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Kaos J. 40°C threshold for 'heatwave emergency' Kuala Lumpur: The Star Malaysia; [updated 18 March 2016, cited March 2016]. Available from: <http://www.thestar.com.my/news/nation/2016/03/18/heatwave-emergency-threshold/>.

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Clinical Evidence for the Use of *Lactobacillus reuteri*

Chai PF

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ABSTRACT

The human gastrointestinal tract is home to 100 trillion microbes from around 1200 species of bacteria. This microbial community is collectively known as the intestinal microbiota or gut flora. A healthy microbiota is made up of 85% commensal bacteria and 15% pathogenic bacteria. When this balance is disturbed, gastrointestinal problems may occur. Probiotics are live microorganisms, such as yeasts and bacteria, that confer health benefits to the host when consumed in sufficient amounts. *Lactobacillus reuteri* is a naturally-occurring commensal probiotic derived from human breast milk. It is one of the most abundant indigenous species to reside in the human gastrointestinal tract, and can be found in the stomach and small intestines. It is also naturally present in a variety of food, such as meats, dairy and fermented products. *Lactobacillus reuteri* DSM 17938 is a specific probiotic strain isolated from breast milk. This strain has been shown to possess anti-inflammatory properties, and can be safely consumed at 10⁸ colony-forming units (CFU) or 100 million bacteria cells per day without complications. There is growing evidence that *Lactobacillus reuteri* DSM 17938 is effective for the prevention and treatment of various gastrointestinal problems in children, such as infantile colic, constipation, regurgitation, acute diarrhea and necrotising enterocolitis in preterm infants. Extensive studies on *Lactobacillus reuteri* DSM 17938 have demonstrated its potential benefits for the prevention and treatment of infantile colic and managing the functional constipation among children by increasing the frequency of daily bowel movements as well as in improving bowel consistency and hence, reduced abdominal pain and flatulence. Studies show that *Lactobacillus reuteri* DSM 17938 can be safely consumed by infants and children at a dose of 10⁸ CFU daily. *Lactobacillus reuteri* DSM 17938 is well-tolerated and is not associated with any side effects.

KEY WORDS:

Lactobacillus reuteri DSM17938, infantile colic, functional constipation

Key Nutrients for Growth and Cognitive Development in Children

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ABSTRACT

Malnutrition in children is a major public health problem that contributes to the global burden of disease. Serious nutrition deprivation during infancy not only leads to poor physical growth but also adversely affects the development of cognitive, motor and socio-emotional skills throughout childhood. Several nutrients are responsible for optimal growth and normal neurodevelopment in children. Focus of this presentation will be on iron, iodine, zinc, calcium and vitamin D. Iron deficiency is the most common micronutrient deficiency globally, affecting more than 30% of the world's population. Iron is critical for optimal growth and iron deficiency in early childhood is linked to multiple neuro impairment including poor cognitive function, motor skills and attention problems. Iodine is primarily involved in the synthesis of thyroid hormone, which is essential for regulation of growth and development. Severe iodine deficiency leads to a spectrum of disorders including cretinism and impaired mental function. In being an essential mineral in the activity of over 200 enzymes, zinc is required for normal growth and protection against infections. Available evidence however does not support zinc supplementation in improving cognitive development. The importance for growth of calcium and vitamin D is well established. While calcium is needed primarily for the formation and maintenance of the structure and rigidity of the skeleton, vitamin D provides a supporting role by maintaining serum calcium and phosphorus levels for bone mineralisation and other major metabolic functions. Through their roles in the growth of the skeleton, both calcium and vitamin D are essential during childhood and adolescence. Implications of dietary intake recommendations and consumption status of these key nutrients will be discussed.

KEY WORDS:

Nutrients, Growth, Mental Development, Children

The Importance of Sleep for Children

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ABSTRACT

Circadian rhythms, or the sleep-wake cycle, are regulated by light and dark. There are two alternating types or states of sleep; **Non-Rapid Eye Movement (NREM)** or "quiet" sleep and **Rapid Eye Movement (REM)** or "active" sleep. During the deep states of NREM sleep, blood supply to the muscles is increased, energy is restored, tissue growth and repair occur, and important hormones are released for growth and development. During REM sleep, the brain is active and dreaming occurs, bodies become immobile, breathing and heart rates are irregular. Sleep is especially important for children as it directly impacts mental and physical development. Children and teens who are sleep deficient may have problems getting along with others. They may feel angry and impulsive, have mood swings, feel sad or depressed, or lack motivation. They also may have problems paying attention, and they may get lower grades and feel stressed. Sleep deficiency also increases the risk of obesity. Sleep helps maintain a healthy balance of the hormones that make one feel hungry (ghrelin) or full (leptin). When a child does not get enough sleep, the level of ghrelin goes up and level of leptin goes down. This makes the child feel hungrier, craves higher-fat or higher-carb foods when they're tired. Sleep also affects how the body reacts to insulin, the hormone that controls blood glucose (sugar) level. Sleep deficiency results in a higher than normal blood sugar level, which may increase the risk for diabetes. Sleep also promotes healthy growth and development. Deep sleep triggers the body to release the hormone that promotes normal growth in children and teens. This hormone also boosts muscle mass and helps repair cells and tissues in children, teens, and adults. Sleep also plays a role in puberty and fertility. During sleep, children also produce proteins known as cytokines, which the body relies on to fight infection, illness, and stress. Too little sleep appears to impact the number of cytokines on hand. Studies of teens have found that reported bouts of illness declined with longer nightly sleep. Making sure families get enough sleep isn't easy, especially with parents working longer hours, more elaborate after-school activities, bedrooms full of cool electronics, and the pressure to pack more into every day. And unless we make an effort to get that sleep time back, their health will suffer.

Individualized Fortification of Preterm Expressed Breast Milk: Randomized Control Trial

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ABSTRACT

Introduction: Supplementing breast milk with fortification is utmost important strategy to improve postnatal growth in preterm infants. We aimed to compare differences in the growth of very low birth weight preterm infants receiving individualized (IF) or standardized fortification (SF) of expressed breast milk (EBM) feeds in NICU. **Methods:** Preterm infants of <34 weeks' gestation and birth weight <1500g who were fed with EBM (120mL/kg/day) were recruited and randomly assigned into IF or SF group. All infants received human milk fortifier (HMF). We targeted protein intake of 4.5g/kg/d in the IF group using additional whey protein concentrate as guided by the measured protein content of breast milk using a bedside milk analyzer. **Results:** Total of 37 infants were compiled (IF n=19; SF n=18). The IF compared to SF infants had lower mean birth weight [1047(267) vs 1211(22)3g]. There were no significant differences in the rate of weight gain [IF, 22.4(4.5) vs SF, 20.3(3.9)g/kg/d; p=0.135] or length growth [IF, 1.66(0.68) vs SF, 1.43(0.54)mm/day; p=0.272] between groups. However, infants <30 weeks gestation had significantly more rapid mean head circumference growth [IF, 1.27(0.33) vs SF, 0.91(0.3)mm/day, p=0.017], weight gain [IF, 23.4(4.6) vs SF, 18.9(4.8)g/kg/d, p=0.039] and length gain [IF, 1.79(0.7) vs SF, 1.22(0.44)mm/day, p=0.042]. Blood urea levels were within normal limits. No feeding intolerance or NEC was observed. **Conclusion:** Preterm infants of lower mean birth weight showed a trend towards better growth when fed with human milk of greater protein content. The higher protein resulted in more rapid postnatal growth in the more severe preterm.

KEY WORDS:

Fortification, breast milk, protein

Y1: Effect of Digital Memory Album on the Quality of Life of People with Dementia

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ABSTRACT

Introduction: The use of information and communication technologies for the deliverance of reminiscence work in improving the psychosocial well-being of people with dementia (PWD) begins to show its potential venues. **Methods:** This study aimed to evaluate the quality of life of PWD through a randomised controlled trial using a digital memory album (DMA) as interface. 20 PWD living in community were randomly allocated to DMA (n=10) and control group (n=10). The DMA group received 8 sessions of life review process for 8 consecutive weeks resulted in the production of personalized DMA whereby the control group received care as usual. Quality of Life-Alzheimer's Disease (QoL-AD) questionnaire was used as an outcome measure at baseline (T0), post intervention (T1) and 6 weeks (T2) follow up assessment stages. **Results:** QoL-AD was significantly different between the 2 groups ((time x group interaction $F(1.37; 24.59)=21.72, p<0.001$)). The DMA group showed a significant increase of mean different score at both post intervention ($3.40\pm 4.17, p=0.03$) and 6 weeks follow up ($1.40\pm 1.78, p=0.034$) whereas the control group mean score was significantly lower after 8 weeks of care as usual ($3.40\pm 2.55, p=0.002$). **Conclusion:** The use of DMA in reminiscence work could be an effective psychosocial approach in improving the quality of life of PWD living in community.

Y2: Association between Total Protein Concentration (TPC) and Tumour Necrosis Factor (TNF-alpha) in Nonproliferative Diabetic Retinopathy (NPDR) Tears

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ABSTRACT

Introduction: Previous works have shown changes in tear protein concentration in diabetic patients. However, minimal data is available for Asian diabetics. This study was carried out to compare and investigate the changes of total protein concentration (TPC) and tumour necrosis factor alpha (TNF-alpha) concentration in tears of non-proliferative diabetic retinopathy (NPDR) patients. **Methods:** A total of 15 subjects from each group; (i)normal, (ii)diabetes without retinopathy, (iii)mild NPDR, (iv)moderate NPDR, (v)severe NPDR were screened (to exclude subjects with dry eye) using McMonnies questionnaire. Visual acuity (VA) was measured using LogMar chart. Tears quality and quantity were evaluated clinically using tear break up time test (TBUT) and phenol red thread test (PRT). Basal tears were collected using 20uL glass capillary tube and being stored at -80°C fridge. TPC and TNF-alpha concentration were determined using Bradford assay and Enzyme Link-Immunesorbent assay (ELISA) respectively. **Results:** All subject (n=75) with mean age of 57.88 ± 4.71 years old scored equally in their McMonnies questionnaire ($P=0.898$). VA was significantly worsening at severe stage of NPDR ($p<0.01$). Tears quality dropped primarily at moderate NPDR ($p<0.05$) and severe NPDR ($p<0.01$). Tears quantity reduced along the severity of NPDR mainly at severe stage ($p<0.05$). As TPC decreased throughout the NPDR stages, tears TNF-alpha significantly increased mainly at moderate and severe ($p<0.01$). Significant correlations were seen between tears quantity and TPC ($r=0.237, p<0.05$) and TNF-alpha concentration ($r=-0.384, p<0.01$). **Conclusion:** TPC and TNF-alpha concentration change with the progression of retinopathy and might be crucial in assisting early detection or anticipating advanced stage of retinopathy.

Y3: Monocular and Binocular Visual Acuity Changes with Luminance-modulated and Contrast-modulated Letters in Visually Normal Eyes throughout Adulthood

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ABSTRACT

Introduction: Evidence that human visual performance declines with normal ageing abounds. However, age-related visual acuity (VA) changes with contrast-modulated stimuli still remain unclear. This study was conducted to evaluate the effect of healthy ageing on visual acuity using luminance-modulated (LM) and contrast-modulated (CM) letter stimuli. **Methods:** We measured VA with LM and CM letter stimuli monocularly and binocularly in healthy and visually normal adults aged between 21 to 70 years old. **Results:** VA with LM letters was better than that with CM letters ($p < 0.05$). There was a significant decrease in VA with ageing for both stimulus types ($p < 0.05$). Throughout adulthood, binocular VA was better than monocular VA ($p < 0.05$) and binocular summation ratio for CM letters was significantly higher than that for LM letters ($p < 0.05$). Piecewise models showed that VA with LM letters (monocular and binocular) improved (logMAR vs age slope of ~ -0.013) until the age of 35 ± 0.90 , followed by a decline (slope of ~ 0.009) with increasing age. A similar trend is observed for monocularly viewed CM letters. However, for binocularly viewed CM letters, the best VA was obtained in our youngest age group up to age of 37 ± 5.88 followed by a decline with increasing age. **Conclusion:** A young binocular visual system may give advantage for resolving CM letters over LM letters and older age. VA measurements with contrast-modulated stimuli might be useful to detect subtle binocular anomalies which would be missed if measured with luminance-modulated stimuli.

Y4: Time-Kill and Scanning Electron Microscope Studies of Pterostilbene against Human Pathogens

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ABSTRACT

Introduction: Pterostilbene is an analogue to resveratrol which is found in blueberries and grapes. The antibacterial activity of pterostilbene in combination with gentamicin against six strains of Gram-positive and Gram-negative bacteria were investigated. **Methods:** The minimum inhibitory concentration of pterostilbene were determined using microdilution technique whereas the antibacterial activities of pterostilbene in combination with gentamicin were assessed using time-kill kinetic study. Scanning electron microscopy (SEM) was used to study the morphological alteration of the bacteria cells treated by pterostilbene. **Results:** Results of the present study showed that pterostilbene exhibited inhibitory effects against three bacteria strains as followed: *Staphylococcus aureus* ATCC 25923, *Escherichia coli* O157 and *Pseudomonas aeruginosa* 15442. The time-kill study showed that combination effects of pterostilbene with gentamicin was indifference which did not significantly differ from the gentamicin treatment. Furthermore, time-kill study also showed that the growth of bacteria was completely attenuated within 24 hours treatment with $0.5 \times \text{MIC}$ of pterostilbene and gentamicin. The SEM results confirmed that the pterostilbene-treated *S. aureus* and *E. coli* cells were damaged, showing formation of pores and blebs in the cell wall of the bacteria, while significant changes in cell shape were observed in *S. aureus*. **Conclusion:** The identified antibacterial effects could be of effective therapeutic value against bacterial infections.

Y5: Risk of Criteria Air Pollutants on Cardiovascular and Respiratory Diseases from Hospital Admission and Emergency Room Visits at University Hospital in Kuala Lumpur

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ABSTRACT

Introduction: Numerous studies have shown the association between outdoor air pollution and mortality, as well as hospital admissions and emergency visits for respiratory illness and also cardiovascular diseases. **Methods:** This study was conducted to determine the associations and risk estimates of daily variations of air pollutants in the Kuala Lumpur area with cardiovascular and respiratory cases from both hospital admissions and emergency room visits at University Hospital in Kuala Lumpur. Data on daily hospital admissions (2010-2014), and emergency room visits (2013) were obtained. Daily mean concentrations of air pollutants of particulate matter less than 10 $\mu\text{g}/\text{m}^3$ (PM₁₀), sulfur dioxide (SO₂), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and daily observations of meteorological conditions were obtained from Malaysian Department of Environment. We examined the associations between daily level pollutants and daily hospital admissions and emergency room visits of cardiovascular and respiratory using time series analysis of Poisson regression while controlling for time trends, meteorological factors and holiday indicator. Effects for every 10 $\mu\text{g}/\text{m}^3$ increase in pollutants were reported as Relative Risk (RR) on current-day (lag 0) exposure to previous five days (lag 5). **Results:** The highest association among all was from respiratory admission with SO₂ at lag 4 (RR = 1.123113, 95% CI = 1.045253-1.206772), followed by cardiovascular admission with NO₂ at lag 5 (RR = 1.025222, 95% CI = 1.004689-1.046174), NO₂ at lag 0 (RR = 1.022244, 95% CI = 1.000757-1.044192) and O₃ 8hour at immediate effect lag 0 (RR = 1.020816, 95% CI = 1.006672-1.035159). The highest association with respiratory emergency was with PM₁₀ at lag 0 (RR = 1.012778, 95% CI = 1.003016-1.022635) while cardiovascular emergency recorded the highest with CO at lag 1 (RR = 0.997912, 95% CI = 0.996051-0.999776). **Conclusion:** Significant associations were found with all cardiovascular and respiratory admissions in the single-pollutant model for all the pollutants. Gaseous pollutants showed higher risk in both cardiovascular and respiratory admissions while PM₁₀ showed higher risk in respiratory emergency. Both immediate and delay effects were also found in both hospital admissions and emergency visits for cardiovascular and respiratory diseases associated with all pollutants.

Y6: Antibacterial Activity of Methicillin-Resistant *Staphylococcus Aureus* (MRSA) Treated with Acetone Extract from *Canarium odontophyllum* (Dabai) Leaves

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ABSTRACT

Introduction: Methicillin-resistant *Staphylococcus aureus* (MRSA) infection is a major nosocomial infection that has emerged as community-acquired MRSA worldwide. The resistance and limitation of present antibiotic lead to research on natural product as novel target for MRSA treatment. *Canarium odontophyllum* (CO) Miq. locally known as dabai has been considered as an alternative phytotherapeutic treatment against MRSA. **Methods:** The aim of this study is to optimize protein concentration of MRSA Mu50 treated with acetone extract from *C. odontophyllum* for protein expression profile (PEP). The concentration and duration for treatment is determine using minimum inhibitory concentration (MIC) and time-kill assay (TKA) by broth microdilution and drop plate method. Sonicator were used to obtain protein extracts from MRSA cells and protein were separated by SDS-PAGE. **Results:** The MIC value of acetone extract from *C. odontophyllum* against MRSA Mu50 was 0.3125 mg/ml. TKA showed that extract of *C. odontophyllum* exhibit dose-dependent manner with bacteriostatic action at 1/2x MIC, 1x MIC, 2x MIC and 4x MIC against MRSA. Subinhibitory concentration at 8 hour of 1/2x MIC were optimum condition for protein extraction treatment. SDS-PAGE map of MRSA treated with extract exhibited different protein expression pattern compared to untreated. The optimum MRSA protein concentration that produced the best resolution using silver staining was 300 $\mu\text{g}/\text{ml}$. Moderate and low molecular weight protein were dominant in protein banding pattern of MRSA treated with extract. **Conclusion:** Acetone extract from *C. odontophyllum* is a bacteriostatic agent that target MRSA cell protein patterns.

H1: Evidence for the Use of Ayurvedic Herbs for the Management of Diabetic Retinopathy

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ABSTRACT

Introduction: Diabetes mellitus is a chronic disease that afflict millions around the world and is associated with a range of co-morbidities and complications. One of the most common microvascular complication is diabetic retinopathy. Ayurvedic herbal medicine offers several treatments for diabetic retinopathy. We examined studies conducted on the efficacy of these herbal treatments in the management diabetic retinopathy. **Methods:** PubMed, SpringerLink, Google Scholar, ScienceDirect and Cochrane databases were searched. References of key articles were also hand searched. The articles were retrieved and those that fulfilled the inclusion criteria were examined. **Results:** In-vitro studies documented several herbs that may be capable of halting the progression of diabetic retinopathy. The presence of dilated vessels and laser spots reversed following treatment with *Azadirachta indica* extract in diabetic rat models. *Tinospora cordifolia* extract prevented the increase of TNF- α and IL-1 β and reduced levels of VEGF and PKC. In addition, *Boswellia serrata* may be useful for management of retinopathy as it reduced neovascularization in the retina and reduced VEGF expression. Clinical trials of Ayurvedic formulations, though mostly short term, have also demonstrated success. These formulations have been shown to be effective in inhibiting micro-aneurysm, reducing haemorrhages and retinal oedema. **Conclusion:** Findings suggest that Ayurvedic herbs may be useful in halting and reversing diabetic retinopathy. Long term and large scale clinical studies are required to provide conclusive evidence. Nevertheless, there is remarkable potential for the application of Ayurveda for the treatment of diabetic retinopathy.

KEY WORDS:

Azadirachta indica, diabetic retinopathy, Ayurveda, diabetes, herbs

H2: Protective Effects of Kelulut Honey on Genome Integrity of WIL2- NS Cell

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ABSTRACT

Introduction: Kelulut honey contained high antioxidant content and may prevent the cells from oxidative stress and DNA damage. **Methods:** Kelulut honey sample from two different location (MARDI - KHM and Tampoi, Kedah) were tested for antioxidant content and capacity, using DPPH assay, FRAP assay and total phenolic content. The ability of honey to protect the human lymphoblastoid (WIL2- NS) cell line from hydrogen peroxide- induced DNA damage was also investigated via MTT assay and Alkaline Comet assay. **Results:** Total phenolic content varied between two sample of honey which is 15.38 + 0.1709 mg GAE/ 100g of raw honey from KHM and 11.41 + 0.2062 mg GAE/ 100g of raw honey from Kedah. Meanwhile the radical scavenging activity of honey is 53.53% for KHM and 57.6% for Kedah in the DPPH reaction system ($p < 0.0001$). For FRAP assay, honey from KHM give a higher value which is (73.4 + 1.75) mmol Fe²⁺/per 100g honey compared with honey from Kedah which is (50.72 + 2.18) mmol Fe²⁺/per 100g honey ($p < 0.0001$). Both sample of honey and at the concentration 0.2% v/v ($p < 0.0001$) gave an optimal protection from hydrogen peroxide- induced cytotoxicity and the highest protection was observed at 0.8% v/v ($p < 0.0001$). Furthermore, result for Alkaline Comet assay for KHM showed shorter tail moment and lower tail intensity (TM- 0.582 + 0.12; TI- 4.667 + 0.98) compared to Kedah (TM- 2.328 + 0.27; TI- 11.470 + 2.05) as compared to positive control (TM- 41.62 + 12.92; TI- 46.00 + 5.766), respectively. **Conclusion:** Both sample of honey showed the presence of antioxidant capacity and can prevent the cell from oxidative stress and DNA damage towards WIL2- NS cells.

KEY WORDS:

Kelulut honey, DNA damage, hydrogen peroxide, antioxidant

H3: Physical and Chemical Characteristics of Kelulut (Trigona Spp.) Honey from Different Regions of Peninsular Malaysia

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ABSTRACT

Introduction: Kelulut honey (KH) is a unique honey from stingless bee *Trigona* spp. *Trigona* is the largest genus of stingless bee and they store their honey in small resin pots near the extremities of their hives. **Methods:** This study aimed to determine the physical and chemical characteristics of KH collected from centre, north and east coast regions of Peninsular Malaysia. The physical properties comprised of moisture content, pH, and colour intensity. A series of chemical analyses namely total sugar, proline content, ascorbic acid content, total phenolic content (TPC), total flavonoid content (TFC), DPPH radical scavenging assay and ferric reducing antioxidant antioxidant power (FRAP) assay were performed on KH. **Results:** KH from the three regions contained 21.40-31.59% moisture content, pH in the range of 3.29-3.71, and with colour intensity of 1029.00-2103.17 mAU. KH from different regions of Peninsular Malaysia contained 67-74% of total sugar content. KH from center region of Peninsular Malaysia has the highest proline (29.19±0.35 g/kg) and ascorbic acid (10.43±1.27 g/kg) content. TPC (1169.36±51.11 mg GAE/kg) and TFC (79.13±0.49 mg QE/kg) were highest in KH from east coast region of Peninsular Malaysia. The latter also has the strongest antioxidant activities indicated through the highest FRAP value (7477.03 µM Fe (II)/kg) and the lowest IC50 (15.07±1.05 mg/mL) in DPPH radical scavenging activity. **Conclusion:** The physical and chemical characteristics of KH were varied which may due to nectar that was collected from different floral origin. This study provides some fundamental data related to KH can be used as reference for future research work.

KEY WORDS:

Kelulut; Trigona; physical; chemical; characteristic

H4: Bullying and Truancy: Predictors to Sexual Practices among School-going Adolescents in Malaysia

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ABSTRACT

Introduction: Adolescents' involvement in sexual activities are becoming a major public health concern in Malaysia. This study aims to determine the prevalence of sexual practices among Malaysian school adolescents and its predictive factors. **Methods:** A cross sectional study was carried out from April 2012 till September 2012 among 16 years old school adolescents from two different schools. They were selected through simple random sampling and these adolescents answered a self-administered questionnaire consisting of three sections i.e. socio-demography, negative behaviors and family-adolescents relationship. Data were analyzed using Pearson Chi Square test while Simple Logistic Regression and Multiple Logistic Regression were applied to determine the predictive factors. **Results:** The prevalence of sexual practices was 30.1% in which they were either involved in pornography (26.8%), pre-sexual activities (8.5%) or pre-marital sex (2.9%). Six predictive factors were identified which were male (aOR 2.7, CI 1.4- 2.5), truancy (aOR 2.3, CI 1.3-4.2), bully (aOR 3.5, CI 1.7-7.3), hanging out (aOR 2.8, 1.4-5.6), staying out late (aOR 3.2, CI 1.5-6.8) and conflict with family (aOR 4.1, CI 1.9-8.9). **Conclusion:** This study identifies that boys, adolescents involved in truancy and bullying, hanging out behavior, staying out late and conflict with family were factors that predict sexual practices among adolescent. These findings may create an avenue for planning prevention and intervention programmes for these targeted age group. Outcome of this study suggest on identification of group of adolescents with modifiable risk and protective factors in relation to sexual practices among them. Asian background differs from the western countries and this study would be suitable in creating prevention and intervention programme among Asian adolescents.

KEY WORDS:

Adolescents, sexual practices, pre-marital sex, negative behaviors

H5: Assessing the Sustained Impact of a School-based Obesity Intervention: Juara Sihat™

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ABSTRACT

Introduction: Obesity epidemic and physical inactivity among school children are the most challenging health problems in developing countries. The present study aimed to evaluate the sustained impact of Juara Sihat™ intervention on physical activity level and anthropometric status at 15-month follow-up. **Methods:** Quasi-experimental trial with participants (n=55) aged 12-14 years were followed-up from a primary school. This intervention focused on four key components, i) five one-hour nutrition education classes, ii) four one-hour physical activity education sessions, iii) family involvement, and iv) empowerment of Parents' and Teachers' Association. Anthropometric variables (body mass index, body fat percentage and waist circumference) were measured and physical activity level was evaluated by using Physical Activity Questionnaire for Children (PAQ-C) at baseline (P0), post intervention 1 (P1), post intervention 2 (P2), and post intervention 3 (P3) at 15 months. Analyses of repeated measure ANOVA with intention-to-treat principle were applied. **Results:** There were no significant differences in BMI z-score, body fat percentage and waist circumference at P3 follow-up. Sustained effects were found in BMI z-score (2.27±0.81) and body fat percentage (33.69±8.47), which showed a reduction at P3 follow-up, but no changes in waist circumference. In terms of physical activity level, there were positive improvements at P1 (2.89±0.62) and P2 (3.14±0.68), but was not sustained at P3 follow-up (2.87±0.76), with significant decrease in physical activity level ($p<0.05$). **Conclusion:** This study successfully demonstrated sustained intervention effects on BMI z-score and body fat percentage, but not waist circumference and physical activity level at P3 follow-up.

KEY WORDS:

School-based; obesity; anthropometry; physical activity; sustainability

H6: Association between Oral Health Conditions, Oral Health-Related Quality of Life and Nutritional Status among Older Adults

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ABSTRACT

Introduction: Oral health plays an important role in nutritional intake of older people. **Method:** This study was to determine the association between oral health conditions, oral health-related quality of life (OHRQoL) and nutritional status among a group of older adults in Kuala Pilah, Negeri Sembilan. A cross-sectional study was carried out on 428 older adults aged 50 years and above in Kuala Pilah, Negeri Sembilan. Dental conditions were determined through oral assessment, followed by physical examination to measure height, weight and body mass index (BMI) of respondents. A validated Malay version of Geriatric Oral Health Assessment Index (GOHAI) was used to measure OHRQoL, with higher scores indicating better perception on oral health. **Results:** Majority of the respondents were overweight and obese, 40.4% and 19.9% respectively, while only a small proportion was underweight, 3.9%. The oral health conditions of the older adults were poor with more than three-quarter (77.1%) had less than 20 teeth, 86.0% had reduced occluding posterior teeth and very high prevalence of dental caries and periodontal disease. The median GOHAI score was 54.5 (IQR 50-57) with 74.2% had poor perception on oral health. The findings showed that older adults with unsatisfactory BMI were more likely to have reduced number of posterior occluding pairs of teeth (OR=4.55, 95% CI=1.30-13.82) and poor perception of oral health (OR=2.11, 95% CI=1.26-3.41). **Conclusion:** It is important to advocate on healthy functioning dentition into old age as it may help to maintain a satisfactory BMI as well as improving the quality of life of the vulnerable group.

KEY WORDS:

Body mass index, elderly, GOHAI, oral health

H7: Morphology of Corneal Endothelial Cells during Soft Contact Lens Wear

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ABSTRACT

Introduction: This study investigated changes in corneal endothelial cell morphology after 6 months of wearing soft hydrogel contact lenses. **Methods:** A total of 48 neophyte's young myopic adults were included in the study. Twenty four of them were fitted with soft hydrogel contact lenses (group A) and another 24 were prescribed with glasses (Group B). Corneal endothelial cell morphology was evaluated using specular microscope. Data was collected at baseline and after 6 months of lens wear. **Results:** Mean corneal endothelial cell density (cell/mm²) for Group A was 3104.19 ± 237.30 and 3107.23 ± 237.51 at baseline and at 6 months respectively; ($p=0.065$), for Group B was 3011.56 ± 227.95 and 2983.83 ± 244.55 ; at baseline and at 6 months respectively ($p=0.33$). Coefficient of variant cell (%) for group A was 46.52 ± 8.63 and 48.53 ± 10.65 ($p=0.064$) and for group B was 46.93 ± 9.31 and 46.14 ± 10.65 at baseline and after 6 months respectively, ($p=0.88$). Corneal thickness (μm) for group A was 520.33 ± 0.04 at baseline and 525.7 ± 0.05 at 6 months; ($p=0.4$), for group B: $532 \pm 0.04 \mu\text{m}$ at baseline and $530 \pm 0.05 \mu\text{m}$ at 6 months; ($p=0.4$). There were no significant changes in all parameters measured between both groups at 6 months. **Conclusion:** This study found that wearing soft hydrogel contact lens for 6 months does not have an impact on the morphology of the corneal endothelial cells. Patient compliance is essential to ensure such results.

KEY WORDS:

Endothelial cell, contact lens, myopia, corneal thickness, myopia

H8: The Predicting Roles of Reasons for Living and Social Support on Depression, Anxiety and Stress among Young People in Malaysia

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ABSTRACT

Introduction: This research examined the predicting roles of reasons for living and social support on depression, anxiety and stress in Malaysia. **Methods:** This research was carried out on a sample of 263 participants (age range 12-24 years old), from Klang Valley, Selangor. The survey package comprises demographic information, measure of reasons for living, social support, depression, anxiety and stress. To analyse the data, correlation analysis and a series of linear multiple regression analysis were carried out. **Results:** Findings showed that there were low negative relationships between all subdomains and total score of reasons for living and depression. There were also low negative relationships between domain-specific of social support (family and friends) and total social support, and depression. In terms of family alliance, self-acceptance and total score of reasons for living, they were negatively associated with anxiety, whereas family social support was negatively associated with stress. The linear regression analysis showed that only future optimism and family social support found to be the significant predictors for depression. Family alliance and total reasons for living were significantly predicting anxiety, whereas family social support was significantly predicting stress. **Conclusion:** These findings have the potential to promote awareness related to depression, anxiety, and stress among youth in Malaysia.

H9: Ethnic Differences in Body Composition among Primary School Children in Kuala Lumpur

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ABSTRACT

Introduction: Ethnicity influence body fatness in both adults and children. However, most studies examined body composition using either anthropometry or bioimpedance techniques. This study aimed to identify ethnic differences in body composition among primary schoolchildren in Kuala Lumpur using deuterium dilution technique (D₂O). **Methods:** A total of 243 children (78 Malays; 80 Chinese; 85 Indian) aged 7-10 years were recruited from ten schools in Kuala Lumpur. Body weight and height were measured and body mass index (BMI) was calculated. Each child was given a dose of D₂O according to body weight (0.3g/kg). Percentage of body fat (%BF), total body water (TBW) and fat-free-mass (FFM) were assessed by D₂O technique. **Results:** Subjects were on average aged 9.0 ± 1.1 years, mean weight 30.1 ± 9.5 kg, height 131.4 ± 9.0 cm with BMI 17.1 ± 3.7 kg/m². Mean values for %BF was 32.0 ± 8.0 , TBW was 15.3 ± 3.3 kg and FFM 19.9 ± 4.4 kg. Results showed that %BF are found to be significantly higher in Indian compared to Malay and Chinese children ($p < 0.05$). Chinese children had significantly ($p < 0.05$) lower FFM (18.9 ± 4.5 kg) compared to Malay (20.5 ± 5.0 kg) and Indian (21.8 ± 5.7 kg) children. **Conclusion:** This study showed that Indian children had higher body fat compared to the other two ethnicities. The differences in body composition among different ethnicities indicate the need to consider ethnic-specific strategies in order to improve nutritional status of primary schoolchildren in Kuala Lumpur.

KEY WORDS:

Ethnicity, body composition, deuterium dilution

D1: fMRI Study of Emotion in a Patients with Moderate Traumatic Brain Injury: A Preliminary Study

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ABSTRACT

Introduction: Traumatic brain injury (TBI) can lead to impairment in cognitive, physical and emotional functioning. In this preliminary study, we used functional magnetic resonance imaging to determine differences in brain responses to cognitive emotion between study participants with moderate TBI (mTBI) and healthy controls. **Method:** Seven right-handed Malay males (5 controls and 2mTBI) were recruited. fMRI images were obtained using a 3.0-T scanner (Achieva, Philips, Netherlands) in a block paradigm during 4 emotions (sadness, fear, calmness and happiness). Data were pre-processed and analyzed using MATLAB 9.1 R2014a and Statistical Parametric Mapping 12. To detect brain activation, fixed-effects analyses were performed separately for mTBI and controls. With the threshold set at the family wise error (FWE), $\alpha = 0.001$ in multiple comparisons, and activation areas were identified using WFU PickAtlas. **Results:** Results show that mTBI results in fewer activated voxels under all conditions. Activated areas that were common under all conditions in both groups were at the bilateral middle occipital lobe, inferior occipital lobe, lingual gyrus, middle temporal gyrus, inferior temporal gyrus, and fusiform gyrus. The cuneus and hippocampus were evoked in controls but not in those with mTBI under all conditions. In calmness and in fear, the insula was activated in control participants only. The amygdala was activated only in fear in the controls but not those with mTBI. **Conclusion:** Functional activation patterns are different in those with mTBI compared to controls. These results can provide a better understanding of emotion-related issues with TBI.

KEY WORDS:

Emotion, fMRI, traumatic brain injury

D2: Assessing the Spatial Dose Correlates for Acute Dysuria following Prostate Radiotherapy using Dose-surface Maps of the Bladder

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ABSTRACT

Introduction: Dose-surface histograms have an obvious limitation; it has no spatial information. One alternative is the dose-surface maps which visualise the spatial dose distribution. In this study, we assessed the spatial dose correlates using dose-surface maps with the risk of acute dysuria. **Methods:** The bladder dose-surface maps of 754 participants from the RADAR prostate radiotherapy trial generated from the volumetric data by virtually cutting the bladder at the sagittal slice intersecting the bladder centre-of-mass through to bladder posterior and projecting the dose information on a two-dimensional plane. Acute dysuria was assessed at the end of treatment. Pixel-wise dose comparisons between patients with and without acute dysuria were performed adjusting for baseline dysuria. **Results:** 391 patients had at least Grade 1 dysuria. Fig. 1 shows the dose for patients without (A) and with (B) acute dysuria with markedly larger 70 Gy line for patients with dysuria. The associations of the spatially-specific dose measures to dysuria were found to be inhomogeneous across bladder surface (Fig 2). Posterior-inferior surface of the bladder were found to have the strongest relationship to the incidence of acute dysuria with the strongest relationship at 11mm from the base of the bladder (odds ratio of 1.32/10 Gy increase of dose, $p=0.002$). **Conclusions:** Spatially variable response of bladder surface to dose was found for acute dysuria. Pathophysiology of treatment-related dysfunctions can be potentially studied with the aid of the spatially-specific dose-surface map of the bladder.

KEY WORDS:

Radiotherapy; bladder toxicity; dose-surface maps; toxicity prediction

D3: Ambient Air Pollution with Daily Cardiovascular and Respiratory Admissions in Klang Valley

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ABSTRACT

Introduction: The link between daily variations of air pollution level and hospital admissions due to respiratory and cardiovascular diseases is well established in temperate countries. However, more studies are essential to explore the effects of pollutants on population health in tropical climate. **Objective:** The objectives of the study were to determine the associations and risk estimates of daily variations of air pollutants in the Klang Valley, Malaysia with cardiovascular and respiratory admissions. **Methodology:** Data on daily hospital admissions for Klang Valley (2008-2010), were obtained from Health Informatics Center, MOH. Daily mean concentrations of air pollutants of particulate matter less than 10 μ g/m³ (PM₁₀), sulfur dioxide (SO₂), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), were obtained from Malaysian Department of Environment while the daily observations of meteorological conditions were from Malaysian Meteorological Department. We examined the associations between daily level pollutants and daily hospital admissions of cardiovascular and respiratory using time series analysis of Poisson regression while controlling for time trends, meteorological factors and holiday indicator. Effects for every 10 μ g/m³ increase in pollutants were reported as Relative Risk (RR) on current-day (lag 0) admissions to five previous days (lag 5). **Results:** The highest association with immediate effects at lag0 for all admissions of cardiovascular was found with SO₂ (RR=1.049; 95%CI 1.007-1.091), followed by NO₂ (RR=1.021; 95%CI 1.009-1.033). Higher risk were observed among elderly more than 60 years old for SO₂ (RR=1.065; 95%CI 1.012-1.120) and NO₂ (RR=1.031; 95%CI 1.016-1.046). Immediate effects were also found in both males and females with higher risks were observed in males. NO₂(RR=1.021; 95%CI 1.006-1.035), still remain to be significantly associated with all respiratory admissions and higher risk were found for children less than 9 years old at various lag time with the highest shown at lag0 (RR=1.031; 95%CI 1.014-1.048). PM₁₀ also showed risk to children less than 9 years old at various lag times with the highest risk was found at lag0 (RR=1.013; 95%CI 1.003-1.023). Gender specific analysis showed an incremental risk of respiratory admissions for males exposed to NO₂ (RR=1.026; 95%CI 1.012-1.041) compared to females (RR=1.019; 95%CI 1.001-1.037). PM₁₀ showed delayed effects with female respiratory admissions ranging from 1 to 5 days and the highest effect observed at lag3 (RR=1.013; 95%CI 1.003-1.023). **Conclusion:** We found significant associations with all and age-specific cardiovascular and respiratory admissions in the single-pollutant model for all the pollutants. Gaseous pollutants showed higher risk in both admissions compared to PM₁₀. We found immediate and delay effects in hospital admissions for cardiovascular and respiratory diseases associated with all pollutants.

KEY WORDS:

Air pollution, hospital admissions, respiratory, cardiovascular, relative risk, Klang Valley

D4: Can We Afford PET-CT for Oesophageal Cancer Management?

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ABSTRACT

Introduction: Cancer outcomes depend on earlier diagnosis for earlier treatment intervention thus improving cancer outcomes. Multiple studies have shown important progress and evidence to promote earlier diagnosis together with early screening, increased public awareness, improved clinicians' education and better access to diagnostic modalities. There are limited studies on financial implications for earlier diagnosis. This study aims to show the cost impact of PET-CT in the management of oesophageal cancer. **Methods:** Retrospective analysis of patient data from 2001-2008 were used to develop decision tree using TREEAGE software. The model estimated the mean cost associated with each diagnostic procedure used for diagnosis. The results of the cost-effectiveness analysis are presented in terms of the incremental cost-effectiveness ratios (ICERs). **Results:** The ICER for the strategy of PET compared with conventional work-up was estimated at £29,300 per QALY; the ICER for PET/CT compared with PET was £ 31,000 per QALY; and the ICER for PET/CT combined with conventional work-up versus PET/CT was £ 42,100. Each additional diagnostic test will increase the expenses of the package together with increased effectiveness in terms of QALYs gained. The probabilistic sensitivity analysis shows that at a willingness-to-pay threshold of £ 20,000 per QALY. **Conclusion:** Economic burden of disease management, with choice of treatments as the main cost made it essential to perform a thorough imaging evaluation to find the best treatment paradigm for each patient. This study focuses on PET-CT costing impact on oesophageal cancer management using population based approach to choose an affordable patient's decision making process.

KEY WORDS:

Cost effectiveness analysis, PET-CT, oesophageal cancer, cancer cost, affordable cancer management

D5: Factors Impacting the Performance and Heterogeneity of Studies Assessing the Reliability of 2-Dimensional Shear Wave Elastography for Thyroid Malignancy Diagnosis

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ABSTRACT

Introduction: 2-dimensional shear wave elastography (2D-SWE) is a quantitative technique used in the evaluation of thyroid nodule stiffness to diagnose malignancy. High heterogeneity has been reported among the available 2D-SWE studies but the possible causes have remained unsubstantiated. This study aims to analyze the factors causing the high heterogeneity in diagnostic performance between studies and whether these factors impact on reliability of 2D-SWE for thyroid malignancy classification. **Methods:** The literature search was carried out in PubMed, Scopus and Web of Science databases. The final 14 studies were reviewed and information on study design was retrieved including level of pre-compression (LoP) [none-minimal, unclear], plane of measurement (PoM) [sagittal, transverse, unclear], region of interest placement (ROIP) [whole lesion, stiffest, unclear], region of interest (ROI) size (ROIS) [largest, 2mm/less, unclear, variable], elasticity index (EI) parameters used [mean, maximum, minimum] and optimal EI parameter (OEIP). Pooled sensitivity and specificity estimates plus area under receiver operating characteristic curve and their respective 95% confidence intervals (CI) were used to assess 2D-SWE diagnostic performance among subgroups. Subgroup heterogeneity was significant at I²=50% and marked at I²=75%. A difference of ≥5 units in subgroup diagnostic performance and I² ≥ 25% in heterogeneity was deemed considerable. Univariate meta-regression of subgroup models and multivariate regression of methodological [LoP, ROIP, ROIS, OEIP] and spectrum composition [country, patient inclusion bias, malignancy prevalence] models was performed, p-value < 0.05 showed significance. Variability in sensitivity and specificity was evaluated through the threshold effect using Spearman's correlation coefficient between logit true and false positive ratios. **Results:** We analyzed 14 studies that included 2851 thyroid nodules (1092 malignant, 1759 benign) from 2139 patients. Subgroup analysis revealed considerably higher diagnostic performance for unclear vs none-minimal [AUC 0.88 (CI=0.81-0.96) vs 0.83 (CI=0.80-0.86)] and for stiffest vs whole lesion [AUC 0.83 (CI=0.79-0.86) vs 0.78 (CI=0.73-0.84)]. Considerable disparity in sensitivity existed among all subgroups, however, a sizeable specificity estimate difference was observed only for mean vs maximum OEIP subgroups [0.84 (0.81-0.86) vs 0.64 (0.59-0.70)], China vs other countries [0.82 (0.79-0.85) vs 0.76 (0.73-0.78) and low vs high bias [0.77 (0.74-0.79) vs 0.82 (0.79-0.84)]. Between subgroup heterogeneity was significant (p<0.005, I² >50%) for both sensitivity and specificity estimates. ROIP, ROIS and study population were found to be potential independent predictors of DOR on univariate meta-regression (p=0.002, <0.001 and <0.001 respectively). On multivariate meta-regression, ROIS emerged as the only significant covariate affecting 2D-SWE diagnostic performance (p=0.022). There was a moderate threshold effect noted (r=0.494, p=0.032). **Conclusion:** ROIS was a consistently predominant covariate for 2D-SWE diagnostic performance in this study. However, the influence of LoP cannot be understated as the disparity in applied LoP was ubiquitous. Broadly, 2D-SWE study design standardization is critical in pursuit of a reference thyroid malignancy threshold EI. Otherwise the accuracy, reliability and reproducibility of 2D-SWE in the thyroid gland shall remain a medical quandary.

KEY WORDS:

2-Dimensional Shear Wave Elastography, heterogeneity, thyroid Ma

D6: Evaluation of In-House Real-Time Loop Mediated Isothermal Amplification for Detection of Human Papillomavirus 16 in Oral Squamous Cell Carcinoma

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ABSTRACT

Introduction: Human papillomavirus (HPV) is responsible for an escalating proportion of oral squamous cell carcinoma (OSCC). Production of p16^{INK4a} protein has been established as an important cofactor and its detection is routinely done using immunohistochemistry method in tissue specimen. Given that the immunohistology method is cumbersome in some ways, a sensitive, rapid and reliable molecular method is required. This study was conducted to evaluate an in-house quantitative loop mediated isothermal amplification (qLAMP) assay for detection of HPV 16 in OSCC clinical samples. **Method:** Confirmed OSCC clinical samples which consisted of saliva (n=14), blood (n=59) and tissue (n=64) were subjected to HPV 16 detection and viral load quantification by real-time Loopamp turbidimeter. The results were compared with p16-IHC. The sensitivity and specificity was determined. **Results:** HPV 16 was detected in two (14%) of the saliva and one (1.5%) in the tissue samples. The viral load of the positive cases was found to be in the range of 106 to 109 copies/μl. None of the blood samples was positive for HPV 16. All HPV 16 LAMP positive were also positive by p16-IHC. The sensitivity and specificity was 100%. **Conclusion:** This qLAMP assay using saliva may improve the diagnosis of HPV 16 due to its rapidity, high sensitivity and specificity.

KEY WORDS:

Human papillomavirus 16 (HPV16); real-time loop mediated isothermal amplification (LAMP); p16-IHC

D7: The Association between Finger Photoplethysmography Fitness Index and other Cardiovascular Risk Marker Among the Young Women

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ABSTRACT

Introduction: Recent studies had emphasized vascular markers for cardiovascular disease (CVD) risk prediction. Finger photoplethysmography fitness index (PPGF) is new marker that is developed from photoplethysmography waveform. **Objective:** The objectives of this study were to compare the level of PPGF between those with and without CVD risk factors and to determine the association between PPGF with other vascular markers such as carotid femoral pulse wave velocity (PWVCF), carotid intima media thickness (CIMT) and C-reactive protein (CRP). **Method:** We recruited 148 young women, age 20 to 40 years and categorized them into healthy group (HG, n=71) or having any CVD risk factors (RG, n=77). CVD risk factors were abdominal obesity, smoking, hypertension, dyslipidemia and family history of premature CVD. Parameters measured were weight, height, blood pressure, lipid profile, fasting blood glucose, PPGF, PWVCF, CIMT and CRP. Data was analyzed using SPSS version 20 with p<0.05 as significant level. **Result:** The mean age of subjects was 29.97±5.27 years old. No difference in PPGF between the groups (HG=48.79±8.91% vs. RG=49.37±9.53%, p>0.05). PPGF was correlated with PWVCF even after age adjustment (p<0.01). Independent variables for PPGF were PWVCF (Beta=-0.31, p<0.001) and height (Beta=0.16, p=0.04). No correlation was observed between PPGF, CIMT and CRP (p>0.05). **Conclusion:** As conclusion, PPGF is associated with PWVCF and may has potential as marker of arterial stiffness.

D8: Synthesis and Characterization of Organotin(IV) Dithiocarbamate Compounds and Their Cytotoxic Activity on Chronic Myelogenous Leukemia Cells (K562)

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ABSTRACT

Introduction: The success of metal-based compounds like cisplatin and other platinum compounds in treatment of cancers has biased the approaches used to discover new metal-based anticancer drugs. **Methods:** In this study, three new organotin compounds have been synthesized and assessed for their cytotoxicity toward chronic myelogenous leukemia cells (K562). The compounds are dibutyltin(IV) [N-(2-methoxyethyl)-N-methyldithiocarbamate] (C1), diphenyltin(IV) [N-(2-methoxyethyl)-N-methyldithiocarbamate] (C2) and triphenyltin(IV) [N,N-bis(2-methoxyethyl)dithiocarbamate] (C3). All the compounds were characterized by elemental analysis, FT-IR, ¹H, ¹³C and ¹¹⁹Sn NMR spectroscopies. The dithiocarbamate ligands chelated bidentately using both sulfur atoms, giving Sn atom five and six coordination number as indicated in ¹¹⁹Sn NMR with the peaks appeared in the range of -90 to -190 and -210 to -400 ppm. The crystal structure of the compounds has been determined by single X-ray crystallography. **Results:** The spectroscopic and single crystal X-ray crystallographic data illustrate that the dithiocarbamate ligands in all compounds are bidentate [Sn-S1 and Sn-S2= 2.5425(5), 2.9318(5) Å, respectively] for C1, [Sn-S1 and Sn-S2= 2.6071(6), 2.6653(6) Å, respectively] for C2, and [Sn-S1 and Sn-S2= 2.4612(4), 3.0992(4) Å, respectively] for C3. The geometry is best described as skewed trapezoidal bipyramidal with the angles S1-Sn-S2= 65.482(12)^o and C10-Sn-C6= 136.27(11)^o for C1, S1-Sn-S2= 67.742(17)^o and C-Sn-C= 100.07(10)^o for C2, and distorted trigonal bipyramidal geometry for C3 with the angles S1-Sn-S2= 63.534(11)^o and S2-Sn-C14=154.45(4)^o. The cytotoxic effects of compounds on K562 cell line were assessed using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay for 24 h using different concentrations. The results showed a decrease of cell proliferation in dose-dependent manner with IC₅₀ value for C1, C2, and C3 is 5.2, 4.0, and 2.8 μM respectively. The results were compared using doxorubicin as positive control and the value of IC₅₀ for doxorubicin was 25 μM. All compounds gave better toxicity toward K562 cell line compared to doxorubicin and based on their IC₅₀ values, C2 and C3 were classified as highly toxic. **Conclusion:** In conclusion, the newly synthesized compounds demonstrate strong cytotoxicity on K562 cell line, making them good candidates to be developed as antileukemic agents. However, further studies should be conducted to identify their ultimate potential so that they can be developed as potent antileukemic agents.

KEY WORDS:

Organotin, dithiocarbamate, single crystal X-ray crystallographic, K562, IC₅₀

D9: The Effect of Palm Oil-Derived Tocotrienol Rich Fraction on Heme Oxygenase-1 Protein Expression in Mice Liver

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ABSTRACT

Introduction: Tocotrienols are part of the vitamin E family and has been reported to possess potent antioxidant activity. Palm oil is a rich natural source of tocotrienols. Heme oxygenase-1 (HO-1) is an enzyme that possess antioxidant, anti-inflammatory and cytoprotective functions. **Methods:** The objective of this study is to determine the effects of increasing doses of palm oil-derived tocotrienol rich fraction (TRF) supplementation on HO-1 protein expression in mice livers. Thirty male ICR white mice (25–30 g) were divided into five groups; three groups were administered palm TRF orally for 14 days at doses of 200, 500 and 1000 mg/kg respectively (n=6 for each group), a positive control group administered butylated hydroxyanisole (BHA) orally for 14 days at a dose of 100 mg/kg (n=6), and the last group (n=6), which comprise control mice, were only administered vehicle which is corn oil. At day 15, the mice were sacrificed and their livers isolated. The livers were then homogenized and protein expression of HO-1 was determined by Western blotting. **Results:** Palm TRF oral supplementation at concentrations of 200, 500 and 1000 mg/kg for 14 days caused a significant concentration-dependent increase in HO-1 protein expression in mice livers, compared to controls. **Conclusion:** Palm TRF oral supplementation for 14 days resulted in increased HO-1 protein expression in mice liver dose dependently, with the highest protein expression seen in mice treated with 1000 mg/kg TRF, followed by 500 and 200 mg/kg respectively.

KEY WORDS:

Palm TRF; HO-1; mice; liver; protein expression

R1: The Effectiveness of Different Postures to Recovery After Low Back Muscle Fatigue – A Compilation of Results of 4 Studies

Rajaratnam BS, Wong YW, Mohamad, DY, Lim, ALF, Tang, HYD, Ting JWS, Lim FY, Zaini MF, Hu MT, Tiong F Y, Abdul RNW, Lam YS, Chen ZY, Farrock E, Leow HH, Tan KP, Mok, CT, Kwok LM, Lacaste EP, Shakir BH, Tan WW

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ABSTRACT

Introduction: Prolong computation in sitting has led to early onset of low back pain. The aims of these 4 studies were to identify the effectiveness of active weight shifting strategy in standing after prolonged computation sitting. **Methods:** Healthy participants performed a Biering-Sorenson test to simulate low back muscle fatigue experience after 2 hours of prolong sitting. In study 1, 17 participants were randomly assigned to performed 35 minutes of sitting or 35 minutes of alternating sit-stand. In study 2, 12 participants were randomly assigned to sitting or standing for a period of 30 minutes. In study 3, 16 participants were randomly allocated to a 15 minute of stationary standing or lateral weight shift every 30 seconds group. In study 4, 19 participants performed 30 minutes of sitting, stand and static step-up positions on 3 separate days. Surface EMG electrodes were adopted the SENAIM recommendation measured bilateral muscle activities of superficial lumbar multifidus, iliocostalis and transverse abdominus. Participants also rated their level of discomfort in their lower back and lower limbs. **Results:** No significant differences in rate of lower back muscle fatigue recovery were found between sit and sit-stand manoeuvres. Significant differences were reported during standing and static step-up compared with sitting. When static standing and lateral weight shifting in standing were compared, no significant differences in rate of fatigue recovery was found. Participants reported less discomfort in the lower limbs when performing step-up compared with static standing. **Conclusion:** Adopting a standing position with a foot-stool relieved fatigue and lower back discomfort and could minimise the onset of low back pain.

KEY WORDS:

Low back pain, muscle fatigue, posture

R2: Effectiveness Virtual Reality Games in Improving Upper Limb Function and General Health among Stroke Survivors

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ABSTRACT

Introduction: The objective of this study was to examine the effectiveness of virtual reality games (VRG) as an adjunct in improving upper limb (UL) function and general health among stroke survivors. **Methods:** This study involved 36 stroke survivors in both experimental (n=18) and control (n=18) groups with a mean age(SD) of 57(8.20) and 63(10.54) years respectively. Outcome measures were Fugl-Meyer Assessment for Upper Extremities (FMA-UE), Wolf Motor Function Test (WMFT), Intrinsic Motivation Inventory (IMI), The Lawton of Instrumental Activities of Daily Living (IADL) and Stroke Impact Scale (SIS) assessed at baseline and 8 weeks post-intervention. The experimental group had 0.5 hours of UL VRG with 1.5 hours of standard physiotherapy and the control group received 2 hours of standard physiotherapy. The intervention for both groups was performed once a week for continuous 8 weeks. **Results:** ANOVA test found a significant time and group interaction effect for IMI ($F(1,34)=8.84$; $p<0.01$), IADL ($F=7.95$; $p=0.01$) and SIS domain of communication ($F=4.85$; $p=0.03$). A significant effect of time for both groups was demonstrated in FMA-UE ($F(1,34)=109.01$; $p<0.01$), WMFT ($F(1,34)=127.44$; $p<0.01$), IADL ($F=7.14$; $p<0.05$) and SIS domains of Strength ($F=16.03$; $p<0.01$), domains of ADL ($F=10.85$; $p<0.01$) and domains of Stroke Recovery ($F=42.65$; $p<0.01$). However, no significant effect of group on all the outcome measures was found. Overall, the experimental group showed higher percentages of improvement compared to control. **Conclusion:** VRG as an adjunct to standard physiotherapy is effective in improving motivation, instrumental ADL and communication among stroke survivors.

KEY WORDS:

Physiotherapy, virtual reality, upper limb, function, stroke survivors

R3: Effects Of Phonological and Semantic Cues on Word Learning among Jordanian Preschool Children With SLI

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ABSTRACT

Introduction: Word learning is one of the most common problems faced by children with specific language impairment (SLI). The current study aims to investigate the word-learning abilities of Arabic speaking Jordanian SLI children with the aid of phonological and semantic cues. **Methods:** Two groups of pre-school children with SLI and typically developing (TD) children participated in this study. The two groups were matched in terms of: IQ score, age, gender and socioeconomic status. An independent-sample t-test was conducted to compare the mean performances and to find out the efficacy of the cues on word learning of the children with SLI and TD children. **Results:** The findings showed that there were significant differences ($p < 0.01$) between children with SLI and TD children in the mean scores of the production and comprehension tasks during the five days of word learning, and there were significant differences ($p < 0.02$) between children with SLI and TD children in the mean scores of the recognition task during the five days of word learning. The result also showed that children with SLI scored significantly lower than TD children in production, comprehension and recognition of words. **Conclusion:** This study concluded that children with SLI performed poorly compared to the TD children in semantics, phonological tasks and word learning. The children with SLI benefitted from phonological and semantics cues but it was not sufficient for them to perform at par with the TD children. Our findings suggested that the children with SLI had improved on the semantics representation of words in terms of comprehending and recognizing the word, however they have more difficulties in producing new word because they still do not have sufficient amount of phonological representation.

KEY WORDS:

SLI, Phonological cues, semantics cues, phonological awareness, semantics awareness

R4: Treatment of Single-Word Writing for A Malay Patient with Acquired Dysgraphia following Stroke: A Single-Case Experimental Study

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ABSTRACT

Introduction: Disruption to the processes that supports spoken language in people with aphasia following stroke also tend to interfere with the ability to write or referred to as dysgraphia. **Method:** This study examined the effectiveness of a novel treatment for writing by Beeson (1999) administered on a Malay patient (GM) who had significant conduction aphasia affecting both spoken and written language. GM received Anagram and Copy Treatment (ACT), a clinician-directed treatment that required the arrangement of component letters presented in scrambled order (i.e., an anagram) for the patient to form a target word, followed by repeated copying of the word. Single-subject multiple-baseline design was used with sets of words (both nouns and verbs) sequentially targeted for treatment. Prior to the initiation of the writing treatment, a series of single-word writing and reading assessments were conducted. Probes assessing generalizations to untrained pictures were presented at 8th, 13th and 18th sessions. The assessments were repeated after the treatment was completed in order to monitor the progress of the writing treatment. **Results:** Prior to treatment, GM showed minimal ability to write words, but subsequently demonstrated rapid learning for spelling of the words targeted. He showed steady improvement in the writing of trained nouns and verbs: from 0-10% baseline accuracy to over 90% accuracy at end of treatment for nouns and verbs. Generalizations to untrained nouns and verbs also showed similar results. GM exhibited marked progress: from able to write 22 nouns (44%) and 19 verbs (38%) in the first probe to 47 nouns (94%) and 38 verbs (76%) in final probe. Pre- and post-assessments results revealed that GM performed better in all of the tasks measured. **Conclusion:** Single-word writing treatment may improve dysgraphia among adults with aphasia through the administration of a structured and systematic treatment.

KEY WORDS:

Nouns, verbs, aphasia, dysgraphia, writing treatment

R5: Vestibular and Balance Assessment in Post Chemotherapy Pediatric Patients: Preliminary Study

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ABSTRACT

Introduction: Platinum based chemotherapy drugs used in most childhood cancer treatment is well known for their ototoxicity effect. However, the effect of these drugs towards human's vestibular system is under reported. This preliminary study explores the potential uses of ocular and cervical vestibular evoked myogenic potential (oVEMPs and cVEMPs), and video Head Impulse Test (vHIT) to objectively quantify the function of the vestibular peripheral organs. Additional to the above, overall patients' body balance were assessed using the gross motor subset of Bruininks Oseretsky Test of Motor Proficiency II (BOT-2). **Methods:** Thirteen patients (mean age 14.37 ± 5.83 years) who underwent treatment with platinum based chemotherapy drugs participated in the study. Twenty-three healthy controls (mean age 11.93 ± 3.55 years) with normal hearing and no history of vestibular and balance problem served as controls. **Results:** The oVEMPs, cVEMPs, and vHIT results showed no significant difference ($p > 0.05$) between the post chemotherapy and control healthy groups. However, there is statistically significant difference ($p < 0.05$) in the BOT-2 gross motor subset score, where the post chemotherapy group scored lower than the control healthy group. **Conclusion:** The results obtained suggested that post-chemotherapy pediatric patients have significantly poorer body balance, but at the same time their peripheral vestibular organs are not significantly affected.

KEY WORDS:

Vestibular and balance assessment on pediatrics; post chemotherapy; vestibulotoxic

R6: Perspective Regarding Pain and Fear-avoidance Belief in Adults with Chronic Non-specific Low Back Pain- A Qualitative Study

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ABSTRACT

Introduction: Chronic non-specific low back pain (CNSLBP) is associated with fear-avoidance belief. The aim of this study was to explore the perspectives of pain and fear-avoidance belief and its related issue such as coping strategies among adults with CNSLBP. **Methods:** One to one interview using semi structured questions was conducted among eight CNSLBP adults (2 males and 6 females) aged 20 to 45 years ($m = 33.5 \pm 5.953$). **Results:** Three main issues were identified from the results that consisted of experiences of pain, coping strategies and fear-avoidance belief. Most participants reported that they commonly avoided sports and social activities due to fear of pain. The findings of this study also suggested that pain experiences and coping strategies may influence fear-avoidance belief in adults with CNSLBP. **Conclusion:** Health practitioners need to provide awareness, education and reassurance to facilitate reengagement with sporting and social activities among adults with CNSLBP. Current literature evidence indicates that returning to activities can play an important role in the management of CNSLBP.

KEY WORDS:

Pain, activity avoidance, fear-avoidance belief, coping strategies, Chronic non-specific low back pain

PY1: Is Diagnostic Performance of Quantitative 2D-Shear Wave Elastography Optimal for Clinical Classification of Benign And Malignant Thyroid Nodules? A Systematic Review and Meta-Analysis?

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ABSTRACT

Introduction: Mammographic breast density is a well-known risk factor of breast cancer determined by the physiological hormonal changes in a woman. Similar to bone mineral density that affected by the mentioned factor. **Methods:** This descriptive study was conducted on 25 women above 40 years old using total sampling method in Radiology Department, General Hospital Kuala Lumpur in 2016. It was to determine the pattern of breast density and bone mineral density in Malaysian women with mammogram Breast Imaging-Reporting and Data System (BI-RADS) 3, 4 and 5. Women who have had commenced cancer treatment and women with mastectomy were excluded. Assessment of breast density was performed using BI-RADS classification whilst bone mineral density was measured using DEXA of the lumbar spine and femoral neck based. **Results:** A total of 64% of the respondents were Malay followed by Indian and Chinese with 28% and 8% respectively. A total of 24% of women aged between 40 to 50 years old were diagnosed with BI-RADS 3, 4 and 5 whilst 76% of women aged above 50 years old. BI-RADS B (scattered fibroglandular) breast density was observed in 12 (48%) women, BI-RADS C (heterogeneously dense) in 5 (20%) women and BI-RADS D (extremely dense) in 2 (8%) women. A total of 19 (76%) of women with normal BMD category with t-score ≥ 1 SD. Majority (40%) of women with normal BMD has BI-RADS B breast density, women with osteopenia is highest (12%) among women with BI-RADS C breast density. **Conclusion:** There is a pattern of women with BI-RADS B breast density was diagnosed with BI-RADS 3, 4 and 5 above 50 years; nevertheless, with normal bone classification.

PY2: Enhancing Alginate/Nano Cockle Shell Powder Nanobiocomposite Bone Scaffold Performance with BMP-2

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ABSTRACT

Introduction: Improvement in bone tissue engineered scaffolds play an important aspect in determining healing outcome. Previously developed alginate/cockle shell powder nanobiocomposite bone scaffold has shown promising characteristic as a bone replacement material. **Methods:** This study was undertaken to observe and evaluate the effect of bone morphogenetic factor-2 (BMP-2) growth factor on the performance of the scaffold. Scaffolds were divided into a test group that were loaded with BMP-2 and a control group consisting of scaffolds without BMP-2 prior to microscopy, mineralization and in-vitro evaluations. **Results:** Surface mineralization study showed presence of calcium and phosphorus in both groups incubated in stimulated body fluid as detected through EDX analysis. Microstructure analysis using SEM showed a gradual change in surface morphology from day 1 with platelike calcium apatite crystals observable in both test and control scaffolds by day 14. In-vitro studies conducted by culturing osteoblast cells (MC3T3-E1 subclone 4) for biocompatibility and cellular interaction analysis on both test and control scaffolds showed higher ratio of calcium and phosphorus in test scaffold compared to control on days 1, 7 and 14, indicating a better cell response. In vitro SEM observations showed changes on scaffold surface with presence of mineralization element on day 7 and extensive presences of collagen fibers by day 14 in BMP-2 scaffolds comparatively. Significant increase ($p < 0.05$) in calcium and ALP activity were also observed on day 7 in BMP-2 scaffolds compared to control. **Conclusion:** Scaffolds loaded with BMP-2 showed enhancement in osteogenic response and may help improve the scaffold functional performances.

PY3: Cytotoxicity Assessment and the Mode of Cell Death Induced by Diorganotin(IV) Bis(2-methoxyethyl)dithiocarbamate Compounds in Human Erythroleukemia Cells (K562)

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ABSTRACT

Introduction: Organotin(IV) dithiocarbamate is one of metal-based compounds that are actively explored by researchers due to the diversity of their molecular structures which affects their biological activities. A number of studies have found that organotin(IV) dithiocarbamate compounds have the potential to be developed as anti-cancer agents because they can induce very strong cytotoxic effects even when used at low concentrations. **Method:** Two new diorganotin(IV) dithiocarbamate compounds, which are dimethyltin(IV) bis(2-methoxyethyl) dithiocarbamate (C1) and diphenyltin(IV) bis(2-methoxyethyl) dithiocarbamate (C2) were tested for toxicity against human erythroleukemia cells (K562). The potential of both compounds to induce cytotoxicity against K562 cells was determined via 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay for a treatment duration of 24 hours. The mode of K562 cells' death induced by both compounds was determined by Annexin V-FITC/PI staining assays for treatment duration of 24 hours using the IC50 values for each compound. **Results:** This study found that both compounds were able to induce anti-proliferative effect against K562 cells. However, C2 showed stronger cytotoxicity against K562 cells with an IC50 value of 5.0 µM compared to C1 which has an IC50 value of 22.0 µM. Interestingly, both of these compounds were found to induce K562 cells' death via apoptosis. **Conclusion:** Both compounds showed good potential to be developed into anti-leukemic agents due to their strong cytotoxicity against K562 cells leading to induction of cell death by apoptosis. Further studies regarding the mechanisms of action of these compounds should be conducted to explore their potential to be developed into anti-leukemic agents.

KEY WORDS:

Organotin; dithiocarbamate; leukemia; apoptosis; cytotoxic

PY4: A Descriptive Study On Bone Mineral Density and Breast Density among Malaysian Women with BI-RADS 3, 4 And 5

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ABSTRACT

Introduction: Mammographic breast density is a well-known risk factor of breast cancer determined by the physiological hormonal changes in a woman. Similar to bone mineral density that affected by the mentioned factor. **Methods:** This descriptive study was conducted on 25 women above 40 years old using total sampling method in Radiology Department, General Hospital Kuala Lumpur in 2016. It was to determine the pattern of breast density and bone mineral density in Malaysian women with mammogram Breast Imaging-Reporting and Data System (BI-RADS) 3, 4 and 5. Women who have had commenced cancer treatment and women with mastectomy were excluded. Assessment of breast density was performed using BI-RADS classification whilst bone mineral density was measured using DEXA of the lumbar spine and femoral neck based. **Results:** A total of 64% of the respondents were Malay followed by Indian and Chinese with 28% and 8% respectively. A total of 24% of women aged between 40 to 50 years old were diagnosed with BI-RADS 3, 4 and 5 whilst 76% of women aged above 50 years old. BI-RADS B (scattered fibroglandular) breast density was observed in 12 (48%) women, BI-RADS C (heterogeneously dense) in 5 (20%) women and BI-RADS D (extremely dense) in 2 (8%) women. A total of 19 (76%) of women with normal BMD category with t-score ≥ 1 SD. Majority (40%) of women with normal BMD has BI-RADS B breast density, women with osteopenia is highest (12%) among women with BI-RADS C breast density. **Conclusion:** There is a pattern of women with BI-RADS B breast density was diagnosed with BI-RADS 3, 4 and 5 above 50 years; nevertheless, with normal bone classification.

PY5: Development of Prototype Multiplexed Lateral Flow Assay (LFA) for Rapid Detection of Invasive Fungal Infections

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ABSTRACT

Introduction: Invasive fungal infections (IFIs), especially caused by the fungal genera *Candida*, *Aspergillus* and *Fusarium*, can be fatal to patients with weakened immune systems. **Method:** This study was conducted to develop a prototype multiplexed lateral flow assay (LFA) based on the sandwich format to detect the presence of invasive *Candida*, *Aspergillus* and *Fusarium* at the genus-specific level. DNA was extracted from human blood spiked with pure cultures of *Candida albicans*, *Aspergillus fumigatus* and *Fusarium solani* and underwent multiplexed PCR using fungi-universal and genus-specific primers targeting the internal transcribed spacer (ITS) region. These primers were labelled with different dyes at the 5' position to serve as antigens. The resultant double stranded PCR products were tested on the prototype LFA strips, each pre-lined with 5 antibodies (3 raised against the respective reverse primer dye labels on the genus-specific primers, 1 against the fungi-universal reverse primer and 1 anti-streptavidin line). Colour production was via red coloured gold nanoparticle (GNP)-streptavidin. Unbound GNP-streptavidin binds to the anti-streptavidin line to serve as internal control. **Results:** All positive samples produced 3 red lines on the LFA strip (1 line at their respective complementary genus-specific antibody positions, 1 line at the fungi-universal antibody position and finally 1 line at the internal control position). Negative control (phosphate buffer) and negative PCR product only produced 1 line at the internal control. **Conclusion:** The prototype LFA successfully detected the presence of the 3 selected fungi genera in spiked blood sample.

KEY WORDS:

LFA; fungal; IFI; Candida; Aspergillus; Fusarium

PH1: Change in Visual Acuity and Contrast Sensitivity of Visually Impaired Schoolchildren Under Various Illumination Levels

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ABSTRACT

Introduction: Previous studies have shown that surrounding illumination affects visual functions such as visual acuity (VA) and contrast sensitivity (CS). **Methods:** The purpose of this study is to determine the change in VA and CS of visually impaired (VI) schoolchildren under various illumination levels and to determine the minimum illumination level for optimum VA and CS. Forty VI schoolchildren from a special school in Kuala Lumpur, Malaysia participated in this study. VA was measured using logMAR chart at a distance of 1.2m while CS was measured using Pelli-Robson chart at 1m. The surrounding illumination levels spanned over 5 octaves, and the change was in one octave step from 50 to 1600 lux. **Results:** Best corrected VA and CS of better eye improved significantly as surrounding illumination levels increased from 50 to 1600 lux (VA: $F = (2.34, 86.61) = 34.65$, $p < 0.001$; CS: $F (2.52, 93.08) = 46.83$, $p < 0.001$). VA reached maximum at 400 lux and plateau thereafter (pairwise comparisons showed no significant difference in VA at 400, 800 and 1600 lux, $p > 0.05$). For CS, maximum sensitivity was obtained at 1600 lux. However, change in CS was significant up to 400 lux only. CS continued to increase at 800 and 1600 lux but not significantly ($p > 0.05$). **Conclusion:** VA and CS improved with increased surrounding illuminance. Based on this study, the recommended minimum surrounding illuminance to achieve optimum VA and CS for visually impaired schoolchildren is 400 lux

KEY WORDS:

Visually impaired (VI) schoolchildren, visual acuity, contrast sensitivity, illumination levels

PH2: Measurement of Temperature Induced in Bone in Minimally Invasive Foot Surgery

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ABSTRACT

Introduction: There has been growing interest in the development of a protocol for minimally invasive foot surgery due to the benefits it delivers in post-operative outcomes in comparison to conventional open methods of surgery. One of the major factors determining the protocol in minimally invasive surgery is for the prevention of iatrogenic thermal osteonecrosis. The aim of the study is to look at various drilling parameters in a minimally invasive surgery setting that would reduce the risk of iatrogenic thermal osteonecrosis. **Methods:** Sixteen fresh-frozen tarsal bones and two metatarsal bones were retrieved from three individuals and drilled using various settings. The parameters considered were drilling speed, drill diameter, coolant administration and inter-individual cortical variability. Temperature measurements of heat generated at the drilling site were collected using two methods; thermocouple probe and infrared thermography. **Results:** There was a significant difference in the temperatures generated with different drilling speeds and administrations of coolant ($p < 0.001$). However, our study did not find a significant difference in temperatures recorded between the bones of different individuals and in bones drilled using different drill diameters. **Conclusion:** Administration of coolant and drilling at an optimal speed significantly reduced the risk of iatrogenic thermal osteonecrosis by maintaining temperature below the threshold level. Although different drilling diameters did not produce significant differences in temperature generation, there is a need for further study on the mechanical impact of using different drill diameters.

PH3: Interventions for Children with Dyslexia: A Review on Current Intervention Methods

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ABSTRACT

Introduction: Dyslexia is a neurobiological impairment that primarily affects reading ability. It is commonly known as a reading disorder which is likely to be present at birth and is generally identified at pre-school level. Dyslexia is manifested through difficulties with accurate word recognition and also by poor performance in reading and writing. **Methods:** The main objective of this paper is to review the various methods or treatments that are used to manage the literacy and cognitive abilities for children with dyslexia particularly in Malaysia. The articles were searched through online databases such as PubMed, Ebscohost and Medline during the time frame of 2000 until 2016. An initial count of 300 articles were generated but only 15 articles met the inclusive criteria. **Results:** There are a few types of interventions such as the multisensory method, the phonological intervention, and the cognitive training method used to improve literacy and cognitive deficits among children with dyslexia. In Malaysia, most of treatments are focused on the aspects of language such as word mastery, alphabet identification and writing skills. The cognitive training was carried out to improve specific domain such as visuospatial skills, memory skills and psychomotor skills. **Conclusion:** There are various methods used to improve literacy and cognitive for children with dyslexia. No common technique is found to intervene cognitive functions. There is no particular domain frequently chosen to enhance cognitive deficits for children with dyslexia.

KEY WORDS:

Intervention study, dyslexia, cognitive deficits, review, children

PH4: Development of Group Therapy Module for Parents of Children Living with Autism Spectrum Disorder

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ABSTRACT

Introduction: Raising a child living with ASD involves treatment process that is described as a three-legged stool. The legs are traditional therapies, biomedical therapies, and keeping the family healthy. Keeping the family health is the component that is least researched, especially in Malaysia. **Method:** This study aims to understand the psychological need of the parents of a child living with ASD, to develop a module based on the needs, and to investigate the feasibility of the developed module. Nine participants from Kuala Lumpur and Sarawak participated in the study by joining focus group interviews, completing Parenting Stress Index – Short Form (PSI-SF) and General Health Questionnaire (GHQ-28), and joining the implementation of the developed module. **Results:** The results suggest that the parents are living with psychological distress and they are worried and anxious about the socioemotional development, disciplinary issue, and other related development of their children. Group therapy intervention module was designed based on these needs and the feasibility results suggest the module is well-received by the participants in terms of the applicability, practicality, and understanding. **Conclusion:** Although this study does not measure the effectiveness of the module, it serves as a new piece of work in a relatively scarce research field. Future studies can be conducted to explore its effectiveness.

KEY WORDS:

Autism Spectrum Disorder, parents, group intervention, module development

PH5: Effects Of F.E.A.T (Fit, Eat, Active, Training) Physical Activity Module on Body Composition and Cardiometabolic Risk Factors in Community-Dwelling Obese Adults

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ABSTRACT

Introduction: Structured physical activity program with behavioural interventions are shown to be more successful than exercise program alone in improving weight status and cardiometabolic health in obesity. The aim of this study was to evaluate the effects of a 12-week F.E.A.T module combining physical activity and behavioural strategies on body composition and cardiometabolic risk factors in adult obesity. **Methods:** 31 overweight/obese adults (BMI: 28.7 ± 4.9 kg/m²) aged 25-59 years underwent intervention, consisting prescribed aerobic and resistance exercise sessions 5d/week for physical activity strategies, while focusing on goal-setting of 10,000 steps/daily, self-monitoring and peer support group as behavioural strategies. Anthropometric measures such as body weight (Wt), body mass index (BMI) and percentage of body fat (% BF), as well as cardiometabolic risk parameters such as blood pressure (BP), waist circumference (WC), fasting blood glucose (FBG), triglycerides (TG), total cholesterol (TC), low-density lipoprotein (LDL) and high-density lipoprotein (HDL) were obtained at beginning and completion of the intervention. **Results:** The intervention resulted in significant reductions in Wt (-3.6%, $p=0.0001$), BMI (-3.8%, $p=0.0001$), %BF (-4.3%, $p=0.0001$), WC (-9.9%, $p=0.0001$), and TC (-5.0 %, $p=0.009$) after 12-weeks. A reduction in HDL concentrations (-6.6%, $p=0.006$) was observed, while BP, FBG, TG and LDL values remained unchanged. **Conclusion:** The F.E.A.T module combining physical activity and behavioural strategies resulted in favourable improvements in body composition, albeit modest, as well as some reductions in cardiometabolic risks in overweight/obese adult.

KEY WORDS:

Physical activity, cardiometabolic risk factors, obesity, adult

PH6: Exploring The Risk Factors of Emotional and Behavioural Problems among Adolescents in Hulu Langat District: A Qualitative Study

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ABSTRACT

Introduction: Emotional and behavioural problems are a growing public health issue especially among adolescents. These problems should be detected early to ensure early referral to specialized personnel, in order for early intervention to take place. This study aims to explore the underlying problems or risk factors that may contribute to the development of emotional and behavioural problems among teenagers attending public schools in Daerah Hulu Langat Selangor. **Methods:** This study utilized a qualitative study design in which 10 students were invited to participate in a Focus Group Discussion (FGD). These students were initially detected to have borderline and abnormal scores during a prior quantitative study when answering the Strengths and Difficulties Questionnaire (SDQ). The responses from the participants during the FGD were literally recorded throughout the session. A computerized qualitative data analysis program, the Atlas Ti, was utilized to identify the relevant themes. **Results:** We identified five key themes in which four of these were similar to previous studies which were low parental involvement, harsh and inconsistent discipline, low parental monitoring, as well as lack of love that was shown by parents. We also discovered a new theme which was lack of religious activities among family members. **Conclusion:** From this study we found similar risk factors as shown in previous studies as well as a new one. Religiosity was found to have an important contribution whereby shortcoming in this aspect which surround the children's life, may predict future emotional and behavioural problems

KEY WORDS:

Emotional and behavioural problems, mental health, adolescents, risk factors, qualitative study

PH7: Prevalence, Risk Factors and Secondary Prevention of Stroke Recurrence in Asia: A Scoping Review

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ABSTRACT

Introduction: In most Asian countries, stroke is the major cause of mortality. The risk of stroke recurrence in Asians with high blood pressure is much greater than that of Caucasians, Hispanics and Black Africans. A stroke event is life-changing to stroke survivors which results in either mortality or disability. Therefore, this study focuses comprehensively on the prevalence, risk factors and secondary prevention for stroke recurrence identified in Asian countries. **Methods:** This scoping review uses the methodological framework by Arksey and O'Malley (2005). Pertaining to this topic, a comprehensive search on academic journals published from 2007 to 2017 (English) was conducted. A total of 22 studies were selected in this review from 585 studies screened from electronic databases. **Results:** The first-year stroke recurrence rates in various Asian populations are in a range of 2.2% to 18.9%. Modifiable risk factors are significantly associated with pathophysiological factors (hypertension, ankle-brachial pressure index, atherogenic dyslipidemia, diabetes mellitus, metabolic syndrome and atrial fibrillation) and lifestyle factors (obesity, smoking, physical inactivity and high salt intake). Age, previous history of cerebrovascular events and stroke subtype are also significant influence risk factors for recurrence. A strategic method of secondary prevention for recurrent stroke is health education and also by managing risk factors through a combination of appropriate lifestyle intervention and pharmacological therapy. **Conclusion:** To prevent recurrent stroke, health intervention should be geared towards changing lifestyles to embody a healthier approach to life. This is of great importance to public health and quality of life of stroke survivors.

KEY WORDS:

Stroke recurrence; prevalence; risk factors; secondary prevention

PH8: Tear Film Osmolarity in Young Malay Adults after Wearing Soft Contact Lenses for 6 Months

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ABSTRACT

Introduction: This study investigated changes in tear film osmolarity in young myopic Malay adults after wearing soft contact hydrogel lenses for 6 months. **Methods:** A total of 48 myopic subjects participated in this study. Twenty-four of them were fitted with hydrogel contact lenses (A) and another 24 were prescribed with spectacles (B) as control group. McMonnies Dry Eye questionnaires (MDEQ) were used during screening to exclude subjects with dry eye signs and symptoms. Refraction was conducted subjectively and visual acuity (VA) was measured using LogMAR chart. Tear film stability was evaluated using TBUT and tear film osmolarity was measured using the osmometer. All measurements were conducted at baseline and 6 months. **Results:** Mean age of all subjects was 21.23 ± 1.3 years, mean refractive error was -2.43 ± 1.21 DS, mean TBUT was 7.81 ± 1.78 s and mean tears osmolarity was 296.82 ± 12.37 mOsm/L. Results and analysis at baseline and 6 months are as follow: Mean TBUT for A was 7.65 ± 1.88 s and 7.62 ± 1.68 s; ($p=0.27$), for B was 7.96 ± 1.75 s and 8.01 ± 1.63 s; ($p=0.33$), mean tears osmolarity for A was 293.33 ± 13.52 mOsm/L and 298.54 ± 12.47 mOsm/L; ($p= 0.01$), for B was 300.30 ± 11.21 mOsm/L and 300.57 ± 12.61 mOsm/L; ($p= 0.63$). **Conclusion:** Wearing soft hydrogel contact lens alters tear film osmolarity. The results support previous works in other population.

KEY WORDS:

Malay, myopia, tears film osmolarity, tear break up time, contact lens

PH9: Eye Blinking Pattern, Corneal Staining and Compliance among Soft Contact Lens Wearers

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ABSTRACT

Introduction: The present of corneal staining in contact lens wearers can be influenced by many factors which may indicate the success rate of contact lens wear. **Methods:** This study was conducted to determine the eye blinking pattern, corneal staining and compliance in a group of soft contact lens (CL) wearers. Forty-one soft CL wearers and 41 control subjects (non CL wearers) were recruited in this study. Complete and incomplete blinking patterns were assessed with a digital camera attached to a slit lamp biomicroscopy. Corneal staining was graded using Institute for Eye Research (IER) grading scale with 0.1 increments. A questionnaire was used to determine the subject's compliance level. **Results:** There was no difference in eye blinking pattern between the CL wearers and control group (Mann-Whitney, $p = 0.231$). The average grade of corneal staining in CL wearers and control group were 0.38 ± 0.39 unit and 0.01 ± 0.08 unit respectively. There was a significant difference in corneal staining between these two group (Mann-Whitney, $p = 0.021$). Result also showed 63.4% of the subjects had good compliance towards lens care. Significant positive correlation was found between blinking pattern and corneal staining (Spearman $\rho=0.378$, $p=0.015$). **Conclusion:** Eye blinking pattern influenced corneal staining and compliance level was found not to be associated with corneal staining.

KEY WORDS:

Soft contact lens, blinking pattern, corneal staining, compliance

PH10: Effects of HIIT Intervention on PGC-1 α and AdipoR1 Genes Expressions and Body Composition in Obese Individuals

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ABSTRACT

Introduction: Lifestyle-related diseases are rapidly increasing, in part due to less physical activity. However, little is known about the effect of high-intensity interval training (HIIT) on the expression of key regulatory proteins that are linked to fatty acid oxidation and insulin sensitivity in obese individuals. This study investigated the effects of 12-week HIIT on the expression of PGC-1 α and AdipoR1 and body composition in overweight/obese individuals. **Methods:** Fifty individuals were randomly assigned to either a control ($n=25$) or HIIT ($n=25$) group. Subjects assigned to HIIT underwent a 12-week HIIT intervention 3 days/week at an intensity of 65%-80% of the age-based maximum heart rate. Anthropometric measurements and gene expression analysis were conducted at baseline and post intervention. Data were analysed using mixed-designed ANOVA. **Results:** Significant time-by-group interactions ($p<0.001$) were found for weight, BMI, waist circumference and percentage of body fat. The HIIT group had significantly lower weight (-2.3%, $p<0.001$), BMI (-2.7%, $p<0.001$), waist circumference (-2.4%, $p<0.001$) and percentage of body fat (-4.3%, $p<0.001$) post intervention. HIIT also significantly increased the expression of PGC-1 α and AdipoR1 by 2-fold and 3-fold respectively. **Conclusion:** Findings from current study suggest that HIIT modulates the PGC-1 α and AdipoR1 gene expressions, in conjunction with modest improvements in body composition in overweight/obese individuals. This implies that manipulation of the expression of these genes could be a potential surrogate for exercise-mediated improvements of improved metabolism in overweight/obese individuals.

KEY WORDS:

Obesity, metabolism, high intensity interval training, PGC-1 alpha, adiponectin receptor gene

PH11: A Qualitative Study Exploring How School and Community Environments Shape Adolescents Food Choices

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ABSTRACT

Introduction: Food environmental factors may have some impact and contribution to poorer diet quality in Malaysia. This study explored perceived barriers and facilitators to healthy eating in school and communities among adolescents. **Methods:** A qualitative study, based on Socio Ecological Model was conducted on a purposive, multi-ethnic sample of thirty-four adolescents from four regions in Malaysia. The semi-structured and in-depth interviews were fully transcribed and analyzed qualitatively using Atlas.Ti. The transcribed data were analysed thematically into density and proximity of food outlets, availability and variety of food, food marketing and advertising. **Results:** The result revealed that multifaceted factors in food environment contributed to unfavourable patterns of dietary intake thus leading to higher body mass index (BMI). The availability and convenience of fast food outlets offering value added services such as free wi-fi are attracting the adolescents. Moreover, they offer appealing meal selections with an affordable up-size option. Adolescents also stated that having working parents contributed to the habit of eating out as they are lacking the time to prepare home-cooked food. In addition, adolescents indicated that school canteen generally sells cheap, oily and spicy food to cater the students' preference. **Conclusion:** The findings revealed an obesity-promoting environment and perceived very limited healthful options. Therefore, policy driven environmental changes as well as strategies that aid in navigating food choices in schools and communities should be intensified to ensure a healthy food environment for the adolescent.

KEY WORDS:

Qualitative study, adolescents, food environment, food choices

PH12: Comparison of Visual Acuity Measured with Different Acuity Tests for Different Age Groups

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ABSTRACT

Introduction: A patient's visual acuity (VA) may be different depending on the chart used to measure it. The purpose of this study was to compare VA scores measured with three different charts in visually normal children, young adults and older adults. **Methods:** Monocular VA was measured in children (mean age: 10.17±1.94 years old), young adults (24.33±2.5 years old) and older adults (66.33 ± 3.83 years old) with computerised Early Treatment Diabetic Retinopathy Study (ETDRS) test, Tumbling E and Lea Symbols. All charts were presented in the Bailey-Lovie format, i.e. there were five optotypes in a line, the distance between optotypes was one optotype width and each line differed by 0.1 logMAR. Letter-by-letter scoring was used to obtain VA. **Results:** There was a significant effect of age group on VA [$p=0.02$]. The interaction between age and chart type was not statistically significant [$F(3.76,28.2)=0.67$, $p=0.61$] indicating that the different VA scores obtained with different charts were similar across age groups. Post hoc test revealed that VA score with Lea symbols were significantly better (by ~0.1 logMAR, i.e. one line on the acuity chart, $p=0.02$) than the ETDRS and Tumbling E tests. **Conclusions:** For all age groups, VA measured with Lea symbols tends to be overestimated compared with letter, or orientation, discrimination tests. Therefore, caution must be applied when comparing acuity taken with different charts.

KEY WORDS:

Visual acuity, ETDRS chart, Tumbling E, Lea symbols

PH13: Determination of Ash and Mineral Contents in Selected Healthy Recipes from Fit, Eat, Active, Training (F.E.A.T) Programme

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ABSTRACT

Introduction: This study aimed to determine the nutrient contents in healthy dishes from recipe book used in Fit, Eat, Active, Training (F.E.A.T) programme. Ash and mineral contents were parts of the analysed nutrients in the healthy dishes. **Methods:** All 26 sample dishes were prepared at two different times and four replicates were analysed for each food analysis. Ash content in the samples was determined based on AOAC Official Methods (1997). Atomic Absorption Spectroscopy instrument was used to determine potassium (K), calcium (Ca), magnesium (Mg), iron (Fe) and zinc (Zn) contents in all food samples. **Results:** All food samples contained 0.13-6.57% total ash content based on wet weight basis. *Kari Daging* has the highest amount of K and Mg (361.3 mg/100g and 82.7 mg/100g respectively), *Daging Kicap* has the highest amount of Zn (26.4 mg/100g), *Sambal Bilis* has the highest amount of Ca (174.02 mg/100g) and *Sambal Udang* has the highest amount of Fe (3.4 mg/100g). The content of K and Fe were lowest in *Jus Brokoli Sedap* (32.1 mg/100g and 0.25 mg/100g), while *Jus Epal dan Oat* contained lowest amount of Ca (1.03 mg/100g). *Jus Mangga Oat* and *Sambal Udang* contained lowest amount of Mg (11.6 mg/100g) and Zn (0.19 mg/100g), respectively. **Conclusion:** Most of the analysed food samples contained less than 5% total ash which was the normal range of total ash content in most food. Dishes containing meat and seafood contained high amount of Fe and Zn contents.

KEY WORDS:

Modified, recipe, healthy, total ash, mineral

PH14: Development of Assessment Tool for Evaluation of Printed Health Education Materials: Review of Existing Instruments

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ABSTRACT

Introduction: Printed health education materials are commonly used in promoting health in the community. Therefore, this review paper to evaluate existing instruments based on literatures to develop and validate a systematic assessment tool for evaluation of printed health education materials in Malaysia. **Methods:** Scoping review method were used in this study. The literatures searched using Pubmed, online search of health literacy organizations website and general internet search (Google and Google scholar) from 1990 to 2017. Studies that aimed to develop the instrument to assess the printed education material and describing the validity and reliability of produced instrument, as well as the process of their development were included in the search. Instruments that assessing only the readability of material were excluded in the search. **Results:** Over 160 journals, 8 instruments were found. Instruments reviewed consist of BIDS (Bernier instructional design scale), DISCERN tool, SAM (suitability assessment of materials), TEMPtEd (Tool to Evaluate Materials Used in Patient Education), PEMAT (patient education materials assessment tool), Health Literacy INDEX, EQIP tool, and CDC (Centres for Disease Control and Prevention) Clear Communication Index. The review found that most instruments have not been validated or have not shown inter-rater reliability and were developed with specific topic or aim. Furthermore, most of the instruments were developed to assess the quality of printed education material, only one instrument that measure materials are actionable. Most instrument also were aim to be used only by the healthcare professionals. **Conclusion:** Review indicated that there are a few reliable and valid instruments. Furthermore, there is an insufficient of data on impact of education materials on consumer learning outcome.

KEY WORDS:

Printed educational materials, health education, assessment tool

PH15: Acceptance of Healthy Recipes among Adults in Semi-Urban Area

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ABSTRACT

Introduction: Malaysia has a variety of food which comprises of low and high calories. Obviously, all food are available at anytime and anywhere in Malaysia. Commonly many of obesity problem caused by excessive intake of high calorie food. Therefore, this study evaluates acceptance of healthy recipes among adults in Masjid Tanah, Melaka. **Methods:** Healthy recipes were developed as one of strategies in F.E.A.T (Fit, Eat, Active, Training) Obesity Intervention Program. Six (6) men and 24 women, aged 25 – 59 years old involved in this cross-sectional study. Weight, height, waist circumference, total body fat percentage were measured and body mass index (BMI) was calculated. Standard questionnaire was used to determine knowledge on healthy cooking and willingness to cook healthy recipes from the recipe book given to subjects. Cooking session and food testing of 4 recipes were conducted for the subjects. Five-point hedonic scale assessment form was used during food testing. **Results:** Result showed that mean of BMI and body fat percentage among women ($29.5 \pm 5.1 \text{ kg/m}^2$ and $41.3 \pm 5.8\%$) were higher than men ($26.2 \pm 3.40 \text{ kg/m}^2$ and $26.2 \pm 3.40\%$). Seventy percent (70%) of subjects were found to have knowledge on healthy cooking methods and willing to cook healthy recipes at home. According to food testing based on hedonic scale, most subjects (85.7%) rated "like very much" for recipe of *ikan tenggiri masak lemak*, followed by smoothie *sengkuang cina* (82.1%), *lempeng kelapa* (64.3%) and lastly broccoli juice (60.0%). **Conclusion:** Healthy recipes are well accepted among subjects as one of strategies for obesity prevention in the community setting.

KEY WORDS:

Obesity, prevention, healthy recipe, acceptance

PH16: Development of Healthy Soup as Preload for Primary School Children in Malaysia

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ABSTRACT

Introduction: Studies have shown that both food preferences and satiating effect of food are key determinants of energy intake for children. Previous evidence revealed that serving soup as preload can reduce food intake during subsequent meal. To enhance satiety, several characteristics of soup had been suggested, including the amount consumed, nutrient content, energy content, temperature and viscosity. However, Malaysia as a multi-ethnic society may have different soup preferences among the different ethnicities. Thus, the aim of this study is to develop a healthy soup that is acceptable by Malay, Chinese and Indian primary schoolchildren in Malaysia. **Methods:** Formulation of the healthy soup will be developed based on the preferences of children indicated through a food preference questionnaire. Nutrient composition such as total carbohydrate, protein, fat, water and ash contents will be determined using proximate analysis (AOAC methods), while sodium will be determined using Atomic Absorption Spectroscopy (AAS). Total energy content will be calculated by adding the *energy* provided by the *protein*, *fat* and total *carbohydrate*. Participants will evaluate overall acceptability of the soup using a five-point facial hedonic scale. **Results:** It is hypothesized that the newly developed healthy soup will be accepted by children from all three different ethnicities. It can be a choice of preload for children that may be able to reduce their food intake during a subsequent meal. **Conclusion:** The development of a healthy soup as preload for children may increase their satiety. Consuming this preload may avoid the overconsumption of high fat food and unhealthy snacks in subsequent meals.

KEY WORDS:

Preload, soup, sensory, hedonic, satiety

PH17: Hospital Healthcare Workers Who Ideated, Planned and Attempted Suicide: Risk Factors and Attitude Towards Suicide

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ABSTRACT

Introduction: This study was conducted to determine the risk factors and attitude towards suicide among healthcare workers with suicidal ideation, planning and attempt in a public hospital in Malaysia. **Methods:** Nurses, assistant medical officers and hospital attendants were randomly sampled, while doctors were universally sampled from continuous medical education workshops from seven major hospital departments. A questionnaire consisting of demographics, personal and family lifetime suicidality, the Attitudes Towards Suicide questionnaire, MBI and DASS-21 was self-administered. **Results:** Of the 368 participants, most were nurses (41.0%), Malay (84.8%), female (68.8%), and married (69.8%). Risk factors for suicidal ideation were being a doctor (OR = 13.039, $p = 0.003$), a nurse (OR = 7.507, $p = 0.016$), an assistant medical officer (OR = 9.128, $p = 0.024$), having family suicide history (OR = 3.396, $p = 0.046$), being male (OR = 2.319, $p = 0.047$), stressed (OR = 1.117, $p = 0.022$) and emotionally exhausted (OR = 1.055, $p = 0.018$). For suicide planning and attempt, the risk factors were being emotionally exhausted (OR = 1.087, $p = 0.015$ for planning; OR = 1.186, $p = 0.006$ for attempt). Those with high acceptability of suicide were more prone to suicidal ideation (OR = 1.199; $p < 0.001$) and planning (OR = 1.220; $p = 0.003$). **Conclusion:** The health care system needs to urgently address professional and personal factors that lead to suicidality among healthcare workers.

KEY WORDS:

Suicidal ideation, suicide plan, suicide attempt, healthcare worker, attitude toward suicide

PH18: The Test of Visual-Perceptual Skills (Non-Motor)-Revised (TVPS-R) Performance among Sample of Year-2 Students in Klang Valley

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ABSTRACT

Introduction: Vision plays an important role in the early stage of a child's visual-cognitive development. Children with visual-perceptual function deficits usually are associated with difficulty in learning. One of the most commonly-used visual-perceptual skills test is the Test of Visual-Perceptual Skills (Non-Motor)-Revised (TVPS-R). **Methods:** This study was conducted to determine the normative data of TVPS-R test for a sample of Year-2 students in Klang Valley to compare the data with the normative data from US and finally to determine the relationship between visual-perceptual skills and reading performance. **Results:** Visual-perceptual functions of 202 Year-2 students from two primary schools in Klang Valley were tested. Raw scores of TVPS-R were then converted into standard scores. Reading performance was determined by measuring the reading speed using a Malay Language Related Reading Text for grade 1. Results showed that the mean standard scores obtained for visual discrimination, visual memory, visual spatial-relationships, visual form constancy, visual-sequential memory, visual figure ground and visual closure subtests were 109.02 ± 13.32 , 110.22 ± 11.74 , 115.34 ± 10.57 , 107.83 ± 12.54 , 116.34 ± 11.03 , 113.31 ± 10.90 and 112.58 ± 11.62 respectively. The results indicated that the normative data in this study was significantly higher ($p < 0.05$) than that of Gardner for all the subtests. There was also a positive correlation between all visual perceptual skills subtests with reading performance except for visual closure. **Conclusion:** In conclusion, the performance in TVPS-R of a sample of children in the Klang Valley, Malaysia was significantly better than the children in the US. This result suggested that it was necessary to develop an individual population-based normative data of TVPS-R.

KEY WORDS:

Visual-perceptual skills, TVPS-R, reading performance, normative, children

PH19: How Long Can a Mobile Tooth Survive in the Mouth?

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ABSTRACT

Introduction: Periodontal therapy improves the health of tooth supporting tissues but predictability of mobile teeth retention in mouth following therapy is still uncertain. **Methods:** This study aimed to determine the survival of mobile teeth in patients with periodontitis following supportive periodontal therapy (SPT). Data from case notes of 100 patients treated for five years by a periodontist at a government dental clinic including number of teeth present, type of teeth, degree of tooth mobility and reasons for tooth extraction were used. **Results:** Most of the mobile teeth were extracted within first year of treatment (n=122, 18.12%) and amongst these were mostly molars (n=56, 8.32%), followed by cuspids (n=36, 5.35%) and incisors (n=30, 4.46%). It was found that the number of teeth extracted decreased from the first year (12.18%, p=0.0008) to fifth year (1.43%, p=0.0008) with difference of 8.8%, 2.15%, 0.34% and 0.54% annually. The most profound reason for tooth extraction was disease progression and/or recurrence (n=105, 15.06%, p=0.001). Additionally, severity of tooth mobility was shown to improve with time following therapy from Grade3 (n=62) to Grade2 (1.45%, p=0.98), and Grade1 (0.36%, p=0.77); from Grade2 (n=183) to Grade1 (3.27%, p=0.97) and No mobility (17.6%, p=0.09); and finally from Grade1 (n=428) to No mobility (59.89%, p=0.0002) respectively. **Conclusions:** Our study showed that most mobile teeth, particularly molars, in patients with periodontitis although given SPT, were likely to be extracted within the first year of treatment. Nevertheless, with continued and timely supportive care, mobile teeth can survive longer in the patients' mouth.

KEY WORDS:

Periodontitis, tooth mobility, supportive care

PH20: The Effect of *Zingiber officinale* Roscoe (Ginger) on Dentine Microhardness: An In-Vitro Study

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ABSTRACT

Introduction: *Zingiber officinale roscoe* (ginger) was reported to have significant antibacterial effect against several tooth root canal microorganisms, hence its potential as root canal irrigant was explored. **Methods:** This study was conducted to investigate the effect of *Z.officinale* rhizome oil on root dentine microhardness. Sixty root halves of extracted human teeth were used and prepared by embedding them individually in autopolymerizing acrylic resin. These samples were then divided into three groups (n=20 each). Microhardness was measured using Vickers Microhardness Test machine with 50g load and a 10-second dwell time, before and after immersion in solutions i.e. 0.5% oil, 2.5% sodium hypochlorite (NaOCl, positive control) and normal saline (negative control) for 5 min. Measurements were taken in Vickers hardness units (VHN). **Results:** All samples showed reduction in the microhardness reading from 34.238, 31.465 and 29.818 to 25.887, 26.338 and 27.612 VHN (oil, NaOCl and saline) respectively. Although there was significant reduction within the *Z. officinale* group (p=0.0001), the change was indifferent when compared among groups (post hoc Tukey's HSD test p > 0.005). **Conclusion:** As an effective antibacterial agent, *Z.officinale* oil also demonstrated in this study to be comparably safe as canal irrigant as it does not significantly alter dentine microhardness.

KEY WORDS:

Zingiber officinale, dentine, irrigant, microhardness

PH21: Accommodation and Convergence Demand and Reserves among Visually Impaired School Children

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ABSTRACT

Introduction: Visually impaired school children usually use shorter near working distance than the normally sighted children which impose high accommodative and convergence demand. **Methods:** The purpose of this study is to investigate the accommodation and convergence demand and reserve of visually impaired (VI) school children when reading. Nineteen visually impaired school children participated in this study. The symptoms while doing near work were recorded during history taking. The parameter measured were distance and near visual acuity, near working distance, amplitude of accommodation, accommodation response, type of heterophoria and magnitude, near point of convergence and fusional reserve. **Results:** Symptoms often complained by VI school children was "easily feel tired when reading" (68.4%, n=13). The mean accommodation reserve (AR) of VI school children (mean = $7.12 \pm 5.18D$) was sufficient to fulfill the accommodation demand (AD) (mean = $5.99 \pm 2.27 D$). They used $49.03 \pm 24.82\%$ of accommodation when reading. Fifty-eight percent (n=11) of VI school children had sufficient AR. The mean convergence demand (CD) of VI school children was $13.47 \pm 2.06pd$; fusional reserve was 2.79 times higher than their heterophoria. Sixty-three percent (n=12) of LV school children had sufficient CR. **Conclusion:** Although majority of VI school children have sufficient accommodation and convergence reserve while reading, more than 30% of them showed insufficient AR and CR. Hence, indicating the needs of binocular vision assessment which currently is not routinely carried out in managing LV among school children.

KEY WORDS:

Visually impaired school children, accommodation, convergence, reading

PH22: Fruit Intake Pattern among Malay Young Adults in Klang Valley

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ABSTRACT

Introduction: The consumption of fruits in managing body weight has received many attentions due to the potential effect in increasing satiety. **Methods:** This cross-sectional study was aimed to determine the fruit intake pattern among adults in Klang Valley in relation to their nutritional status. Food Frequency Questionnaire (FFQ) was used to determine the pattern of fruit intake. The anthropometric measurements were conducted according to the standard guidelines. **Results:** A total of 202 Malay subjects (mean age: $25.29 + 4.61$ years) with mean BMI of $23.82 + 4.79 \text{ kg/m}^2$ have participated in this study. Majority of the subjects were female (59.9%) followed by 40.1% of male. Mean fruit intake was $229.57 + 199.28 \text{ g}$ per day. A lower fruit consumption ($1.82 + 1.49$ serving) as compared to the Malaysian Dietary Guidelines for Adults (2010) was found in the mean of daily fruit intake. Female subjects consumed significantly ($p < 0.05$) more fruit ($1.90 + 1.46$ serving) as compared to male ($1.70 + 1.56$ serving). The commonly consumed fruits include apple, banana and mango, while fruit juices include mango, orange and apple. Dates, raisin and dried apple were the most preferred dried fruits by the participants. Mean fruit intake was not associated with anthropometric measurements. **Conclusion:** There was a difference in fruit intake between genders. However, the fruit intake of the studied population was inadequate to meet the recommendation.

KEY WORDS:

Fruit intake, fruit intake pattern, adults, anthropometric measurements

PH23: Assessment of Nutritional Status, Physical Activity and Bone Health Status among Hikers

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ABSTRACT

Introduction: The present study aimed to assess the nutritional, physical activity and bone health status among adults' hikers. **Methods:** This cross-sectional study involved 330 adults aged from 18 to 50 years old. Anthropometric and body composition measurements of height, weight, body percentage and body mass index were taken. Physical activity status was determined by interviewing subjects using International Physical Activity Questionnaire (IPAQ). Bone health status determined by measuring bone mineral density (BMD) subjects using Quantitative Ultrasonometer versi CM-200 sonometer. **Results:** The mean body mass index (BMI) of hikers for men and women are $23.85 \pm 3.85 \text{ kg/m}^2$ and $22.29 \pm 3.05 \text{ kg/m}^2$ meanwhile for mean body fat percentage of hikers for both men and women are $19.20 \pm 5.64 \%$ and $29.32 \pm 6.46 \%$, respectively. For the physical activity assessment, the mean of $6019.05 \pm 5758.65 \text{ MET-min/week}$ was obtained. Bone status (T-score) hikers for both men and women are significantly different 0.27 ± 1.18 and -0.25 ± 1.08 , as compared to non-hikers with the value of -0.2 ± 0.90 and -0.43 ± 0.88 . Significant difference was observed between hikers and non-hikers for overall mean of BMI, physical activity level and bone health status. There was also relationship between bone health status with age ($p < 0.001$), gender ($p < 0.001$), body fat percentage ($p < 0.001$). **Conclusion:** In conclusion, hikers have satisfactory nutritional status based on anthropometry parameter and better bone health status compared to non-hikers. Thus, hiking should be encouraging in future as it come along with the health benefits.

KEY WORDS:

Hiking, nutritional status, physical activity, bone health status

PH24 : Is Optometrist Play an Important Role in Pediatric Vision Care? A survey in Malaysia

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ABSTRACT

Introduction: A study was carried out to determine optometrists' role in pediatric vision care in Malaysia. According to Chen & Duratul (2001), optometrists' said that pediatric eye examination is time consuming (29%), difficult (22%), lack of confidence (22%) and unprofitable (13%). For Aston Eye Study Group (2009) stated that there is about 1 in every 10 children age 12 years old and 1 in every 17 children age 6 years old have uncorrected refractive error. American Optometric Association (2004) stated that children should receive their first eye examination on the first 6 month of life, then 3 years old and then before entering school ages. For normal school children, they should get their eyes check routinely every 2 years. **Method:** About 200 private optometrists that were registered under Association of Malaysian Optometrist (AMO) were involved as respondents. A set of questionnaires were sent together with empty stamped envelope to makesure they would returned it back to us. **Results:** Out of 200 respondents, only 86(43%) had returned back the questionnaires to us. Majority (97%) received pediatric patients. Children aged 6 to 12 years old were mostly seen (71%), followed by 4 to 6 years old (23%) and <4 years old (6%). Refractive error was the most frequent case seen (80%). Snellen chart was the mostly used method in visual acuity (25% for children aged <4 years old, 84% for aged 4 to 6 years old and 98% for aged 6 to 12 years old). Retinoscopy mostly used on children aged <4 years old (75%) and 4 to 6 years old (95%). Subjective refraction mostly done on children aged 6 to 12 years old (98%). Majority of the optometrists examined children's binocular vision (43% for aged < 4 years old, 58% for aged 4 to 6 years old and 65% for aged 6 to 12 years old). Most of them provide treatment for amblyopia (81% for strabismic amblyopia and 88% for anisometric amblyopia). Referral cases mostly to the ophthalmologists (92%), orthoptists (54%), other optometrists (5%), other professionals (5%) and medical doctor (4%). In optometrists' opinion, pediatric vision examination were sometimes difficult (77%), time consuming (58%), sometimes unsuccessful (55%) and unprofitable (54%). **Conclusion:** Most of the optometrists believed they were important in pediatric vision care as well as other professionals like ophthalmologists, orthoptists, medical doctors, teachers and parents.

KEY WORDS:

Pediatric Vision Care, Optometrist, Association of Malaysian Optometrists (AMO)

PD1: Benzene Exposure and Pulmonary Function Status among Foggers at Dewan Bandaraya Kuala Lumpur

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ABSTRACT

Introduction: Thermal fogging is one of the methods to control the spread of dengue fever. Chemicals used in the thermal fog machine consist of diesel and petrol, which both contain volatile organic compounds including benzene. **Method:** The aims of this study were to determine the personal benzene concentration and to conduct the lung function test among foggers at Dewan Bandaraya Kuala Lumpur. Personal benzene concentration was measured using a personal air sampler and analyzed following the NIOSH Manual of Analytical Methods (NMAM) 1501. Measurement of personal benzene concentration involved two fogger activities namely during the preparation of chemical and when fogging was executed. Lung function of the 35 foggers (exposed group) and 35 non-foggers (control group) was tested using a spirometer. The respondents were also required to answer a questionnaire. **Results:** The results showed that the average personal benzene concentration was 1.3 ppm during the chemical preparation and below the detection limit (< DL) when fogging was carried out. Personal benzene concentration measured during the preparation of chemical was found to exceed the limit set by the NIOSH (US). For the lung function test, the percentage of foggers having restrictive lung problems was lower than the control group. However, statistical tests showed no significant difference ($p > 0.05$) between these two groups. This study also found that smoking status showed a significant difference ($p < 0.05$) in foggers. **Conclusion:** In conclusion, exposure to individual benzene concentration was found to be higher during the chemical preparation activities. Abnormalities in lung function among the foggers cannot be associated directly with exposure to benzene, but there was another contributing factor, namely smoking habits. However, risk control measures such as substitution of other chemicals containing benzene and the use of personal protective equipment (PPE) must be completely practiced by the foggers.

KEY WORDS:

Benzene, Lung Function Test, Diesel, Petrol, Foggers

PD2: Evaluation of Bacterial Contamination in Beverages Sold by Street Vendors around Chow Kit area

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ABSTRACT

Introduction: Consumption of roadside foods and beverages potentially increases the risk of foodborne diseases due to improper handling and poor hygienic practice among the street vendors. This study was carried out to determine the level of bacterial contamination in three types of beverages (cordial-based drinks, milk-based drinks, fruit juices) sold by street vendors around the Chow Kit area. **Method:** A total of 31 samples of beverages were analyzed to determine the total viable count, total coliform, *Escherichia coli*, *Staphylococcus aureus* and presence of *Salmonella* spp. by using the standard plate count method. **Results:** Milk-based drinks were found to had the highest mean of total viable count at 5.30 ± 1.11 Log CFU/ml. About 71% of the samples were positive with total coliform with the highest mean of 4.75 ± 0.79 Log CFU/ml in fruit juices. *Staphylococcus aureus* was detected in 58% of samples. The highest mean of *Staphylococcus aureus* found was 3.42 ± 1.15 Log CFU/mL, also in fruit juices. Only one sample of milk-based drinks was found to be positive with *E. coli*. There were 19% of the samples that were positive with *Salmonella* spp. There was no detection of *Salmonella* spp. in the milk-based drinks. **Conclusion:** The safety level of beverages sold around Chow Kit area was average. Actions for improvement could be implemented to ensure the safety and maximize the quality of beverages sold by the streets.

KEY WORDS:

Beverages, street vendors, bacterial contamination

PD3: Concentrations and Health Risk Assessment of Heavy Metals in Road Dust in Kuala Lumpur

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ABSTRACT

Introduction: Heavy metal is one of the contributors of heavy metal pollution in the urban environment. The objectives were to determine and compare the concentration of chromium, copper, nickel, lead and zinc in three study locations and to calculate the carcinogenic and non-carcinogenic health risk of heavy metals. **Method:** Samples were collected from three sampling locations namely Jalan Titiwangsa, Jalan Imbi and Jalan Chow Kit. The concentration of heavy metals in road dust was analyzed by using inductively coupled plasma mass spectrometry. **Result:** The results from this study showed that zinc was the most abundant heavy metal overall, (95.74 ± 27.09 mg/kg) was detected at Jalan Titiwangsa, (65.26 ± 12.63 mg/kg) and (50.41 ± 3.92 mg/kg) were detected at Jalan Imbi and Jalan Chow Kit respectively. Statistical analysis showed that there was a difference of mean concentration for zinc in three study locations. The highest HQ value for all three study locations to both adults and children is through inhalation, ingestion and dermal contact. Both HQ and HI values for five heavy metals are below the safe level which is less than the value of 1, which is the standard for health risk assessment of heavy metals for both adults and children. Besides that, the risk of cancer for chromium to both adults and children through inhalation at all three study locations were above the acceptable level of 1×10^{-6} . **Conclusion:** Calculated health risk suggested that there was an acceptable potential health effects caused by the road dust.

KEY WORDS:

Heavy metals, health risk, road dust

PD4: An fMRI Study of Working Memory in Moderate-TBI Patients: Results from Preliminary Data

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ABSTRACT

Introduction: Patients diagnosed with traumatic brain injury (TBI) often report impairments in cognitive functioning that interfere with their daily lives. The present preliminary study looks at brain responses to a working memory task (i.e. n-back task) in healthy participants and participants with moderate TBI using functional Magnetic Resonance Imaging (fMRI). **Method:** Seven Malay males (5 controls and 2 moderate-TBI participants) underwent the visual n-back task, which consisted of four conditions: 0-, 1-, 2-, and 3-back, during scanning using a 3.0-T scanner (Achieva, Philips, the Netherlands). The functional images were preprocessed and analyzed using MATLAB 8.3 R2014a and Statistical Parametric Mapping 12 (SPM12) software. Two fixed-effects analyses (FFX) were performed for the respective groups, and the activated brain regions were identified using the WFU PickAtlas software at a significant statistical inference FWE of $\alpha = .001$ for multiple comparisons. **Results:** The healthy subjects displayed significantly elevated activations in their bilateral middle frontal gyri across all conditions except for 1-back ($P_{FWE} < .001$, $t > 11.86$), with more clusters being significantly activated in the gyri as memory load increased. On the other hand, the moderate-TBI participants exhibited significant activations in their bilateral superior parietal cortex during the 2- and 3-back conditions ($P_{FWE} < .001$, $t > 11.81$), which were not observed in the healthy subjects. **Conclusion:** This preliminary study on working memory demonstrates that brain activations differ between healthy and TBI participants. It paves the way for understanding working memory and its underlying brain responses in individuals with moderate-TBI.

KEY WORDS:

fMRI, traumatic brain injury, working memory

PD5: The Effect of Work Stress and Smoking Towards the Sperm Quality among Infertile Male

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ABSTRACT

Introduction: Infertility is defined as the inability of a couple to conceive after 12 months of unprotected regular sexual intercourse and it is estimated to affect 10%–15% of all couples. Recently, the pivotal role that lifestyle factors play in the development of infertility has generated a considerable amount of interest. Lifestyle factors such as work stress and smoking are modifiable habits and ways of life that can greatly influence overall health and well-being, including fertility. Therefore, this research is to determine the influence of work stress and smoking status towards sperm quality through the means of DNA compaction and DNA damage among male infertile patients. **Method:** A total of 210 Medically Assisted Contraceptive (MAC), HUKM patients were selected. Demography, stress levels, DNA compaction and damage were obtained. **Results:** Result shows there is significant correlation between work stress and smoking habit ($r = 0.395$, $n=107$, $p<0.01$) and smoking habits shows a significant correlation towards sperm DNA damage by the means of DNA integrity among infertile patients. There is a strong correlation between smoking and immature histone ($r= 0.485$, $n=107$, $p <0.01$) and incomplete protamination ($r= 0.775$, $n=107$, $p<0.01$). Smokers in the research was found to have a much lower sperm count ($\chi^2 = 116.193$, $df=1$, $p <0.01$) compare to nonsmokers. **Conclusion:** In conclusion, this research revealed that work stress and smoking could alter the integrity of DNA and increase the vulnerability of the sperm DNA towards damage. However, this scenario can be prevented as work stress and smoking are modifiable.

KEY WORDS:

DNA, infertile male, sperm quality

PD6: Radiotherapy Undersupply in SEA Countries: Estimation of the Need in 2025 and 2035

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ABSTRACT

Introduction: The prevalence of cancer is rising. As about 50% of cancer patients may require radiotherapy, the demand of radiotherapy as the main treatment to treat cancer is likely to rise as well especially in low and middle income countries. This study aims to quantify the radiotherapy demand in Malaysia and countries in Southeast Asia (SEA) by 2025 and 2035. **Methods:** SEA country-specific cancer prevalence by tumour site for 2025 and 2035 was extracted from the GLOBOCAN database. The optimal radiotherapy utilisation rate model by Wong K et al. (2016) is used to calculate the optimal numbers for radiotherapy courses and fractions per treatment course in respected countries. Data on currently available machines were extracted from the IAEA's Directory of Radiotherapy Centres (DIRAC) which were compared to estimate the number of machines required. **Results:** The incidence of cancers in SEA countries are expected to increase in 2025 (1,137,896 cases) and 2035 (1,448,523 cases) in comparison to 2015 (853,052 cases). The number of radiotherapy fractions needed in 2025 and 2035 are 11,113,967 and 14,147,898, respectively. In terms of number of radiotherapy linear accelerators (LINAC) required, a total number of LINACs needed for year 2025 and 2035 in SEA countries are 387 and 807, respectively. This is an addition to 228 machines currently available. Indonesia has markedly the highest number of machines needed which are 153 (2025) and 322 (2035) compared to 25 currently available. However, for countries such as Brunei and Timor Leste, each has represented a remarkably unchanged number of machines needed when the number remain to be equipped only one from 2015 to 2025 in Brunei, even though the current number is two. While in Timor Leste, noted only one additional machine needed from year 2015 to year 2025 and 2035. Malaysia needs 21 machines in 2025 and 47 machines in 2035 in addition to 48 available now. **Conclusion:** Estimation for number of machines required can be obtained from the data of optimal number for radiotherapy courses. This will be a guide for future acquisition of new LINACs in SEA countries.

KEY WORDS:

Radiotherapy, radiotherapy demand, cancer prevalence, optimal utilization, radiotherapy equipment

PD7: The Inclusion of Radiation-Specific Clinical Data as Covariates in Toxicity-Related Radiogenomic Studies: A Systematic Review

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ABSTRACT

Introduction: Radiation-specific clinical factors can contribute to radiation toxicity. In radiogenomic studies, it is important to determine that the genotypes are associated to toxicity independently of treatment factors. Hence, the details of radiation-specific clinical data should be considered as covariates. This systematic review will evaluate the completeness of radiation-specific clinical data in radiogenomic studies and determine whether the studies consider these data as covariates. **Methods:** Studies were identified by searching Scopus, PubMed and Medline until November 2016. References from the retrieved articles were also searched for additional publications. Studies satisfying the following criteria were eligible for inclusion: related to the effects of radiation dose from radiotherapy to normal tissues and involving human subjects. Studies on animals, cell cultures, case reports, meta-analysis and systematic review articles were excluded. The completeness of the radiation specific clinical data was determined by mining the statement of total radiation dose, dose-fractionation, target volume selection or arrangement and dose-volume metrics. The consideration of the dose and dose-volume metrics as covariates were based on the statement mentioned in the statistical analysis part of the studies. The significance of these covariates was extracted from the results of studies. Descriptive analyses were performed to determine the completeness and inclusion as covariates. **Results:** A total of 112 studies were found to satisfy the inclusion criteria. The completeness of radiation-specific clinical data in the studies was increasing from year <2005 (60%), year 2005 to 2010 (65%) and year >2010 is (87%). 95% (107/112) of the studies mentioned total radiation dose used in the cohorts but only 19% (20/107) considered radiation dose as a covariate, 45% (9/20) are lung cancer studies, 30% (6/20) are breast cancer studies, 10% (2/20) are prostate cancer studies and 15% (3/20) are head and neck cancer studies. Only 29% (33/112) of studies mentioned dose-volume metrics used and of these 67% (22/33) of the studies consider dose-volume metrics as covariates. 20% (4/20) of the studies that consider radiation dose are significant associate with the studies endpoints. 41% (9/22) of the studies show dose volume metrics are significant in associating with the studies end points. **Conclusion:** Large proportion of radiogenomic studies do not account for dose and dose-volume factors despite significance of dose factors to toxicity shown in other studies. However, the completeness of radiation-specific clinical data increased in recent years which may improve gene-toxicity association studies.

KEY WORDS:

Radiogenomics; dose indices; radiotherapy; toxicity

PD8: Understanding Psychosocial Constraints among Caregivers of Children with Learning Disabilities: A Qualitative Study in Kelantan, Malaysia

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ABSTRACT

Introduction: Caregivers of children with learning disabilities could experience various psychosocial difficulties throughout caregiving process of their children. Psychosocial supports are among the aspects that contribute to family quality of life. This study sought to explore psychosocial constraints experienced by the caregivers of children with learning disabilities in Kelantan, Malaysia. **Method:** This was a qualitative study utilizing phenomenological approach. This study was conducted in community-based rehabilitation centres and schools with special education integration programme from three regions in Kelantan. Fourteen caregivers and eight service providers were recruited through purposive sampling. Data were collected via face-to-face in-depth interviews with the informants. An interview protocol was used to guide the interviewer along the course of all interviews. The transcripts were analyzed thematically to identify psychosocial issues affecting caregiver's health-related quality of life and family functioning. **Results:** The constraints experienced by the caregivers were associated with five main themes such as intrapsychic, attitude, and coping skills of caregiver; accessibility to services; socio-cultural issue; formal and informal social support; and system and policy. These barriers experienced by the caregivers could lead to many unmet needs which further negatively impact their quality of life. **Conclusion:** In practice, this study highlighted that the psychosocial concerns and determinants of quality of life must be considered in overall intervention planning and strategies. Existing services delivery for children with learning disabilities and their families should be improved.

KEY WORDS:

Psychosocial; constraints; caregivers; children with learning disabilities; qualitative

PD9: Factors Affecting Health-Related Quality of Life among Children with Special Needs in Kelantan- The Malaysian Perspective

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ABSTRACT

Introduction: Health-Related Quality of Life (HRQOL) is a direct measurement of human population health, life expectancy, causes of death and focused on the impact of health status on quality of life. It covers the domain related to physical, mental, emotional and social functioning. **Method:** Current study aimed to determine the factors may affecting Health-Related Quality of Life of children with special needs age eight to 18 years old in Kelantan, Malaysia. This cross-sectional study involved 130 parents or caregiver of special need children. Demographic information was obtained using proforma sheet, the HRQOL were assessed using Paediatric Quality of Life (PedsQL™) inventory version 4.0 generic score and Comprehensive Test of Nonverbal Intelligence-Second Edition (CTONI-2) was used to assess special need children intelligence. Data analysis involved One-way between group Analysis of Variance, *Pearson* Product-Moment Correlation Analysis and Multiple Linear Regression. **Result:** There was significance difference on children's HRQOL among parents educational background ($p < 0.05$) where the *post-hoc* Tukey's with HSD shows a significant difference at $p = 0.02$ between the group of parents who never went to school and parents undergoes primary school. *Pearson* Correlation analysis showed positive correlation between special needs children IQ score ($r = 0.314$; $p < 0.001$) and family monthly income ($r = 0.218$; $p = 0.013$) have positive correlation on HRQOL. Multiple linear regression analysis (Adjusted R square = .200) showing 20% change of variance in HRQOL can be explained by IQ score and parents' educational background. **Conclusion:** To summarize, the HRQOL of children with special need was found to be associated with IQ score and parents educational background. Special need children with low IQ and poor parents education background have lower levels of HRQOL in comparison with parents who are well educated.

KEY WORDS:

HRQOL, IQ, Special Needs Children, Kelantan, Malaysia

PD10: Cortical Activation During Motor Imagery and Action Observation of Simple Motor Task: An fMRI Study

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ABSTRACT

Introduction: Motor imagery and action observation seems to be useful in motor facilitation and provide positive impact in motor improvement. The aim of this study is to investigate brain regions related motor imagery and action observe using a simple motor task. **Method:** In this study, functional magnetic resonance imaging (fMRI) was used to study brain activation in sixteen healthy participants who were instructed to imagine and observe simple finger tapping movement. Statistical parametric mapping 12 was used to analyze the result and compare the brain activation between these two conditions. **Results:** Result showed higher activation in supplementary motor area engaged during motor imagery condition. This indicate that motor imagery involve more in motor planning compared to action observation. **Conclusion:** Combined condition activated motor related brain region and it could be suggested as alternative tool in future rehabilitation to help patient who suffered motor impairment after stroke.

KEY WORDS:

Motor imagery, action observation, functional magnetic resonance imaging

PD11: Preliminary Effects of Oleuropein on the Two-Stage Skin Carcinogenesis Model

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ABSTRACT

Introduction: Oleuropein is a phenylethanoid, a form of phenolic compound which can be majorly found in olive leaves. Previous studies have shown several pharmacological activities of oleuropein against different cancer cell lines. **Method:** In this study, we further investigated the effect of oleuropein on the tumour development by using the two-stage skin carcinogenesis mouse model. 18 female ICR mice were randomly divided into 3 groups (n=6 per group); group I was pre-treated with oleuropein (10mg/kg) before DMBA/TPA, group II as a positive control (DMBA/TPA), and group III as a negative control (70% acetone). All animals were killed at the week 10. **Results:** Pretreatment with oleuropein before DMBA/TPA has resulted in a reduction of epidermal hyperplasia as compared to thick hyperplasia observed in the control positive group through the histology analysis. Moreover, several apoptotic cells were expressed on the oleuropein-pretreated group whilst none was observed on both control groups. Thus, this may suggest the selective role of oleuropein in the apoptotic activity. On the other hand, the level of malondialdehyde (MDA) was significantly decreased, whilst the level of superoxide dismutase (SOD) was significantly increased in the oleuropein-pretreated group at the week 10. **Conclusion:** The preliminary results indicated that oleuropein may act as a potent chemopreventive agent against the development of mouse skin carcinogenesis through its apoptotic and anti-oxidant actions.

KEY WORDS:

Oleuropein; carcinogenesis; cancer; skin; antioxidant

PD12: Enhancement of Different Types and Concentrations of Pineapple Juices in 1.5T Magnetic Resonance Imaging (MRI)

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ABSTRACT

Introduction: Ananas comosus (pineapple) has been believed to have a capability to become an alternative oral contrast agent due to a high content of paramagnetic component which is manganese. **Method:** An experiment was done in order to study the magnetization properties of pineapple. Nine bottles were filled with 150mL of different types and concentrations of pineapple juices. All these bottles were then immersed in a water container. Abdominal coil was used to acquire the magnetic resonance imaging (MRI) of T1-weighted (T1W) and T2-weighted (T2W) images. Images were displayed in coronal section for measuring their signal intensity based on signal-to-noise ratio (SNR). Then the SNR of each juice was correlated with its image quality on T1W and T2W images. **Results:** For T1W images, there were statistically significant differences in SNRs between types and concentrations of pineapple (p value=0.006; p value =0.01). While for T2W images, a statistically significant difference was only found between SNR and concentrations of pineapple (p value=0.014). Pearson correlation value between SNR and image quality was 0.977 for T1W images, whereas for T2W images it was -0.868. **Conclusion:** The outcomes of this study indicate that pineapple has a strong enhancement value on T1W and T2W images. Indeed, the Josapine type of pineapple at 100% concentration was found to be the best contrast agent among those studied samples. Therefore, pineapple is suitable to be used as an alternative oral contrast agent for MRI scans.

KEY WORDS:

MRI, alternative oral contrast agent, pineapple, SNR, image quality

PD13: MDRD versus CKD-EPI Equation to Estimate Glomerular Filtration Rate: A Retrospective Study

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ABSTRACT

Introduction: Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) creatinine-based equation was developed to address the systematic underestimation of the glomerular filtration rate (GFR) by the Modification of Diet in Renal Disease (MDRD) Study equation in patients with a relatively well-preserved kidney function. The objective of this study is to evaluate eGFR by CKD-EPI vs. MDRD equations and to stratify kidney function according to KDIGO guidelines. **Method:** Serum creatinine from 8754 patients were extracted from our laboratory data. eGFR were calculated using the CKD-EPI and MDRD equations. CKD stages based on two different eGFRs were compared. **Results:** Sample consisted of 3446 women (40%) and 5308 men (60%). Median age of patient was 58 years and median baseline creatinine was 83mmol/L. Baseline median eGFR was 84.8 and 86.6 mL/min/1.73 m² for MDRD and CKD-EPI equations ($p < 0.001$), respectively. Of the 8754 measurements, MDRD classified 2169 (25%) patients as "normal function" (eGFR>90%) while CKD-EPI classified 2720 (31%) patients as "normal function". 15% patients who were classified as "normal function" with CKD-EPI were classified as "mild reduced GFR" (GFR: 60-89 mL/min/1.73 m²) using MDRD. CKD-EPI classified fewer patients (63%) as eGFR < 60% as compared to MDRD (72%). **Conclusion:** The CKDEPI

equation classified fewer individuals as having reduced kidney function than did the MDRD Study equation across a broad age range.

KEY WORDS:

CKD-EPI equation, MDRD equation, estimated GFR, renal function

PD14: Pedometer-measured Physical Activity in Primary School Children in Kuala Lumpur, Malaysia

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ABSTRACT

Introduction: Physically inactive is widely considered as a contributing factor to the obesity epidemic especially among growing children. Accurate assessment of physical activity provides valuable information on daily activity pattern. The aim of this study was to objectively measure physical activity and its association with socio-demographic factors among Malaysian primary school aged children. **Methods:** Subjects were 111 primary school children in Kuala Lumpur selected through random sampling. Activity pattern was determined using pedometers on two weekdays and one weekend day and differences by sex, ethnicity and weight category (BMI) were analyzed. The relationship between pedometer and socio-demographic factors were also studied. **Results:** Subjects included 46 boys and 65 girls (64% were Malays, 20.7% Chinese and 15.3% Indians). Overall, boys attained significantly higher daily step counts than girls (9573 ± 4145 vs. 7313 ± 2697). There was significant sex differences for the daily step counts during weekdays ($p < 0.01$), weekends ($p < 0.05$) and total mean step counts ($p < 0.01$). Malay ethnicity showed higher daily step counts during weekday than weekend ($p < 0.05$). Girls had higher odds (OR=5.58; 95%CI 1.12, 27.77) of not meeting the recommended daily step count compared to boys; while those having low physical activity levels had higher odds (OR=15.75; 95%CI 1.78, 139.33) of not meeting recommended daily step counts compared to children having moderate physical activity level. **Conclusion:** In conclusion, boys were significantly more active than girls and physical activity was greater during weekdays compared to weekends. These children were sedentary with minimum physical activity being observed. Sex differences and physical activity levels influence the pedometer step counts in children.

KEY WORDS:

Pedometer, physical activity, school children

PD15: Cytogenecity Evaluation of Students from Tahfiz Schools in Selangor

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ABSTRACT

Introduction: There is a lot of evidence that shows spirituality and religiosity approach in life can improve health status. Spirituality and religiosity approach is also largely applied in Tahfiz schools. **Method:** Sectional study was conducted among students of Tahfiz schools and buccal cells were collected to assess the presence of nuclear abnormalities via the formation of micronucleus (MN) and binucleus (BNu) per cell. Statistical analysis was also performed to measure the association between the frequency of micronuclei (MN) and binucleus (BNu) per cell with their lifestyle factors (sleep times, exercise times, and time of use of mobile phones) and demographic data (age, FSIQ, and number of pages al-Quran that memorized). **Results:** It was found that the frequency of BNu per cell was higher for students from non-Tahfiz schools compared to Tahfiz schools. Meanwhile, the frequency of micronucleus (MN) per cell for both types of schools showed a percentage less than 0.01%. However, there was no significant different between the frequencies of micronucleus (MN) and binucleus (BNu) per cell between the two types of school. In addition, correlation analysis showed that there were significant and positive correlation between age and the frequency of MN ($r = 0,377$, $p = 0.025$) for the students from Tahfiz schools. There was also a significant and negative correlation between the number of pages of the Quran memorized with MN frequency ($r = -0.378$, $p = 0.025$) for the students from Tahfiz schools. The same was also observed between lifestyle factors such as exercise time, time of use of mobile phones, sleep time and FSIQ for the students from the Tahfiz schools. **Conclusion:** nuclear abnormalities were not prominent in students from the Tahfiz schools. Factors that contribute to spiritually and religiosity in schools can prevent cytogenetic effect.

PD16: Antimalarial Activity of *Canarium odontophyllum* Leaf Extracts against Erythrocytes Infected with *Plasmodium berghei* NK65

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ABSTRACT

Introduction: *Canarium odontophyllum* (dabai) belongs to Burseraceae family which bears nutritious fruit native in Sarawak. The leaves from *Canarium odontophyllum* were proven to have antimicrobial activity and antioxidant property due to its terpenoid, tannin, flavonoid and phenolic content. **Method:** The antimalarial activity of methanol, acetone and aqueous extracts from the leaves of *Canarium odontophyllum* at concentration ranging from 0.00001 μ g/ml to 100 μ g/ml was subjected against erythrocytes infected with *Plasmodium berghei* NK65 using plasmodium lactate dehydrogenase (pLDH) assay and SYBR green 1 fluorescence assay ex-vivo. pLDH assay was used to measure activity of plasmodium lactate towards the detection of *P. berghei* whereas SYBR green 1 fluorescence assay was to measure inhibition of DNA activity in the parasites. **Results:** Out of the three extracts, the methanol extract showed the lowest IC₅₀ values of 0.0004 μ g/ml from pLDH assay which was 2X stronger detection of *P. berghei* than chloroquine (0.0011 μ g/ml) and 0.002 μ g/ml from SYBR green 1 fluorescence assay showing more than 10X higher DNA inhibitory activity compared to chloroquine (0.029 μ g/ml). The least active extract was found to be acetone extract at IC₅₀ of 0.017 μ g/ml and 4.371 μ g/ml, respectively from both assays. The effectiveness of methanol extract was further tested on the three different morphological stages in the life cycle of malaria parasite. The results from pLDH assay showed that the methanol extract from *C. odontophyllum* leaves was more potent against the schizont stage at IC₅₀ of 1.16 X 10⁻⁵ μ g/ml despite the stronger effect of chloroquine (IC₅₀ of 2.53 X 10⁻⁵ μ g/ml) against the mature trophozoite. On the other hand, SYBR green 1 fluorescence assay demonstrated that the young trophozoite was most affected by both chloroquine and methanol extract at IC₅₀ of 3219 X 10⁻⁵ μ g/ml and 195 X 10⁻⁵ μ g/ml, respectively. **Conclusion:** The methanol extract from the leaves of *Canarium odontophyllum* showed promising antimalarial activity and has the potential as a schizonticidal agent.

PD17: Low Level Cadmium Exposure Causes Pectoral Fin and Cranial Fluctuating Asymmetry in *Oreochromis mossambicus* X *O. niloticus*

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ABSTRACT

Introduction: One of the indicator for developmental instability in an organism in fluctuating asymmetry (FA). Prolonged exposure to cadmium is believed to cause developmental instability via the manifestation of fluctuating asymmetry. **Method:** This study was conducted to observe the effect of low level cadmium exposure on the fluctuating asymmetry in *O. mossambicus* X *O. niloticus*. The fish were exposed to three different concentrations of cadmium (0.05 mg/L, 0.01 mg/L and 0.05 mg/L) for 3 months. Pectoral fin fluctuating asymmetry (FA_{pectoral fin}) and cranial fluctuating asymmetry (FA_{cranial}) were measured every month. **Results:** There were significant increase in FA_{pectoral fin} in all treatment groups as compared to control group. Fish exposed to 0.05 mg/L Cd showed the highest increase in FA_{pectoral fin} while those exposed to 0.05 mg/L Cd showed the least increase. The difference values between treatment and between exposure duration were significant ($p < 0.05$). Similar trends were also observed in FA_{cranial}. Fish exposed to 0.05 mg/L Cd showed the highest increase while those exposed to 0.05 mg/L Cd showed the least increase. **Conclusion:** Low level cadmium exposure is shown to induce developmental instability by increasing both pectoral fin fluctuating asymmetry and cranial fluctuating asymmetry in *O. mossambicus* X *O. niloticus*.

KEY WORDS:

Cadmium; fluctuating asymmetry; *Oreochromis mossambicus* X *O. niloticus*

PD18: *Piper sarmentosum* Stimulates Dimethylarginine Dimethylaminohydrolase Activity in Human Umbilical Vein Endothelial Cells

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ABSTRACT

Introduction: Asymmetric dimethylarginine (ADMA) is an endogenous nitric oxide (NO) synthase inhibitor which has been associated with cardiovascular mortality in various clinical settings. Elimination of ADMA is achieved mainly by the action of dimethylarginine dimethylaminohydrolase (DDAH). Piper sarmentosum (PS) is an herb which stimulates endothelial NO production. This study will determine whether the positive effects of PS on NO production is related to its effect on DDAH and ADMA in human umbilical vein endothelial cells (HUVEC). **Method:** HUVEC were divided into four groups: control, treatment with 30 ng/ml of tumor necrosis factor- α (TNF- α), treatment with 250 μ g/ml of aqueous extract of PS and concomitant treatment with PS and TNF- α for 24 hours. HUVEC were collected and DDAH activity was measured using colorimetric assay while ADMA level was measured using enzyme-linked immunosorbent assay (ELISA). **Results:** TNF- α -induced HUVEC showed reduction in DDAH activity compared to control ($p < 0.05$). Treatment with PS successfully increased DDAH activity in TNF- α -induced HUVEC ($p < 0.05$). Induction with TNF- α also caused an increase in ADMA level ($p < 0.05$) whereas treatment with PS was able to reduce ADMA level in TNF- α -induced HUVEC ($p < 0.05$). **Conclusion:** Piper sarmentosum reduces ADMA level by stimulating DDAH activity in TNF- α -induced HUVEC.

KEY WORDS:

Piper sarmentosum, Asymmetric dimethylarginine, Dimethylarginine dimethylaminohydrolase, Nitric oxide.

PD19: Concordance between Quantitative Ultrasound and Osteoporosis Self-Assessment Tool for Asians in Identifying Osteoporosis among Malaysians

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ABSTRACT

Introduction: Calcaneal quantitative ultrasound (QUS) is a useful tool in osteoporosis screening. However, QUS device may not be available at all primary healthcare setting. Osteoporosis Self-Assessment Tool for Asians (OSTA) is a simple algorithm for osteoporosis screening that does not require any sophisticated instruments. This study explored the possibility of replacing QUS with OSTA by determining their agreement in identifying individuals at risk for osteoporosis. **Methods:** A cross-sectional study was conducted among Malaysian men and women aged 50 years or above. Their bone health status was measured using a calcaneal QUS device and OSTA. The association between OSTA and QUS was determined using Spearman's correlation and their agreement was assessed using Cohen Kappa and receiver operating curve (ROC). **Results:** All QUS indices correlated significantly with OSTA ($p < 0.05$). The agreement between QUS and OSTA was minimal but statistically significant ($p < 0.05$). The performance of OSTA in identifying subjects at risk for osteoporosis according to QUS was poor to fair in women ($p < 0.05$), but not statistically significant for men ($p > 0.05$). **Conclusion:** The agreement between QUS and OSTA is minimal in categorizing individuals at risk for osteoporosis. Therefore, they cannot be used interchangeably in osteoporosis screening.

KEY WORDS:

QUS; Bone; Osteoporosis; Receiver Operating Curve; OSTA

PD20: Effective Bladder Filling Protocol in Conformal Radiotherapy for Rectal Cancer: A Comprehensive Approach to Reduce Small Bowel Toxicity

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ABSTRACT

Introduction: Small bowel toxicity can be minimized by treating patients with full bladder because full bladder displaces the small bowel superiorly and away from radiation field. However, previous studies showed that having a consistent full bladder throughout five weeks of radiotherapy treatment is difficult to achieve. Therefore, the implementation of an effective bladder filling protocol is required. **Method:** This study was conducted at Radiotherapy and Oncology Department Hospital Kuala Lumpur. In the control group a total of 22 patients were enrolled to undergo an existing departmental bladder filling protocol that requires patients to drink 200 ml of water. 22 patients were introduced to a new bladder filling protocol that requires patient to drink 500 ml of water, patients were given written bladder filling instructions and daily bladder ultrasound scan was performed. The effectiveness of both protocols was evaluated by assessing the variation of bladder volume between group, inter-patient bladder volume variation, and incidence and severity of diarrhea. **Results:** The bladder volume decrease were statistically significant in control group ($p = 0.007$) and study group ($p = 0.001$). There is a significant difference in the bladder volume changes in the control and study group, ($p = 0.001$). Inter-patient bladder volume variation is lower in study group compared control group. The incidence and severity of diarrhea was significantly lower in study group compared to control group ($p = 0.001$). **Conclusion:** Bladder volume reduces both in control and study group, new bladder filling protocol in the study group reduces inter-patient bladder volume variation and reduces incidence and severity of diarrhea during treatment.

KEY WORDS:

Bladder volume, rectal cancer, diarrhea, drinking protocol

PD21: Association between Heart Rate Variability and Physical Activity in Young Male Adults

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ABSTRACT

Introduction: Recent studies have claimed a positive effect of physical activity on heart rate variability (HRV). Lower HRV is an indicator of autonomic dysfunction and is associated with sedentary lifestyle and cardiovascular diseases (CVD). Due to increased incidence of young adults having at least one CVD risk factor, this study aimed to determine the association between heart rate variability and physical activity in young male adults. **Method:** This cross-sectional study was conducted in 31 apparently healthy university students (age: 21.2 ± 1.8 years; BMI: 20.3 ± 3.2 kg/m²). Physical activity was determined using International Physical Activity (IPAQ-short). HRV indices were measured while performing supine-to-standing manoeuvre and assessed using time and frequency domains. **Results:** Standard deviation of successive differences between adjacent NN intervals (SDNN), which reflects the overall variability, was significantly higher in physically-active subjects (135.7 ± 48.4 ms) compared to the less active (99.4 ± 30.4 ms) ($p=0.03$). High-frequency (HF) power, a marker of vagal modulation, showed a greater trend in the physically-active (1290.7 ± 1335.4 ms) compared to the less active (728.3 ± 423.0 ms), however this was non-significant. Other HRV indices i.e low-frequency (LF) power and LF/HF ratio were not statistically different between both groups. No significant correlations were observed between HRV indices and time spent in physical activity. **Conclusion:** The physically-active individuals showed greater overall heart rate variability compared to the less active in response to orthostatic stress. Further studies with larger sample size and objective measurements of physical activity are warranted to elucidate the influence of physical activity on heart rate variability in young adults.

KEY WORDS:

Heart rate; physical activity; HRV, IPAQ

PD22: The Relationship between Body Mass Index and Waist Circumference on the Image Quality of Computed Radiography Abdomen

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ABSTRACT

Introduction: Body sizes of patients undergoing x-ray examination vary in accordance with the range of body mass index (BMI) and waist circumference (WC). The aims of this study were to determine the relationship of BMI and waist circumference with image quality of computed radiography (CR) abdomen. **Method:** Anteroposterior (AP) supine abdomen projection was conducted on 69 patients from Hospital Raja Perempuan Bainun, Ipoh using a Siemens Multixtop general x-ray unit and the images were processed with CR Carestream Direct view Max. Samples were categorized into normal BMI ($n = 23$), overweight ($n = 23$), and obese ($n = 23$). Image quality was measured physically in signal to noise ratio (SNR) and subjectively, visual grading analysis (VGA) based on the European Commission (CEC) image criteria. Data were analyzed by using analysis of variance (ANOVA) and Pearson's correlation for comparison and relationship between BMI, WC and the image quality. **Results:** Results showed a significant difference ($p < 0.01$) in image quality of VGA_{mean} (normal 4.40 ± 0.15 , overweight 4.35 ± 0.13 , obese 4.03 ± 0.34) and SNR_{mean} (normal 59.76 ± 1.34 , overweight 59.32 ± 1.37 , obese 59.03 ± 1.30). A high negative correlation exists for BMI and WC on the quality image, BMI vs SNR ($r = -0.73$), BMI vs VGA ($r = -0.70$) and WC vs SNR ($r = -0.83$), WC vs VGA ($r = -0.79$) with ($p < 0.01$). **Conclusion:** This study suggests that WC has a higher negative linear relationship compared to BMI and could also be used as a better image quality predictor for CR abdominal examination.

KEY WORDS:

Computed radiography; obesity; image quality; waist circumference; BMI

PD23: Association of Al-Quran Memorization on the IQ Level and Quality of Life among Tahfiz Students

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ABSTRACT

Introduction: Research on Al-Quran memorization in Malaysia is very limited and not comprehensive. **Method:** This study was conducted to determine the association of Al-Quran memorization on the IQ level and quality of life among Tahfiz students in Selangor. A cross sectional survey was conducted among 129 students from three Tahfiz schools and one non-Tahfiz school (as control) in Selangor. In Tahfiz schools, students were being divided into three levels of Al-Quran memorization according to juzu' that they had memorized. The sociodemographic data was recorded using questionnaire. The Wechsler Abbreviated Scale of Intelligence-II (WASI-II) kit was used to measure the IQ level and the 36-Item Short Form Health Survey (SF-36) was used to measure the quality of life. Responses were analyzed using descriptive statistics, independent t-test, one-way ANOVA and Pearson correlation. **Results:** There was a significant difference between the level of Al-Quran memorization and the overall component of IQ level ($p < 0.05$) which the highest level of Al-Quran memorization showed the highest score of IQ test. A positively weak correlation was found between the level of Al-Quran memorization on the overall IQ level ($r = 0.317$, $p < 0.001$) and the physical component of quality of life ($r = 0.341$, $p < 0.001$) while there was a very weak correlation found between the level of Al-Quran memorization on the mental component of quality of life ($r = 0.149$, $p = 0.013$). **Conclusion:** The level of Al-Quran memorization has a certain association with the IQ level and quality of life among Tahfiz students.

KEY WORDS:

Al-Quran Memorization, IQ Level, Quality of Life, Tahfiz Students

PD 24: Setup Accuracy Comparison Between Two Corrective Systems of Freedom for Oral Cancer Patients Treated with VMAT Techniques

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ABSTRACT

Introduction: Accuracy is an important element in radiotherapy treatment. However, setup error can reduce the treatment accuracy. Hence, correction system has been introduced to cope with this problem. The aim of this study is to compare the accuracy of radiotherapy treatment setup between three and six degree of freedom correction system (DoF) for oral cancer patient. Additionally, a more ideal correction system to be practiced is proposed. **Method:** A total of 121 cone beam computed tomography (CBCT) images from 12 patients were analyzed through image registration process. The images were compared with reference image and shifts made for every translational and rotational axis were measured. Manual and automatic bone matching techniques were used for 3 DoF and 6 DoF respectively. **Results:** The findings showed that there was no significant difference between mean and vector of translational component among the two systems ($p > 0.05$). 6 DoF system showed a smaller standard deviation as compared to 3 DoF. The maximum rotational error measured in 6 DoF system was 1.33° . Margins calculated were almost the same and still within tolerance of 0.3 - 0.5 cm for head and neck cancer treatment. **Conclusion:** 3 DoF system is more ideal based on no-significant difference with 6 DoF. This system is simpler and faster, and it is enough to improve setup accuracy.

KEY WORDS:

Oral cancer, setup error, degree of freedom system, radiotherapy

PR1: Prescription Trend at Universiti Kebangsaan Malaysia Low Vision Clinic (UKM LVC)

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ABSTRACT

Introduction: Prescription of low vision devices is one of the most effective rehabilitation interventions that help to reduce disability and increase quality of life. **Purpose:** The purpose of this study was to investigate the trend of prescribing at UKM LVC. **Methods:** The records of 556 patients seen at UKM LVC from 2006 to 2016 were reviewed. A total of 271 files that fulfilled the inclusion criteria were analysed. Data extracted included age, gender, race, date of first consultation, cause of visual impairment, unaided or aided visual acuity (VA), refractive error, VA with final prescription and types of low vision devices prescribed. **Results:** From 271 files reviewed, 150 (55.4%) patients were male and 193 (71%) were Malay. Majority of them (67.1%) were less than 50 years old with mean age of 36.5 ± 22.0 . About 72% (n=195) have moderate low vision. The most common low vision devices prescribed were electronic devices (31.3%), handheld magnifiers (21.0%) and telescopes (19.1%). Trend of prescribing at UKM LVC was compared to previous retrospective studies done at the same place. It was found that the trend of prescribing had changed from conventional simple low vision devices such as high power reading addition spectacles and stand magnifiers to sophisticated electronic devices. **Conclusion:** The trend of prescribing at UKM LVC had changed over the last 10 years. This is consistent with the availability and use of high technology devices in recent years. Therefore optometrist must be more knowledgeable and up-to-date to meet the demand of visually impaired patients.

PR2: Translation, Adaptation, and Validation of the Malay Version of the Sensory Processing Measure-Home Form

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ABSTRACT

Introduction: The unusual responses towards sensory input received from the environment may cause problems in managing daily activities among children with Autism Spectrum Disorder (ASD). To a serious extent, these responses can injure themselves. Given most of the established assessment measures were developed in Western countries and may be suitable for Western culture only, this study aimed to develop a culturally-suitable sensory processing assessment measure by translating, adapting and validating the Sensory Processing Measure-Home Form (SPM-Home Form) into the Malay language. **Methods:** The development of the Malay version of the SPM-Home Form (SPM-MV Home Form) was conducted in three steps: 1) Items evaluation, 2) Forward and backward translation, and 3) Expert review and Content Validity Index (CVI) that contains Item-CVI (I-CVI) and scale-CVI (S-CVI). The process of translation and adaptation of the form was performed according to standard guidelines. **Results:** In the item evaluation process, no item was being excluded from the original SPM-Home Form as all the items were considered by experts as appropriate to the activities of children in Malaysia. The content validity process was performed by ten experts in occupational therapy. The total S-CVI of the form was 0.95. The mean of sub-scales I-CVI and sub-scales S-CVI are ranged between 0.86-1.00 and 0.82-1.00 respectively. **Conclusion:** The SPM-MV Home Form is suitable to be used for screening sensory processing difficulty in children ages between 5 and 12 years in Malaysian population.

KEY WORDS:

Autism Spectrum Disorder, Sensory Processing Measure, Translation, Content Validity

PR3: Motor Performance and Functional Mobility in Children with Specific Learning Disabilities

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ABSTRACT

Introduction: Children with specific learning disabilities (SLD) may have problem in motor performance that can further lead to impaired functional skills. Nevertheless, the literature regarding motor performances showed an inconclusive finding. Thus, the aims of this study were to investigate the level of motor performance and functional mobility in children with SLD and to determine the influence of motor performance on the functional mobility. **Method:** A cross-sectional study was conducted on 148 children with SLD. The evaluation consisted of the Movement Assessment Battery for Children – 2 (MABC-2) and the Functional Mobility subtest from Pediatric Evaluation of Disability Inventory – Computer Adaptive Test (PEDI-CAT). The level of motor abilities and functional mobility were compared against an established normative percentile rank and standard T-score respectively. A linear regression was then conducted to assess the extent to which variance in motor performance (i.e. manual dexterity, aiming and catching and balance) could be accounted for functional mobility scores. **Results:** The results of motor performance tests by MABC-2 revealed that the children with SLD had no movement difficulties in manual dexterity (mean percentile rank=21.58), aiming and catching (mean percentile rank=30.05) and balance (mean percentile rank=33.25). The mean standard T-score for functional mobility was 49.49 and this indicated an average capability. The motor performance was accounted for 20% of variability in functional mobility scores. The performance in manual dexterity and balance can positively predict the ability in functional mobility among children with SLD. **Conclusion:** This study found that there were no significant movement difficulties in children with SLD as measured by MABC-2. However, there was a significant influence of manual dexterity and balance on functional mobility scores. Therefore, this study suggested that a comprehensive assessment of motor skills is important in order to detect any associated functional deficits in children with SLD.

KEY WORDS:

Assessment; balance; children; motor performance; specific learning disabilities

PR4: Single-Word Comprehension Amongst Malay-Speaking Patients with Aphasia Following Stroke: An Exploratory Study

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ABSTRACT

Introduction: This study aims to investigate processing of nouns and verbs comprehension in Malay-speaking adults with aphasia. **Method:** The performance of two groups of participants; control subjects and subject with aphasia were assessed via picture verification task. 14 Malay-speaking adults with aphasia, aged 28-64 years old (mean=50.70) and 20 control subjects with age-, gender- and education-matched, 28-71 years old (mean= 52.29) native speakers of Malay were recruited. 52 nouns and 32 verbs black and white picture cards, controlled for word length, imageability and familiarity were elicited. The subjects were asked to judge by saying 'yes' or 'no' whether the spoken words were the correct name for the picture shown. **Results:** ANOVA comparing the group of control subjects and people with aphasia (fluent and non-fluent) showed a significant difference between the groups ($F(1,32)=14.50$, $p<0.05$), a difference between nouns and verbs ($F(1,32)=24.28$, $p<0.05$), but no significant interaction ($F(1,32)=2.82$, $p=0.10$), showing that, as a group, people with aphasia showed poorer performance with verbs than nouns relative to control subjects. When comparing the groups of fluent and non-fluent aphasia, there was a significant main effect of group ($F(1,18)=11.32$, $p<0.05$), reflecting the much better comprehension of both classes of words by people with fluent aphasia. There was a significant main effect of word classes ($F(1,18)=13.54$, $p<0.05$), because the subjects in both groups were less accurate with nouns than verbs. The interaction of group and word class was not significant ($F(1,18)=0.27$, $p=0.61$), indicating that the two groups showed a broadly equivalent degree of difficulty with verbs relative to nouns. **Conclusion:** This study highlights comprehension of verbs was found to be more difficult than nouns in Malay-speaking adults with aphasia.

KEY WORDS:

Nouns, verbs, aphasia, word comprehension, Malay language

PR5: The Development of Mandarin Fricative-Affricate Nonsense Word Test: Part I. Quality Judgement and Acoustic Analysis

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ABSTRACT

Introduction: Individuals with hearing loss often have difficulty perceiving high-frequency sounds such as fricatives and affricates. Fortunately, this problem can be restored with today's new hearing technology known as frequency lowering. To validate this technology, a speech test that emphasizes the fricatives and affricates is recommended. As of yet, there have been no other studies of using Mandarin which is rich in fricatives and affricates as speech materials in Malaysia. Therefore, the aim of this study was to select the best exemplar for the development of Mandarin Fricative-Affricate Nonsense Word Test. **Method:** Subjective quality ratings and spectrographic analysis were performed on recordings of 180 vowel-consonants-vowel (VCV) syllables spoken by two native Mandarin speakers. Subjective quality ratings were performed by two phonetically-trained native Mandarin listeners using a 5-point rating scale. Spectrographic analysis was performed to determine VCV syllables that are free of idiosyncrasies, abnormal pronunciation, and intonation. **Results:** A total of 115 (63.9%) VCV syllables (61 of female speaker; 54 of male speaker) received a "good" or "very good" subjective ratings. Of these syllables, 105 (91.3%) fulfilled at least one of the acoustic analysis criteria. For each of the 6 consonants presented with 3 vowel contexts, at least one exemplar fulfilled both subjective & objective criteria. **Conclusion:** Objective and subjective evaluations of the recorded speech samples are important to select the best exemplars for developing a speech test. Future directions include identification testing to select one best exemplar for each consonant and measuring performance-intensity function of normal-hearing individuals for normative data.

KEY WORDS:

Mandarin, acoustic analysis, fricatives, affricates, speech test

PR6: Preliminary Study-Is Postural Instability in Type 2 Diabetes Related to Vestibular (Dys) Function?

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ABSTRACT

Introduction: Diabetes mellitus (DM) can lead to complications including postural instability that may be related to impaired function of vestibular system. This study aims to measure vestibular function in adults diagnosed with Type 2 DM for < 5years and to compare their findings with healthy age-matched group. **Method:** This experimental cross-sectional study, using purposive sampling method, involved eight patients, aged 36.8±11.4 years and normal subjects, aged 34.6±11.0 years. Vestibular-end organs i.e. saccule and utricle were assessed using cervical and ocular vestibular evoked myogenic potential (cVEMP and oVEMP) respectively and video head impulse test (vHIT) to assess the three semi-circular canals (SCCs). Static postural stability was assessed using force plate in four conditions: stand on firm or foam surface with eyes opened or closed. Dynamic stability was examined using Time Up and Go (TUG) and Functional Gait Assessment (FGA). **Results:** All vestibular tests were not significantly different between groups. However descriptively reduced amplitudes for both VEMPs were noted in DM patients. For postural stability tests, the mean TUG score was significantly higher (i.e. walked slower) and the mean FGA score was poorer in patients (p<0.05). **Conclusion:** Functionally, patients walked significantly slower and less stable, which may be related to poor otolith functions. These may have explained the observed trends of abnormal VEMPs' amplitudes in DM patients. However, this study is underpowered, and bigger number of patients needs to be assessed to confirm these findings.

KEY WORDS:

Diabetes mellitus, postural stability, vestibular assessments

PR7: Digital Noise Reduction and Its Acoustic Effect on Consonants /S/ and /Z/

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ABSTRACT

Introduction: Modulation-based noise reduction (MBNR) is one of the common noise reduction methods used in hearing aids. Gain reduction in high frequency bands may occur for some implementations of MBNR and fricatives might be susceptible to alteration by given the high frequency components in fricative noise. The main objective of this study is to quantify the acoustic effect of MBNR on /s, z/. **Methods:** Speech-and-noise signals were presented to, and recorded from, six hearing aids mounted on a head and torso simulator. Test stimuli were nonsense words mixed with pink, cafeteria, or speech-modulated noise at 0 dB SNR. Fricatives /s, z/ were extracted from the recordings for analysis. **Results:** Analysis of the noise confirmed that MBNR in all hearing aids was activated for the recordings. More than 1.0 dB of acoustic change occurred to /s, z/ when MBNR was turned on in four out of the six hearing aids in the pink and cafeteria noise conditions. The acoustics of /s, z/ by female talkers were affected more than male talkers. Significant relationships between amount of noise reduction and acoustic change of /s, z/ were found. Amount of noise reduction accounts for 42.8% and 16.8% of the variability in acoustic change for /s/ and /z/ respectively. **Conclusion:** Some clinically-available implementations of MBNR have measurable effects on the acoustics of fricatives. Possible implications for speech perception are discussed.

KEY WORDS:

Modulation-based noise reduction; hearing aids; acoustic measures; fricatives

PR8: A Simple Physical Outcome Measures to Estimate Falls Risk in Community Ambulant Elderly

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ABSTRACT

Introduction: Asia is facing an aging population and a poor patient-staff ratio in the healthcare setting. Elderly above 65 have 33% chance to experience a fall, which are the leading cause of functional decline. This study aims to identify an efficient tool to estimate falls risk in community ambulant elderly. **Method:** Older persons greater than 65 years were recruited and screened for inclusion and exclusion criteria. Simple falls risk measures of Timed-Up-and-Go Test (TUGT), 30-seconds Chair Stand Test (30CST) and Functional Reach Test (FRT) were conducted and compared against each participant's Short Physical Performance Battery test (SPPB) results using Spearman's Coefficient and Pearson's Product Moment Correlation. Receiver Operating Characteristic Curves determined cut off values for TUGT and 30CST. **Results:** Data from 60 subjects of mean age of 75.40 ± 5.900 were analysed. Spearman's Rank Order Correlation between FRT and SPPB showed no significant correlation between SPPB and FRT ($r=0.187$, $p=0.152$). Pearson Product-Moment Correlation coefficient showed a strong negative significant correlation for TUGT and SPPB ($r=-0.670$, $p<0.000$) and a moderate positive significant correlation for 30CST ($r=0.502$, $p<0.000$). The best cut offs to identify community-dwelling elderly with higher falls risk were 15.46 seconds for TUGT [95%CI=0.785-0.985] and 9.5 repetitions for 30CST [95%CI: 0.682-0.924]. **Conclusion:** The TUGT and 30CST are acceptable simple physical outcomes measure of falls risk among the older subjects.

KEY WORDS:

Falls Risk, Short Physical Performance Battery, Functional Reach Test, 30s Chair Stand Test, Timed-Up-and-Go Test

PR9: Correlation between Willingness to Communicate and Communication Apprehension in English Language among Undergraduates

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ABSTRACT

Introduction: Willingness to communicate and communication apprehension in English language can be barriers to effective communication. The objective of our study was to determine the correlation between willingness to communicate and communication apprehension among undergraduates. **Method:** Fifty-four undergraduates from School of Rehabilitation Sciences participated in this study. Participants completed Willingness to communicate and Personal Report of Communication Apprehension (PRCA-24) questionnaires during their third year of study. **Results:** There was a significant moderate correlation between willingness to communicate and communication apprehension with $r = 0.489$, $p < 0.05$. **Conclusion:** The study results suggest that higher willingness to communicate was correlated with lower communication apprehension. Further studies are required to explore methods to increase willingness to communicate and decrease communication apprehension using English language among rehabilitation sciences' undergraduates.

PR10: Preferred Learning Style and Its Relationship with Academic Performance among Undergraduate Physiotherapy Students at Universiti Kebangsaan Malaysia

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ABSTRACT

Introduction: Learning styles of individual students commonly differ considerably. Learning styles are believed to have an influence on students' academic performance. The aim of this study was to identify the learning styles among physiotherapy students of Universiti Kebangsaan Malaysia (UKM) and its association with academic performance. **Methods:** A cross-sectional study was conducted involving 61 Year 2 to Year 4 physiotherapy students. Participants completed a self-administered questionnaire which consists of 2 sections; demographic data section and items from Kolb Learning Style Inventory. Summary of Kolb Learning Theory and Learning Style Inventory was explained to the participants before completing the questionnaire on a voluntary basis. Chi-square and Spearman correlation tests were used to analyse all collected data. **Results:** The predominant learning style of the students was Assimilative, followed by Divergent and Accommodative. There was a significant difference in the number of students adopting the different learning styles ($p < 0.0005$) and significant difference between the ethnic groups in preferred learning style ($p = 0.016$). However, the learning styles had no significant relationship with the academic performance ($p = 0.801$). **Conclusion:** A majority of the students had Assimilative and Divergent learning style. Both of these styles are suitable for physiotherapy students as Assimilative is more on watching and thinking the concepts, and Divergent is by feeling and watching while processing the information learnt. A proper understanding of students' learning styles may benefit the educators, as they may adopt various teaching method to enhance the learning effectiveness of the students. Future studies may assess if different learning styles can impact on students' clinical or practical skills performance.

KEY WORDS:

Learning styles, academic performance, physiotherapy education

PR11: The Effects of Experience in Diagnosing Fundus Photography Images among Optometry Students: Insights from Eye Tracking Analysis

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ABSTRACT

Introduction: Diagnosing fundus photography images is a fundamental skill needs to be acquired by optometry students. This study investigated the effect of experience and training in diagnosing the fundus images through the perceptual scan path and eye movement analysis. **Method:** Thirty Optometry students participated in this study and were divided into two groups by their level of experience; Group 1: 20 undergraduate students (low experience) and Group 2: 10 postgraduate students (high experience). Fifteen fundus images representing two common fundus anomalies seen clinically (diabetic retinopathy and glaucoma) and normal fundus appearance, were presented as stimulus on the Tobii TX300 eye tracker. Each subject was asked to diagnose all fundus images while the eye tracker simultaneously record the eye movements. Data were analysed quantitatively (fixation duration) and qualitatively (heat maps and scan path patterns). **Results:** The results from quantitative analysis showed that there was no significant difference between the fixation duration on all fundus images with different levels of experience ($p=0.75$). Qualitative analysis revealed that the heat maps patterns of Group 2 were more structured and compact compared to the Group 1. In terms of scan path pattern, complex observation patterns were observed in Group 1 compared to Group 2. **Conclusion:** It is evident that Group 1 have more complex cognitive load compared to Group 2, even though the average time spent for each fundus images were not significantly different. The insightful information gained could be used to train and teach students on how to interpret and diagnose fundus images strategically.

KEY WORDS:

Scan path, fundus photography, experience, eye movement, strategies