The status of cachexia was measured once a week for 3 weeks, nutritional status was measured using PG-SGA at the time of week 1, and physical activity levels were measured using the Baecke questionnaire at week 2 or 3. The result was analyzed using Chi Square. During the study, the percentage of respondents classified as cachexia is 41%. There is a meaningful relationship between the initial nutritional status and cachexia (p=0.004). However, there was no meaningful relationship between physical activity during therapy and cachexia (p=0.266).

Keywords: nutritional status, physical activity, cachexia, cancer, radiotherapy

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Validity and Diagnostic Performance of The MNA-SF Against GLIM Consensus in Hospitalized Older Patients at RSUP dr.Sardjito Yogyakarta

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The prevalence of malnutrition increased among the elderly. Considering its prevalence, a proper malnutrition screening becomes very important for the elderly patients to prevent increased risk of adverse outcomes and decreased patient functionality. Several screening tools have been applied to identify malnutrition in the elderly, however, each tool comes with its own advantages and disadvantages. To standardize the practice of diagnosing malnutrition, the Global Leadership Initiative on

Malnutrition (GLIM) recently proposed diagnostic criteria for malnutrition consisting of a combination of phenotypic and etiological criteria for the diagnosis of malnutrition. However, the diagnostic ability of MNA-SF in elderly subjects has not been extensively studied against the GLIM consensus. The research was to determine the validity and performance of the MNA-SF screening tool for diagnosing malnutrition based on the GLIM consensus in the elderly receiving treatment at the Mitra Hospital FKKMK UGM. The research design used a cross-sectional study involving a total of 164 respondents aged over 60 years who received treatment at dr. Sardjito Hospital or Prambanan. All respondents were screened using MNS-SF and then the diagnosis of malnutrition was established using the GLIM malnutrition consensus. Furthermore, validity and diagnostic tests were carried out by looking at the values of sensitivity, specificity, AUC curve, and Kappa coefficient. Based on MNA-SF the prevalence of malnutrition with a cut off of 11 was 82.32%, while the prevalence of malnutrition based on the GLIM consensus was 77.43%. The sensitivity and specificity of MNA-SF to the GLIM consensus were good (96.06%) and adequate (64.86%), while the AUC value was 0.805 and the Kappa coefficient was 0.677 which indicated good diagnostic ability and agreement.

Keywords: malnutrition, diagnosis, elderly, MNA-SF, GLIM consensus

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Instrument Of Assessment of Emotional Regulation Issues In Children With Disabilities: Scoping Review

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Children with disabilities have less emotional regulation than children without disabilities and 62.2% of them have mental health disorders, leading to high levels of comorbidity. One way to measure emotion regulation is to use instruments. Various instruments have been developed, however it is still arbitrary to decide which instruments to be used, given the various conceptualizations and elements of emotion regulation in different people. This study aims to organize articles about instruments used to measure regulation in children with disabilities. Methods: We carried out a scoping review to synthesize research on the instruments measuring the emotional regulation of children and adolescents with disabilities. The search process uses appropriate populations, concepts, and contexts. The search was conducted through the Google Scholar, PubMed, and ScienceDirect databases published 2016-2021. The selection process is carried out using the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) method. Critical assessment using The Joanna Briggs Institute checklist. Results: Out of 22,835 articles, 14 articles were selected for this

review. Some instruments that can be applied to measure the emotional regulation of children with disabilities, such as ERC, DERS, FEEL-KJ, ERICA, EDI, BRIEF, ERQ, and CERQ. Conclusion: All Instruments have a good internal consistency so that it can be used to measure the emotional regulation of children with disabilities aged 4-19 years.

Keywords: instrument, regulation emotion, children, disabilities

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Parenting Stress Instruments of Children with Autism Spectrum Disorder (ASD): A Scoping Review

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Parenting stress with a high category is experienced by parents of children with Autism Spectrum Disorder (ASD). Parenting stress assessment can be done using appropriate stress measurement tools. Several measuring tools can be used, including the stress parenting index. Reports on various instruments systematically used to measure parental stress of children with Autism Spectrum Disorder by age and levels of ASD are still limited. The objective of this study is to synthesize parenting stress instruments to measure the stress in parents of children with ASD. We carried out a scoping review to synthesize research on the parenting stress instruments in parents of children with ASD. The article searching process was targeted to collect articles with corresponding populations, concepts, and contexts. The search was conducted through ScienceDirect, SpringerLink, and SAGE Journals. The selection process was done using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method. The following critical appraisal using The Joanna Briggs Institute checklist. Out of 895 articles, nine articles were selected for this review. There are 6 (67%) studies that use the Parenting Stress Index-Short Form (PSI-SF), 2 (22%) studies that use the Autism Parenting Stress Index (APSI), and 1 (11%) study who use the Perceived Stress Reactivity Scale (PSRS) to measure the stress of parents who have children with ASD. APSI and PSRS have good internal consistency. Most of the instruments to measure parenting stress of ASD children aged 1-18 years are PSI-SF.

Keywords: child, parenting stress, autism spectrum disorder

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Impact of Covid-19 Pandemic On The Implementation of Posyandu at Sleman Regency

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The COVID-19 pandemic leads to changes in the implementation of Posyandu. This study was conducted to determine changes in the input, process, and output of Posyandu for toddlers during the COVID-19 pandemic at Sleman Regency. A qualitative study was conducted in the area of Tempel 2 Health Center. Data were collected through in-depth interviews and document studies. Subjects were managers of the Posyandu program at the regency level, health center, community, and program target. There are 14 categories and 4 themes generated from the data. Several changes affected components of the implementation of nutrition services at Posyandu. During the COVID-19 pandemic, the government implemented a policy of limiting community activities to prevent the spread of the virus followed by adjustment in the Posyandu program's guidelines and SOPs. The implementation of these new guidelines and SOPs have led to changes in the process of monitoring growth and other Posyandu activities. In terms of output, the participation rate in the related districts decreased. The existence of special guidelines for the implementation of Posyandu during the pandemic caused changes to the process of providing services and other related activities. As a result of changes in the Posyandu implementation process, the participation rate was less than the target, especially when Posyandu services were not provided.

Keywords: Posyandu, COVID-19 pandemic, input, process, output

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Analysis of Factors Affecting Changes in Nutritional Status of Elderly with Non-Communicable Disease (NCD) in Hospital

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It is reported that 20 – 50% of patients have been malnourished since hospital admission and one third who are not malnourished can experience malnutrition in hospital. Disease-related malnutrition is most common in the older age group. The most common diseases that attack the elderly are NCD. Early detection using screening tools like MNA-SF needs to be done to prevent hospital malnutrition for elderly with its simple, easy, and fast for use. This study was aimed to describe changes in the nutritional status of elderly patients in hospitals and identify factors that influence these changes. This is an observational study with a longitudinal design that was conducted in September 2021 – March 2022 in the inpatient room of Dr. Sardjito and Prambanan Hospital Yogyakarta. The research subjects were 61 people. Samples were taken by purposive sampling. All subjects were screened using MNA-SF at 1x24 hours of hospital admission and after 3 days of treatment. Data were obtained through interviews, medical records, visual comstock assessment and 24-hour food recall. The results obtained showed that there was no statistically significant

relationship between age (p=0.958), gender (p=0.987), family support (p=0.806), type of disease (p=0.303), comorbidity (p=0.580), energy intake (p=0.522) and protein intake (p=0.979) with changes in the nutritional status of elderly patients with NCD. There is no correlation between age, gender, family support, type of disease, comorbidities, energy intake and protein intake with changes in the nutritional status of elderly patients with NCD based on MNA-SF.

KeywordsF: Malnutrition, MNA-SF, Elderly, Nutritional Status

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Relationship between Nutrition Knowledge and Food Selection through Online Food Delivery Applications among Students of Gadjah Mada University Indonesia

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Along with the development of technology, especially the internet, many online programs and applications have emerged with various functions. One of the online services that are much favored by the Indonesian people is the online food delivery service. College students are one of the most users of online food delivery applications. This can be influenced by various factors, one of which is the COVID-19 pandemic which limits people's activities outside the house. This study aimed to determine the relationship between nutritional knowledge and food selection through online food delivery applications among students at Gadjah Mada University. This study was an observational study with a cross-sectional design involving 135 undergraduate and diploma students of Gadjah Mada University using a questionnaire distributed online via Google Form. Based on the results of this study, 60.7% of respondents have a good level of nutritional knowledge and 25.9% of respondents have a low level of food selection. The results of the Chi-Square correlation test showed no relationship between nutritional knowledge and respondents' food choices (p=0.613; p>0.05). Other variables that can also influence the respondent's food choice, such as monthly allowance and cluster of faculties, also did not show any relationship with the respondent's food choice. There was no relationship between nutritional knowledge and food selection through online food delivery applications among students of Gadjah Mada University.

Keywords: nutrition knowledge, food selection, online food delivery applications, college students

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Relationship between Mental Health and Eating Disorders in Adolescents at SMAN 1 Yogyakarta during the COVID-19 Pandemic

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Individuals may experience eating disorders due to the stress of implementing quarantine during the COVID-19 pandemic. Many studies show that stress levels affect eating habits that can worsen a person's health status. However, there are many studies reported that there is no relationship between feelings of stress, anxiety, and depression with the risk of eating disorders. Until now, research on the relationship between mental health and eating disorders in Indonesia has not been done much. Therefore, this study was conducted to examine the relationship between mental health and eating disorders. Discover the relationship between mental health and eating disorders in adolescents at SMAN 1 Yogyakarta during the COVID-19 pandemic. This research is a cross-sectional study with proportionate stratified sampling as the sampling technique. The respondents involved were 236 students. The instruments used are DASS-21 and EAT-26. The Pearson Chi-Square test were used in this research. Among the three types of mental health, only the level of depression had a statistically significant relationship with eating disorders (p = 0.024). Meanwhile, the level of anxiety (p = 0.080) and stress (p = 0.232) did not have a significant relationship with eating disorders. The level of depression has a relationship with the risk of eating disorders. But there is no relationship between level of anxiety and stress with the risk of eating disorders.

Keywords: depression, anxiety, stress, mental health, eating disorders

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A Systematic Review on Telerehabilitation for Visual Impairment

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Telerehabilitation is an alternative rehabilitation for those with obstacles to obtaining the typical rehabilitation which is essential to help them adapt with their conditions as they may reduce their quality of life, increase stress levels due to the loss of jobs, and lead to anxiety and depression. To evaluate the feasibility of telerehabilitation for visual impairment in the quality of life, satisfaction, and visual function. Review telerehabilitation's acceptance and accessibility among people with visual impairment next. A few electronic databases were used (PubMed, Scimago, Scopus, Cochrane library, ScienceDirect, EBSCO, Google Scholar). We used the PICOS (population, intervention, comparison, outcome) and the preferred reporting items for systematic reviews and meta-analysis (PRISMA) for the guidelines of the criteria. The search studies published from 2015 to July 2022 are available in the English language and focus on telerehabilitation related to visual impairment. 18 articles were found related to telerehabilitation on visual impairment, but only three articles meet the criteria, which are random control trials (RCT), while the other article such

as cohort studies, case series, surveys, case reports, case-control study, and retrospective study. Two papers were published in 2021 and one in 2019. There are high accessibility and acceptability of telerehabilitation for visual impairment. All participants were satisfied with the use of telerehabilitation since it helped them improve their quality of life and visual performance. Therefore, we hope this telerehabilitation can be widely used for visual impairment to improve their quality of life and resolve the visual impairment burden.

Keywords: Telerehabilitation, Telehealth, Telemedicine, Visual Impairment, Low Vision

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Comparison Between Pre-Test and Post-Test Knowledge Score on Sodium Education Materials.

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According to National Health & Morbidity Survey (NHMS) 2019, 3 in 10 Malaysian adults are diagnosed with hypertension. Lowering sodium intake is one of main interventions in preventing and managing hypertension. In the Malaysian Community Salt Study (MyCoSS) 2018, it was observed that 54.1% of the respondents consumed sodium of more than 2000mg/day. This study aimed to compare the score of pre-test and post-test in achieving learning outcomes of sodium education materials. A total of 30 attendees from Klinik Kesihatan Kuala Lumpur were invited to participate in the sodium education programme. The topics in the programme includes recommended daily sodium intake, sodium alternative names on food labelling and a list of high sodium food. Pre-test was conducted prior to the posters' education and followed by the same set of questions. Descriptive analysis of pre and post-tests were done with 80% is regarded as a good score. There were 30 attendees with 15 males and 15 females who answered pre and post-tests. In the pre-test, 43.3% (n=13) scored poor, 43.3% (n=13) scored moderate and 13.3% (n=4) scored good. In the post-test, 0% (n=0) scored poor, 6.6% (n=2) scored moderate and 93.3% (n=28) scored good. The education materials effectively increased the knowledge of sodium on selected topics based on the overall increased score of the post-test questions. Further evaluation on content validation of the health education poster is needed to ensure its effectiveness in educating the public on healthy intake of salt to prevent hypertension.

Keywords: Sodium education materials, Hypertension, Malaysia

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Developing A Stunted Early Detection Tool: An Effort to Support Community Workers in Indonesian Remote Areas

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Low length-for-age is the first sign of stunting which can be identified by measuring the length of children under two years old and interpreting the result following the WHO growth chart. This indicator is mainly measured during the Integrated Health Post (IHP) visit. However, many IHP in remote areas are unable to acquire an appropriate body length measurer. This study addressed the challenge by developing an easy-to-use stunted early detection tool (SEDT). This research used a qualitative approach to explore the opinion of the experts and potential adopters. A total of 5 experts in anthropometry and health promotion and 3 community health workers (CHWs) from Seyegan Village, Yogyakarta, as the potential adopters, were interviewed by trained researchers. Rogers' Theory of Diffusion of Innovation was used as the concept theory to understand the perceived characteristics of SEDT. The first traits identified were related to the relative advantages that could briefly be decided from the level of durability and safety, portability, and its function as an early detection tool for stunted. In addition, training for CHWs had a little positive impact on the intention to adopt SEDT. The prototype was also easy to understand through observation of the potential users. The attitude of the village government was also predicted to influence the users' intention to adopt SEDT. In conclusion, SEDT has the potential to be an alternative measure to detect stunted among young children. Further research involving more potential adopters from various demographic situations is needed to manifest the usability of the kit in different areas in Indonesia.

Keywords: stunted early detection, child growth, community health workers, remote area

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Impact of the COVID-19 Pandemic on Corneal Transplantations in Universiti Kebangsaan Malaysia Medical Centre (UKMMC)

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Malaysia was able to control the COVID-19 crisis well even with minimal resources. However, the impact of the global outbreak has highlighted the weakness of certain critical medical services, such as corneal transplants which are highly dependent on external support. We attempted to examine the impact of the COVID-19 pandemic on Universiti Kebangsaan Malaysia Medical Centre (UKMMC) corneal transplantation cases pre-pandemic between March 2018 until February 2020 (37 cases) in comparison with a similar timeframe during the pandemic (30 cases). We identified the effect of the pandemic on the number of corneal transplantations during these timeframes. This is a retrospective study, which evaluates surgical data from March 2018 until February 2022. The number of corneal transplantations performed quarterly was analysed and compared to the timeframe of COVID 19 in the United States of America (USA). The data was presented as a descriptive analysis. Corneal transplantations in UKMMC were affected by the pandemic in the USA, as the supply of the corneal tissues for the transplantation in UKMMC is 100% dependent on the supply from the CorneaGen Eye Bank, Seattle, USA. The total number of corneal transplantations was mildly affected by the USA COVID-19 pandemic timeframe. However, there are several fluctuations of cases performed quarterly that reflect the corneal tissues procurement and supply by the CorneaGen Eye Bank. This has further affected the corneal transplantations performed in UKMMC during a similar timeframe.

Keywords: corneal transplant surgeries, COVID-19, United States of America pandemic.,

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Keratoconus and Covid 19 Pandemic: Review on Impact and Management

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Keratoconus is the most highly prevalent primary corneal ectasia that affects the structure of the cornea. The prevalence is approximately 1:2000, typically beginning in puberty and affects all genders. It is a condition when the normally round cornea becomes thin and develops a cone-like bulge, resulting in loss of vision. Keratoconus tends to get worse over time, which is why early diagnosis and proper treatment (contact lens, collagen cross-linking `CXL' and corneal transplant) are crucial. Coronavirus 2019 pandemic has led to a global crisis within health care management, including keratoconus. This review summarises the impact of Covid 19 on keratoconus due to

cancelled appointments, delays in the delivery of cross-linking services and ways of management being practiced to overcome it. Few studies showed that delayed CXL had a significant impact on progression and vision worsening. On average, 70% of eyes showed progression and about one line of visual acuity was lost from baseline. Facing this COVID-19 pandemic has generated few solutions in giving alternatives to the current management of keratoconus patients. Reorganized patient care by applying the telemedicine model was highly appreciated by all patients, however the clinic examination remains as the gold standard. Some institutions involving ophthalmologists and optometrists have also produced the frequently asked questions and answers to help the keratoconus patients to manage their condition while waiting for the next appointment.

Keywords: Keratoconus, Covid 19, Collagen cross-linking, out-patient visit

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Efficacy of a Mixture of Dinotefuran and Alpha-Cypermethrin Against a German Cockroach, *Blatella germanica* Linnaeus In The Laboratory

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The global pest management industry is challenged by the resistance of *Blattella germanica* cockroaches to pesticides. One of the factors contributing to the increased resistance of *B. germanica* cockroaches to pesticides is the frequency of use and dosage of pesticides. This study was conducted to study the efficacy of a mixture of dinotefuran and alpha-cypermethrin against a German cockroach, *B. germanica* Linnaeus in the laboratory. The methodology for this study was to use topical bioassay method on *B. germanica* cockroaches. A total of 1 microliter of a mixture of dinotefuran and alpha-cypermethrin or a product known as Ridesco WG manufactured by BASF was placed on the metathoracic legs of *B. germanica* cockroaches in adults and nymphs. A total of 6 replications were performed using different mixed doses of dinotefuran and alpha-cypermethrin consisting of 0.5, 0.25, 0.1, 0.05, 0.025, 0.01 and 0.05 g/dL. For the adults, the LC_{50} values at 1 hour and 24 hours were 0.16 and 0.002, repectively while the LC_{90} at 1 hour and 24 hours were 6.984 and 0.011. For the nymphs, the LC_{50} at 1 hour and 24 hours were 0.1 and 0.001, respectively while LC_{90} at 1 hour and 24 hours were 7.692 and 0.029. At the dose of 0.05 g/dL, the values of LT_{50} and LT_{90} for the adult were 1.476 hours and 6.308 hours compared to the values of LT_{50} and LT_{90} at 0.1 g/dL dose of 1.378 hours and 4.024 hours. While for the nymph stage, LT_{50} and LT_{90} dose 0.05 is 2.322 hours and 15.216 hours compared to the values of LT_{50} and LT_{90} dose 0.1 which is 1.755 hours and 6.919 hours. The results of statistical analysis showed that there was no significant difference where the p

value was 0.628 (p> 0.05). This indicates that the doses of 0.1 and 0.05 are not significant but statistically the doses of 0.05 and 0.1 g/dL are equivalent. As a conclusion of the study, the effectiveness of a mixture of dinotefuran and alpha-cypermethrin in reducing the population of *B. germanica* cockroaches was effective depending on the time interval. This in turn makes it potentially used as a residual spray to control *B. germanica* cockroaches.

Keywords: *B. germanica* cockroaches

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Efficacy Of Seclira® 40sg Intervention Against Cimex Spp. (Hemiptera: Cimicidae) In the Field

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The re-emergence of Cimex spp. become one of the problems for humans as a nuisance pest that can cause severe skin itching. However, most of the products used have certain weaknesses that are less liked by users. A new insecticide product from BASF, Seclira® SG is a broad-spectrum insecticide that has yet to be used to control mosquito infestations. Data obtained from the results of laboratory experiments show that the concentration formulation proposed by the manufacturer for the massage is 6 g/L. This study was conducted to test the level of effectiveness of Seclira® SG concentration formulation at 6 g/L in dealing with Cimex spp. in the field. This study was conducted in the welfare housing of Desa Amal Jireh, Semenyih, for 28 weeks. This study consists of three phases namely pre-treatment phase, treatment phase and post-treatment phase. Sampling was carried out during the pre-treatment phase to identify the composition of all life stages of mosquitoes in the study locality. The treatment phase was carried out with two sprays of Seclira® SG and sampling after 1 hour of spraying was done to determine the knockdown effect on mosquitoes. Monitoring was done throughout the post-treatment week for 28 weeks to determine the total number of massages at each study location. The determination of the percentage reduction of the mosquito population at the study location is determined based on the difference in the total number of mosquitoes during the post-treatment phase as well as the pre-treatment phase. The level of effectiveness of Seclira® SG residual spray is determined based on a comparison of the percentage reduction of the mosquito population at all study locations. The results of the study found that the presence of mosquito eggs dominated the study area, indicating that it was severely infested. No massage was detected for 22 weeks post-spray and this shows that Seclira® SG has a good residual effect. The results of statistical analysis have shown a significant difference ($p<0.05$) between time intervals (weeks) and study areas. In conclusion, Seclira® SG concentration formulation at 6 g/L proved to be effective in dealing with infestation of Cimex spp.

in the field up to 22 weeks after spraying. This study is the first study of the effectiveness of insecticides conducted against mosquitoes in the field in Malaysia and thus can be a reference for pest control operators.

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The Effectiveness of The Mosquito House System to Reduce Dengue Vectors At Kolej Tun Syed Nasir

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Dengue fever is a disease caused by the dengue virus (DENV) of the Flavivirus genus of the Flaviviridae family. An outbreak of dengue fever is transmitted through the bite of Aedes spp mosquitoes. especially Aedes aegypti and Ae. albopictus that is infective. In the anxiety of fighting with Covid-19, this disease is still a threat to the public health of the world including Malaysia. Despite the various programs that have been carried out to control the transmission of dengue fever, however, the number of dengue fever cases reported every year is increasing. AedesTech Mosquito Home System (MHS) is a type of mosquito trap that uses larvicidal liquid containing pyriproxifen to disrupt the life cycle of Aedes spp mosquitoes by preventing the egg hatching and development into adult mosquitoes. This study aims to evaluate the effectiveness of MHS as a dengue vector dissemination station to reduce the population of Aedes spp mosquitoes at Tun Syed Nasir College (KTSN). The location is divided into two parts, namely the control location and the treatment location. This study lasted for 25 weeks and divided into three phases, namely pre-treatment (six weeks), treatment (15 weeks) and post-treatment (four weeks). In the first six weeks of pre-treatment and the last four weeks of post-treatment, only traditional ovitraps were placed in the study location while during the treatment phase, the MHS intervention was placed together with traditional ovitraps in the treatment location. The effectiveness of MHS was evaluated based on the difference in the number of eggs in the pre-treatment and post-treatment phases. Average Egg Index (IPT) and Ovitrap Positive Index (IPO) were also taken into account in this study. There was a significant difference ($p < 0.05$) in the number of eggs in the study location in the pre-treatment and post-treatment phases. The IPT value in the treatment phase shows that the use of MHS can lure and attract the attention of Aedes spp mosquitoes to lay eggs in it and the IPO value shows that the study location has a high risk of becoming a dengue fever outbreak area. In conclusion, MHS shows good effectiveness in reducing the population of Aedes spp. mosquitoes at KTSN.

Keywords: Aedes spp. mosquitoes

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Effectiveness Of Cymbopogon Nardus Essential Oil Based Repellent Activity with Nigella Sativa Against *Aedes Aegypti Linnaeus* (Family: Culicidae)

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Dengue is a viral infection transmitted to humans through the bite of infected mosquitoes. The primary vectors that transmit the disease are *Aedes aegypti* and *Aedes albopictus* mosquitoes. WHO has strongly suggested the usage of repellent in combating dengue. Among them are is using natural plant-based repellents. However, nearly all plant-based repellents derived from plant essential oils have limitations; either it is not effective against the target insect and also residual activity of less fewer than 2 hours primarily due to their high volatility. Thus, the use of mixed essential oil with hopes it produces synergistic action has been a subject of interest to potentialize the repellent effect. Therefore, the aim of this study is was to identify the presence of synergistics synergistic effect effects of *Cymbopogon nardus* when mixed with *Nigella sativa*. *C. nardus* were was obtained from extraction using the Clevenger apparatus. Meanwhile, *N. sativa* is was obtained from a ready-made product available in the market. Bioassay testing have wasbeen used to determine the effective dosages of ED_{50} and ED_{99} values for topical repellency. ED_{50} values for *C. nardus, N. sativa* and mixed essential oil (*C. nardus* and *N. sativa*) were 0.44%, 0.88% and 0.34%, respectively. Meanwhile, ED_{99} values for *C. nardus, N. sativa* and mixed essential oil were 1.28%, 16.12% and 1.04%. Next, the Y-tube method was used in this study to identify the ED values of mixed essential oils for spatial repellent where the ED_{50} and ED_{90} were 7.9% and 16.94%, respectively. The cream formulation for 10% mixed essential oil was developed with 10% diethyltoluamide (DEET) cream was used as the standard reference-following SIRIM MS 1497: 2007. Percentage The percentage of repellency of mixed essential oil cream was 99.55% in the first 30 minutes and 90.8% in the next two hours. While the percentage of repellency of DEET cream was 100% in the first 30 minutes and 98.7% in the next two hours. The mixed between-within subject's ANOVA was conducted and showed no significant difference ($p>0.05$) between the two creams which indicated the that 10% of the mixtures of *C. nardus* and *N. sativa* essential oils developed and 10% DEET are at par. In conclusion, the mixtures of *C. nardus* and *N. sativa* essential oils showed a better repellent effect and were comparable to 10% DEET. Thus, this mixture can be used as active ingredients in the development of natural plant-based repellents and provide good mosquito protection.

Keywords: Dengue, DEET

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A matter of validity: Establishing on context validity of ScoScreen Application

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Scoliosis is a common problem in most adolescents. Adolescent idiopathic

scoliosis (AIS) is defined as structural, lateral and rotated curvature of the spine in adolescents. Scoliosis screening is performed primarily for the purpose of early detection of spine deformity and it is usually performed in school. Recommended scoliosis screening tools are using scoliometer and Adam forward bending test (AFBT). However, screening using scoliometer required trained manpower, time and cost. ScoScreen is an application build to allow the user to have access to reliable screening tool for AIS. Hence, this study determine the content validity of ScoScreen as an early AIS screening tool. We recruited five physiotherapists with more than five years of experience in paediatric and musculoskeletal and one spinal surgeon. The validity of this study was assessed using the content validity form. Content validity was assessed by calculating the Item-level Content Validity Index (I-CVI), Scale-level Content Validity Index (S-CVI) and modified kappa. The results show that the content validity of ScoScreen has an excellent level of content validity (I-CVI=0.83 – 1.00). The average approach's overall content validity index was high (S-CVI/Ave=0.94). All items in this study were excellent, with the kappa scores greater than 0.74 (kappa= 0.816 – 1). The development of ScoScreen for early screening of AIS was proven to have excellent content validity in this study. As a result, the Scoscreen mobile application is appropriate for early detecting AIS in terms of its content.

Keywords: content validity; screening; adolescent idiopathic scoliosis; mobile application

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The Effect of Nutrition Intervention on Nutritional Status and Performance of Sepak Takraw Players in The State Senior High School for Sports (SMANOR) Sidoarjo, Indonesia

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The demand for high sports abilities causes athletes to often feel tired and decreased in performance, mainly due to nutrition status. This study aimed to determine the effect of nutrition intervention by a sports dietitian on the nutritional status and performance of sepak takraw players in SMANOR Sidoarjo. A baseline study was done using a one-group pre-post test without control design on 27 sepak takraw players (20 boys, 7 girls) aged 14-18 years from SMANOR Sidoarjo. Participants were given nutrition interventions by a sports dietitian consisting of nutrition education, nutrition counseling, and food assistance for three weeks. Nutritional status was evaluated using BMI-for-age and body fat percentage (BFP) and athlete performance using VO_{2max} (Bleep test method). The results indicated a significant decrease in BMI-for-age (pre= -0.26 ± 0.52 and post= -1.23 ± 0.55, p= 0.000), an insignificant increase in the male BFP (pre= 13.06 ± 2.22% and post=

13.44 ± 1.70%, p= 0.162), a significant increase in the female BFP (pre= 22.54 ± 2.25% and post= 23.47 ± 1.91%, p= 0.028), and there was no significant difference in the athletes' performance (pre = 46.82 ± 6.22 and post = 46.34 ± 5.36, p= 0.360). Nutrition interventions by a dietitian have a significant effect on nutritional status according to BMI-for-age and female BFP, but not on male BFP and the performance of sepak takraw players in SMANOR Sidoarjo.

Keywords: nutrition intervention; sepak takraw, nutritional status, body fat percentage, athlete's performance

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Prevalence and Risk Factors of Latent Tuberculosis Infection (LTBI) in Malaysia as Detected by QuantiFERON®-TB Gold Plus

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Tuberculosis (TB), which is a disease of public health importance in Malaysia and currently, the incidence of Tuberculosis (TB) is estimated to be 92 cases in every 100, 000 population. However, latent TB infection (LTBI) cases among Malaysians are another great health concern that requires immediate steps to be taken to detect, diagnose and treat LTBI as one of the key strategies to end TB. Although individuals with LTBI are unlikely to infect others, the threat of the infection is still imminent as these individuals can potentially develop into active TB cases. As such, this study aims to 1) identify the prevalence of LTBI in Malaysia through a more sensitive detection method, QuantiFERON®-TB Gold Plus, and 2) determine the association between the risk factors and LTBI cases. A retrospective study was conducted by analysing the archive records of 3877 patients attending Pantai Hospital Kuala Lumpur from January 2021 to March 2022. The cases underwent QuantiFERON®-TB Gold Plus tests for LTBI at Pantai Premier Pathology laboratories. This study underlines that those who were LTBI positive had a prevalence of 638/3877 (16.46%) with males contributing to 343/638 cases (53.76%). The majority of the cases were between the age of 30-43 years old with 197/638 (30.88%), and Chinese ethnicity with 225/638 (35.27%) had a higher risk of having LTBI. The risk factors significantly associated with LTBI cases were age (p = 0.001) and ethnicity (p = 0.001). The prevalence of LTBI in Malaysia was remarkably low for an intermediate TB burden country. Although LTBI is not contagious, specific clinical and preventative considerations are needed for the diagnosis, treatment, and implementation of appropriate safety measures to curb the spread of TB in Malaysia.

Keywords: Latent tuberculosis infection (LTBI), tuberculosis (TB), prevalence, QuantiFERON®-TB Gold Plus, Malaysia

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Detoxification mechanism in mouse bone marrow cells and multi-lineages hematopoietic stem/progenitor cells induced by 1,4-Benzoquinone

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Hematopoietic stem/progenitor cells (HSPCs) are sensitive target for benzene-induced hematotoxicity and leukemogenesis. The impact of benzene exposure on detoxification mechanism in complex microenvironment of HSPCs consisting of myeloid, erythroid and Pre-B lymphoid lineages remains elusive and were investigated in this study. Mouse bone marrow (BM) cells were exposed to benzene metabolite, 1,4-benzoquinone (1,4-BQ) at 0 to 12 µM for 24h, followed by colony forming cell assay (CFC) at 14 days (myeloid) and 7 days (erythroid and Pre-B lymphoid) for respective progenitors. [NAD(P)H dehydrogenase [quinone] 1 (NQO1)] protein expression was significantly reduced (p <0.05) in myeloid and Pre-B lymphoid progenitors starting at 2.5 and 5µM 1,4-BQ; respectively. Meanwhile, a significant reduction in NQO1 protein expression only at 12 µM for erythroid progenitor and no significant effect in BM cells were notable. Myeloid progenitor was the most significantly affected by the decreased (p <0.05) in NQO1 protein level as compared to other type of cells. A significant increase (p <0.05) in [myeloperoxidase (MPO)] protein level was observed in BM cells at 12 µM 1,4-BQ along with no significant effect on erythroid progenitor. In contrast, a significant increase in MPO protein expression was greater in myeloid and Pre-B lymphoid progenitor starting at 5 and 7µM 1,4-BQ exposure, respectively. MPO protein level in myeloid progenitor was significantly higher (p <0.05) as compared to other type of cells. In conclusion, reduced expression of NQO1 along with induced expression of MPO could be the detoxification mechanisms medicated by 1,4-BQ exposure with myeloid progenitor affected the most.

Keywords: 1,4-benzoquinone, NQO1, MPO, hematopoietic stem/progenitor cells, lineages

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Awareness and Knowledge of Hypertensive Retinopathy among Resident in Klang Valley

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Hypertensive retinopathy is an ocular disease that happens due to hypertension or high blood pressure. The aim of this research is to analyse the level of awareness and knowledge about hypertensive retinopathy among residents in Klang Valley. Questionnaire method is the approach that has been used to analyse the level of awareness. Participants who were assigned into this

research needed to answer 3 parts of questionnaires, ie. Part 1 on demographic variables, Part 2 on hypertension and Part 3 on the knowledge of hypertensive retinopathy. Total of participants for this study was 114 medically-diagnosed hypertensive participants, where 51.8 % (n=59) were male and 48.2 % (n=55) were female participants. The mean age for participants in this study was 52.27 (±10.3) who are from the Klang Valley area. Based on the results, it has shown that 67.0 % (n=76) of the respondents were not aware about the consequences of hypertension to the eyes. Hence, this study shows that the level of awareness and knowledge about hypertensive retinopathy is still low among the residents in Klang Valley.

Keywords: Hypertension, Hypertensive Retinopathy, Awareness

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Pre-Conception Health and Nutrition Care, Why Does It Matter? Case From Indonesia.

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Stunting is identified as a major global public health priority. Indonesia aims to reduce stunting prevalence by 14% in 2024, by focusing the national specific and sensitive intervention on the first 1000 days of life. However, the fetal programming period, which happens prior to conception and influences the quality of pregnancy and its offspring, receives insufficient attention. This study's aim is to assess the nutritional, anemic status, and dietary patterns among pre-marital reproductive age women and to assess the acceptability of proposed integrative pre-conception health and nutrition care. Mix-method study was undertaken in two subdistricts in Sleman City from April-October 2021. A cross-sectional survey was performed among pre-marital women who attended two clinics followed by a series of in-depth interviews and focus-groups discussion among stakeholders; policy decision-makers, program implementers, and program users. The acceptability was defined by several indicators including affective attitudes, financial support, presumed effectiveness, participation, and coherency. A descriptive and framework analysis were used for quantitative and qualitative data, respectively. A total of 110 respondents were recruited and analyzed. The study found that 21%, 15%, and 49% of them were of chronic energy-deficiency (MUAC<23.5cm), Anemic (Hb<12gr/dl), and had lack of dietary diversity (<5 types of food-groups consumed/day), respectively. The stakeholders showed a positive acceptance of the proposed concept of pre-conception care among pre-marital women. However, local policy support is required to maximize the existing capacity to support the

Indonesian target of reducing stunting in the future.

Keywords: conception, pre-marital, stunting, women, Indonesia.

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Psychosocial Risk Factors and Identification of Musculoskeletal Disturbances Symptoms Among Working Young Adults in Malaysia

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Musculoskeletal disorder is one of the leading contributors to worldwide disability. Musculoskeletal disorders (MSDs) are injuries that affect the human body movement and musculoskeletal system. The current study aims to identify the relationship between psychosocial risk factors and musculoskeletal symptoms among working young adults in Malaysia. A cross-sectional study has been conducted involving 385 working young adults from all states of Malaysia. Young adults are those ranging from age 19 until 40 years old. The instrument used in this study is the Malaysian version of the Copenhagen Psychosocial Questionnaire (BM-COPSOQ). It is one of the available instruments to assess the psychosocial work environment. The hypothesis addressed by this study is psychosocial risk factors experienced by young adults may lead to the presence of musculoskeletal symptoms. The findings of this study indicated that most working young adults experienced discomfort at the neck (72.3%), shoulder (71.2%), elbow (15.7%), wrist/hand (40.3%), upper back (54.5%), lower back (68.1%), waist/thigh (29.8%), knee (31.4%), and ankle (13.1%). Apart from that, demands at work have shown a statistically significant relationship with shoulder, wrist/hand, upper back, lower back, waist/thigh, and ankle. These findings have reaffirmed that the most consistent risk factors correlated with musculoskeletal disturbances were high demands at work. The most affected area related to most domains in the psychosocial risk factor was the neck. There is a limitation in this study where the psychosocial risk factor was varied due to a non-specific working sector chosen, which may have affected the study's outcome. Therefore, future research should focus on the specific working sector, and extensive analysis might be necessary for generalization purposes.

Keywords: Psychosocial factors, musculoskeletal disturbances, young adults

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Musculoskeletal Pain And Its Association With Demographic Characteristics And Quality Of Life Among Primary School Teachers In Sabak Bernam

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Musculoskeletal disorders (MSD) are the common health issues related to a variety of occupations in the world and school teachers are also at risk in developing the symptoms of MSD with the demand in their job scope. Occurrence of MSD on different parts of the body with different rates of prevalence can be contributed from various factors. However, there are still a lack of findings of the MSD issues done among teachers in Malaysia. A cross-sectional study was done to identify the prevalence of MSD among primary school teachers and association with demographic characteristics and quality of life. It consists of 220 respondents from the district of Sabak Bernam, randomly selected from different schools. The survey was done by using Nordic Musculoskeletal Questionnaire (NMQ) and World Health Organization Quality of Life (WHOQOL-Berf). The data collected has shown that the highest prevalence of discomfort or pain to occur among teachers was shoulder (51.8%), followed by neck (51.4%). The data analysis has shown that there was some significant association of demographic characteristics with prevalence of MSD (<0.05). There were strong and weak associations between domains of quality of life with the prevalence of MSD on all body regions (<0.05, <0.01). In conclusion, the results of this study emphasized the needs of further actions to be taken for teachers to have a better quality in their work performance. Teachers may need to receive intervention or modification by professionals to prevent further injuries due to prolonged pain and discomfort.

Keywords: musculoskeletal disorder, MSD, quality of life, occupation, teachers

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Association Between Perceived Social Support, Self-Esteem and Life Satisfaction Among UiTM Puncak Alam Students

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Mental distress among the student population is a significant public health concern globally. In Malaysia, the data revealed an upward trend in mental health issues among Malaysian university students, showing that the prevalence of the students suffering from psychological disorders has doubled in just a decade. Lack of social support and low self-esteem can cause individuals to have lower satisfaction in life, which can lead to mental distress and psychological disorders. This study aims to examine the association between perceived social support, self-esteem, and life satisfaction. The study sample consists of 124 undergraduate students from various faculties in UiTM Puncak Alam, Selangor. Multidimensional Scale of Perceived Social Support (MSPSS), Rosenburg Self-Esteem Scale (RSES) and Life Satisfaction Questionnaire 11

(LISAT-11) were used as the outcome measures. The data collected showed that there were no significant differences between gender and perceived social support. However, it was found that female students at UiTM Puncak Alam perceived higher social support as compared to male students. Results also indicated that UiTM Puncak Alam students received the most support from friends, followed by family and significant others. The findings revealed that there was statistically significant negative correlation between social support and self-esteem, self-esteem and life satisfaction, but positive associations were found between social support and life satisfaction. Universities could come up with psychoeducational programmes such as individual and group counselling that may assist students in improving their overall quality of life.

Keywords: mental health, perceived social support, self-esteem, life satisfaction, university students

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Level of Knowledge and Attitude on Concussions among Veteran Recreational Football Players

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Football is a universal sport that can be played by all, no matter their age, gender, and body propositions. An adult who has played football for ten years has a 50% chance of suffering a concussion which resulting in more symptoms and a longer recovery time. This study aimed to examine the level of knowledge and attitude toward concussions among veteran recreational football players and the relationship between the level of knowledge, attitude towards concussion and the sociodemographic factors among veteran recreational football players. This study was a cross-sectional study design. One hundred and five veteran football players completed the modified Rosenbaum Concussion Knowledge and Attitudes Survey - Student Version (RoCKAS-ST). The RoCKAS-ST questionnaire has three parts which are the assessment of the Concussion Knowledge Index (CKI), Concussion Attitudes Index (CAI), and a 16-symptoms checklist. The participants scored on average 57% in the CKI and 76% in the CAI. Results showed that good level of knowledge and attitude was significantly associated with occupation or studies (p=0.012) and years of playing football (p=0.002). No positive association between level of knowledge and attitude with age and level of education. Veteran football players generally have good knowledge and safe attitude concerning concussion.

Keywords: knowledge, attitude, concussions, veteran, recreational football.

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Image Quality and Radiation Dose in Intravenous and Integrated Intravenous-Oral Contrast-enhanced CT Abdomen for the Evaluation of Appendicitis

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Numerous contrast-enhanced CT abdomen protocols are routinely used in the clinical diagnosis of appendicitis. This study is aimed to evaluate the image quality and radiation dose in intravenous (IV) and integrated intravenous-oral (IVO) contrast-enhanced protocol in CT abdomen for the evaluation of appendicitis. CT abdomen images (n=52) acquired with IV and IVO protocols with suspected appendicitis were retrospectively reviewed from the CT PACS. The parameters of image quality (contrast noise ratio; CNR, signal noise ratio; SNR and noise) and radiation dose (dose length product; DLP and effective dose) from both protocols were quantified. Statistical analysis of the Independent T-test with $p < 0.05$ was deemed statistically significant. No significant changes were observed in CNR (1.05 ± 0.62 vs 0.88 ± 0.63, p = 0.33), SNR (1.08 ± 0.67 vs 1.17 ± 1.27, p = 0.77) and noise (31.20 ± 8.51 vs 30.13 ± 11.70, p = 0.72) of IV and IVO contrast-enhanced images, respectively. However, DLP (1285.81 ± 682.02 vs 664.38 ± 321.96, $p < 0.001$) and effective dose (19.16 ± 8.18 vs 10.13 ± 4.66, $p < 0.001$) were significantly changed in IV and IVO protocols, respectively. There was an increase of 48.33% and 47.13% in DLP and effective dose, respectively, in IVO protocol compared to IV protocol. Both contrast-enhanced CT protocols demonstrated almost equivalent diagnostic image quality. These findings indicate that the contrast-enhanced protocol in CT abdomen for the evaluation of appendicitis should be clinically justified and optimized as it may affect extra radiation dose to the patients.

Keywords: appendicitis, CT abdomen, image quality, radiation dose

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Perception Of Nurses' Self-Performance Towards the Presence Of Family Members During Performing Procedures In Intensive Care Unit

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Admission of a patient to an intensive care unit (ICU) is commonly associated with the presence of a caregiver, especially family members to stay with the patient who would probably stay in the ward most of the time or based on hospital policy. The presence of family members at the bedside in ICU could give different perceptions on nurses' self-performance during performing nursing procedures to their loved one. The purpose of this study was to evaluate the perception of nurses' self performance towards the presence of family members during performing procedures in ICU. A cross-sectional study design using self-administered questionnaires was

conducted among 78 ICU nurses in one of the tertiary hospitals located in Selangor over a period of one month. In this study, most of the intensive care nurses had low perceptions of self-performance towards the presence of family members during performing nursing procedures. Sixty respondents (76.9%) out of 78 respondents were having difficulty in allowing the presence of family members during performing procedures with most common barriers are interrupted care of patient, 67.9% (n=53), lack of confidence 28.2% (n=22) and lack of knowledge 15.4% (n=12). The results showed there was no correlation between age and 15 items of the perceptions except for the item 1 and 3 with the *p* value 0.025 and 0.007, respectively. There was negative correlation for the item 1 and 3 with the *r* value -0.254 and -0.303 respectively. The results also revealed that there was no significant relationship between nurses' perceptions and nurses' level of education (all *p* value >0.05). Similarly, there was no correlation between the years of working experience in ICU with the nurses' perception except for item 1 and 3 with the *p* value 0.029 and 0.018. Both items showed negative correlation as the *r* values were -0.247 and - 0.267 respectively. Overall, this study showed that ICU nurses had poor perceptions on self performance towards the presence of family members. The study also proved that there was no correlation between the perceptions of nurses' self-performance towards the presence of family members during performing nursing procedures with age, periods of ICU working experience and the level of education. In addition, interrupted care of patients was selected as the main barrier that impedes the nurses to allow the presence of family members.

Key words: intensive care nurses, nursing procedures, self-performance, perceptions

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Sexual Communication Techniques and Sexual Knowledge among Parents with Special Needs Children: A Preliminary Finding

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Special needs children (SNC) were always being exploited by irresponsible parties due to their cognitive ability to discern right or wrong. They are often being victimized by sexual abuse or involved in sexual acts without them being aware of it. The role of parents play in providing sex education to SNC are significant because their children continue dependence on them for support. Therefore, the objectives of this study is to identify sexual and reproductive health knowledge among young adults with autism spectrum disorders and learning difficulties and to identify family sexual communication techniques used by parents to cover sexuality and reproductive health topics with their special need children. This cross-sectional study involves 115 parents of young adults with autism spectrum disorder or learning difficulties in Klang Valley. Respondents were recruited via special education classes in

primary and secondary schools. Instrument used were the Sexual Behaviour Scale and Parent Sexuality Education Inventory. Finding of the study indicated that most young adults with special needs have difficulties in displaying acceptable social behaviour such as seeking privacy when required. Parents also having limited resources in accessing sexual resources. Most frequent communication technique used by parents to discuss with their child regarding sexuality is by talking with them about it, followed by using pictures, books or pamphlets, skilled based training and the least frequent is by using videos. In summary, this study provides insight on socially and culturally sexual and reproductive education in teaching special needs young adults within Malaysia context.

Keywords: Special Needs Children, Education, sexuality, young adults

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Psychological Distress and Coping Strategies of Patients with Lower Limb Amputation in Hospital Kuala Lumpur

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Challenges may arise from losing a limb that may include some anxiety and depressive symptoms. This study was done to assess anxiety and depressive symptoms of patients with lower limb amputation with different clinical characteristics and socio-demographic data. Frequent types of coping strategies used by patients were also identified as one of the objectives. Fifty patients with unilateral lower limb amputation from age 18 to 70 were recruited from Hospital Kuala Lumpur by using convenience sampling. Depression Anxiety Stress Scales (DASS-21) and a brief COPE questionnaire were distributed to each participant. Independent sample t-test, one way ANOVA test, Mann-Whitney U test and Kruskal Wallis test were used to test the objectives. Out of 50 patients, 38% (N=19) had anxiety symptoms and 62% (N=31) had depressive symptoms ranging from mild to very severe. Results showed that different clinical and socio-demographic backgrounds were not statistically significant in levels of anxiety and depression except for gender, level of education and social support ($P<0.05$). Self-distraction was the most frequent type of coping strategy used by patients. This study indicated that female, primary level of education and lack of social support patients with lower limb amputation may have the risk of having depressive symptoms. The findings may raise awareness of the importance of psychological and psychosocial evaluation of patients with lower limb amputation.

Keywords: Special Needs Children, Education, sexuality, young adults

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The Impact of Physical Activity and Psychological Well-Being Among Health Sciences Students During COVID-19 Pandemic

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The lockdown approach in effort to curb COVID-19 pandemic has impacted on restriction of physical activities (PA), which may lead to some psychological instability. Higher education students are mostly vulnerable to this, owing to overwhelming stressors. This study probed the possible relationship between PA and psychological well-being (PWB) among the Health Sciences undergraduate students. This cross-sectional study involved 79 undergraduate students aged 18 to 25 years old from the Faculty of Health Sciences UiTM who self-administered the International Physical Activity Questionnaire (IPAQ) and the Psychological General Well-Being (22 items) Index (PGWBI) questionnaire. During the pandemic, almost 60% and 20% of participants engaged in moderate and vigorous PA respectively. However, the Metabolic Equivalent Task (MET) had shown 23% reduction in PA intensity and 9% reduction in walking activity. The total time spent sitting in contrast, increased by 6% during the pandemic. It was also found that 20% of the participants claimed to have sober PWB during the pandemic. It was also demonstrated that the reduction in PA correlates to reduction of PWB. These findings trigger future research to understand how reduction in PA affects the PWB and to investigate if PA reduction is the sole factor or could there be other undiscovered factors.

Keywords: physical activity, psychological well-being, COVID-19, Health Sciences students

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Efficacy of Diabetes-Specific Meal Replacement on Obese and Overweight Type-2 Diabetes Mellitus Patients: An Interim Analysis for a Randomised Controlled Trial

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This study aimed to evaluate efficacy of a diabetes-specific MR on weight reduction and glycaemic controls of overweight and obese T2DM patients compared to routine dietary consultation. **Design:** This is a preliminary exploratory interim analysis of an ongoing multicentre, randomized controlled trial which will involve 156 participants. At baseline, all participants will receive diet consultation. Control group will continue their usual care while the intervention

group will receive a 12 weeks' diabetes-specific MR intervention to replace one meal for 5 days a week (327 kcal, 37.2 g carbohydrate, 16.2 g protein and 14.4 g fat). Sustainability will be monitored through 12 additional weeks of follow up. Primary outcome is HbA1c and weight. **Results:** To date, 49 participants have completed the 12 weeks intervention and have been included in the analysis. As compared to the baseline, 12-weeks MR intervention has reduced HbA1c levels in the intervention group (n=26) (- 0.56 ± 0.93 %, $p<0.05$) significantly. Similar analysis for fasting plasma glucose (- 0.47 ± 2.05 mmol/L) and weight (- 0.95 ± 2.96 kg) have demonstrated non-significant reductions. Similar trends were observed for fat percentage and fat mass. The current analysis showed no significant group × time interactions. **Conclusion:** This interim analysis has shown that 12 weeks MR intervention significantly reduced HbA1c and FBS and levels of obese and overweight T2DM subjects. The long-term sustainability after MR is stopped would be further investigated. This study has obtained human ethics approval from RECUKM (JEP-2019-566) and registered at Thai Clinical Trials Registry (TCTR ID: TCTR20210921004).

Keywords: Diabetes, Obesity, Meal Replacement, HbA1c.

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Anthropometric indicators to evaluate fat obesity in an Indonesian children population

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Accurate obesity determination is critical in order for interventions to be effective. Several anthropometric indicators have been reported can be used as screening tools to identify of body fat in children. This study aimed to determine the performance of anthropometric indicators for assessing fat obesity in an Indonesian children population. A sample of 514 children (260 boys, 254 girls) aged 7-12 years living in Yogyakarta Province, Indonesia was measured their weight, stature, wrist, abdominal, waist and hip circumferences, and several skinfold thickness. Body mass index (BMI), body frame, waist-to-hip ratio (WHR), and waist-to-stature (WSR) was calculated. Percent body fat (%BF) was obtained from skinfold measurements. Analyses of ANOVA and the Receiver Operating Characteristics (ROC) were done. **Results:** The results of ANOVA indicated that age was the main source of significant variation ($p<0.001$) for all variables, while gender was significant for wrist circumference ($p<0.05$), body frame ($p<0.05$), and WHR ($p<0.001$). Sex and age simultaneously were only significant for stature ($p<0.001$). The ROC analysis showed that abdominal circumference in boys and waist circumference in girls had the widest area under the curve (AUC), while height has the lowest AUC in both sexes. The highest AUC in boys were abdominal circumference (0.98; $p<0.01$) and BMI (0.98; $p<0.001$), while in girls were waist circumference (0.96; $p<0.001$) and BMI (0.97; $p<0.001$). Abdominal and waist

circumferences indicated the highest performance of anthropometric indicators to evaluate fat obesity in boys and girls, respectively. While among anthropometric indices, BMI showed the highest performance in both genders.

Keywords: Anthropometry, fat obesity, Indonesian, children

P180 i-SIHAT-2022

Malnutrition in Yogyakarta children based on body mass index and body fat percentage

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Malnutrition has a negative impact on the economic and health conditions of many countries. The nutritional status of children can be assessed based on body mass index and body fat percentage. This study aimed to evaluate the prevalence of malnutrition based on body mass index and body fat percentage in children aged 7-15 years old. The data were obtained from cross sectional study of 356 Yogyakarta children (170 boys and 186 girls), age ranged from 7 to 15 years. Height, weight, and skinfolds (triceps and subscapular) were measured on each subject. The body mass index (BMI) and body fat percentage (BFP) were calculated. Independent samples t-test and Mann Whitney correlation were used to analyze the data. The average BMI and BFP of boys and girls was 18.18 kg/m^2, and 19.08 kg/m^2, while the mean of BFP was 18.52%, and 19.08%, respectively. The prevalence of undernutrition based on BMI per age among children, boys and girls was 25.3% and 21.0%, while based on BFP per age were 17.6% and 15.6%, respectively. The prevalence of overnutrition based on BMI per age for boys and girls was 21.8% and 25.3%, while based on BFP per age were 22.9% and 21.0%, respectively. There were significant differences in the prevalence of undernutrition and over nutrition based on BFP and BMI for both boys and girls. And there was a significant relationship between BFP and BMI in girls and boys. There are differences in the prevalence of malnutrition based on body fat length and body mass index in children in Yogyakarta. The greater BFP value, the greater the body mass index value.

Keywords: malnutrition, body mass index, body fat percentage, children

PS181 i-SIHAT-2022

Content Validity and Internal Consistency of the Intrinsic Motivation Inventory Malay Version (IMI-M)

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Intrinsic motivation is an internal force that make an individual participates in certain activities to achieve self-satisfaction without any external influence. Intrinsic Motivation Inventory (IMI) is a questionnaire evaluating participants' motivation towards the activity used in the studies. It consists of 4 domains: enjoyment, perceived competence, perceived choice, and pressure tension. However, IMI is only available in English which may not suitable in Malaysian context. The study aims to translate IMI: Task Evaluation Questionnaire from English to Malay language and determine the content validity and internal consistency of the translated instrument; Intrinsic Motivation Inventory Malay Version (IMI-M). This study was conducted following the cross-cultural translation guideline by Sousa. The content validation; relevance, clarity, and ambiguity involved eight experts with more than three years' experience in the psychosocial rehabilitation using content validation form. The internal consistency was established after 132 participants answer the IMI-M after trying ARM P01-S, a robotic arm exoskeleton. The IMI-M has excellent content validity in both item and scale. The I-CVI values for all 22 items ranged from 0.88 to 1.00 while the S-CVI/Ave scores across all items are 0.94, 0.97, and 0.98 for relevance, clarity, and ambiguity respectively. The internal consistency for overall score is 0.787. This study shows that the IMI-M has excellent content validity and acceptable internal consistency. Test-retest reliability and exploratory factor analysis can be explored in future studies. Otherwise, the IMI-M can be used to measure intrinsic motivation among Malaysian population participating in intervention.

Keywords: intrinsic motivation, translation, content validity, internal consistency.

BUDDING SCIENTIST

BS01 i-SIHAT-2022

Association of Breastfeeding and Complementary Feeding Practice with Nutritional Status of Infants Aged 6 to 24 Months in Kuala Lumpur and Selangor

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Assessment of food intake and anthropometric status is a very important aspect in identifying malnutrition problems in children. This study aimed to assess the breastfeeding, complementary feeding practices and its association with nutritional status of infants aged 6 to 24 months in Kuala Lumpur and Selangor, Malaysia. This cross-sectional study was conducted online from 22nd August 2021 to 6th December 2021 and recruited infants aged 6 to 24 months from Kuala Lumpur and Selangor. Most recent body weight and length measurements were taken from Infant and Child Health Record books (0-6 years). Sociodemographic information, breastfeeding and complementary feeding practice were reported by parents using the Infant and Young Child feeding (IYCF) questionnaire. A total of 145 infants aged 13.0 ± 5.6 months (76 males, 69 females) residing in Kuala Lumpur (n=46) and Selangor (n=99) were involved in this study. Based on age-specific weight-to-length z-score, 9.6% of infants were wasted, 10.3% at risk of overweight, 2.1% were overweight and 2.8% were obese. Almost one-fifth (18.6%) of infants were underweight and one-third (32.5%) were stunted. This study found a high achievement for the indicators of early initiation of breastfeeding (EIBF) (91.0%) and introduction of solid, semi-solid or soft foods (ISSSSF) (91.7%). The majority (91.7%) of infants were introduced to solid, semi-solid or soft foods at 6 months of age after birth. There was a significant association between breastfeeding practice which is early initiation of breastfeeding (EIBF) with infant's stunting status (x^2=18.105, $p<0.01$). This shows that early initiation of breastfeeding affects infant's length status. In conclusion, the achievement of breastfeeding and complementary feeding practice among infants residing in Kuala Lumpur and Selangor is satisfactory. The prevalence of underweight, stunting and wasting were higher than the national prevalence and it is alarming. The result of this study also found that breastfeeding and complementary feeding practice can affect nutritional status of infants.

Keywords: breastfeeding, infant and young child feeding (IYCF), nutritional status, Kuala Lumpur, Selangor.

BS02 i-SIHAT-2022

Validating the Malay translated Hearing Impairment Impact Significant Other Profile (HII-SOP) among Spouses of Individuals of Hearing Loss.

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Many studies have shown that the impact of hearing loss does not only affect the individual but their significant others as well which is also known as third party disability according to WHO. The HII-SOP (Hearing Impairment Impact Significant Other Profile) questionnaire has been developed and translated into the Malay language to be used among the Malaysian population. This study aims to determine the psychometric properties of the Malay translated version of the Hearing Impairment Impact Significant Other Profile (HII-SOP) The study involved a cross-sectional survey design. Participants were required to complete the translated questionnaire. Responses obtained were used to determine the internal consistency, test-retest reliability and concurrent validity of the questionnaire. The participants of the study consist of 31 spouses of individuals with hearing loss. The overall Cronbach alpha value obtained was 0.936. The test-retest reliability correlations Malay HII-SOP questionnaire administered after 3 weeks were 0.976. Correlation values of total scores between the Malay HII-SOP and the Malay SOS-HEAR were calculated as 0.709. In conclusion t he Malay HII-SOP questionnaire is found to have adequate reliability and validity to be used to measure third party disability among the Malaysian population to provide a holistic rehabilitation.

Keywords: disability, questionnaire, validity, HII-SOP, malay, hearing loss

BS03 i-SIHAT-2022

Systematic Review on the Efficacy of Music Intervention as Adjunctive Treatment in Patient with Schizophrenia

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Schizophrenia, a serious mental illness, has been using antipsychotic drug as the standard treatment. The aim of antipsychotic drug administration is symptomatic reduction of schizophrenia. However, studies have found that antipsychotic drugs administration alone could not tackle all the symptoms. Increasing studies have shown promising benefits of music on patients with schizophrenia. Most studies have focused on the study of “music therapy”, followed by the study on “music intervention”. “Music intervention” is a broad term representing a general use of music in the patient’s treatment, while “music therapy” is a profession which needs to be carried out by a board-certified music therapist. However, there

seems to be terminology confusion between “music therapy” and “music intervention” in these studies. Besides, there is also a lack of synthesized evidence on the effect of “music intervention” on patients with schizophrenia. Thus, we have carried out a systematic review on the current available studies. The methodology used is in-line with the PRISMA statements. The articles were assessed through electronic databases which yielded a total of 9 studies with a sample size of 474 patients. Our systematic review shows that music intervention plus standard treatment improves the symptoms in schizophrenia compared to standard treatment alone and potentially improve the patients’ social functioning and quality of life. Thus, music intervention could be incorporated into clinical practice. The terminology confusion could be due to the source of definition the articles employed. The hearing status of the patients were suggested to be included in the future studies.

Keywords: Schizophrenia, music intervention, adjunct therapy, psychosis, music therapy.

BS04 i-SIHAT-2022

Activity-Based Cost Analysis of Student-led Speech-Language Interventions for Paediatric Population

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Activity-based cost analysis is a gold standard in economic evaluation, where each service component is valued in detail. The existing literature provides information on costs of conventional healthcare services and teleservices. However, limited studies have utilized cost analysis methods in the field of speech-language pathology and none to our knowledge has compared the costs of conventional speech language therapy as compared to teletherapy. This study aims to determine the costs invested by caregivers, student clinicians (SCs), and clinic administration for a speech-language intervention program at the Speech Sciences Clinic in Universiti Kebangsaan Malaysia, and to compare the investment costs between conventional face-to-face speech-language therapy sessions and teletherapy. A total of 23 caregiver-SC dyads were recruited. Video recordings of face-to-face therapy and teletherapy sessions were obtained from participating SCs. All therapy activities and materials used in each therapy session were coded and analysed using a micro-costing form. Participants were interviewed individually to verify the monetary value for each activity and material. In addition, the administrative costs including human resources and physical resources were collected. The overall results showed higher costs of face-to-face therapy than teletherapy. However, this difference is only significant for the caregivers and SCs, and not for the clinic administration. Teletherapy may be a cost-effective mode of speech-language therapy. The

study findings are useful for service providers for determining services delivery approaches. Future studies should explore the outcomes of treatment for children with speech-language disorders and caregivers' satisfaction towards teletherapy as compared to conventional face-to-face intervention.

Keywords: Cost analysis, speech-language therapy, student training, teletherapy, child speech and language disorders.

BS05 i-SIHAT-2022

Determination on nutrients in street food, factors that influencing the choice of street food consumption and the awareness level of salt intake among consumers in pahang

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Street food has become the food choice for people. Most people will take street food as their source of energy compared to consuming food at home. This study was conducted to determine the nutrients content in street food as well as the factors that influence the choice of street food and the awareness level of salt intake through the level of KAP among adult consumers in Pahang. This study was divided into three phases. Phase I was the used of secondary data through direct observation method while phase II was the food sampling and nutrients analysis. Phase III was a cross-sectional study using convenience and snowball sampling to distribute the online questionnaires. Street food surveyed in Pahang was divided into main meals category (n= 362), snacks (n= 356) and desserts (n= 241). *Laksa* (main meal), fried chicken (snack) and *apam balik* (dessert) were the most common street food found in Pahang. There were 15 types of street food selected for analysis. For the main meal category, *nasi lemak* has the highest carbohydrate and energy content, *nasi minyak* has the highest protein and fat content, fried noodle has the highest ash and sodium content while congee has the highest moisture content. For the snack category, *keropok lekor* has the highest content of carbohydrates, ash, sodium and energy while fried chicken has the highest content of moisture, protein and fat. *Kuih akok* has the highest content of carbohydrates, protein, ash and sodium, *kuih puteri ayu* has the highest fat and energy content while *kuih lapis* has the highest moisture content in the dessert category. A total of 200 subjects were involved in this study. Hygiene factor (score: 4.01) was the most important factor in influencing the subjects' street food choices. In addition, adult consumers in Pahang have a moderate knowledge level on salt intake (score: 62.50), a positive attitude (score: 75.73) but insufficient practice (score: 51.59) and their overall KAP level is in the moderate category (score: 62.96). There were significant relationships ($p<0.05$) between gender, races, education level and household income with the factors influencing the choice of street food. Female subjects, Malays, the low-educated and the M40 and T20 groups were more likely to agree with those factors. Significant relationships ($p<0.05$) were also found between the education level and employment with the

level of KAP on salt intake. The highly educated group has a higher level of knowledge (K), attitude (A) and overall KAP while the employed group has a higher overall KAP. The data on the nutrient content in street food can be updated to Malaysia Food Composition Database (MyFCD) so that more nutrients contained in the local food can be known and public can choose healthier street food. The consumers' awareness level of salt intake was not high in this study. Thus, intervention programs and awareness campaigns should also be conducted to increase consumers' knowledge of salt intake in order for them to reduce their salt intake as well as prepare the healthier food.

Keywords: Street Food, Nutrients Content, Factors, Awareness Level, Salt Intake

BS06 i-SIHAT-2022

Correlation between Perceived Environmental Barriers and Sensory and Cognitive Outcomes Among Older Adults

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This study aims to evaluate the relationship between perceived environmental barriers and the sensory and cognitive screening outcomes among older adults. A total of 84 older adults aged 60 to 87 years old participated in this cross-sectional study. The perceived environmental barriers were measured with the self-administered Craig Hospital Inventory of Environmental Factors (CHIEF) questionnaire. The sensory outcomes consisted of hearing and visual variables. The hearing variables included the four frequency average pure tone thresholds at the better ear and hearing handicap as measured by the Hearing Handicap Inventory for the Elderly (HHIE). Meanwhile, the visual variable, which was the visual acuity in the better eye was obtained using the Tumbling E Folding Chart. Cognitive function was tested with the Identification of Dementia in Elderly Africans (IDEA) tool. The presence of perceived environmental barriers was found to be significant and positively correlated with the hearing thresholds, total hearing handicap scores and emotion subscale of the hearing handicap ($p<0.05$). The perceived barriers to services and assistance was the only domain from the CHIEF questionnaire that has a significant positive correlation with the hearing thresholds ($p<0.05$). The perceived environmental barriers were not significantly correlated with the cognitive screening scores and visual acuity. In conclusion, perceived environmental barriers are related to hearing loss and hearing handicap among older adults.

Keywords: environmental barriers, older adults, hearing loss, hearing handicap, visual acuity

BS07 i-SIHAT-2022

"I can speak really easy, but not for him…": Experiences of Fluent Siblings of Children with Stuttering in Malaysia

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Perception about stuttering of fluent or non-stuttering sibling who live with stuttering children are still understudied. Previous research has mostly examined the impact of having a child who stutters on parents and their relationship with that child. Even in family-centered therapy studies, the feelings and perspectives of a fluent or non-stuttering sibling have not been examined. This study used semi-structured interviews method. Ten non-stuttering siblings who had a sibling that were clinically diagnosed with stuttering disorder were interviewed to explore the siblings' perceptions towards siblings who has stuttering, their emotional reaction towards stuttering siblings, strategies they used during communication breakdown, and how stuttering effect their sibling's relationship. Thematic analysis was used to explore in depth the lived experienced by siblings when they socialize with children who stutter. Four main themes were identified: (1) perception on stuttering, (2) strategies for communication breakdown and behaviours, (3) emotional reaction, and (4) impact on relationship. Results from this study provide siblings' perceptions and attitudes from various angles that offer insights into the needs of these siblings and how they may be best served, informing speech and language pathology and other health professional evidence-based practice.

Keywords: stuttering, siblings, communication, challenges, interview

BS08 i-SIHAT-2022

Perceptions and Views of Occupational Therapy Lecturers and Clinicians towards Online Learning During the Covid-19 Pandemic

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Movement Control Order was implemented on 18th March 2020 to control the COVID-19 outbreak in Malaysia. Malaysia's higher education sector has experienced a severe impact from the COVID-19 pandemic due to the government's policies. All teaching and learning are done synchronously and asynchronously. Immediate changes need to be done to accommodate student's learning and this contributed to several challenges in the online classes. This study aims to explore the views of occupational therapy lecturers and clinicians toward full online teaching during the COVID-19 pandemic. Nine occupational therapy lecturers and clinicians were recruited for this qualitative study. Online in-depth interviews were conducted with the

participants, and the data obtained were analysed thematically. Five main themes emerged from the interview which are: (i) the meaning and understanding of online learning, (ii) the satisfaction of online teaching, (iii) the implementation of online teaching, (iv) teaching approaches for a betterment, and (v) the pros and cons of online teaching. Findings from the interview concluded that the satisfactory level in conducting online teaching is lower due to several reasons. Poor Internet connection is identified as the main difficulty faced by the participants. Students still prefers physical teaching compared to online mode of teaching. Different teaching approaches are discussed, and more disadvantages were identified. Although there are more negative aspects of online teaching and learning than the positive ones, the participants still appreciate its usefulness and the experience gained.

Keywords: Online Teaching; Online Learning; Occupational Therapy; Health Sciences; COVID-19 Pandemic

BS09 i-SIHAT-2022

The Relationship between Speech Abilities and Quality of Life in School-Age Children with Cleft Lip and Palate in Malaysia

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Speech problems and facial deformities negatively impacts the quality of life amongst children with CLP. In particular, children with CLP tend to restrict their communication, hence leaving them socially isolated. This study aimed to investigate the effect of speech difficulties on quality of life in a group of school-age children with cleft lip and/or plate. This cross-sectional study examined twenty-seven children between the ages of 7-12 years with CLP recruited from hospitals combined cleft clinic database. Children were requested to fill up online survey on CLEFT-Q under parents' supervision and appointments were set up for children to complete a speech assessment and a hearing screening. Results showed that, children with CLP reported the lowest scores for Teeth in the CLEFT-Q - 69.59%. The speech results demonstrated that there was resonance 33.33%, nasal emission 33.33% and consonant production error 74.07%. There is no significant difference between cleft type and quality of life in children with cleft lip and palate, F (2, 25) = .380, p = .688. Levene's test for equal variance were equal. The point biserial correlation coefficient was used for analysis between speech difficulties and quality of life, and the results showed statistically significant difference, (p = < . 05). The findings require further investigation using a larger sample size and with a variety of cleft type.

Keywords: Speech abilities, Quality of life, School-age children, Cleft Lip and Palate

BS10 i-SIHAT-2022

Test of Visual Perception – 4th Edition: A Need for New Normative Standards for Measuring Visual Perceptual Skills in B40 Malaysian Preschool Children

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The Test of Visual Perceptual Skills – Fourth Edition (TVPS-4) is a widely used instrument to assess perceptual abilities in children via seven subtests: visual discrimination, visual memory, visual-spatial relationships, visual form constancy, visual sequential memory, visual figure-ground and visual closure. Its scoring is standardised in the US; thus, questions remain if it can be applied universally to other populations. This cross-sectional study determined the TVPS-4 scores in a sample of *B40* Malaysian preschool children (n=35, mean age: 6.086 ± 0.45 years, age range: 5.08 to 6.83 years). Their performance was also compared with the US normative data. The study participants scored higher than the US normative data for all subtests [all $p<0.05$]. They also scored significantly higher for the overall standard score (114±6.02) than the US norms (100±15)[one-sample t-test, $t_{(34)}=14.67$, $p<0.001$]. 54.29% of the sample had a TVPS-4 overall score higher than one standard deviation from the US mean, compared to 20% for the US normative sample. This study provides TVPS-4 normative data for *B40* Malaysian preschool children for future reference. Clinicians should exercise caution when TVPS-4 is used in populations outside the ones on which it was standardised.

Keywords: TVPS-4, preschool children, visual perception

BS21 i-SIHAT-2022

The Role of Carvacrol against Cardiac Structural Changes in Doxorubicin-Induced Cardiotoxicity Rat Model

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Globally, cancer survival has been improving, however the side effects of cardiotoxicity associated with chemotherapy has been a burden socioeconomically. However, the therapeutic effects of chemotherapy particularly doxorubicin are limited by the cumulative dose related cardiotoxicity. Carvacrol is a phenolic monoterpenoid that possess a multitude of bioactivities including antioxidant, cardioprotective

and anti-apoptotic effects. Therefore, this study explores the cardioprotective potential of carvacrol against histological changes caused by doxorubicin-induced cardiotoxicity. 24 male Sprague-Dawley rats (200-250g) were randomly divided into three groups: control, cardiotoxicity (DOX) and treatment group (CAR+DOX) (n=8 per group). Treatment group was pretreated with carvacrol (50 mg/kg/daily, p.o) for 14 consecutive days, whereas the cardiotoxicity and control group were given the vehicles DMSO 0.5% and corn oil, respectively. The DOX and CAR+DOX groups were given doxorubicin (15 mg/kg, i.p) on day-15 to induce cardiotoxicity, and then left to recover for 2 days. All rats were sacrificed on day-18 of the experiment. The results showed that the blood pressure-decreased significantly ($p<0.05$) in the cardiotoxicity group compared to the control group, indicating possible cardiac damage. The CAR+DOX group showed no blood pressure alterations, suggesting efficacy of treatment. The observation from H&E and picrosirius red staining indicated that hypertrophy and fibrosis, respectively, were significantly higher ($p<0.05$) in the cardiotoxicity group compared to the control group. However, the treatment group showed no significant result indicating cardioprotective potential of carvacrol. In conclusion, these findings have proven the cardiotoxic effects by doxorubicin, and carvacrol supplementation managed to prevent the cardiotoxicity by preservation of heart structure.

Keywords: *Doxorubicin, carvacrol, cardiotoxicity, blood pressure, rat model*

BS22 i-SIHAT-2022

Identification of Dysregulated MicroRNAs in Association between Body Mass Index (BMI) and Hepatocellular Carcinoma (HCC)

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Liver cancer is the third leading cause of cancer deaths worldwide, while hepatocellular carcinoma (HCC) is the most commonly diagnosed primary liver cancer. Researchers have found that obesity is associated with increased risk and mortality of HCC, but contradicting results were found. It has been observed that altered level of microRNAs is linked to cancer development. In this study, we wanted to investigate if there are any miRNAs that is associated with HCC and BMI, and what is the oncogenic role of the selected miRNA. Dataset of HCC patients from the Cancer Genome Atlas (TCGA) was categorized into two groups (low and high BMI). The clinicopathological data and Kaplan-Meier survival analysis were compared between two groups. Bioinformatics analysis was used to identify differentially expressed miRNA, predict target mRNA, identify enriched pathways and gene ontology. The oncogenic effect of the selected dysregulated miRNA is

validated by wound healing and MTT assay. Our results revealed that race, age at diagnosis, family history of HCC and risk factors differ between two groups significantly while no significant difference was found in survival analysis. MiR-130b is the most dysregulated miRNA and the most enriched pathway of its target genes is ErbB signaling pathway. MiR-130b acts by modulating protein transcription and translation, possibly affecting glutamatergic excitatory neurotransmission. Our results also proved that miR-130b could promote tumor cell migration and proliferation, as well as induce drug resistance in HCC. In conclusion, miR-130b could play a vital role in the oncogenic process of HCC patients with high BMI.

Keywords: MicroRNA, Body Mass Index, Obesity, Hepatocellular Carcinoma, Liver Cancer

BS23 i-SIHAT-2022

Toxicity Study of Commercially Prepared Weight Loss Supplements

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The consumption of commercially prepared weight loss supplements as an alternative way to achieve weight loss have become popular in Malaysia. These supplements are often perceived safe by consumers due to their alleged “natural” ingredients. However, their safety profiles are still relatively unknown. Hence, this study focuses on investigating the toxicity of these supplements by using zebrafish (*Danio rerio*). Five concentrations (0-20mg/mL) of three supplements were prepared depending on their turbidity and dosage recommended by the manufacturers. Zebrafish embryos were exposed to different concentrations for 96 hours where mortality, median lethal concentration (LC_{50}), and teratogenicity effects were recorded. Congo red direct staining was done on zebrafish larvae after the acute exposure. Histopathology examination was performed upon subacute exposure on zebrafish adults with Hematoxylin and Eosin stain. For embryo acute toxicity testing, mortality of three products was found to be in a concentration-dependent manner. The LC_{50} values for three supplements are 0.571mg/mL, 0.377mg/mL, 4.516mg/mL, respectively. These supplements also revealed to retard the growth of embryos as seen via delaying hatching and formation of pigment. Teratogenicity effects such as increased heartbeat, oedema and trunk curvature were reported at different concentrations of the samples. Moreover, Congo red staining disclosed potential cardiac and hepatotoxicity of the tested samples. Histopathology analysis showed injuries on brain, heart and gills tissues; however, no evidence of injury on muscle tissues.These weight loss supplements exhibited prominent toxic effects after acute and subacute exposure on zebrafish.

Keywords: weight loss supplements, toxicity, *Danio rerio*, Congo red, histopathology

BS24 i-SIHAT-2022

The Correlations Between Intuitive Eating, Body Image Satisfaction and Weight Difference Among Malaysian Youths During the Post-Pandemic.

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Literature suggested that lockdown may have a detrimental impact on eating habits and body image satisfaction. Therefore, this study investigates the correlations between intuitive eating, body image satisfaction, and weight difference in youths throughout the COVID-19 pandemic. A total of 290 youths were recruited through convenience and snowball sampling approaches. Socio-demographics, body height, body weight during the MCO 3.0, and body weight after the pandemic were self-reported by the youths. Intuitive eating behaviour during the post-pandemic was assessed using the Intuitive Eating Scale-2 (IES-2), while the Multidimensional Body-Self Relations Questionnaire (MBSRQ-AS) was used to measure the body image perception among the youths. The findings of this study revealed that 54.1% of youths gained an average weight of 3.34kg ± 2.46 kg due to the pandemic. The Body-Food Choice Congruence (BFCC) was positively correlated with Appearance Evaluation (AE) (r= 0.252, p< 0.001), Appearance Orientation (AO) (r= 0.208, p< 0.001), Overweight Preoccupation (OP) (r= 0.194, p= 0.001) and Body Areas Satisfaction Scale (BASS) (r= 0.222, p< 0.001). Likewise, Unconditional Permission to Eat (UPE) (r= 0.172, p= 0.003), Reliance on Hunger and Satiety Cues (RHCS) (r= 0.246, p< 0.001), Eating for Physical Rather Than Emotional Reasons (EPR) (r= 0.198, p= 0.001), and Body-Food Choice Congruence (BFCC) (r= 0.222, p= 0.001) were positively correlated with Body Areas Satisfaction Scale (BASS) during the post-pandemic. Although there was no significant correlation observed between body image satisfaction with weight difference, three of the subscales in IES-2 were found to be correlated with the weight difference of the youths. Findings in the currents study suggested that UPE (r= 0.197, p= 0.001), RHCS (r= 0.140, p= 0.017), and BFCC (r= -0.123, p= 0.036) were correlated with weight difference. The COVID-19 pandemic has induced a change in the eating behaviour and body image perception among Malaysian youths. Therefore, government agencies or non-governmental organisations should encourage the youths to adopt intuitive eating as a weight management strategy after the pandemic.

Keywords: Intuitive eating, body image, weight status, youths, COVID-19

BS25 i-SIHAT-2022

Blue Butterfly Pea Flower (*Clitoria Ternatea L.*) Extract Incorporated with Potato Starch Edible Coating On Fresh Cut Apple

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The shelf life of fruit can be shorten due to it microbial activity. A proper packaging must be used to protect the fruits from damaging. To eliminate the unnecessary usage of plastic, edible coating has been a common practiced to protect the fruits and at the same time it helps enhance the shelf life of the fruit. This study uses potato starch coating incorporated with Blue Pea Flower (Clitoria ternatea L.) to observe the physical changes and the shelf life of the fresh cut apple after storing for seven days. The dried blue pea flower extract was prepared by soaking the flower in hot water. The coating were prepared by adding the plant's extract by 25%, 50%, 75% and 100% and distilled water correspondingly which will yield 100mL of the coating. Potato starch was the biopolymer materials and glycerol was added to act as a plasticizer. The fresh cut apple was coasted for 30s and dried for 2h. Film solubility test, browning test, PLW test and shelf life testing were conducted. Result shown that sample contain the plant extract contain low % of weight loss than the control sample. Browning testing on the other hand shown that the control samples has less % of browning than the experimental samples this is due to the blue colour of the flower. Film solubility test show that samples contain 25% of the plant extract has highest solubility property. Shelf life testing show all samples labelled as TNTC due to the sample have been going over 7 days of storing, hence all the samples shown a sign of spoilage on the surface.

Keywords: blue butterfly pea flower, *Clitoria ternatea L.,* potato starch, edible coating, fresh cut apple

BS26 i-SIHAT-2022

Local Diagnostic Reference Levels in Full-Field Digital Mammography and Digital Breast Tomosynthesis

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This research assesses Malaysia's current DRL by establishing distinct Full Field Digital Mammography (FFDM) and Digital Breast Tomosynthesis (DBT) DRLs for various compressed breast thickness (CBT) ranges. In this retrospective research, 87 (FFDM) and 223 (DBT) patients participated. CBT, kVp, ESD, and AGD measurements are recorded. For each mammography projection and CBT range, the 75th and 95th percentile values for AGD were determined. We discovered the significant difference in AGD values between FFDM and DBT and three CBT ranges. FFDM DRLs are 1.13 mGy, 1.52 mGy, and 2.87 mGy, while DBT DRLs are 1.18 mGy, 1.88 mGy, and 2.78 mGy

for CBT ranges of 20–39 mm, 40–59 mm, and 60–99 mm, respectively. In both mammographic views, the AGD of DBT is considerably greater than that of FFDM ($p = 0.000$). Welch and Brown-Forsythe tests revealed a statistically significant difference ($p = 0.000$) in the AGD of the three CBT groups for FFDM and DBT. A Games-Howell post hoc test reveals significant mean differences among 3 CBT ranges for FFDM and DBT ($p = 0.000$). This research reveals that the local DRLs are lower than the national DRLs. FFDM has a much reduced AGD compared to DBT. AGDs of various CBT ranges for FFDM and DBT vary considerably. Stratified DRLs based on CBT ranges and mammographic techniques might aid in the reduction of radiation exposure during mammography.

Keywords: digital breast tomosynthesis; full-field digital mammography; diagnostic reference level; average glandular dose; compressed breast thickness

BS27 i-SIHAT-2022

Relationship between Physical Activity Level and Hemoglobin Level with Physical Fitness and Motivation to Learn of Adolescent at Krapyak Islamic Boarding School Yogyakarta during The Pandemic Covid-19.

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Anemia is the foremost prevalent nutritional insufficiency disorder within the world. It affects all age bunches but the most powerless are adolescent girls group. Severe risks associated with the Covid-19 pandemic are also linked to its indirect consequences in adolescents. A more sedentary lifestyle, a lack of physical fitness, and poor motivation are among them. The study targeted young women in islamic boarding schools, which are conventional institutions with a large population of adolescents. This study was aimed to analyze the relationship between physical activity and hemoglobin levels with physical fitness and motivation to learn of adolescence at Krapyak Islamic Boarding School Yogyakarta during the pandemic Covid-19. This study was analytic observational with a cross-sectional design. Purposive sampling was used to select 162 female students as respondents. Physical activity and motivation to learn were obtained primarily form IPAQ-SF (International Physical Activity Questionnaire) and MSLQ (Motivated Strategies for Learning Questionnaire). Physical fitness and hemoglobin levels data were obtained through direct measurements Harvard Step-Up Test and Blood Test. Data were analyzed with the Chi-Square Test. The results showed that there was significant relationship between physical activity with hemoglobin levels and physical fitness with p value < 0.05. But there was no significant relationship between hemoglobin levels and physical fitness with motivation to learn with p value > 0.05. There was significant correlation between physical activity with hemoglobin levels and physical fitness. But there was no significant correlation between hemoglobin levels and physical fitness with motivation to learn

Keywords: Anemia**,** Physical activity, Fitness, Motivation, Covid-19

BS28 i-SIHAT-2022

The Effect of Hydrolyzed Collagen Concentration on Sensory and Physicochemical Properties of Prebiotic Functional Drink Powder

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The increased community interest in functional food creates opportunities for the development of functional food products that can provide health benefits and are organoleptically acceptable. Fish collagen and prebiotics are food components that have the potential as immunomodulators. However, food products based on fish collagen and prebiotics that aim to increase immunity and health have not been widely developed.This study aims to develop a functional beverage product that contains hydrolyzed fish collagen and prebiotic which are characterized by their sensory and physicochemical properties. The collagen-prebiotic drink powder was formulated in 3 formulas with various concentrations of hydrolyzed collagen 12.5% (formula A), 25% (formula B), and 50% (formula C). The test conducted included analysis of physicochemical properties (pH, viscosity, solubility, and nutritional content), sensory properties tests (clarity and distinctive taste of collagen), and hedonic tests. Based on the organoleptic properties, formula A has the highest intensity of clarity and has the most favorable taste and overall impression. There was no difference in the intensity of the distinctive taste of collagen and the preference for the color, aroma, and viscosity. Based on the physicochemical properties, formula C has the highest pH value and protein content, while formula A has the highest carbohydrate content. There was no difference in viscosity, solubility, water content, and ash content. Formula A (12.5% collagen) has the best organoleptic properties, but formula C (50% collagen) has the highest protein content.

Keywords: Collagen beverages, prebiotic, physicochemical properties, sensory analysis, nutritional content

BS29 i-SIHAT-2022

The Relationship Between Nutrition Intake and Anorexia Status on Cachexia in Head-Neck Cancer Patients During Radiotherapy at RSUP Dr. Sardjito Yogyakarta

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Cachexia is a result of the problems compilation that often coexist with head-neck cancer. The occurrence of anorexia can be the initial stage of chronic decreased food intake which can lead to cachexia. Anorexia can be caused by the treatment, which further increases the risk of losing weight up to 80%. In addition to weight loss, cachexia in cancer is also characterized by loss of skeletal muscle mass. This study amied to observe the relationship of nutrient intake and anorexia status to the incidence of cachexia in head-neck cancer patients during radiotherapy at RSUP Dr. Sardjito, Yogyakarta. This study is an observational study with a nested case control design. The study involved 23 patients who underwent radiotherapy or CCRT for at least 3 weeks. Monitoring of anorexia status using the FAACT-A/CS questionnaire and nutrient intake using a 24-H food recall every once a week, while cachexia status was concluded from changes in body weight, BMI, and SMI in the first and third week. The statistical test used to see the relationship is Chi-Square, while to see the mean score with One Way Anova.**.** There was no significant relationship between anorexia status, energy and protein intake on cachexia status by statistical test. Based on the mean, scores for anorexia, energy intake, and protein intake were lower in the case group than in the control group, even though there was no significant difference in the score. There was no significant relationship between anorexia status, energy and protein intake to cachexia status.

Keywords: Anorexia, Nutrient Intake, Cachexia, Radiotherapy, Head-Neck Cancer.

BS30 i-SIHAT-2022

The Safe Use of Ultrasound: Effectiveness Of An Educational Module In Improving Knowledge, Awareness And Perception Among Pregnant Women

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The harmful effects of prenatal ultrasound on a fetus are controversial. Lack of knowledge and poor understanding of the fundamentals of diagnostic ultrasound makes pregnant women perceive that it is safe for their fetuses. So, the aim was to evaluate the effectiveness of educational modules (video and brochure) in improving knowledge, awareness and perception (KAP) among pregnant women regarding prenatal ultrasound safety. This study is a quasi-experimental study with pre and post-test design. This study recruited 51 pregnant women from the Obstetrics and

Gynaecology clinic of Hospital Canselor Tuanku Muhriz. The study's first phase was carried out by giving closed-ended questionnaires to assess the pregnant women's KAP regarding prenatal ultrasound safety, followed by educational modules where respondents were allocated into three groups (17 watched videos, 17 received brochures, and 17 received combined media). After the intervention, the respondents' KAP was assessed using the same questionnaire. The Wilcoxon signed rank test showed that educational modules had a statistically significant increase in post-test scores than the pre-test scores (video: mean rank=9.00, $p<0.05$), (brochure: mean rank=9.79, $p<0.05$) and (combined media: mean rank= 10.17, $p>0.05$). The Kruskal Wallis test concluded that educational videos were more effective in improving pregnant women's KAP than brochures and combined media (mean rank=34.62, $p<0.05$). Occupation has the strongest positive correlation with the post-test knowledge score in improving pregnant women's KAP regarding the safe use of prenatal ultrasound. Educational video is considered the most effective educational module in improving pregnant women's KAP regarding the safe use of prenatal ultrasound compared to brochures and combined media.

Keywords: Educational module; Prenatal ultrasound safety; Quasi-experimental design, video, brochure

BS31 i-SIHAT-2022

Knee Function and Quality of Life Post Total Knee Arthroplasty: A Mid Term Outcome Review

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Total knee arthroplasty is the common surgery among osteoarthritis patients. This study aimed to determine the knee function and quality of life at mid-term after total knee arthroplasty. There is a lack of local study in this area despite of increasing number of TKA. This was a cross-sectional study conducted at a tertiary hospital. One hundred eighty-two eligible participants who underwent TKA between 2014 and 2018 and matched the inclusion criteria were approached in this study. The tools used were Knee Injury and Osteoarthritis Outcome and the EuroQol-5Dimensions-5Levels Questionnaire. Descriptive and correlation analysis were performed using SPSS 25. Ninety-nine participants with mean (SD) age 71.82 (5.52) years and post TKA duration of 71.69 (12.85) months completed the questionnaire. Out of the 99 participants, 84.9% (n=84) were female and the majority were Malay

(n=62, 62.6%). Participants reported lowest mean score of knee function for sport/recreation domain with mean (SD) 51.57 (14.82). A total of fifty-eight participants (58.6%) reported problems in mobility, usual activity and having pain or discomfort. Significant correlations were found between sociodemographic profile and knee function, and quality of life. The results show that despite many years post-TKA, a substantial number of patients still experience problems in several domains of functionality and their health. This suggests the need for long term post-TKA monitoring and education on self-management by physiotherapists to address this problem to ensure the patients live a good quality of life.

Keywords: total knee arthroplasty, quality of life, physiotherapy, rehabilitation

BS32 i-SIHAT-2022

Weathering Of Gasoline in Tropical Climates (Kesan Luluhawa Petrol Pada Iklim Tropika)

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Arson cases also occur outdoor where temperature and relative humidity affect the weathering of ignitable liquid residue. In this perspective, the study was begin with burnt gasoline sample was subjected to weathering under outdoor conditions. Next, the gasoline was weathered in clay and palm oil soil. 30mL of gasoline was pipetted into the tin can, and the sample was burn in the second part. For the weathering of gasoline in soil, 150g of soil was added into the tin can, and gasoline was poured onto the soil. The sample was left to weather outdoors for Day 1, Day 2, Day 3, and Day 4. The surrounding temperature and relative humidity were recorded during weathering. After the weathering day was achieved, the sample was analysed using the passive headspace extraction method using an activated carbon tablet and gas chromatography-mass spectrometry (GC-MS). The results show increased loss of volatiles organic compounds (VOC) of gasoline across four days in the first part of this study. On Day 4, 18 compounds were detected in palm oil soil while 17 compounds were detected in clay soil for weathering of burnt gasoline in the soil. These findings are significant for crime scene investigators investigating an arson incident outdoor using soil evidence as this study shows changes occurs in chromatographic profile of burnt gasoline during weathering.

Keywords: weathering of gasoline, outdoor condition, temperature, relative humidity, gas chromatography-mass spectrometry, soil

BS33 i-SIHAT-2022

Development of Alternative Patent Fingerprint Using Alcohol Gel and Thermal Paper

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Fingerprints are unique structures made up of a combination of friction ridges and are varied for each individual. Due to the individual characteristics of fingerprints, it is used to identify identity. Traditionally, patent fingerprints are obtained by using an ink pad. With the rise of COVID-19 nowadays, people are required to use hand sanitisers when entering a petrol station. They will use available ATMs to take out or deposit money and purchase an item in the establishment. All these activities will generate a receipt that the user will touch using their fingers. This research aims to study the possibility of obtaining patent fingerprints from these types of thermal receipt paper. Six donors were requested to deposit their fingerprints on different types of thermal paper using different brands of hand sanitisers. Quality scores were given to show the fingerprint quality difference generated using various combination of thermal paper and hand sanitisers. UPLC-PDA analysis was then used to determine the possible components in the sanitisers that could have affected the quality of fingerprints. The result showed that patent fingerprints developed using hand sanitiser and thermal paper were of lower quality than the ink pad method (gold standard). Alcohol-based hand sanitiser which consists of 70% alcohol concentration can produce the best quality fingerprint among the combinations.

Keywords: patent fingerprints, hand sanitisers, thermal paper

BS34 i-SIHAT-2022

Effect of Virtual Reality-Based Therapy on Physical Functions and Quality Of Life in Adolescents with Cerebral Palsy: A Case Study

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Virtual Reality-based Therapy (VRT) is now offering new possibilities in rehabilitation current practices' by providing treatments in a more interactive and enjoyable environment. However, a very limited number of studies reported the effects of VRT in cerebral palsy (CP) population. This case study of 13-year-old adolescent spastic diplegia CP with Gross Motor Function Classification System (GMFCS) Level II who underwent a VRT program; two sessions per week with 60 minutes each session. The VRT consists of functional-game-based tasks including single-leg stance, marching, squatting, kicking and jumping aimed to improve physical function (muscle strength, gross motor function, walking capacity) and quality of life (QoL). Robust outcome measures such as hand-held dynamometer, six-minute walk test (6MWT), Gross Motor Function Measure (GMFM-66) and Pediatric Quality of Life (PedsQL) questionnaire were utilized before and after the program. After 4-week, results showed MK has gained improvement in his left hip extensor strength from 56.9N to 90.3N. The GMFM scores also showed improvement from of 1 point for

both components. His walking capacity getting better with distance increase by 57 metres. Surprisingly, PedsQL total score also showed increment by 25.91%. In addition, MK's mother and his pediatric physical therapist have also reported benefits from the program, stating his balance and posture have improved. This study fills a current void in the literature by providing informative results that VRT improved MK physical function and QoL. Hence, VRT may be taken into consideration while designing treatment plans for patients with CP who can ambulate.

Keywords: Virtual Reality, Exergame, Strength, Gross Motor, Quality of life

BS35 i-SIHAT-2022

Development and Validation of Caregivers Training Home Module for Children with Special Needs: Activities of Daily Living Skills Training

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Children with special needs often face difficulties in performing their daily living activities (ADL) and occupational therapy (OT) treatment is important to improve their ADL performance. However, physical interventions were reduced due to COVID-19. This study aimed to develop and validate a Malay ADL caregiver training home module for children with special needs aged from birth to six years old. The module consists of six ADL domains: i) feeding, ii) dressing and undressing, iii) bathing, iv) toileting, v) toothbrushing and vi) handwashing. Each domain was included ADL introduction, items checklists and interventions. The module was validated by using focus group discussion (FGD), Content Validation Index (CVI), modified kappa statistic (k*) and cognitive interview. Eight expert panels with at least two years experiences in OT paediatric settings were recruited for FGD by using purposive sampling method. The same expert panellists were asked to rate CVI based on relevance, clarity, simplicity and ambiguity on a four-point Likert scale. Four caregivers with at least one child with special needs were recruited for cognitive interview. The module obtained an excellent content validity with excellent interrater agreement among all expert panels which both item-level CVI (I-CVI) and scale-level CVI (S-CVI) scored full (1.00) with full k* value (1.00). Cognitive interview with four caregivers reported that all module items were appropriate, easily understood and helpful with suggestions given in module organization, steps simplification and additional illustrations. The module is valid for the caregivers in conducting ADL training for their children with special needs at home.

Keywords: ADL, guidebook, home, checklist, intervention

BS36 i-SIHAT-2022

IMPACT OF COVID-19 ON QUALITY OF LIFE AMONGST COVID-19 SURVIVORS IN MALAYSIA

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The existence of the COVID-19 persistent symptom (long COVID) was being evidenced that the symptoms had brought a negative impact on the quality of life (QoL) among the COVID-19 survivors. However, there was a paucity of studies that reported the impact of COVID-19 on the respiratory-specific QoL of the COVID-19 survivors in Malaysia and other factors associated. A prospective cross-sectional study of an online survey was conducted to determine the impact of COVID-19 on QoL amongst COVID-19 survivors in Malaysia using the Saint George's Respiratory Questionnaire (SGRQ). A total of 127 participants with a median age of 27 responded to the online survey. Among the COVID-19 survivors, there was a significant reduction in their QoL with the SGRQ total median score of 23.42. Participants who presence of COVID-19 symptoms during infection phase, presence of persistent long COVID symptoms, and had existing health conditions had significantly higher scores on the SGRQ than those without the symptoms and existing health conditions, $p<0.05$. Besides, further multiple regression showed COVID-19 infection stages, presence and duration of persistent long COVID symptoms, existing health conditions and female gender were the significant predictors of low quality of life among COVID-19 survivors. Our findings revealed that COVID-19 survivors had a reduction of QoL, particularly for those with long COVID and this was also being impacted by the factors associated. However, there is a need for an early physiotherapy intervention of pulmonary rehabilitation to alleviate the persistent symptoms and improve the quality of life amongst COVID-19 survivors in Malaysia.

Keywords: Long COVID, quality of life, persistent symptom, Saint George's Respiratory Questionnaire (SGRQ), Malaysia


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