Health and the Environment Journal
Vol 8, Supplement 1, 2017

“Improving Societal Health and Wellbeing Through Translational Research and Education”
ABOUT US

Health and the Environment Journal (HEJ), a peer-reviewed biannual journal of the School of Health Sciences, Universiti Sains Malaysia was initiated in conjunction with the 10th anniversary of the establishment of the School of Health Sciences, Universiti Sains Malaysia in 2010. It is a platform for the dissemination of human health and environment information and research findings from various branches of health sciences. These include biomedicine, forensic science, sports science, dietetics, nutrition, medical radiation, radiography, audiology, speech pathology, nursing, environmental and occupational health, and psychology. Similar submissions dealing with health-oriented aspects of social science are also accepted. This Open Assess online journal welcomes articles on all aspects of human health and environment from local and international researchers.

HEALTH AND THE ENVIRONMENT JOURNAL (HEJ): MISSION STATEMENT

The mission of Health and the Environment Journal (HEJ), the biannual journal of the School of Health Sciences, Universiti Sains Malaysia is to serve as a platform for disseminating observations, findings, and views from various branches of health sciences and health-oriented aspects of social sciences by publishing peer-reviewed articles in a balanced, scientific and objective manner.

EDITORIAL BOARD

Advisor: Prof Dato’ Dr Ahmad Hj. Zakaria
Editor-in-Chief: Dr Ahmad Fahmi Lim Abdullah
Managing Editor: Assoc. Prof. Dr. Rapeah Suppian
Editors: Assoc. Prof. Dr. Hasmah Abdullah
Website Editor: Mr Mohd Haffiz Faezal Ramli
Graphic designer: Mr Mohd Kamarul Zaman Ibrahim

Contact Information

Dr Ahmad Fahmi Lim Abdullah

Editor-in-Chief

Health and the Environment Journal
School of Health Sciences,
Universiti Sains Malaysia
16150 Kubang Kerian, Kelantan, Malaysia
Email: hejeditor@usm.my

Copyright © by Publishers.

All right reserved. No part of the contents of this publication may be reproduced or transmitted in any form or by any means, electronic photocopying, recording, or otherwise, without written permission of the publisher.

Malaysia National Library— ISSN 2180-1126
# Vol 8, Supplement 1 2018

<table>
<thead>
<tr>
<th>About Us</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Association between Oral Health Knowledge, Attitude and Practice and Dental Plaque Maturity Status among 13- to 14-year-old School Students in Kota Bharu, Kelantan</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahmad Azhar M, Munirah MA and Normastura AR</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dose Verification of Interstitial brachytherapy in homogeneous and inhomogeneous medium: Single catheter study</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azahari AN, Abdul Aziz MZ, Abdullah R, Gokula K and Osman ND</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Malay version of Athletic Coping Skills Inventory-28: A confirmatory study</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aizuddin H, Yee K C, Garry K and Wan NA</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interleukin-17A Promotes Osteogenic Differentiation through Upregulation of MAP Kinase Signalling Pathway in Stem Cells from Human Exfoliated Deciduous Teeth (SHED)</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alphy AS, Kannan TP, Norazmi MN and Nurul Asma A</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Association between Stress and Dietary Intake among Adult Population in Kuala Terengganu</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ang JY, Karimah Fakhriah I and Marhazlina M</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characterization of Bacterial Strains Isolated from Meat Contact Surfaces in Meat Processing Environment and Its Ability to Form Biofilm</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anith Amirah A, Elizabeth Sinirisan C, Nur Faizah AB and Siti Shahara Z</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Perspective of Macro Algae as Functional Food</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aroyehun Abdul Qudus B, Shariza AR and Farid CG</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Noise Exposure and Hearing Symptoms among Supporting Group Workers at a Public Hospital</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asaritaminaziah H and Siti Marwani A</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A Study of Flavonoids Content from Passiflora Foetida L. Plant in Kelantan</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azreen M ad Farid CG</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adherence to Insulin Therapy in Type 2 Diabetes Mellitus Patients Treated at The Government’s Primary Health Care Centers in Klang, Selangor</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasruddin A, Norsa’adah B, Naing NN, Norul Badriah Hand Azlina S</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effect of Minocycline and Ifenprodil on Oxidative Status and Pro-inflammatory Markers in Spinal Cord of Streptozotocin-induced Painful Diabetic Neuropathy Rat Model</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Che Aishah Nazariah I, Rapeah S, Che Badariah AA and Idris Long</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study on Indoor Air Quality (IAQ) at Selected Workshop toward Health Effects to Workers</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Che Nadiah CA and Mohd Nasrom MN</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Validation of Malay Version Body Self-Image Questionnaire among Malaysia’s Young Adults</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lim CJ, Siti Azrin AH, Najib Majdi Y, Suhaily MH and Yee CK</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ICAM-1 Expression in Triple Negative Breast Cancer (TNBC)</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chong CY and Sabreena S</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fruits and Vegetables Intake Among Preschoolers in Taska Permata Keluarga, Kuala Nerus, Terengganu</th>
<th>23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dang QY and Hasmiza H</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>D2 Dopamine Receptor (DRD2) Taql A and Dopamine Transporter (SLC6A3) Gene Polymorphisms among Mixed Amphetamine-Type-Stimulant and Opioid Dependence Subjects</td>
<td>Deeza Syafiqah MS, Imran A and Ruzilawati AB</td>
</tr>
<tr>
<td>Organic Solvents Exposures and Neurobehavioral Performances among Car Spray Painters in Kota Bharu</td>
<td>Dionysia D and Nurul Ainun H</td>
</tr>
<tr>
<td>Occurrence of Salmonella spp. in Local Abattoirs located in Selangor, Malaysia</td>
<td>Elizabeth Sinirisan C, Nur Faizah AB, Noraziah MZ and Siti Shahara Z</td>
</tr>
<tr>
<td>Phytochemical Screening and Cytotoxic Effect of Tiger Nut (Cyperus esculentus) Milk and The Aqueous-Ethanol Extract on Some Selected Cancerous Cell Lines</td>
<td>Elom Seyram A and Ming TO</td>
</tr>
<tr>
<td>Effects of Tualang Honey on Brain Oxidative Stress Markers of Male Rats Exposed to Hypoxia</td>
<td>Entesar Yaseen AQ, Zahiruddin O, Nurul Aiman MY, Shaida Fariza S, Aminah CR and Rahimah Z</td>
</tr>
<tr>
<td>Investigating Archery Stance Performance Based on Geometric Morphometrics</td>
<td>Erliza E, Helmi Mohd Hadi P and Garry Kuan PE</td>
</tr>
<tr>
<td>The Effect of Minocycline on Spatial Learning and Memory Performances and c-Fos Protein Expression in Hippocampus of Lipopolysaccharides-Induced Neuroinflammation Rat Model</td>
<td>Fareedzul Amir MS and Idris L</td>
</tr>
<tr>
<td>Evaluation of Dose Volume Histograms Parameters of Organ at Risk in Breast Cancer Generated by Two Different Techniques in Three Dimensional Conformal Radiotherapy</td>
<td>Fatin Nadiah R, Reduan A and Chen SC</td>
</tr>
<tr>
<td>Significantly High Level of Soluble Receptor for Advanced Glycation End Product (sRAGE) in Serum: A Prophetic of Acute Coronary Syndrome</td>
<td>Fatin Najiah MI, Siew Wai F, Chee Hock H, Zurkurnai Y, Shaiful Azmi Y, RosliMA and Get Bee Yvonne-Tee</td>
</tr>
<tr>
<td>Effects of Ripe and Unripe Musa acuminata AA Pulp Extracts Towards MCF-7 Breast Cancer Cells</td>
<td>Firdaus AR, Rapeah S and Hasmah A</td>
</tr>
<tr>
<td>A Review of the Nutritional and Health Benefits of Goat’s Milk in Comparison with Cow’s Milk</td>
<td>Juliana S, Sakinah H, Marina AM and Shariza AR</td>
</tr>
<tr>
<td>Detection of Colistin and Extended-Spectrum Beta-Lactamases (ESBL) Resistant Escherichia coli (E.Coli) in Raw Chicken Meat and Bean Sprouts (Vigna radiata) in Kota Bharu, Kelantan</td>
<td>Kausalya R and Erkihun A</td>
</tr>
<tr>
<td>Disordered eating behavior, depression, anxiety and stress among UNISZA students</td>
<td>Laila Ruwaida MZ and Nurul Jannah R</td>
</tr>
<tr>
<td>Retrospective Study on Tinnitus in Tinnitus Clinic Universiti Sains Malaysia</td>
<td>Low H X, Mohd Normani Z and Wan Najibah WM</td>
</tr>
<tr>
<td>Association of Traumatic Head Injuries and Maxillofacial Fractures Among Patients Treated by Oral and Maxillofacial Surgery Unit, Hospital Universiti Sains Malaysia</td>
<td>Maher MA, Shaifulizan AR and Norkhaifizah S</td>
</tr>
<tr>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>The Application of Mindfulness-Acceptance-Commitment (MAC) Intervention on Athletes’ Anxiety Level and Martial Art Aerobic Performance Meisam S, Garry K, Yee CK and Somayeh R</td>
<td>40</td>
</tr>
<tr>
<td>A Comparative Dosimetric Study for Post-Mastectomy Breast Cancer Treated with Tangential Photon Beam and Static Electron Beam Mohd Aidil S, Reduan A and Chen SC</td>
<td>41</td>
</tr>
<tr>
<td>Assessment of Heat Exposure on Acute Physiological Changes among Palm Oil Mill Workers in Rompin, Pahang Mohd Hilmi MY and Nurul Ainun H</td>
<td>42</td>
</tr>
<tr>
<td>Knowledge, Attitude and Practice (KAP) Regarding Organic Solvent among Automobile Spray Painters, Kota Bharu, Kelantan Mohd Syafiq Z and Nurul Ainun H</td>
<td>43</td>
</tr>
<tr>
<td>Surgeon Perception on Handling Improved Preservation Method of Fresh Human Head in Surgical Training Muhamad Nor Firdaus AR, Norhana MA, Mohd Harissal I, Syamsul HM and Zul Izhar MI</td>
<td>44</td>
</tr>
<tr>
<td>Comparison of Liver SPECT Image Quality by using Digital and Physical Filter Muhammad Fahmi R, Abdullah Waidi I and Marianie M</td>
<td>45</td>
</tr>
<tr>
<td>Evaluation of Heat Exposure and Physiological Changes among Sawmill Workers in Kelantan Mumtaz AM and Siti Marwanis A</td>
<td>46</td>
</tr>
<tr>
<td>Knowledge, Attitude and Practice on Ergonomic and Symptoms of Musculoskeletal Disorder among Construction Workers in Hulu Terengganu, Terengganu Noor Izwa Fazeha R and Mohd Nazhari MN</td>
<td>47</td>
</tr>
<tr>
<td>Cognitive Functioning, Knowledge and Attitude in Drug Addiction Nor Afiqah AN, Lua Pei L, Nurul Haswani E, Abdul Manam M, Mokhairi M, Julaily Aida J, Ramle A and Azmi H</td>
<td>48</td>
</tr>
<tr>
<td>Drug Use and Health Status of Drug Misusers: An Insight into Participants of Inabah Programme Nor Afiqah AN, Lua Pei L, Abdul Manam M, Mokhairi M, Julaily Aida J, Ramle A and Azmi H</td>
<td>49</td>
</tr>
<tr>
<td>Psychosocial Profiles among Drug Addicts Undergoing Islamic-Based Inabah Programme in Kelantan Nor Afiqah AN, Lua Pei L, Abdul Manam M, Mokhairi M, Julaily Aida J, Ramle A and Azmi H</td>
<td>50</td>
</tr>
<tr>
<td>Symptoms of Craving and Withdrawal among Drug Addicts Undergoing an Islamic Therapy Nor Afiqah AN, Lua Pei L, Abdul Manam M, Mokhairi M, Julaily Aida J, Ramle A and Azmi H</td>
<td>51</td>
</tr>
<tr>
<td>Prevalence of Dizziness Patients in Emergency Department, Hospital Universiti Sains Malaysia (HUSM): A Retrospective Study Zainon NF, Zainun Z and Abdull Wahab SF</td>
<td>52</td>
</tr>
<tr>
<td>Exploring coping strategies among survivors of breast cancer: A qualitative approach Jafar NH, Sulaiman ZH, Gan SH, AB Asreenee AR and Hassan NB</td>
<td>53</td>
</tr>
<tr>
<td>Knowledge, Attitude and Practices among Workers of BERNAS Rice Mill in East Regional on Respiratory Protection Nor Nazlaini N and Mohd Nasrom MN</td>
<td>54</td>
</tr>
<tr>
<td>Knowledge Awareness and Practice towards Dengue Prevention among the Community in Kinta, Perak: A Cross Sectional Study Noraini AG and Shamsul Azhar S</td>
<td>55</td>
</tr>
<tr>
<td>The Use of Ionic Solution in Preserving Fresh Frozen Human Tissue for Surgical Training Norhana MA, Syamsul Hairi M, Mohd Harissal I, Muhamad Firdaus AR and Zul Izhar MI</td>
<td>56</td>
</tr>
<tr>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>An Assessment of The Breastfeeding Practices and Infant Feeding Pattern Among Mothers in UNISZA</td>
<td>57</td>
</tr>
<tr>
<td>Norhayati AH and Ashwinni T</td>
<td></td>
</tr>
<tr>
<td>Knowledge, Attitude and Practice Towards Exclusive Breastfeeding Practice among Lactating Mothers in University Sultan Zainal Abidin (UniSZA)</td>
<td>58</td>
</tr>
<tr>
<td>Norhayati AH and Lim M</td>
<td></td>
</tr>
<tr>
<td>Cytotoxicity effect of Catharanthus roseus leaves extract on glioma cells</td>
<td>59</td>
</tr>
<tr>
<td>Norhazilah M, Hasmah A and Tan SC</td>
<td></td>
</tr>
<tr>
<td>The Potential of Passiflora foetida L. As a Therapeutic Agent for Skin Infection</td>
<td>60</td>
</tr>
<tr>
<td>Norizzati MN and Farid CG</td>
<td></td>
</tr>
<tr>
<td>Evaluation the Effect of Azadirachta Indica A. Juss Crude Extract on Drug Resistant P. falciparum Growth</td>
<td>61</td>
</tr>
<tr>
<td>Normadiana MS and Khairul Mohd Fadzli M</td>
<td></td>
</tr>
<tr>
<td>Bone Health Status, Isokinetic Muscular Peak Torques and Power, and Body Composition of Young Female Silat and Taekwondo Practitioners</td>
<td>62</td>
</tr>
<tr>
<td>Norsuriani S and Foong KO</td>
<td></td>
</tr>
<tr>
<td>Concentration of Heavy Metals in Cooked Rice and Their Potential Health Risk</td>
<td>63</td>
</tr>
<tr>
<td>Nur Balkish AB and Hasmah A</td>
<td></td>
</tr>
<tr>
<td>Study of Necrophagous Fly Species Important for Postmortem Identification Around the World</td>
<td>64</td>
</tr>
<tr>
<td>Nur Fareeza MZ</td>
<td></td>
</tr>
<tr>
<td>Noise Exposure and Hearing Symptoms among Quarry Workers in Bukit Buloh, Kelantan</td>
<td>65</td>
</tr>
<tr>
<td>Nur Fasihah MK and Siti Marwananis A</td>
<td></td>
</tr>
<tr>
<td>Investigation of Antimalarial Activity of Crude Stingless Bee Propolis</td>
<td>66</td>
</tr>
<tr>
<td>Nur Fatin Ayumi Y and Khairul Mohd Fadzli M</td>
<td></td>
</tr>
<tr>
<td>Microbial Contaminations on Mobile Phones and Hands among Nurses in Critical Units, Hospital Universiti Sains Malaysia</td>
<td>67</td>
</tr>
<tr>
<td>Siti Nur Anis S, Siti Marwananis A and Nurzafirah M</td>
<td></td>
</tr>
<tr>
<td>Prevalence and Risk Factors of Metabolic Syndrome among Temiar subtribe in Kuala Betis, Gua Musang, Kelantan according to IDF (2005) and NCEP-ATPIII (2005)definitions</td>
<td>68</td>
</tr>
<tr>
<td>Isolation of Salmonella spp. in Chicken Meat-Based Food Samples in Kota Bharu, Kelantan</td>
<td>69</td>
</tr>
<tr>
<td>Raveena–Mei L, Erkihun A and Fadhilah K</td>
<td></td>
</tr>
<tr>
<td>Linguistic Validation of Cariogenic Food Frequency and Oral Health Knowledge, Attitudes and Practice Questionnaires for Parents of 6-11 Years Old Children in Kota Bharu, Kelantan.</td>
<td>70</td>
</tr>
<tr>
<td>Rosnani N, Ruhaya H and Normastura AR</td>
<td></td>
</tr>
<tr>
<td>Cognitive Function Impairment and Oral Health among the Community – Dwelling Elderly in Mukim Bukit Jawa, Pasir Puteh, Kelantan</td>
<td>71</td>
</tr>
<tr>
<td>Syirahanaiza MS, Mohd Zulkarnain S, Basaruddin A and Akram H</td>
<td></td>
</tr>
<tr>
<td>Microbial Contaminations on Hands among Visitors of Hospital’s Critical Units</td>
<td>72</td>
</tr>
<tr>
<td>Nurul Aimi M, Siti Marwananis A and Nurzafirah M</td>
<td></td>
</tr>
<tr>
<td>Antiproliferative Effects of Clinacanthus Nutans (CN) Methanol Extract on Breast Carcinoma Cell Lines</td>
<td>73</td>
</tr>
<tr>
<td>Zarif Liyana M and Sabreena S</td>
<td></td>
</tr>
</tbody>
</table>
Roselle Improved the Endothelial Dysfunction in Obese-hypercholesterolemia Rat
74

Optimization of Real-Time PCR for HER4 Isoforms Expression Analysis in Triple Negative
Breast Cancer Cell Lines
Nurzuliana Hassim and Siti Norasikin MN  
75

Cytotoxic and Apoptotic Effects of Cosmos Caudatus and Ocimum Sanctum Linn on Oral
Squamous Cell Carcinoma Cell Line (HSC-2)
Wan Nuramiera Faznie WEE, Wan Nazatul Shima S and Khairul Bariah AAN  
76

Heat Exposure and Physiological Changes among Laundry Workers
Nurul Atikah MY and Siti Marwanis A  
77

Preliminary Normative Study of Visuospatial Working Memory Test among 8;0-8;11 Years
Old Malay Children
Zati Atharina Z, Wan Najibah WM and Azlinda AG  
78

Organ at Risk (Skin and Lung) Dose Evaluation for Three-Dimensional Conformal
Radiotherapy in Post-Mastectomy Breast Cancer Patients
Nur Hafizah Y, Reduan A and Chen SC  
79

Symptoms and Risk Factor of Musculoskeletal Discomfort among Office Workers in Setiu,
Terengganu
Siti Zulaikha F and Nurul Ainun H  
80

Knowledge, Attitude and Practice towards Repetitive Strain Injury among Health Students
using Computer Laptop at Universiti Sains Malaysia
Siti Masrifah MH and Mohd Nazhari MN  
81

Geometric Morphometric Analysis of Cephalopharyngeal Skeleton of Chrysomya Fly Species
Siti Nor Fathihin MZ and Helmi Mohd Hadi P  
82

Oral Health Literacy among Pregnant Women Attending Hospital Universiti Sains Malaysia
Sarah N, Sumaiya Zabin E and Norkhafizah S  
83

Evaluation of Bacterial Contamination in Beverages Sold by Street Vendors Around Chow
Kit Area
Nur Syakirah MN, Elizabeth Sinirisan C, Nur Faizah AB and Siti Shahara Z  
84

Study of Particulate Matter Concentration at Convenience Stores in Kubang Kerian, Kelantan
Nurfarahiah Z and Nurulilyana S  
85

Association Analysis between Polymorphisms in Dopamine Receptors (DRD1, DRD3) and
Dopamine Transporter (DAT) (SLC6A3) Genes with Smoking Behavior
Siti Khariem Sophia M, Imran A and Ruzilawati AB  
86

An Intervention Study to Reduce Room Temperature by using Reuse Bottles
Nurra'aisiyah MR and Nurulilyana S  
87

Development of Latent Fingerprint using Natural and Waste Products
Nurul Asyiqeen G and Nik Fakhuruddin NH  
88

Evaluation of the Male Reproductive Performance of Aqueous Extract of Lignosus rhinocerus
in Rats
Bayani HSZ, Nurul Asma A, Gan SH and Wan Ezumi WMF  
89

Isolation of Peptide Specific to ICAM-1 Monoclonal Antibody (α-15.2) using Phage Display
Nurul Allia Ezzatti ML, Armando A, Maria ES and Khairul MFM  
90
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation of Effectiveness Anti-cancer Effect of <em>Vernonia amygdalina</em> Aqueous Extract in Combination with Cisplatin Towards Human Breast Cancer Cell Line, MCF-7</td>
<td>91</td>
</tr>
<tr>
<td>Nur Nafisa N and Yusmazura Z</td>
<td></td>
</tr>
<tr>
<td>Determination of Linoleic Acid and β-glucan compositions in Tiger Milk Mushroom (<em>Lignosus rhinocerus</em>)</td>
<td>92</td>
</tr>
<tr>
<td>Siti Nurshazwani MS, Gan Siew Hua and Nurul Asma A</td>
<td></td>
</tr>
<tr>
<td>Effects of Tualang Honey Supplementation on Bone Markers and Estradiol in Breast Cancer Patients</td>
<td>93</td>
</tr>
<tr>
<td>Zaida Z, Zairos Fadiela ZA, Wan Zuraida WAH and Mahaneem M</td>
<td></td>
</tr>
<tr>
<td>Effects of Tiger Milk Mushroom (<em>Lignosus rhinocerus</em>) Extract on Ovalbumin-induced Airway inflammation in A Mouse Model of Chronic Asthma</td>
<td>94</td>
</tr>
<tr>
<td>Siti Aminah M, Sabreena S, Wan Amir Nizam WA and Nurul Asma A</td>
<td></td>
</tr>
<tr>
<td>The Effect of <em>Clinacanthus nutans</em> Extracts on the Migratory Ability of Breast Cancer Cell Lines</td>
<td>95</td>
</tr>
<tr>
<td>Redzwan H, Nor Fazila CM and Sabreena S</td>
<td></td>
</tr>
<tr>
<td>Traditional Medicine Myth: Used Palm Oil against <em>Staphylococcus aureus</em></td>
<td>96</td>
</tr>
<tr>
<td>Sharidatul Amira U, Erkihun A and Syaliza O</td>
<td></td>
</tr>
<tr>
<td>A Study of Phytoremediation at Paddy Cultivation Areas in Kota Bharu Kelantan using <em>Ipomoea aquatic</em> and <em>Pistia stratiotes</em></td>
<td>97</td>
</tr>
<tr>
<td>Wan Haniff Aiman WK</td>
<td></td>
</tr>
<tr>
<td>Health Risk Assessment of Heavy Metals in Street Foods from Selected Area in Kubang Kerian, Kelantan</td>
<td>98</td>
</tr>
<tr>
<td>Nurul Syuhada I and Hasmah A</td>
<td></td>
</tr>
<tr>
<td>Gross Motor Skills Status among School-aged Children with Dyslexia</td>
<td>99</td>
</tr>
<tr>
<td>Nur Sakinah B, Dzalani H, Masne K, Hanif Farhan MR and Suhaili I</td>
<td></td>
</tr>
<tr>
<td>Dust Exposure among Worker in Cement Industry and Its Effect towards Worker’s Respiratory Health</td>
<td>100</td>
</tr>
<tr>
<td>Siti Hanisah J</td>
<td></td>
</tr>
<tr>
<td>The Association of Respirable Dust (PM$_{2.5}$) and Respiratory Health among Garment Manufacturing Workers, Kota Bharu Kelantan</td>
<td>101</td>
</tr>
<tr>
<td>Nur Izzati MR, Siti Marwanis A and Nurul Amin H</td>
<td></td>
</tr>
<tr>
<td>The Proportion of the Severity of Preeclampsia in Hospital Universiti Sains Malaysia</td>
<td>102</td>
</tr>
<tr>
<td>Nurdiyana T, Sarimah A, Siti-Azrin AH and Jummaat F</td>
<td></td>
</tr>
<tr>
<td>Adherence to Insulin Therapy in Type 2 Diabetes Mellitus Patients Treated at The Government’s Primary Health Care Centers in Klang, Selangor</td>
<td>103</td>
</tr>
<tr>
<td>Nasruddin A, Norsa’adah B, Naing NN, Norul Badriah H and Azlina S</td>
<td></td>
</tr>
<tr>
<td>Evaluation of Antimicrobial Activity of Different Solvent Extracts of <em>Pithecellobium bubalinum</em></td>
<td>104</td>
</tr>
<tr>
<td>Fatimah Z, Nur Syahriah S, Siti Suraiya MN, Norsuhailey A and Ruzilawati AB</td>
<td></td>
</tr>
<tr>
<td>Progression of Visual Field Loss and It's Prognostic Factors among Malay Adult Primary Glaucoma Patients</td>
<td>105</td>
</tr>
<tr>
<td>Wan Ezatul A, Yaacob Najib M, Bachok N and Ahmad Tajudin LS</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>A Validation Study of Malay Version of Press Ganey Questionnaire</td>
<td>106</td>
</tr>
<tr>
<td>Syahmina NR, Muhammad Akmal IA, Noor Aini H and Mohd Shaharudin CH</td>
<td></td>
</tr>
<tr>
<td>Primary Care for Tinnitus: The Perception of Tinnitus among Medical Officers in Kota Bharu, Kelantan</td>
<td>107</td>
</tr>
<tr>
<td>Wong YT, Aw CL and Wan Najibah WM</td>
<td></td>
</tr>
<tr>
<td>Reading Speed among Typically Developing Malay Children: A Preliminary Study</td>
<td>108</td>
</tr>
<tr>
<td>Nur Hazirah M, Mohd Normani Z and Azlinda AG</td>
<td></td>
</tr>
<tr>
<td>Motion-Induced Dizziness and/or Vertigo amongst Patients in Hospital Universiti Sains Malaysia: Preliminary Findings</td>
<td>109</td>
</tr>
<tr>
<td>Nurul Syarida MS, Mohd Normani Z, Roskejura @ Rosdan S and Nor Haniza AW</td>
<td></td>
</tr>
<tr>
<td>A Review of Shoulder Pain and Injuries – Opportunity for an Automated System</td>
<td>110</td>
</tr>
<tr>
<td>Hidayah NI and Shafiza NB</td>
<td></td>
</tr>
<tr>
<td>Evaluation of Total Phenolic Content and Antibacterial Activity of Methanolic Extract of Polygonum minus Leaves Against Foodborne Pathogens</td>
<td>111</td>
</tr>
<tr>
<td>Nurul Alia Farhah MZ, Wan Ezumi MF and Wan Kamil WM</td>
<td></td>
</tr>
<tr>
<td>Association Between Ppara Gene Intron 7 G&gt;C Polymorphism, Isokinetic Muscular Strength and Power, and Bone Health Status in Malay Female State Level Athletes and Non-Athletes</td>
<td>112</td>
</tr>
<tr>
<td>Siti Azizah S, Foong KO, Chee KC, Ravindran A, Ahmad Aizat AA and Jamaayah MO</td>
<td></td>
</tr>
<tr>
<td>Confirmatory Factor Analysis of Malay Version of Smartphone Addiction Scale (SAS-M) among Medical Students at Universiti Sains Malaysia (USM), Kelantan</td>
<td>113</td>
</tr>
<tr>
<td>Rubiaehhtul HS, Arifin WN, Kueh YC and Nor Azwany Y</td>
<td></td>
</tr>
<tr>
<td>Association between Eating Behaviour and Body Mass Index (BMI) among Pre-schoolers in Taska Permata Keluarga, Kuala Nerus Terengganu</td>
<td>114</td>
</tr>
<tr>
<td>Wong MH and Hasmiza H</td>
<td></td>
</tr>
<tr>
<td>Suriani A, Farid CG, Maliki H, Siti Azizah MN and Sirajudeen KNS</td>
<td></td>
</tr>
<tr>
<td>Phonological Working Memory Test among 8;0-8:11 Years Old Malay Children: A Preliminary Normative Study</td>
<td>116</td>
</tr>
<tr>
<td>Nurul Farhani MR, Wan Najibah WM and Azlinda AG</td>
<td></td>
</tr>
<tr>
<td>The Molecular Screening of Alpha Thalassemia among Orang Asli in Pos Brooke, Gua Musang, Kelantan</td>
<td>117</td>
</tr>
<tr>
<td>Siti Zawani MS, Zefarina Z, Pim CD, Suhaida MA, Nor Azita MN, Rozieyati MS and Lim BH</td>
<td></td>
</tr>
</tbody>
</table>
The Association between Oral Health Knowledge, Attitude and Practice and Dental Plaque Maturity Status among 13- to 14-year-old School Students in Kota Bharu, Kelantan

Ahmad Azhar M*, Munirah MA and Normastura AR

School of Dental Sciences, Universiti Sains Malaysia, Health Campus 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: ahmadazhar@student.usm.my

ABSTRACT: Oral health knowledge is considered to be an essential prerequisite for health-related practices and better oral health. This study assessed the association between oral health knowledge, attitude and practice of school students and their dental plaque maturity status. A cross-sectional study was carried out among 167 school students aged 13 to 14 years who were randomly selected from four different secondary schools in Kota Bharu, Kelantan. The oral health knowledge, attitude and practice were assessed by face-to-face group interview whilst the dental plaque maturity status was evaluated using GC Tri Plaque ID Gel™ (TPID). The dental plaque maturity score (DPMS) was recorded as ‘No plaque: 0’, ‘Fresh plaque: 1’, ‘Matured plaque: 2’, or ‘Acid-producing plaque: 3’. TPID was applied to all tooth surfaces and missing teeth were not substituted. The data were analyzed using IBM SPSS Version 22. The analysis used were independent t-test and one way ANOVA. The results showed that 64% of the students were female. About half (50.3%) of them are 14 years old. Mean oral health knowledge was moderate, 4.70 (SD = 1.442), oral health attitude was good, 3.63 (SD = 0.624) and DPMS indicates fresh plaque, 1.02 (SD = 0.543). Mean DPMS difference, -0.371 (95%CI: -0.688, -0.054) were significant between students who had correct response on the role of sugar (p = 0.022), positive attitude on the importance of self-care in preventing caries (p = 0.009) and practice toothbrushing at least twice daily (p = 0.016). In conclusion, school students had moderate knowledge and good attitudes towards oral health. Students who practice toothbrushing twice daily had better dental plaque maturity status than others who practice toothbrushing less frequent. There was no significant association between oral health knowledge and attitudes with dental plaque maturity status.

Keywords: oral health; oral hygiene; adolescent; health knowledge, attitudes, practice; dental plaque
Dose Verification of Interstitial Brachytherapy in Homogeneous and Inhomogeneous Medium: Single Catheter Study

Azahari ANa, Abdul Aziz MZb, Abdullah Ra, Gokula Kb and Osman NDb

aMedical Radiation Program, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia
bOncological and Radiological Sciences Cluster Advanced Medical & Dental Institute Universiti Sains Malaysia, 13200 Kepala Batas Bertam, Pulau Pinang, Malaysia
*Corresponding author: naqiuddin.upsk13@student.usm.my

ABSTRACT: Interstitial brachytherapy method is utilize high dose rate radioactive source (either afterloading or permanent) directly into the tumor site using special design catheter. Due to complex dose calculation and dose delivery in brachytherapy, computer based treatment planning systems (TPS) has been introduced using TG-43U1 formalism. The objectives of the study were to verify the dose calculation of TG-43U1 based treatment planning system in the homogeneous and inhomogeneous phantom setup (water, lung and bone). The single 6F catheter was sandwiched inside 14 cm of solid water phantom to create homogenous condition and scanned with computed tomography (CT) simulator. The CT images were transferred into the brachytherapy TPS. The plan was prescribed with 100 cGy at 3.5 from the Iridium-192 source and the dose distribution calculated. The same procedures were repeated for inhomogeneous condition by replacing solid water slab with lung phantom and bone phantom respectively. Then, the calculated doses were evaluated using 0.6 cm³ farmer ionization chamber and gafchromic EBT3 films. The result showed that the maximum dose deviation between calculated and measured dose using ionization chamber in the homogeneous medium, lung and bone was less than 2 cGy, 4 cGy, and -9 cGy respectively. While using EBT3, the dose deviation measured in homogeneous medium, lung and bone was less than 9 cGy, 8 cGy and -3 cGY respectively. Maximum standard error of measurement using ion chamber was 0.06 in comparison with EBT 3 film was 0.34. In conclusion, there was significant different between calculated and measured doses in TG-43U1 calculation in inhomogenous condition. The measurement using ion chamber was more accurate compared to EBT3 film measurement.

Keywords: Interstitial brachytherapy, Iridium-192, single catheter, phantom, inhomogeneity
The Malay Version of Athletic Coping Skills Inventory-28: A Confirmatory Study

Aizuddin H\textsuperscript{a,b*}, Yee CK\textsuperscript{a,c}, Garry K\textsuperscript{d} and Wan NA\textsuperscript{a}

\textsuperscript{a}Unit of Biostatistics and Research Methodology, School of Medical Sciences, Universiti Sains Malaysia  
\textsuperscript{b}Community and Family Medicine Department, Faculty of Medicine and Health Science, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, 88400, Malaysia  
\textsuperscript{c}Department of Psychiatry, School of Medical Sciences, Universiti Sains Malaysia  
\textsuperscript{d}Exercise and Sports Science, School of Health Sciences, Universiti Sains Malaysia, Kelantan, Malaysia  

\*Corresponding author: aizuddinh88@gmail.com

\textbf{ABSTRACT:} The study aimed to determine the validity and reliability of the Malay version of Athletic Coping Skills Inventory-28 (ACSI-28) using confirmatory approach. There were total 258 athletes competed in Silat sport completed the ACSI-28. The ACSI-28 consists of seven factors (i.e., goal setting, confidence, coachability, concentration, coping with adversity, peaking under pressure, freedom from worry) and 28 items. Each item of ACSI-28 was measured at 4 likert scale rating from 0 (almost never) to 4 (almost always). The confirmatory factor analysis (CFA) was used to examine the construct validity of ACSI-28 and composite reliability (CR) was used to measure the reliability of each factor. Data analyses of CFA were conducted using Mplus 7.4. The initial hypothesized model of ACSI-28 did not fit the data well (RMSEA = 0.069, SRMR = 0.072). The results of CFA were inspected and there were seven low loading items (<0.4) which were removed from the model iteratively. Some modifications were made that included adding an items’ residual covariance and combining several highly-correlated factors (Goal setting-confidence-concentration and coping-peaking) as single factor. The final stage of model re-specification produced best fit model (RMSEA = 0.053, SRMR = 0.054). In the final model, 18 items were remained and four main factors were identified. The CRs for all three factors were moderate to acceptable, ranged from 0.57 to 0.71. The revised version of ACSI-28 based on these confirmatory results could be used for future applied setting in measuring athletes’ coping in sport competition.

\textbf{Keywords:} Sports, coping, confirmatory factor analysis, reliability
Interleukin-17A Promotes Osteogenic Differentiation through Upregulation of MAP Kinase Signalling Pathway in Stem Cells from Human Exfoliated Deciduous Teeth (SHED)

Alphy ASa*, Kannan TPb, Norazmi MNb and Nurul Asma Ab

aSchool of Dental Sciences, 
bSchool of Health Sciences, 
Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: alphyalphonsa1@gmail.com

ABSTRACT: Interleukin 17A belongs to a family of pro-inflammatory cytokines, is not only involved in the immune response of tissues but also plays a role in bone metabolism. The present study evaluated the role of interleukin-17A on osteogenic differentiation of multipotent stem cells derived from human exfoliated deciduous teeth (SHED) and its effect on MAPK signalling pathway. SHED were cultured in 2 different conditions; one in complete alpha minimum essential medium (α-MEM) and the other in complete α-MEM medium supplemented with osteogenic reagents. SHED in both conditions were cultured in the presence or absence of 50 µg/ml rIL-17A. The effect of IL-17A on MAP kinase signalling pathway was quantitatively assessed by RT² profiler PCR array, which profiles the expression of 42 genes related to the pathway. For osteogenic differentiation analysis, expressions of the specific proteins ALP, COL1A1, RUNX2, OCN, OPN, OPG and RANKL were analyzed by Western blot. We demonstrated IL-17A upregulated MAP Kinase signalling pathway in SHED cultured in both culture conditions by the significant upregulations of all upstream activators and downstream targets of ERK, P38 and JNK pathways. In addition, western blot analyses demonstrated increase expression levels of osteogenic markers i.e. ALP, COL1A1, RUNX2, OCN, OPN, OPG in rIL-17A-treated SHED as compared to the untreated cells (p<0.01). Interestingly, SHED-treated with rIL-17A demonstrated increase OPG/RANKL ratio in both culture conditions. In conclusion, these findings demonstrate for the first time that IL-17A promotes osteogenic differentiation of SHED by activating MAPK and OPG/RANKL signalling pathways; thus suggest the important role of IL-17A in bone formation.

Keywords: Interleukin-17, MAP kinase, OPG, RANKL, SHED
Association between Stress and Dietary Intake among Adult Population in Kuala Terengganu

Ang JY*, Karimah Fakhriah I and Marhazlina M

School of Nutrition and Dietetics, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Gong Badak Campus, 21300 Kuala Nerus, Terengganu.

*Corresponding author: 037188@putra.unisza.edu.my

ABSTRACT: Stress is one of the leading causes of obesity as it had been shown to alter dietary intake. Obesity serves as a risk factor for the development of chronic diseases. A cross-sectional study was conducted to determine the association between stress and dietary intake among the adult population in Kuala Terengganu. This study was conducted from December 2016 to January 2017 in Gong Badak Campus and Kota Campus of Universiti Sultan Zainal Abidin (UniSZA), SJK (C) Chung Hwa Wei Sin and Sekolah Menengah Agama Sultan Zainal Abidin (SMASZA). A total of 100 respondents aged 19 to 59 years old, literate Malay language and healthy were recruited. Weight and height were measured using calibrated weighing scale and stadiometer to calculate body mass indices. The stress level was measured using 21-item Depression, Anxiety and Stress Scale (DASS-21), while dietary intake was assessed using Food Frequency Questionnaire (FFQ). Both parameters were self-reported by the respondents. The result showed that the prevalence of stress among the adult population in Kuala Terengganu was 19.0% which was categorised as non-stress as the mean stress score was 5.01 ± 2.89. There were 47.0% and 24.0% respondents reported as overweight and obese respectively. The median (IQR) daily energy intake of the study population was 2228.15 ± 599.62 kcal/day, while daily carbohydrate, protein and fat intake were 284.52 ± 101.58 g/day, 94.19 ± 43.33 g/day and 74.93 ± 34.48 g/day respectively. There was no significant difference between stress score and sex (p = 0.861) using independent t-test. The energy, protein and fat intake of males were significantly higher than females (p < 0.05). The energy and carbohydrate intake of stress group were significantly higher than normal group (p < 0.05). In conclusion, there was a fair positive association between stress score and energy intake among the adult population in Kuala Terengganu (p = 0.047). As stress increases, energy intake increases. This implies that stress did affect dietary intake of the adult population. This data may serve as a database for monitoring population stress level and dietary intake as well as to facilitate intervention programs!Keywords: Association, stress, dietary intake, adult population
Characterization of Bacterial Strains Isolated from Meat Contact Surfaces in Meat Processing Environment and Its Ability to Form Biofilm

Anith Amirah A, Elizabeth Sinirisan C, Nur Faizah AB and Siti Shahara Z*

“Environmental Health and Industrial Safety Programme, 
*Biomedical Science Programme,
School of Diagnostic and Applied Health Science, Faculty of Health Sciences,
UKM Kuala Lumpur, 50300, Malaysia

*Corresponding author: sitishahara.zulfakar@ukm.edu.my

ABSTRACT: Meat contamination by microorganisms from the meat-processing environment is a major challenge in the meat industry. Bacterial attachment and biofilm formation at the meat processing environment can occur due to several factors such as ineffective cleaning procedures, improper handling of meat and poor personal hygiene. Cross contamination can occur at any stage during the various steps of meat processing in the abattoirs. High level of contamination at meat contact surface reflects poor sanitation level and ineffectiveness of cleaning procedures of the abattoir. The aims of this study are to identify the species of bacterial strains isolated from the meat-processing environment and its ability to form biofilms. In this study, twenty-three (23) bacterial strains isolated from meat contact surfaces (knives, splitting tools and air curtains) from two selected abattoirs in Selangor were tested in this study. All isolates were identified using 16s rDNA. The Biofilm formation ability of the bacterial strains was evaluated using the standard microtiter plate assay. Biofilm production at three different temperatures (4˚C, 25˚C and 37˚C) were also tested in this study. The results demonstrated that the bacterial genera isolated from the meat contact surfaces were dominated by Acinetobacter sp., Bacillus sp., Cronobacter sp., Empedobacter sp., Enterococcus sp., Escherichia sp., Glutamicibacter sp., Kurthia sp., Macrococcus sp., Microbacterium sp. and Staphylococcus sp.. Whereas, for the comparative ability of biofilm formation, results showed that biofilm formation of Escherichia coli at all tested temperatures were very strong. Results also showed that Staphylococcus saprophyticus and Proteus mirabilis formed biofilm at 4˚C and 25˚C while Macrococcus bovicus, Microbacterium esteraromaticum and Bacillus flexus only form biofilms at 37˚C. The other species of bacteria only form weak biofilm or show zero ability in biofilm formation. From these results, pathogenic bacteria were found in the meat processing environment and were found to have biofilm forming ability. This study revealed that the hygiene level of the abattoir is low and requires extra deliberation from related authority. It is suggested that a regular monitoring programme should be implemented to further improve the hygiene level in the abattoir and thus maximise our local beef quality.

Keywords: Meat contamination, abattoirs, 16s rDNA, biofilm formation, temperature
ABSTRACT: Marine macroalgae are natural geochemical signatures seaweeds of global distribution. Various divisions of macroalgae flora such as Chlorophyta, Phaeophyta and Rhodophyta flourish. However, although active ingredients; polysaccharides, lipids factions, and carotenoids have been purported linked, and for more than 2000 years exploited in Traditional Chinese Medicine (TCM), for a variety of diseases and now aquaculture able, its biomass remained poorly extrapolated as functional food. The aim of this review is to cross check the potential of macroalgae as functional food. In this study, a systematic search of all recorded macroalgae species (available in scientific manuscripts) published since 2007 of pertinent as functional food was retrieved (from the World Wide Web: Pub Med, Web of Knowledge, and SciFinder Scholar). From the retrieved knowledge, taxonomic classification (i.e., family, genus, and species) was recorded. The spread sheet of nutritional values and bioactive compounds (activities) of each spp was also analysed and tabulated. Natural bioactive compounds associated with macroalgae includes sulfated polysaccharides, peptides, phenols, terpenes, chlorophyll, carotenoids, lipids and fatty acid all with a wide range of physiological and biological activities to serve as therapeutic agents. As a conclusion, biological activities such as anticoagulant, antiviral, antioxidative, antitumor, immunomodulating, antihyperlipidemic and antihepatotoxic activities are associated to this marine macroalgae. Sulfated polysaccharide is also an interesting entity of its biomass. The results of this review are highly suggestive especially for a country like Malaysia, that with the said characteristic nutritional features and biological activities, macroalgae is thus an important topic for functional food research.

Keywords: Marine macroalgae, seaweeds, functional food and sulfated polysaccharides (SPs)
Noise Exposure and Hearing Symptoms among Supporting Group Workers at a Public Hospital

Asaritaminaziah H\textsuperscript{a,b} and Siti Marwanis A\textsuperscript{b*}

\textsuperscript{a}Clinical Trial Unit, School of Medical Sciences, 
\textsuperscript{b}Environmental and Occupational Health Program, School of Health Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

\*Corresponding author: smarwanis@usm.my

ABSTRACT: Noise-induced hearing loss (NIHL) is considered as the major preventable cause of hearing loss at workplace. Workers involved with mechanical equipment in hospital may be exposed to high noise level. Hence, the aim of this study was to investigate the noise exposure level and hearing symptoms among supporting group workers at Laundry Unit (LU), the Department of Asset and Operation Office and the Development Department (PAO/DD) in a Public Hospital. Using cross sectional study design and convenience sampling method, 20 workers from the LU and 15 workers from PAO/DD participated in the study. Each worker noise exposure levels were measured using a noise dosimeter (Spark Larson Davis 703, Sweden) worn for 8 hours during the working time. Hearing symptoms were determined using a modified and translated questionnaire adapted from the American Speech-Language-Hearing Association (ASHA). The data demonstrated that workers at LU had significantly longer duration of noise exposure per week compared to PAO/DD (28 hours per week vs 20 hours per week, \(P=0.009\)). However, workers at PAO/DD were exposed to significantly higher mean noise level (85.3± 2.0 dBA) compared to workers at LU (80.1± 3.4 dBA), \(P=0.001\). The \(L_{\text{peak}}\) for both LU and PAO/DD was more than 130dBA which exceeds the Factories and Machinery Act 1967. Regarding hearing symptoms, 70\% (\(n=14\)) workers at LU and 35\% (\(n=6\)) workers at PAO/DD have trouble hearing in a noisy background, respectively. LU workers have lower noise exposure level, but at longer duration while PAO/DD workers have a higher noise exposure level with short duration. Hearing symptoms were detected in both groups and this warrants further actions from the management.

Keywords: Noise exposure, Hearing symptoms, Public Hospital
A Study of Flavonoids Content from *Passiflora foetida* L. Plant in Kelantan

Azreen M* and Farid CG

School of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: azreenmohammad9@gmail.com

**ABSTRACT:** *Passiflora foetida* L. or passion flower is a fast growing spreading vine located near hamlets, top thorny shrubs and human settlements riverbeds. This plant medicinal purpose has been widely purported in countries such as India, Vietnam, Bangladesh, Thailand and Nigeria. In tandem to this, plant medicinal uses are strongly associated with its phytoconstituents content. Thus scientific studies are needed to harness exploitation and outsourcing with well taxonomied plant. One widely known phytoconstituents is the flavonoids. *Per se*, flavonoids have received a lot of attention in many plant research purposes especially in outsourcing for therapeutic phytoconstituents. Hence this study was carried out to quantify the total flavonoids content in geochemical localized *Passiflora foetida* L. leaves and stems extract outsourced form two different GPS location within the state of Kelantan. Chemical characterizations are essential to validate the pharmaceutical use of the plant raw materials. Hence the objective of this work was to optimize a UV/Vis spectrophotometrically method, based on flavonoid-aluminum chloride (AlCl₃) complexation to determine the total flavonoid content (TFC) in leaves and stems extract of *Passiflora foetida* L. There was significance different of total flavonoids content in leaves extract between Kampung Kenali and Kampung Pulau Pasir. Flavonoids content in stems extract are suggestively influenced by soil-type and water distribution into the stems structure. In conclusion, the quantification differences can be a bench mark for the optimization of *Passiflora foetida* L extract.

**Keywords:** Flavonoids, aluminium chloride, *Passiflora foetida* L.
Adherence to Insulin Therapy in Type 2 Diabetes Mellitus Patients Treated at The Government’s Primary Health Care Centers in Klang, Selangor

Nasruddin A*, Norsa’adah B, Naing NN, Norul Badriah H and Azlina S

*Unit of Biostatistics and Research Methodology, 
Department of Pharmacology, School of Medical Sciences, Universiti Sains Malaysia, Malaysia
Klang District Health Offices, Selangor State Health Department, Ministry of Health Malaysia

*Corresponding author:azrinasruddin@gmail.com

ABSTRACT: Insulin therapy is necessary for Type 2 Diabetes Mellitus (T2DM) patients to accomplish targeted glycaemic controls and prevent diabetes-related complications. This study aimed to determine the proportion of adherence to insulin therapy and to determine the association between adherence level and glycaemic controls (HbA1C, Random Blood Sugar, Fasting Blood Sugar) in patients who attended Ministry of Health primary care centers in Klang, Selangor. This cross-sectional study was conducted among T2DM patients who were on insulin therapy for at least two months. A purposive sampling method was used. Patients were interviewed, and records were accessed to collect data on socio-demographic characteristics. A self-administered validated questionnaire was used to measure the adherence level to insulin therapy. This study involved 249 subjects from five Ministry of Health’s primary care centers in Klang, Selangor. The proportion of adherence to insulin therapy was only 8.43% (95% CI: 0.05, 0.12) and there was no association between adherence level to insulin therapy and glycaemic controls. Adherence to insulin therapy was poor. In addition, the adherence level to insulin therapy was found to be not associated with glycaemic controls. T2DM patient’s adherence level could be improved through a better and specific identification of factors that could lead to the adherence to insulin therapy. There might be other confounding factors that was associated with glycaemic controls.

Keywords: insulin, adherence, diabetes mellitus, glycaemic control
Effect of Minocycline and Ifenprodil on Oxidative Status and Pro-inflammatory Markers in Spinal Cord of Streptozotocin-induced Painful Diabetic Neuropathy Rat Model

Che Aishah Nazariah 1*, Rapeah S 1, Che Badariah AA 1 and Idris Long 1

1School of Health Sciences, Department of Physiology, School of Medical Science, Universiti Sains Malaysia Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: aishahnazariah@yahoo.com

ABSTRACT: Hyperglycaemia in diabetes mellitus (DM) patients leads to the excessive production of oxidative stress. Inhibition of microglia and NR2B subunit NMDA receptor has been shown to reduce the painful diabetic neuropathy (PDN) in the diabetic rat model. This study was conducted to investigate whether the administration of microglial inhibitor (minocycline) and NR2B subunit NMDA receptor inhibitor (ifenprodil) can change the level of oxidative stress and pro-inflammatory markers in the spinal cord of painful diabetic neuropathy rat’s model. Fifty-six male Sprague-Dawley rats were randomly allocated into seven groups: non-diabetic control (S+CB), diabetic control (S+STZ), non-PDN, diabetic rats received minocycline at 80µg (M80) or 160µg (M160) and diabetic rats receiving ifenprodil at 0.5µg (I0.5) or 1.0µg (I1.0). All rats were fasted for 14 hours prior to STZ injection (60mg/kg) to induce diabetes. The diabetic status was confirmed at three days post-STZ injection. Intrathecal administration of the treatment was given on Day 15 to 22 (seven days) post-STZ injection. On Day 23, the rat’s hind paw was injected with 5% formalin and sacrificed at three days after formalin injection. Spinal cord tissue was removed and homogenized (10% homogenate). Enzyme-linked immunosorbent assay for antioxidant (catalase and superoxide dismutase), oxidative stress markers (MDA) and pro-inflammatory markers (TNF-α and IL-1β) were carried out. (S+STZ) group had demonstrated significant reduction in catalase and SOD activities accompanied by the increased in TNF-α and IL-1β levels compared to the (S+CB) group (p<0.05). An administration of higher dose of minocycline (M160) and ifenprodil (I1.0) had shown an improvement in catalase and SOD activities compared to the other groups (p<0.001). Minocycline and ifenprodil treated groups independent to dose given also had demonstrated a marked suppression in MDA levels compared to the other groups (p<0.001). Both minocycline- and ifenprodil-treated groups had reduced TNF-α level especially minocycline at higher dose (p<0.001) but cannot prevented the increase on IL-1β level especially ifenprodil-treated group (p<0.05) compared to the other groups. In conclusion, minocycline and ifenprodil administration can reduce the level of oxidative stress and pro-inflammatory markers in the spinal cord of painful diabetic neuropathy rat’s model but probably through different pathway and mechanism.

Keywords: Minocycline, ifenprodil, malonylaldehyde, superoxide dismutase, catalase, interleukin-1β
Study on Indoor Air Quality (IAQ) at Selected Workshop toward Health Effects to Workers

Che Nadiah CA* and Mohd Nasrom MN

Environmental and Occupational Health Programme, School of Health Sciences, Health Campus, Universiti Sains Malaysia 16150 Kubang Kerian, Kelantan

*Corresponding author: che_nadiah@yahoo.com

ABSTRACT: This study attempted to examine the indoor air quality at selected workshop towards health effect to workers at high risk industry workplace were they exposed to poor indoor air quality (IAQ) environment. The indoor air concentration of particulate matter was usually high in industrial area due to work process that release heat and contaminants. Indoor air parameters including PM\textsubscript{10}, PM\textsubscript{2.5}, relative humidity and temperature were collected in three selected workshop at RWNA Engineering Sdn. Bhd using Lighthouse Handheld 3016. These parameter was collected to compare it with available standards and guidelines. An IAQ checklist were used for walk through survey to support and strengthen result obtain from this study. While the evaluation on health symptoms was collected using questionnaire. Chi-square test was performed for all of the adverse health analysis. The highest PM\textsubscript{10} concentration were recorded in blasting workshop which was 83.20 µg/m\textsuperscript{3}. There was statistically significant differences for proportion of dry throat at selected workshop (p=0.036). In conclusion, regular maintenance of indoor air quality and outdoor air monitoring of IAQ parameter need to be done to control the exposure towards air contaminant from the right sources and as to minimise IAQ problems for healthier indoor environment.

Keywords: Indoor Air Quality (IAQ), Particulate Matter, Health Effect
Validation of Malay Version Body Self-Image Questionnaire Among Malaysia’s Young Adults

Lim CJ*, Siti Azrin AH*, Najib Majdi Y*, Suhaily MHb and Yee CKa

1Unit of Biostatistics and Research Methodology,
2Department of Community Medicine,
School of Medical Sciences, Universiti Sains Malaysia

*Corresponding author:limchienjoo90@gmail.com

ABSTRACT: It is undeniable that how an individual perceive their appearance brings substantial impact on their quality of life, in terms of their social life, self-esteem and others. The problem has increased the awareness of researchers worldwide to further explore in this area. Body Self-Image Questionnaire is developed to measure body image perceptions; nonetheless, due to the cultural, language and environmental differences between western and eastern population, the validity and reliability need to be established before it can be used in these setting. The aims of this study was to determine the validity and reliability of the Malay version Body Self-Image Questionnaire among young adults in Malaysia using Exploratory Factor Analysis. A cross-sectional study involved web-based survey was employed in this study among young adults in Malaysia. Participants were recruited using snowball sampling method. Descriptive and Exploratory Factor Analysis were applied in the statistical analysis. A total of 188 respondents participated in this study. Majority of the respondents were female (67%), Malay (93.6%), single (80.9%) and students (56.4%). Results for Exploratory Factor Analysis showed factor loading of all the items ranged from 0.329 to 0.921, and communalities ranged from 0.338 to 0.780. The items were re-grouped from nine factors to 4 factors namely: negative affect, positive affect, own body perception and height dissatisfaction. The results for Exploratory Factor Analysis retained all the items and re-grouped them into 4 factors. The questionnaire is valid and reliable to be used to measure body image perceptions among young adults in Malaysia in future.

Keywords: Body Self Image Questionnaire, young adults, Malaysia, validity, reliability
ICAM-1 Expression in Triple Negative Breast Cancer (TNBC)

Chong Choi Y* and Sabreena S

School of Health Science, Health Campus, Universiti Sains Malaysia, Kubang Kerian, 16150 Kelantan, Malaysia

*Corresponding author: ayennnccy@gmail.com

ABSTRACT: The major cause of mortality from breast carcinoma is due to dissemination of the primary tumor to the other part of the body through the lymphovascular invasion (LVI). Studies have proven that intercellular adhesion molecule-1 (ICAM-1) and tumor cell invasion were associated with metastases, however the relationship between LVI with ICAM-1, the adhesion molecule in breast carcinoma remained unclear. Therefore, the aim of this study was to investigate the role of ICAM-1 in influencing LVI in breast carcinoma patients. Additionally, the topography and characteristic of lymphatic and blood vessels and the association of these characteristics with clinicopathological criteria of breast carcinoma was also been studied. Lastly, the association between conventional assessments of lymphovascular invasion by using haematoxylin and eosin (H&E) staining with those assessed in (IHC) staining with specific endothelial markers was investigated. H&E and immunohistochemical IHC staining on consecutive section of 37 formalin fixed-paraffin embedded (FFPE) breast invasive carcinoma samples were carried out to investigate the characteristic of lymphatic and blood vessel with clinicopathological criteria. D2-40, CD34, CD163, and ICAM-1 antibodies were used to stain lymphatic vessel, blood vessel, macrophage, and ICAM-1 receptor respectively. Stimulated MCF-7 and MDA-MB-231 cell lines with D2-40 and CD34, followed by flow cytometry reading were done to study ICAM-1 expressions on breast carcinoma models. Total lymphatic vessel density (LVD) was significantly increased with larger tumor size \( (p=0.045) \). Intra-tumoral LVD and lymphatic vessel invasion (LI) were significantly increased with HER2/neu status, \( p=0.022 \) and \( p=0.05 \) respectively. The percentage of LI was higher than blood vessel invasion (BI) in 16.79\%. LVI detected in H&E was missed in 50.24\% compared with those detected in IHC-stained tissues. ICAM-1 scores were significantly increase in triple negative breast cancer (TNBC) \( (p=0.008) \). Expression of ICAM-1 was significantly higher on treated MDA-MB-231 with D2-40 and CD34 compared to MCF-7 \( (p<0.001) \). In conclusion, ICAM-1 expression in TNBC model shows the potential role of this molecule in the aggressive nature of TNBC. This finding provides an important foundation for pre-clinical and clinical evaluation for the possible alternative therapeutic target of TNBC treatment.

Keywords: Breast carcinoma; Lymphovascular invasion; D2-40; CD34; ICAM-1
Health and the Environment Journal, 2017 Vol 8, Supplement 1

Fruits and Vegetables Intake Among Preschoolers in Taska Permata Keluarga, Kuala Nerus, Terengganu.

Dang QY* and Hasmiza H

School of Nutrition and Dietetics, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Gong Badak Campus, 21300 Kuala Nerus, Terengganu, Malaysia

*Corresponding author: 037065@putra.unisza.edu.my

ABSTRACT: Fruits and vegetables are important in health promotion and they are crucial for the growth of children because they contain essential nutrients such as vitamins, minerals, fibers and bio-functional components. Worldwide, fruits and vegetables intake was inadequate and continue to drop. This study anticipate the comparison of fruits and vegetables intake among preschoolers with the recommended daily servings of fruits and vegetables based on Malaysian Dietary Guideline for Children 2013. Besides, this study determines the association between fruits and vegetables intake and macronutrients and micronutrients intake of preschoolers. This cross sectional study was designed to determine the daily fruits and vegetables intake among preschoolers in Taska Permata Keluarga, Kuala Nerus. A total of 131 preschoolers aged four to six years old from Taska Permata Keluarga, Kuala Nerus were included in this study. Anthropometric measurements included weight, height and body mass index were reported. Preschoolers’ dietary intake was assessed using food frequency questionnaire and nutrient intakes were compared with Recommended Nutrient Intake (RNI). The median weight for boys and girls were 14.23 kg and 14.30 kg respectively, whereas the median height for boys was 98.18 cm and 97.70 cm for girls. The median BMI for boys was 15.00 kg/m² whereas for girls was 14.70 kg/m². Overall, preschoolers’ median intake of fruit serving (0.76 for boys and 0.61 for girls) and vegetable serving (1.02 for boys and 0.64 for girls) failed to meet Malaysian Dietary Guidelines (MDG) of 2 servings of fruit and 2 servings of vegetable per day. Only 4 (3.1%) preschoolers met the MDG recommendation. There was no significant differences in fruit and vegetable intake and fiber intake between boys and girls (p>0.05). Total fruit serving intake was positively correlated with energy intake, fiber intake, macronutrient intake (carbohydrate), and micronutrients intake (iron, beta carotene, vitamin C). Total vegetable serving was positively correlated with fiber intake, macronutrient intake (protein, carbohydrate) and micronutrients intake (calcium, iron, potassium, vitamin A, beta carotene, vitamin C). In conclusion, most of the preschoolers failed to meet MDG 2013 recommendation of two servings of fruit and two servings of vegetable per day. Total fruit and total vegetable was associated with macronutrients and micronutrients intake among preschoolers. The data provide baseline information for further research purpose.

Keywords: fruits and vegetables intake, fiber intake, preschoolers
ABSTRACT: The polymorphism (RS1800497) in the dopamine D2 receptor and the polymorphism (RS27072) in the dopamine transporter have previously been linked to a drug addiction behaviour. Opioids and amphetamine-type stimulant (ATS) are the main drugs abused by the drug abusers in Malaysia. The objective of this study is to determine the possible association between the DRD2 Taq1A and dopamine transporter (SLC6A3) gene polymorphisms with the subjects of co-occurring amphetamine-type stimulants (ATS) and opioid dependence. A total of 50 Malay male subjects with dependence to two drugs, amphetamine-type-stimulant and opioid and 188 control subject were recruited. The polymorphism of the DRD2 and SLC6A3 were determined by using a standard PCR procedure. The frequencies of DRD2 genotype for the normal group for the A2/A2= 23.94% (45), A1/A2= 45.74% (86) and A1/A1= 30.32% (57), while the frequencies for the SLC6A3 genotypes were TT=12.24% (23), CT= 61.70% (116) and CC= 26.06% (49). The frequencies for the DRD2 genotype for the drug abuse group are A2/A2= 24% (12), A1/A2= 48% (24) and A1/A1= 28% (14). For SLC6A3 genotype of the drug abuse group, TT=10% (5), CT= 82% (41) and CC= 8% (4). There were a significant difference in frequencies of DRD2 polymorphism ($X^2 = 9.160$, $P<0.01$) and SLC6A3 polymorphism ($X^2 = 104.160$, $P<0.012$) observed between the drug abuse and normal group. There is an association between polymorphism of dopamine receptor D2 (DRD2) and dopamine transporter (SLC6A3) and the Malay male subject with co-occurring amphetamine type stimulant and opioid dependence.

Keywords: SLC6A3 polymorphisms, DRD2 polymorphism, opioid, Amphetamine-type-stimulant (ATS), drug addiction
Organic Solvents Exposures and Neurobehavioral Performances among Car Spray Painters in Kota Bharu

Dionysia D* and Nurul Ainun H

Environmental and Occupational Health Programme, School of Health Sciences, Health Campus, Universiti Sains Malaysia 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: dionysiadavid@rocketmail.com

ABSTRACT: The increase demand in car usage do led to the increase number of car spray painting premises that have capabilities to cause adverse health effects on human health and environment. Organic solvents used in car spray paint is neurotoxic and can affect central and peripheral neurobehavioral system. This comparative cross sectional study design aimed to determine the association between exposures of organic solvents found in chemical toward the neurobehavioral performances of car spray painters. This study was conducted among 47 car spray painters at thirteen car spray painting premises at Kota Bharu for exposed group and among 47 administrative workers at Universiti Sains Malaysia as control group. Questionnaires and Neurobehavioral Core Test Battery (NCTB) consist of seven series of test were used as the research instrument. There were a significant difference in neurobehavioral symptoms of fatigue after finished working session ($\chi^2=11.525$, $p=0.001$), often having fever ($\chi^2=4.029$, $p=0.045$), irritability edge ($\chi^2=6.114$, $p=0.013$), lack hand coordination ($\chi^2=3.887$, $p=0.049$), numb at the part of the body ($\chi^2=7.982$, $p=0.005$) and impaired vision ($\chi^2=8.340$, $p=0.004$) reported among exposed group. NCTB scores were significantly lower among the exposed group compared to non-exposed group in all seven series of tests; Simple Reaction Time, Minnesota Dexterity (Dominant and Non Dominant), Digit Span (Forward and Backward), Digit symbol, Pursuit Aiming and Trail Making which are $p=0.001$. In conclusion, exposed subjects score poorer than non-exposed subject in most of the neurobehavioral symptoms and all neurobehavioral score.

Keywords: Neurobehavioral performance, Neurobehavioral Core Test Battery, Car spray painters
Occurrence of *Salmonella* spp. in Local Abattoirs located in Selangor, Malaysia

Elizabeth Sinirisan C*^a^, Nur Faizah AB^a^, Noraziah MZ and Siti Shahara Z

^a^Biomedical Science Programme,
^b^Environmental Health and Industrial Safety Programme,
School of Diagnostic and Applied Health Science, Faculty of Health Sciences,
UKM, Kuala Lumpur, 50300, Malaysia

*Corresponding author: elizabethchong@siswa.ukm.edu.my

**ABSTRACT:** *Salmonella* spp. is one of the emerging food borne pathogens of worldwide importance that contaminating a wide range of meat products. Poor biosecurity and improper processing of the meat products are likely the cause of human illnesses due to this pathogen. In this study, the contamination of beef carcasses and meat contact surfaces with *Salmonella* spp. in local abattoirs was evaluated. A total 152 swab samples were tested for the presence of *Salmonella* spp., where both beef carcasses and meat contact surfaces were collected from two local abattoirs that located in Selangor, Malaysia. Total viable counts were also recorded. A total of 28 samples were found to be *Salmonella* positive. These samples have been confirmed with conventional biochemical methods and PCR. The results showed that all samples contained an average viable count of $4.56 \pm 1.23 \log_{10} \text{CFU/cm}^2$. The findings reinforce the importance of hygienic practices in the abattoirs, as the occurrence of *Salmonella* spp. in the local abattoirs poses a risk for cross-contamination in beef products which could possibly transfer to consumers.

**Keywords:** *Salmonella*, beef carcass, meat contact surfaces, abattoir.
ABSTRACT: Tiger nut is an underutilized crop that has been studied for its nutritional value to increase its potential. Researches have shown that it contain compound such as Quercetin, beta-sitosterol that are known to have anti-cancer properties. Thus this study sought to find its antioxidant ability and cytotoxic effect on few cancer cell lines. All extracts contained flavonoids but no phenols could be detected. BDTe extract gave the highest percentage inhibition of 48.52% followed respectively by SRTe (9.61%), SRTm (2.2%) and YDTm (0.3%). It was observed that the % inhibition observed is due to the total flavonoids and phenolic content with respect to the milk extract, but only the flavonoids content can be attributed to that of the ethanol extract. MCF7 and HT29 are mostly affected by the milk extract compare to the other cell lines, with a % cell death between 35-45%. But in general, the extract show anti-proliferative activity on the cell lines investigated. The data obtained from this work showed that Tiger nuts milk can be used in the management of MCF7, and HT29 cell lines. The presence of flavonoids and sterols may be involved in the cytostatic effect observed. Also the cells are mostly affected at 48hr incubation period.

Keywords: Anti-proliferative, cancer, cytotoxicity, total flavonoid content, antioxidant activity.
Effects of Tualang Honey on Brain Oxidative Stress Markers of Male Rats Exposed to Hypoxia

Entesar Yaseen AQ\textsuperscript{a*}, Zahiruddin Ob, Nurul Aiman MY\textsuperscript{c}, Shaida Fariza S\textsuperscript{d}, Aminah CR\textsuperscript{a} and Rahimah Z\textsuperscript{a}

\textsuperscript{a}Department of Physiology, \\
\textsuperscript{b}Department of Psychiatry, \\
\textsuperscript{c}Department of Anatomy, \\
School of Medical Sciences, USM Health Campus, Kubang Kerian, Malaysia \\
\textsuperscript{d}Department of Biology, School of Biological Sciences, USM Main Campus, Penang, Malaysia

\textsuperscript{*Corresponding author: entesar.yaseen@yahoo.com}

ABSTRACT: This study investigated the effects of Tualang honey on brain oxidative stress markers in adult male Sprague-Dawley rats exposed to hypoxia. The rats were divided into four groups (n=12 per group); i) non-hypoxic treated with sucrose, ii) non-hypoxic treated with Tualang honey, iii) hypoxic treated with sucrose, iv) hypoxic treated with Tualang honey. Oral Tualang honey (0.2 g/kg body weight) and sucrose (1 mL of 7.9%) supplementations were given to the rats daily for 14 days. Then, the rats were subjected to \textasciitilde11\% continuous hypoxia for 7 days. The rats were anaesthetised with thiopental sodium (i.p. at a dose of 30 mg/kg body weight). The left brain hemispheres were homogenised and centrifuged. The levels of oxidative stress markers in the brain homogenate were determined by ELISA methods. The hypoxic rats treated with sucrose showed a significant increase in malondialdehyde (MDA) level when compared to sucrose non-hypoxic and both honey-treated groups (p < 0.01). Significant increase in total antioxidant capacity (TAC), catalase (CAT), superoxide dismutase (SOD), and glutathione peroxidase (GPx), and significant decrease in MDA were observed in honey-treated groups when compared to those treated with sucrose (p < 0.05). The results suggest that Tualang honey has \textit{antioxidant activities} that can suppress hypoxia-induced brain oxidative stress.

\textbf{Keywords:} hypoxia, Tualang honey, sucrose, brain, oxidative stress
Investigating Archery Stance Performance Based on Geometric Morphometrics

Erliza E, * Helmi Mohd Hadi P and Garry Kuan PE

School of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: erlizaerwin@gmail.com

ABSTRACT: Geometric morphometrics (GMM) is a method to quantify the size and shape of organisms with the application of multivariate statistics. In this project, the participants’ archery stance was examined by landmark-based GMM analysis. The goal of this study was to correlate demographic factors of participants’ archery stance in related to score. The factors that had been explored in the study was age, height, hand strength as well as back and leg strength. Two cameras were utilised to record video of 20 participants’ archery stance and take picture of the target board, separately. Still screenshots images of participants’ archery stance analysed using three available softwares: tpsUtil, tpsDig2 and MorphoJ. The result of this project suggests that GMM assessment of archery stance by hand strength as well as back and leg strength are more reliable indicator compared to score, age, height and weight. However, the level of significance is not really high at only 33.1% for hand strength and 23.1% for back and leg strength. The results from Principle Component Analysis suggest that the total variance of five axes: PC1, PC2, PC3, PC4 and PC5 summarises 84.7% of the observed shape variation. Therefore, it can be concluded that GMM can be utilised in archery studies as to provide better understanding and information on archery. It is recommended for other scholars or researchers to conduct a study of sport science by employing GMM as their method of analysis.

Keywords: Geometric morphometrics, archery performance, biomechanic
The Effect of Minocycline on Spatial Learning and Memory Performances and c-FOS Protein Expression in Hippocampus of Lipopolysaccharides-Induced Neuroinflammation Rat Model

Fareedzul Amir MS* and Idris I

School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: fareed.upsk13@student.usm.my

ABSTRACT: Minocycline is a semi-synthetic second generation of tetracycline antibiotics. Recent studies found that it has anti-apoptotic and anti-inflammatory functions by modulating the action of microglia cells activation and subsequent release of cytokines. Thirty-five adult male Sprague-Dawley rats were used and divided into five groups; GC group (control group, n=7), LPS group (LPS-treated only, n=7), LPS + 50MN group (50 mg/kg of Minocycline, n=7), LPS + 100MN (100 mg/kg of Minocycline, n=7) and LPS + 2MM group (2 mg/kg of Memantine, n=7). After single dose infusion of 5 mg/kg of LPS, the rats were treated with their respective drugs for seven consecutive days. Then, all the rats were tested their spatial learning and memory performance using Morris water maze apparatus, for five acquisition days and followed by probe test on the next day. Twenty-four hours after the test, all rats were euthanised and heart perfusion and fixation technique was performed. The collected brain sample was proceeds with immunohistochemistry analysis for c-fos protein expression measurement in CA-1 hippocampus area. Statistically significant difference on travelled distance, escape latency and average swimming speed in all five days of acquisition within all the respective groups (p < 0.05). The comparison between groups showed that rats from LPS + 100MN group exhibited shorter travelled distance compared to rats from LPS group (p < 0.05) and faster average swimming speed compared to rats from LPS + 50MN group (p < 0.05). For escape latency, rats from GC group performed better compared to rats from LPS group (p < 0.05) and LPS + 50MN group (p < 0.05). The number of site of platform crossovers and percentage time spent in the target quadrant showed statistically not significant differences between all the groups (p > 0.05). C-Fos protein expression found not significantly difference in rat’s hippocampus between all groups. In conclusion, higher dosage of Minocycline gives positive effect on spatial learning and memory performances compared to lower dosage and standard dosage of Memantine drug. There were no associations between the effect of Minocycline on expression of hippocampus c-Fos protein in LPS-induced neuroinflammation in rat model.

Keywords: Minocycline, Spatial learning and memory, Alzheimer’s disease
Evaluation of Dose Volume Histograms Parameters of Organ at Risk in Breast Cancer Generated by Two Different Techniques in Three Dimensional Conformal Radiotherapy

Fatin Nadiah R, Reduan A and Chen SC

Medical Radiation Programme, School of Health Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: fnad94@gmail.com

ABSTRACT: This study compared the radiotherapy techniques for left-breast irradiation: tangential beam (TB) versus half-beam (HB) and tangential-wedged beam (TWB) versus half-wedged beam (HWB). The radiation toxicity of the critical organs (ipsilateral lung and heart) were evaluated based on QUANTEC (Quantitative Analyses of Normal Tissue Effects in the Clinic) summary. Five patients with intact breast (Group 1) and five patients underwent mastectomy (Group 2) were retrospectively planned using Oncentra Treatment Planning System (TPS) version 4.3. The prescription dose was 40.05 Gy in 15 fractions using 6 MV photons. The dose-volume-histograms (DVHs) generated from each plan were evaluated based on the dose-volume parameter in consideration. For Group 1, the average heart volumes receiving 25Gy (V_{25}) were reduced to 1.77% (HB) from 2.04% (TB). As for TWB versus HWB, the average V_{25} reduced from 2.35% to 1.92% respectively. Meanwhile, the average ipsilateral lung volumes receiving 20Gy (V_{20}), the recorded value reduced from 10.11% (TB) to 9.81% (HB). For TWB versus HWB it is 10.69% and 10.27% respectively. The same pattern were observed in group 2 for both critical organs, whereby the average V_{25} of heart reduced to 2.42% (HB) from 2.69% (TB). Meanwhile, it is reduced from 2.77% (TWB) to 2.62% (HWB). For ipsilateral lung, the average V_{20} is 7.91% (TB) to 7.73% (HB). Whereas, it is reduced from 8.31% (TWB) to 7.92% (HWB). All reported value on average lung V_{25} and heart V_{20} including other dose-volume parameter were revealed as to not exceed the dose constraints reported by QUANTEC. Of all plan, half-beam (HB) seem to be the best treatment plan. It is crucial to reduce unnecessary dose to critical organs so that the probability event of radiation pneumonitis and cardiotoxicity in long-term could be avoided.

Keywords: Left breast cancer, beam planning, dose-volume parameter, radiotherapy toxicity
Significantly High Level of Soluble Receptor for Advanced Glycation End Product (sRAGE) in Serum: A Prophetic of Acute Coronary Syndrome

Fatin Najiah MI*a, Siew Wai F*a, Chee Hock H*c, Zurkurnai Y*b, Shaiful Azmi Y*d, Rosli MA*d and Get Bee Yvonne-Teea

*aSchool of Health Sciences, 
bSchool of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia 
cFaculty of Veterinary Medicine, Universiti Malaysia Kelantan, 16100 Kota Bharu, Kelantan, Malaysia 
dNational Heart Institute, 50400 Kuala Lumpur, Malaysia

*Corresponding author: fnajiah@yahoo.com

ABSTRACT: Biomarker plays a crucial role in discriminating coronary heart disease patients into two groups of Acute Coronary Syndrome (ACS) and Chronic Stable Angina (CSA). The circulating soluble Receptor for Advanced Glycation End Product (sRAGE) is reported to have discriminative role as a potential diagnostic marker of ACS. This study was aimed to investigate the difference in serum level of sRAGE in ACS and CSA patients and also to determine the association between serum level of sRAGE with plaque instability biomarker [myeloperoxidase (MPO), placenta growth factor (PIGF), soluble CD40 ligand (sCD40L)] as well as several clinical and biochemical parameters [triglyceride, total cholesterol, HDL cholesterol, LDL cholesterol, C-Reactive Protein, number of lesion at coronary artery] in these patients. A total of 13 ACS [age in median 47 years (IQR 26)] and 19 CSA patients [51 years (IQR 26)] were recruited from Hospital Universiti Sains Malaysia and National Heart Institute, Kuala Lumpur. The peripheral venous blood was withdrawn from antecubital fossa prior to the angioplasty procedure. The serum concentration of sRAGE was measured using quantitative sandwich enzyme immunoassay technique. Mann Whitney analysis showed that serum level of sRAGE was significantly higher (p = 0.0001) in ACS cases [median 3541 pg/mL (IQR: 2153.8) pg/mL] as compared to CSA patients [1268 (1510) pg/mL]. The Spearman rank correlation test revealed that sRAGE was positively correlated with sCD40L (Spearman’s ρ = 0.383, p = 0.031) and PIGF (Spearman’s ρ = 0.629, p = 0.0001). This study proves that serum level of sRAGE is elevated in patients with ACS, suggesting that it could be related to plaque instability in ACS.

Keywords: acute coronary syndrome, chronic stable angina, coronary heart disease, biomarker, soluble receptor
Effects of Ripe and Unripe *Musa acuminate* AA Pulp Extracts Towards MCF-7 Breast Cancer Cells

Muhammad Firdaus AR\(^a\)*, Rapeah S\(^a\) and Hasmah A\(^b\)

\(^a\)Biomedicine Programme, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia
\(^b\)Occupational and Environmental Health Programme, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: firdaus.rahman.777@gmail.com

**ABSTRACT:** Breast cancer is the most commonly diagnosed cancer and a leading cause of death in females around the world. Treatments for breast cancer require sophisticated and expensive approaches including medical, surgical and radiological treatment, where the result is still not promising. Banana is a tropical fruit cultivated in more than 120 countries including Malaysia. It is a source of important phytochemical compounds, including phenolic compounds, vitamins and minerals such as sodium, potassium, calcium and iron. Therefore, it has been targeted for various **phytomedicine researches including for cancer.** Although many studies have reported the effects of banana extracts on proliferation as well as protein profiling of cancer cell lines, however data related to *Musa acuminate* AA extracts are very limited. In this study, the cytotoxic effects of ripe and unripe *Musa acuminate* AA pulps extracted using Soxhlet extraction method and n-hexane as a solvent on MCF-7 breast cancer cell lines and NIH 3T3 normal cell lines were determined using Methylene Blue Assay (MBA). Both ripe and unripe extracts **failed to show any significant inhibitory effect on** MCF-7 breast cancer cell lines with the highest inhibition of only 31.24% and 22.18% respectively. However, the extracts showed poor cytotoxicity effects on normal cell lines. The effects of the extracts on the morphology as well as the protein profiling of the MCF-7 breast cancer cell lines were determined using inverted microscope and SDS-PAGE respectively. The result showed that both extracts have no effects on morphology and protein profiling of the cells. In conclusion, this study indicates that ripe and unripe banana pulp extracts have no inhibition effect on MCF-7 cell lines. However, future study using other extraction method should be conducted to support this finding.

**Keywords:** *Musa acuminate* AA, MCF-7 cell lines, Protein Profiling
A Review of the Nutritional and Health Benefits of Goat’s Milk in Comparison with Cow’s Milk

Juliana S\textsuperscript{a*}, Sakinah H\textsuperscript{b}, Marina AM\textsuperscript{a} and Shariza AR\textsuperscript{a}

\textsuperscript{a}Nutrition and Dietetics Program, School of Health Sciences, Universiti Sains Malaysia, Kelantan, Malaysia
\textsuperscript{b}School of Nutrition and Dietetics, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

\textsuperscript{*Corresponding author: juliana@usm.my}

\textbf{ABSTRACT}: The objective of this article is to review a number of published articles on the potential nutritional and health benefits of goat’s milk compared to cow’s milk. A number of studies had demonstrated that goat’s milk has a vast potential of health benefits particularly due to their uniqueness of fatty acid compositions such as the smaller size of fat globules. Goat’s milk also contains more short and medium chain triglycerides (MCT) that make it easier to digest. Apart from that, the health beneficial reported by these studies are the roles of goat’s milk in reducing malabsorption syndromes, as a treatment of cholesterol problems, anaemia, anti-cancer, minerals utilization, improves immune function and digestibility and malnutrition. Nevertheless, additional researches are required in order to explore the benefits of goat’s milk in human nutrition compared to cow’s milk with special attention to its medium chain triglycerides (MCT) properties.

\textbf{Keywords}: Goat’s milk, cow’s milk, nutrition, health benefits, medium chain triglycerides (MCT)
**Detection of Colistin and Extended-Spectrum Beta Lactamases (ESBL) Resistant *Escherichia coli* in Raw Chicken Meat and Bean Sprouts (*Vigna radiata*) in Kota Bharu, Kelantan**

Kausalya R and Erkihun A*

Faculty of Veterinary Medicine, Universiti Malaysia Kelantan, 16100 Pengkalan Chepa, Kota Bharu, Kelantan, Malaysia

*Corresponding author: erkihun@umk.edu.my

**ABSTRACT:** Antimicrobial resistance (AMR) in food-borne pathogens especially *E. coli*, is of a serious concern in recent years. Although AMR is rising and has become a global problem, there is scarcity of data and updates pertaining to the prevalence of Colistin-resistant and Extended Spectrum Beta-Lactamases (ESBL)-resistant *E. coli* in Malaysia. Hence, this study was conducted to detect the presence of Colistin- and ESBL-resistant *E. coli* in raw chicken meat and bean sprouts in Kota Bharu, Kelantan. A total of 100 samples, comprised of 50 raw chicken meat and 50 bean sprouts were collected and processed to isolate *E. coli* and to determine its antimicrobial resistance patterns towards Colistin and ESBL antibiotics. Antibiotic sensitivity test (AST) was conducted following Kirby-Bauer methods. Out of 100 food samples, 31% (31/100) *E. coli* were identified phenotypically. However, based on PCR results, 93.5% (29/31) of the isolates were confirmed as *E. coli*. The antimicrobial resistance pattern towards Colistin by PCR showed that 52.1% (12/23) of the *E. coli* isolated from raw chicken meat were positive for the Colistin resistance-encoding gene, MCR-1. Meanwhile, no MCR-1 genes were detected in *E. coli* isolates from bean sprouts. As for the detection of another Colistin resistance-encoding gene, MCR-2, both chicken and bean sprouts samples were found to be negative. Based on the results from AST, *E. coli* isolated from raw chicken meat showed the highest percentage of antimicrobial resistance, 95.7% (22/23) against amoxycillin/clavulanic acid, followed by enrofloxacin 60.9% (14/23), colistin 39.1% (9/23) and gentamicin 30.4% (7/23). Besides that, ESBL resistances genes of the family *bla*TEM and *bla*CTX was conducted. Results showed that 62.1% (18/29) of *E. coli* isolates from both food samples were positive for *bla*TEM gene and all the isolates were negative for *bla*CTX. In conclusion, both Colistin and ESBL resistant *E. coli* were detected in the food samples collected from local markets. These findings show the potential of such contaminated food stuffs to pose public health risk to the consumers. Hence, prudent usage of antibiotics and hygienic handling of food items, especially chicken meat during processing helps to prevent and combat the risks of spreading of multidrug-resistant and the associated health risks in humans. Finally, comprehensive and large scale studies by considering all the possible sources of Colistin and ESBL resistant bacteria, particularly *E. coli* are recommended.

**Keywords:** Antimicrobial resistance, bean sprouts, Colistin, *E. coli*
Prevalence of Metabolic Syndrome and its Association with Physical Activity among Breast Cancer Survivors

Kow VL, * Mohd Razif S, Nor Syamimi Z, Nurnazahiah A and Lua PL

School of Nutrition and Dietetics, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Kuala Nerus, Terengganu, Malaysia

*Corresponding author: v_11015@hotmail.com

ABSTRACT: Breast cancer survivors have a high prevalence of metabolic syndrome. Physical activity is imperative to prevent metabolic syndrome. This cross-sectional study was conducted at East Coast Malaysia to investigate the prevalence of metabolic syndrome and its association with physical activity among breast cancer survivors. In this study, there were 84 breast cancer survivors with a mean age of 53.0 ± 7.6 years. The diagnostic criteria for metabolic syndrome was based on Harmonized definition. Blood samples were drawn for glucose and lipid analysis. Physical activity levels were objectively measured by using activPAL3™ physical activity monitor. The sitting/lying, standing and stepping time were measured during waking hours (6am-12am). Prevalence of metabolic syndrome among breast cancer survivors was 51.2% (95 % CI: 37.9, 59.7). The median step counts of breast cancer survivors were 7208 steps (5894-9132). The median sitting/lying time of breast cancer survivors was 10.9 hours/day (9.7-12.0). The median standing and stepping time of breast cancer survivors were same, which was 1.7 hours/day (1.4-2.1). There was no significant difference between physical activity levels among breast cancer survivors in groups with and without metabolic syndrome. Step counts >7500 steps were not significantly associated with metabolic syndrome [OR = 1.77, 95% CI (0.75, 4.21)]. Sitting time >6 hours/day was not significantly associated with metabolic syndrome [OR = 1.03, 95% CI (0.06, 17.51)]. The study findings demonstrated that there is no association between the prevalence of metabolic syndrome and physical activity among breast cancer survivors.

Keywords: Metabolic syndrome; Physical activity; Breast cancer survivors.
Disordered Eating Behavior, Depression, Anxiety and Stress among UNISZA students

Laila Ruwaida MZ* and Nurul Jannah R

School of Dietetics and Nutrition, Faculty of Health Sciences, Universiti Sultan Zainal Abidin Gong Badak Campus, 21300 Kuala Terengganu, Terengganu Darul Iman, Malaysia

*Corresponding author:lailaruwaida@unisza.edu.my

ABSTRACT: Prevalence of disordered eating behavior is on the rise in both western and Asian countries. The objective of this study was to determine the perception of Universiti Sultan Zainal Abidin (UniSZA) students on their eating behaviors, and its influence on their depression, anxiety and stress levels. Sociodemographic information was collected using self-administered questionnaire. Data on height and weight were collected using SECA 217 portable stadiometer and SECA 813 weighing scale. Disordered eating behavior was measured using Eating Attitude Test -26 (EAT-26) questionnaire. Depression, anxiety and stress was measured using Depression, Anxiety and Stress Scale -21 (DASS-21). A total of 116 respondents involved in this study. The finding shows that 74.1 % of subjects have no risk of disordered eating while 25.9% were at risk. 65.5% of respondents did not show any stress while 34.5% of respondents were stressed. 25.9% of respondents did not have anxiety while 74.1 % do have anxiety. 65.5% of respondents did not have depression while the other 34.5% were depressed. The study found no association between disordered eating behavior and depression, anxiety and stress among UniSZA students. The finding suggests that depression, anxiety and stress did not influence disordered eating behavior.

Keywords: Disordered eating behavior, depression, anxiety, stress, university students
Retrospective Study on Tinnitus in Tinnitus Clinic Universiti Sains Malaysia

Low HX*, Mohd Normani Z and Wan Najubah WM

Audiology & Speech Pathology Programme, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: lhxian.upsk13@student.usm.my

ABSTRACT: Tinnitus is a chronic condition experienced by approximately 10 percent of the adult population and almost five per cent of this population report troublesome tinnitus. The aim of this study was to analyze the clinical characteristics, main risk factors, psychological status, assessment and management in tinnitus. This retrospective study involved a total of 54 medical records of tinnitus patients who attended Tinnitus Clinic, Hospital Universiti Sains Malaysia (USM) starting from 1st October 2015 until 30th September 2016. The prevalence of tinnitus increased with increasing age and adults above the age of 55 years old have shown the highest prevalence at 74% (n=40). Sensorineural hearing loss was the most common associated with tinnitus (n=62, 79%) and presbycusis was the highest risk factor leading to tinnitus (n=14, 26%). The highest dominant tinnitus pitch matching at 8000 Hz (n=10) and lateralized to the right ear (n=29). By using Spearman’s Rank-Order Correlation test, the result showed there was no correlation between the total Borang Evaluasi Soal selidik Tinnitus (BEST) score and four frequencies average of Pure Tone Audiometry (PTA) in the better ear (r=0.030, p>0.05). In contrast, there was a significant correlation between the total BEST score and loudness matching (r=0.461, p<0.05). Twenty-six percent (n=26) of tinnitus patients received hearing aids and counselling for tinnitus treatment. In conclusion, the findings of present study can serve as a reference for establishing a standard guideline to assess and manage tinnitus patients.

Keywords: Borang Evaluasi Soal selidik Tinnitus, Pure Tone Audiometry, tinnitus
Association of Traumatic Head Injuries and Maxillofacial Fractures Among Patients Treated by Oral and Maxillofacial Surgery Unit, Hospital Universiti Sains Malaysia

Maher MA*, Shaifulizan AR and Norkhafizah S

School of Dental Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: maherdental@hotmail.com

ABSTRACT: The association between traumatic head injury (THI) and maxillofacial fractures (MFF) is a controversial health concern worldwide in spite of the close anatomical proximity of maxillofacial bones to the cranium. The objective of this study was to assess the association between THI and MFF. Other factors associated with THI in patients with MFF were also investigated. A hospital-based retrospective study was conducted at the OMFS Unit, Hospital USM, Kelantan, Malaysia. From June 12, 2013, to December 31, 2015, a total of 473 patient records with MFF were reviewed to evaluate the association of THI and MFF. The factors associated with THI were determined by using multivariable logistic regression analysis. The Chi-squared test was used for determining the association of GCS score. A total of 331 patients (69.98%) presented with concomitant THI. The most common associated THIs were cranial bone fractures (68.6%) followed by intracranial injuries and concussion. A significant association existed between the Glasgow coma scale (GCS) score and the presence of THI concomitant MFF. The multivariable logistic regression analysis revealed that the cause of the injury (RTA) and MFF types (nasal bone, zygomatic complex, zygomatic arch, orbital, maxillary sinus wall, and the alveolar process of mandible fractures) were statistically significantly associated with THI in patients with MFF. In conclusion, a high prevalence of THI among patients with MFF (69.98%) considered as one of the highest percentages worldwide. Although the majority of patients sustained mild head injuries of GCS score (13-15), the chance of THI still strongly suspected in those patients independent of GCS scores. The RTA, nasal bone, zygomatic complex, zygomatic arch, orbital wall, maxillary sinus wall and mandibular alveolar process fractures significantly associated with THI in the patient sustained MFF.

Keywords: maxillofacial fractures; association; facial fracture; traumatic head injuries.
The Application of Mindfulness-Acceptance-Commitment (MAC) Intervention on Athletes’ Anxiety Level and Martial Art Aerobic Performance

Meisam S\textsuperscript{a*}, Garry K\textsuperscript{b}, Yee CK\textsuperscript{c} and Somayeh R\textsuperscript{d}

\textsuperscript{a,b}Exercise and Sports Science, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia
\textsuperscript{c}Unit of Biostatistics and Research Methodology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia
\textsuperscript{d}R. I. Sport Institute, Shiraz, Fars, Iran

*Corresponding author: msdelavar@gmail.com

ABSTRACT: The Mindfulness-Acceptance-Commitment (MAC) is a new approach in psychotherapy for enhancing individuals’ performance, has been recently gaining interest among sport psychologists. The MAC suggests that mindfulness is important for the management of thoughts and feelings, and it promotes the awareness and acceptance of internal experiences while focusing on athletes’ external contingencies and behavioural responses to navigate situations effectively in order to achieve success in competition. The aim of this study was to evaluate the effectiveness of MAC intervention on 31 females martial arts aerobic athletes on anxiety level and sports performance. Participants, aged between 18-26 years old (\(M= 22, SD= 1.29\)), volunteered to participate in this study. Anxiety was evaluated using the Spielberger’s State-Trait Anxiety Inventory (STAI), and athletes’ performance errors evaluated by two experienced coaches. Paired samples \(t\)-test was used to identify the mean differences between pre-test and post-test on anxiety, and performance scores. Pearson correlation was used to examine the relationship between changes in anxiety scores and gain scores on performance from pre to post-test. It was revealed that the level of anxiety reduced significantly (\(t_{30} = 14.96, p < 0.001\)) and performance enhanced as well (\(t_{30} = 20.04, p < 0.001\)). Also, there was a significant correlation between the changes of anxiety level and gained scores on performance (\(r = 0.36, p = 0.047\)). These findings suggest that the MAC approach could be considered as an effective intervention for optimising sports performance and decreasing the anxiety level of female martial arts aerobic athletes.

Keywords: mindfulness, MAC, performance anxiety
A Comparative Dosimetric Study for Post-Mastectomy Breast Cancer Treated with Tangential Photon Beam and Static Electron Beam

Mohd Aidil S*, Reduan A and Chen SC

School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: aidil.upsk13@student.usm.my

ABSTRACT: Mastectomy is a surgery to remove the entire breast and one of the main options in the treatment of breast cancer. The purpose of this study is to compare two treatment planning techniques which are tangential photon beam and static electron beam dosimetrically based on Quantitative Analysis of Normal Tissue Effect in The Clinic (QUANTEC) for OAR (lung and heart) and dose coverage at the target. In this study, 10 patients with left-sided breast cancer who already undergone mastectomy surgery without breast reconstruction selected. The patient positioned in supine position on the breast board, scanned through CT-simulation. The image acquired then contoured and transferred to the Oncentra 3-dimensional conformal radiotherapy (3D-CRT) planning Version 4.3 for planning. OAR which are the left lung and heart contoured and the target defined. Two radiation techniques used, tangential photon beam (TPB) and single static electron beam (SEB). The patients were prescribed with 4005 cGy for 25. Based on QUANTEC, the V20 for left lung and V25 for heart is measured and compared for both of the planning while for target, the volume of coverage at V36, V38 and V40 is measured and compared. There was significant reduction of dose for left lung and heart using SEB technique compared to the TPB. For average heart volume which receive 25Gy (V25) for planning using SEB (0.057%) show 98% reduce of volume compared to TPB (3.443%). While for left lung, the average of volume which receive 20Gy (V20) for SEB (2.119%) shows 77.09% reduce of volume which receive 20Gy compared to planning using TPB (9.25%). But TPB have better dose coverage at the target compare to the SEB. For TPB, the average volume of target which receive 40Gy is 91.79% while for SEB only 39.09% of volume receive 40Gy. Based on both of the treatment planning techniques, static electron beam (SEB) shows better dose contribution at the organ at risk (OAR). The tangential photon beam (TPB) have better dose coverage.

Keywords: Post-mastectomy radiotherapy, tangential photon beam, electron beam, comparative dosimetric study
Assessment of Heat Exposure on Acute Physiological Changes among Palm Oil Mill Workers in Rompin, Pahang

Mohd Hilmi MY* and Nurul Ainun H

Environmental and Occupational Health Program, School of Health Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: hilmihrc@gmail.com

ABSTRACT: Extreme temperature is a problem in hot working environment. This can lead to health problem such as fatigue, lethargic and dizziness. Continuous exposure to the high temperature can cause the negative respond to the body. The objective of this study is to investigate the relationship between the heat monitoring level and the acute physiological changes among palm oil workers. A cross-sectional study was carried out in a palm oil mill in Rompin, Pahang. QUESTEMP ˚36 was used to measure the environmental heat. Physiological parameter such as body core temperature, blood pressure and heart rate were measured before the shift, after 2 hours of shift and after 8 hours of shift. Respondent also was given questionnaire to determine their sociodemographic information. The WBGT in results for the workstation in the palm oil mill was between 27.52˚C to 31.26˚C. The boiler has the highest value of WBGT in (31.26˚C) while the lowest value of WBGT in workstation is workshop (27.52˚C). Four out of seven workstation monitored were exceeded the Threshold Limit Value. The highest prevalence of acute health symptom is fatigue (96.7%) followed by heat cramps (77.0%), dizziness (75.4%) and heat rashes (65.6%). There were significant differences of body core temperature between before shift and after 2 hours of shift (p<0.001) and between before shift and after 8 hours of shift (p<0.001). The palm oil mill factory is considered as hot workplace since most of the workplaces were exceed the Threshold Limit Value (TLV), 28˚C by American Conference of Governmental of Industrial Hygiene (ACGIH)

Keywords: Heat Exposure, Physiological Changes, Palm Oil Mill
Knowledge, Attitude and Practice (KAP) Regarding Organic Solvent among Automobile Spray Painters, Kota Bharu, Kelantan

Mohd Syafiq Z* and Nurul Ainun H

Environmental and Occupational Health Programme, School of Health Sciences
Health Campus, Universiti Sains Malaysia 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: che_syafiq@yahoo.com

ABSTRACT: Organic solvent is one of the chemical hazards exposure faced by automobile spray painters. Automobile spray painters usually were exposed to xylene and toluene which the major components in combination with other solvents in the paint product. Organic solvent can affect spray painters by dissolving fats in several body system including respiratory system, nervous system and skin. The aim for this study was to access the level of knowledge, attitude and practice of organic solvent among automobile spray painters. This cross-sectional study was conducted at automobile spray workshop at Kota Bharu and 67 male automobile spray painters were randomly selected. The KAP Questionnaire was used to determine the score for knowledge, attitude and practice. The percentage of mean score for knowledge was 70.6, with standard deviation (15.2). The percentage of mean score for attitude and practice were 60.7 and 52.7, with standard deviation 9.0 and 16.1. The study also found fair significant relationship between knowledge and attitude score (r = 0.272, p = 0.026). However, there was no significant relationship between knowledge and practice score (r = 0.154, p = 0.212) among automobile spray painters. This study was essential in the determination the level of knowledge of automobile spray painters as well as their attitude and practice. Findings showed that knowledge was not significantly correlated with practice; however, it was associated with attitude.

Keywords: Knowledge, Attitude, Practice, Organic Solvent, Automobile Spray Painter.
Surgeon Perception on Handling Improved Preservation Method of Fresh Human Head in Surgical Training

Muhamad Nor Firdaus AR*, Norhana MA, Mohd Harissal I, Syamsul HM and Zul Izhar MI

Department of Anatomy, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: mnfirdaus@usm.my

ABSTRACT: In learning surgical skills, appropriately preserved tissues that closely resemble living human tissues in their appearance will provide greater acceptance and enhanced surgical training activities. It will not only ensure that the knowledge could be transferred effectively but also contribute to an engaging atmosphere of teaching and learning activity. The improved preserved method introduced by Norhana M.A. and the Anatomy Department Medical Laboratory Technologist was used to preserve 9 fresh frozen human heads before it was handled to Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) department for their surgical training workshop. The head was used for 2 days of surgical training with approximately 8 hours of usage each day. At the end of the workshop, 15 participants were given a set of questionnaire to acquire their perception on the preserved head they were using. The questionnaire was focused on the quality of preserved tissue, any unpleasant or disturbing smell that could affect their surgical training and ability to complete the training objective with the preserved head. Most of the participant was satisfied with the quality of the preserved head. The preserved tissues and muscles of the head had a close resemblance to real or living tissues. There was no foul smelling detected during the procedure and the participants strongly agreed that the preserved head had helped them in completing the training objectives. They also thought that the preserved method could be used for other fresh frozen tissue. Based on the feedback by the participant it is shown that the preservation technique has provided acceptable cadaver and tissue quality for the use in surgical training. However, more variety of tissue and trial should be done before it can be concluded as one of the best methods in preserving fresh frozen tissue in surgical training.

Keywords: Surgical training, preservation method, well preserved tissue, fresh frozen tissue, acceptable tissue quality
Comparison of Liver SPECT Image Quality by using Digital and Physical Filter

Muhammad Fahmi R*, Abdullah Waidi I and Marianne M

School of Health Sciences, Universiti Sains Malaysia, Kampus Kesihatan, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: fahmi.upsk13@student.usm.my

ABSTRACT: The poor image quality limits the accuracy in SPECT interpretation and diagnosis. Noise is one of the factors that leads to SPECT image quality degradation. Proper selection of filter can reduce noise and eventually improves the image quality. Filters with a high cut-off frequency are recommended in liver SPECT study due to the high-count rate and high signal-to-noise ratio (SNR). Therefore, this study aims to determine the optimum filtering for SPECT liver imaging by using the physical and digital filter. In this study, we assessed the impact of the digital and physical filter to the SPECT image quality. Three filters were selected during the pre-processing steps in this study, which include Butterworth, Metz, and Wiener filter. Meanwhile, physical filter refers to a metal sheet mounted on the collimator. This physical filter is responsible for reducing the scattered photons during the data acquisition. The physical filters tested in this study are Aluminum (Al) 0.2 mm, Al 0.3 mm, and Zinc 0.2 mm. The image acquisition was performed by using a multi contrast liver phantom filled with $^{99m}$Tc radionuclide. A Discovery NM/CT 670 gamma camera mounted with a Low Energy High Resolution (LEHR) collimator, 20% energy window, centered at 140 keV was used during the data acquisition. Finally, the image was reconstructed by using filtered back-projection algorithm and the image quality was analyzed by SNR and contrast of the cold spot image. Digital, physical and combination of physical and digital filter reconstructed image were assessed in this study. For individual filtering, Al 0.2 mm and Wiener filter gave the highest SNR and contrast. The combination of Al 0.2 mm and Wiener filter nevertheless led to better SNR but lower image contrast to Wiener and Metz individual filter. This combination improves the image quality up to 81% of SNR but decease image contrast up to 45% compares to the single filtering. In conclusion, combination of physical and digital filters (Al 0.2 mm and Wiener filter) improves the SPECT image quality for liver imaging.

Keywords: SPECT, digital filter, physical filter, SNR, contrast
Evaluation of Heat Exposure and Physiological Changes among Sawmill Workers in Kelantan

Muntaz AM* and Siti Marwanis A

Environmental and Occupational Health Programme, School of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150, Kubang Kerian, Kelantan, Malaysia

*Corresponding author: smarwanis@usm.my

ABSTRACT: Sawmill workers are highly exposed to heat during working process of debarking and sawing the log. Continuous exposure to heat can caused physiological changes of increasing blood pressure, heart rate and body core temperature. This study was conducted to determine heat exposure and physiological changes among sawmill workers in Kelantan. This cross-sectional study was conducted using the probability sampling method recruiting a total of 62 sawmill workers from three selected companies. A tripod mounted of Wet Bulb Globe Temperature (WBGT) QuestTemp036 (3M QUESTemp Technologies, USA) was used to measure the ambient heat exposure level that was placed near at workplaces. A questionnaire that consists of four sections which were; basic information, health history, work description & signs of acute health problems in the workplace was distributed among sawmill workers. The physiological changes like blood pressure, heart rate and body temperature were measured before working hours, after two hours working and after working hours. The average WBGT index in Company A, Company B and Company C recorded were 27.11°C, 27.66°C and 27.48°C respectively. Although such level were below the Permissible Exposure Limit (PEL). The mean WBGT between these three companies was significantly different (p=0.023). One-way repeated measures ANOVA was conducted and found that there was significant mean difference of physiological changes before working hours, after two hours of working and after completed work among sawmill workers (p<0.001). A weak and significant correlation was found between body core temperature after completed work and age (r=-0.319, p=0.353). There was significant correlation between heart rate before working and body core temperature before working (r=0.301, p=0.018). In this study, significant difference in physiological changes were found among the sawmill workers. Such physiological changes cannot be associated with heat exposure. Moreover, the heat area level at sampling sites did not exceed the PEL. Therefore, it may be contributed by other factors thus further research need to be conducted.

Keywords: Sawmill, WBGT index, Physiological Changes
Knowledge, Attitude and Practice on Ergonomic and Symptoms of Musculoskeletal Disorder among Construction Workers in Hulu Terengganu, Terengganu

Noor Izwa Fazeha R* and Mohd Nazhari MN

Environmental and Occupational Health Programme, School of Health Sciences
Universiti Sains Malaysia Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: abezzr@yahoo.com

ABSTRACT: Construction is one of the most dangerous and hazardous industries that expose workers to the many type of ergonomic risk factors which contribute to musculoskeletal disorders. The objective of the study was to evaluate on ergonomic awareness and symptoms of musculoskeletal disorder among workers at selected construction site. The specific objectives for this study were to identify the knowledge, attitude and practice level of ergonomic, to determine the relationship between knowledge levels with their attitude and practice level on ergonomic and to determine the association of ergonomic knowledge, attitude and practices with musculoskeletal disorder symptoms present among workers. A total of 52 respondents were involved in this research. A cross-sectional study design was used. The study instruments was questionnaire comprised of five sections; basic demographic factor, knowledge, attitude, practice on ergonomics and symptoms of musculoskeletal disorders. Data obtained was analyzed using descriptive statistics, Chi square and Spearman Correlation test. Majority (51.9%) of the construction workers were in a low knowledge level, moderate attitude level (51.9%) and (67.3%) with poor ergonomic practice level. There were significant relationship between knowledge level with the attitude (p=0.004) and practice (p=0.007) level on ergonomic. There was a significance correlation between knowledge (p=0.006) and attitude (p=0.014) on ergonomic with symptoms of musculoskeletal disorders among workers and no significance correlation between practice and symptoms of musculoskeletal disorders. In conclusion, therefore, the appropriate educational program and training on ergonomic should be planned accordingly to the needs. This should be done frequently to increase their awareness level and reduce the present of the symptoms of musculoskeletal disorder among workers.

Keywords: Knowledge, Attitude, Practice, Ergonomic, Musculoskeletal disorder
Cognitive Functioning, Knowledge and Attitude in Drug Addiction

Nor Afiqah AN\textsuperscript{a}, Lua Pei L\textsuperscript{a}, Nurul Haswani E\textsuperscript{a}, Abdul Manam M\textsuperscript{b}, Mokhairi M\textsuperscript{c}, Julaily Aida J\textsuperscript{c}, Ramle A\textsuperscript{b} and Azmi H\textsuperscript{d}

\textsuperscript{a}Faculty of Health Sciences, 
\textsuperscript{b}Faculty of General Studies & Advanced Education, 
\textsuperscript{c}Faculty of Informatics & Computing, 
\textsuperscript{d}Institute for Community (Health) Development, Universiti Sultan Zainal Abidin (UniSZA), Kampus Gong Badak, Kuala Nerus, Terengganu, Malaysia

*Corresponding author: iqanasa@gmail.com

\textbf{ABSTRACT:} Studies on the relationship between knowledge and attitude (KA) and cognitive status of drug addicts are generally still limited in Malaysia. This study aimed to 1) determine the cognitive status and KA among drug addicts and 2) compare the KA of drug addicts with different cognitive status. Cognitive status was re-grouped into two groups; lower and higher (median $\geq 66.7$). Drug addicts who were undergoing Inabah Therapy Module were enrolled from Pusat Rawatan Baitul Taubah in Pasir Puteh, Kelantan. The Malay Sahlgrenska Academy Self–Reported Cognitive Impairment Questionnaire (SASCI–Q) and Drug – Related Knowledge, Attitudes and Belief (KAB) Questionnaire were administered (higher scores indicating favourable cognitive and KA status). Data was analysed using SPSS 23, employing descriptive and non-parametric techniques. Thirty – seven male Muslim participants were recruited (age $= 28.1 \pm 6.9$ years; single $= 81.1\%$; PMR/SRP/LCE qualification $= 45.9\%$; self-employed $= 62.2\%$). Both cognitive status and KA were moderate with mean $66.1 \pm 13.0$ and $53.8 \pm 11.5$ respectively. With regard to KA, no significant difference was detected between respondents possessing different cognitive status (all $p > 0.05$). Nonetheless, the overall trend demonstrated that those with higher cognitive status reported relatively favourable in knowledge ($62.6 \pm 9.2$). The overall knowledge and attitudes profiles were also dominated by the group with higher cognitive status.

\textbf{Keywords:} Cognitive functioning, knowledge, attitude, drug addiction.
Drug Use and Health Status of Drug Misusers: An Insight into Participants of Inabah Programme

Nor Afiqah AN\textsuperscript{a}, Lua Pei L\textsuperscript{a}, Abdul Manam M\textsuperscript{b}, Mokhairi M\textsuperscript{c}, Julaily Aida J\textsuperscript{c}, Ramle A\textsuperscript{b} and Azmi H\textsuperscript{d}

\textsuperscript{a}Faculty of Health Sciences, 
\textsuperscript{b}Faculty of General Studies & Advanced Education, 
\textsuperscript{c}Faculty of Informatics & Computing, 
\textsuperscript{d}Institute for Community (Health) Development, Universiti Sultan Zainal Abidin (UniSZA), Kampus Gong Badak, Kuala Nerus, Terengganu, Malaysia

*Corresponding author: iqanasa@gmail.com

ABSTRACT: Drug addicts often suffer from the negative impacts of health consequences. With the increasing number of synthetic drugs lately, little is known about drug usage pattern and the misusers’ health condition especially those seeking traditional treatment (Inabah). This study set out to examine the quantity, type and frequency of drug use and the current health status of participants. A cross-sectional study was conducted. The number of drug use days in the past 4 weeks and current health status were assessed using the Opiate Treatment Index (OTI). Data was analysed descriptively using IBM SPSS 23.0. Higher OTI scores signified higher health problems. Thirty-four Malay male Inabah respondents were enrolled (age of starting drug addiction = 21.2 ± 6.21; no history of drug addiction treatment = 70.6%; preferred traditional treatment = 79.4%). Nicotine (cigarette-smoking) was the most commonly utilized substance – “more than once in a day”. Amphetamine derivatives - ecstasy (MDMA) and methamphetamine were the most commonly-abused drugs with “more than once a week” usage. Heroin was next - “once a week or less”. The current health status of most participants was satisfactory as low mean scores were assigned to many body systems (range = 0.06 – 2.56). However, fatigue (44.1%), weight loss (35.3%), coughing with phlegm (38.2%) and headache (35.3%) were still reported. In conclusion, cigarette-smoking continued to be common habit among drug misusers. However, less frequent use of MDMA, methamphetamine and heroin as well as the absence of use for cannabis, cocaine, tranquilizers, etc. were encouraging although health conditions were only satisfactory. Our findings may have indirectly indicated the promising effects this drug rehabilitation programme in maintaining health status.

Keywords: Drug use, health status, drug misusers, Inabah programme.
Psychosocial Profiles among Drug Addicts Undergoing Islamic-Based Inabah Programme in Kelantan

Nor Afiqah AN\textsuperscript{a}, Lua Pei L\textsuperscript{a}, Abdul Manam M\textsuperscript{b}, Mokhairi M\textsuperscript{c}, Julaily Aida J\textsuperscript{c}, Ramle A\textsuperscript{b} and Azmi H\textsuperscript{d}

\textsuperscript{a}Faculty of Health Sciences, \\
\textsuperscript{b}Faculty of General Studies & Advanced Education, \\
\textsuperscript{c}Faculty of Informatics & Computing, \\
\textsuperscript{d}Institute for Community (Health) Development, Universiti Sultan Zainal Abidin (UniSZA), Kampus Gong Badak, Kuala Nerus, Terengganu, Malaysia

*Corresponding author: iqanasa@gmail.com

\textbf{ABSTRACT:} The deterioration of psychological well-being and social support systems are common problems encountered by drug addicts. This study intended to determine psychosocial profiles among drug addicts currently undergoing Islamic-based Inabah programme and to compare of these profiles based on their socio-demographic variables. This cross-sectional study utilised convenience sampling. Psychosocial profiles were measured using the Psychological Measure of Islamic Religiousness (PMIR). Descriptive and non-parametric tests were applied. For Positive Relations with Others, Purpose in Life and Social Desirability, higher scores indicated better psychosocial profiles while for Anger Trait and Depression Symptomatology subscales, higher scores indicated less favourable psychosocial profiles. A total of 37 Malay Muslim participants were recruited (age = 28.1 ± 6.97; married = 81.1%; SPM = 51.4%; employed = 78.4%). Positive Relations with Others emerged as the best-scored subscale (median = 62.50; IqR = 13.07). Conversely, Anger Trait (median = 33.00; IqR = 16.80) and Depression Symptomatology (median = 19.95; IqR = 18.25) exhibited low scores respectively. Single and divorced participants demonstrated significantly higher score for Purpose in Life as compared to their married counterparts (p = 0.019). Better Social Desirability was exhibited by participants with no history of treatment compared to those who had (p = 0.009). In conclusion, participants continued to be burdened by anger and depression despite undergoing religious therapy. Socio-demographic variables seemed influential in determining their psychosocial well-being. Thus, efforts should be escalated to continuously improve psychosocial status of drug addicts in Malaysia.

\textbf{Keywords:} Psychosocial, drug addiction, Islamic-based programme, Inabah
Symptoms of Craving and Withdrawal among Drug Addicts Undergoing an Islamic Therapy

Nor Afiqah AN\textsuperscript{a}, Lua Pei L\textsuperscript{a}, Abdul Manam M\textsuperscript{b}, Mokhairi M\textsuperscript{c}, Julaily Aida J\textsuperscript{c}, Ramle A\textsuperscript{b} and Azmi H\textsuperscript{d}

\textsuperscript{a}Faculty of Health Sciences, \\
\textsuperscript{b}Faculty of General Studies & Advanced Education, \\
\textsuperscript{c}Faculty of Informatics & Computing, \\
\textsuperscript{d}Institute for Community (Health) Development, Universiti Sultan Zainal Abidin (UniSZA), Kampus Gong Badak, Kuala Nerus, Terengganu, Malaysia

*Corresponding author:iqanasa@gmail.com

ABSTRACT: Withdrawal and craving are the two important clinical presentations among drug addicts which could potentially complicate the process of rehabilitation and also contribute to relapse. The purpose of the current study was to; 1) determine the level of craving and frequency of withdrawal symptoms, 2) examine the most common withdrawal symptom and, 3) compare both the levels of craving and frequency of withdrawal symptoms by socio-demographic factors. In this cross-sectional study, the level of craving was assessed via Brief Craving Scale (BCS). The list of withdrawal symptoms was adopted from Methadone Treatment Programme Guidelines (2016). Descriptive analysis and Mann-Whitney U test were applied in analyzing the data (IBM SPSS 23.0). Higher scores indicated higher level of craving and more frequent occurrence of withdrawal symptoms. A total of 34 Muslims male participants of an Islamic Therapy (Inabah) Programme were recruited (age = 29.8 ± 7.26; duration at Inabah centre ≥ 3 months = 79.4%; poly-drug users = 55.9%). Outcomes demonstrated that majority of participants did not crave for drugs in past 24 hours. However, they had craved for drugs “a few times” before they underwent this therapy (n = 14; 41.2%). Similarly, withdrawal symptoms were not reported except for fatigue - “once in a while” (n = 14; 41.2%). Seventy-five percent admitted ever trying to discontinue abusing drugs. Participants opined that the current environment was supportive for their rehabilitation (82.4%). By socio-demographic comparisons, there were no significant differences in terms of craving level and withdrawal symptom frequency (p > 0.05). In conclusion, the minimal report of craving and withdrawal symptoms could be indicative of a positive recovery process. These findings will serve as a base for future study on the effectiveness of Inabah programme as one of the psycho-spiritual approaches in treating drug addiction.

Keywords: Craving, withdrawal, drug addicts, Islamic therapy, Inabah programme
Prevalence of Dizziness Patients in Emergency Department, Hospital Universiti Sains Malaysia (HUSM): A Retrospective Study

Zainon NF*, Zainun Z and Abdull Wahab SF

Audiology Programme, School of Health Sciences and Emergency Department, Hospital Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: faezah.upsk13@student.usm.my

ABSTRACT: Dizziness is a general term that is used to describe spinning sensation, light-headedness, off-balance and postural instability. Dizziness is common complaint during healthcare visit in emergency department and outpatients clinic. Many patients are affected by dizziness as it reduces the quality of life by having an impact in their well being and work productivity. There are four types of dizziness which are vertigo, presyncope, disequilibrium and others. This retrospective study was carried out to evaluate the prevalence of dizziness patients in the Emergency Department, HUSM for 3 months (June –August 2016) duration. The findings were obtained by reviewing the medical records of dizzy patients who came to emergency department HUSM, which will eventually be used as a preliminary data that would establish a better awareness and management in handling dizzy patients. We managed to recruit 106 subjects that comprises of female gender, that was dominating the number of dizzy patients by 60 (57%) cases, compared to male with 46 (43%) cases. The subjects are from two races, which are Malay (96%) and Chinese (4%). The age group of 50 until 60 years old had the highest number of dizziness cases with the percentage of 35%. Vertigo has the highest percentage (63%), followed by presyncope (30%), disequilibrium (6%) and lastly, others (5%). The result also showed that both recent Upper Respiratory Tract Infection (URTI) and positional related was the most factor that aggravate dizziness. Majority of the dizzy patients do not experience falls by 74% from the overall subjects. In summary, this study is parallel with other research and a bigger sample size in the future would be better result.

Keywords: Dizziness, Disequilibrium, Emergency Department, Prevalence, Presyncope, Vertigo
Exploring Coping Strategies among Survivors of Breast Cancer: A Qualitative Approach

Jafar NH\textsuperscript{a}, Sulaiman ZH\textsuperscript{b}, Gan SH\textsuperscript{c}, AB Asrenee AR\textsuperscript{d} and Hassan NB\textsuperscript{a}

\textsuperscript{a}Pharmacology Department,  
\textsuperscript{b}Women’s Health development unit,  
\textsuperscript{c}Human Genome Centre,  
\textsuperscript{d}Department of Psychiatry,  
School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

ABSTRACT: Breast cancer survivors face many challenges which include coming to terms with the diagnosis, managing treatment regimens, dealing with the side effects of treatment, conducting self-care and rehabilitation. Each individual may use different coping strategies in order to cope with their challenges. The aim of this study is to identify coping strategies experienced by breast cancer survivors. Breast cancer survivors who attended the Oncology Clinic, Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia February 2015 to February 2016, were recruited based on the inclusion criteria. Selected respondents were interviewed face-to-face at least three times or until saturation were achieved and data were tape-recorded and transcribed verbatim. Nvivo 10.0 software was used for data management and facilitates thematic analysis. Descriptive analysis was performed using SPSS version 22. A total of 34 patients were took part in the in-depth interview. Majority of them were married (85.3%), Malay (88.2%), secondary school education (73.5%), housewife (61.8%), in stage 2 (32.4%) and diagnosed with right breast cancer (52.9%). Several coping strategies were identified including emotional-focused coping, problem-focused coping and spiritual-based coping. This study concluded that the coping processes used by breast cancer survivors enables them to draw upon various strengths and strategies to develop particular attitudes and skills to assist them to live with cancer.

Key words: Coping behaviour, breast cancer and qualitative
Knowledge, Attitude and Practices among Workers of BERNAS Rice Mill in East Regional on Respiratory Protection

Nor Nazlaini N* and Mohd Nasrom MN

Environmental and Occupational Health Programme, School of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150, Kubang Kerian, Kelantan, Malaysia

*Corresponding author: nornazlaini@gmail.com

ABSTRACT: With regards to rice mill manufacturing, agricultural respiratory diseases are also an important public health problem due to exposure to rice mill dust. The major dust hazards for workers in the rice mills are the dust which is emitted from different section of working station. The aims of the study were determine the association of knowledge, attitude and practices among workers of BERNAS rice mill in East regional on respiratory protection. A cross sectional study was conducted, recruiting 51 workers from all East regional BERNAS rice mill. A walk through checklist and questionnaire were used for data collection and all the data were analysed by using Chi square test. There was significant associations between knowledge on handkerchiefs are more effective than the proper mask with variable of practices on subjects often do have medical checked-up ($p=0.020$). There were also significant associations between knowledge on handkerchiefs are more effective than the proper mask variable of attitude on subjects have been informed with the dust content in their workplace with ($p=0.013$) and variable of respiratory symptom on subjects experienced breathing problem when walking fast and lifting ($p=0.013$). There was a significant association on practices on during working, subjects often wear the respiratory protection and respiratory symptom on subjects experienced breathing problem before, during and after working ($p=0.010$). For variables subjects have respiratory problem caused by the workplace and subjects always cough followed sputum, both showed significant association with practices on subjects change the respiratory protector after using it ($p=0.039$, $p=0.007$; respectively. In conclusion, there is average association between knowledge, attitude and practices among workers of BERNAS rice mill in East regional on respiratory protection.

Keywords: Knowledge, Attitude, Practices, Respiratory protection
Knowledge, Awareness and Practice towards Dengue Prevention among the Community in Kinta, Perak: A Cross Sectional Study

Noraini AG* and Shamsul Azhar S

*aSchool of Health Science, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia
bDepartment of Community Health, Universiti Kebangsaan Malaysia Medical Center

*Corresponding author:norainiag@usm.my

ABSTRACT: Dengue is one of the most important vector-borne diseases in Malaysia. It poses threat to the community with the increasing trend each year. Government efforts alone are not sufficient and in fact will be in vain if people continue to allow the widespread mosquito breeding in their housing compound. Good knowledge on dengue which then translated into practice therefore is important. This research was carried out, aimed at assessing knowledge, awareness, and practice related to dengue and dengue prevention among the community in Kinta, Perak. This cross sectional study involved 1350 respondents from 27 towns in Kinta, Perak using multistage sampling technique. A pretested and validated questionnaire was used to collect the data on socio-demographic and socioeconomic background, knowledge on dengue, awareness of dengue, and practice of dengue prevention. Data were analyzed using Statistical Packages for Social Studies (SPSS) version 18.0. Majority of the respondents (96.3%) had heard about dengue. Only 44.1% of the study respondents considered dengue as severe. More than half of the respondents had good knowledge (73.9%) on causes, breeding sites, active biting time, signs and symptoms, and preventive measures for dengue. A total of 62.3 percent respondents have a high level of awareness, and 61.4 percent possessed good practice towards dengue prevention. The important sources of information on dengue were mass media (95.0%), banners (70.3%), and health pamphlets (53.9%). As a conclusion, knowledge, awareness, and practice among the community in Kinta ranged from moderate to good. Effort must be put in order to increase awareness and good practice in dengue prevention. Dengue programs aiming at the community level involvement are important to cultivate sense of responsibility toward governing community’s own housing compound and the neighbourhoods’ so that they are free from Aedes breeding site.

Keywords: Dengue, prevention, knowledge, awareness, practice
The Use of Ionic Solution in Preserving Fresh Frozen Human Tissue for Surgical Training

Norhana MA*, Syamsul Hairi M, Mohd Harissal I, Muhamad Firdaus AR and Zul Izhar MI

Department of Anatomy, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: shana@usm.my

ABSTRACT: Surgeons are obviously required to undergo surgical skill training in order for them to become competent in performing any surgical procedures. Nowadays, a fresh frozen human tissue which is not altered by any preservation method is preferred more by surgeons as a specimen in surgical training. However, decaying process would naturally occur and this would become a problem when the specimen is repeatedly used over a period of time. A new method of preservation is therefore required in order to delay the decaying process. The use of ionic solution is one of the preservation techniques introduced in order to overcome this. Nine fresh frozen human head specimens were immersed in warm ionic solution for a few minutes. Then, the heads were covered with course table salt and wrapped with gauze. The specimens were then kept in the refrigerator overnight at 4°C to 8°C. On the following day, the gauze was unwrapped and the heads were washed again in warm ionic solution and wiped dry. The specimens were then used in surgical training. Minimal amount of blood was observed seeping out from the open wound of the specimens during the surgical training. The skin colour and texture were well preserved and closely resembled a fresh specimen. The muscle tissues and mucous membranes in the internal cavity were easily identified. There was neither unpleasant nor irritating odor detected. There was no presence of flies due to presence of decayed human tissues. As a summary, excessive blood from the specimen would stimulate the decomposition process by bacteria. Introduction of hypertonic ionic solution would force the remaining blood out from the specimen by osmotic pressure. The absence of blood would delay the decaying process. Introduction of water just before the training resulted in the specimens becoming fresh again through osmotic process. This technique would be suitable for the use of surgical training using fresh frozen human tissues.

Keywords: Ionic solution, specimen preparation, fresh frozen specimen
An Assessment of the Breastfeeding Practices and Infant Feeding Pattern among Mothers in UNISZA

Norhayati AH* and Ashwinni T

School of Nutrition and Dietetics, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

*Corresponding author: norhayatihadi@unisza.edu.my

ABSTRACT: Breast milk is rich with various nutrients that are prominent for infants’ growth and development. Nonetheless, the rate of breastfeeding is yet low in Malaysia. The main purpose of this study is to assess the breastfeeding practices and infant feeding pattern among mothers in UniSZA. A cross-sectional study was conducted by using stratified sampling method. 85 mothers were involved in this study from Gong Badak Campus and Medical Campus of Universiti Sultan Zainal Abidin. The mothers were required to answer questionnaires which include socio-demographic, breastfeeding and weaning questions. Interview sessions were conducted simultaneously. The prevalence of ever breastfeeding among mothers in UniSZA is 100%. The prevalence of the initiation of breastfeeding within one hour is 64.7% (95% CI: 55.3%, 74.1%). The prevalence of exclusive breastfeeding among mothers in UniSZA is 43.5% (95% CI: 33.8%, 53.2%). Lastly, the prevalence of continuation of breastfeeding up to two years and more is 32.9% (95% CI: 23.7%, 42.1%). Majority of mothers initiated weaning after six months of infants’ age and used partial weaning. Most of them provided various types of complementary foods to their infants in between the ages of six to twelve months. Furthermore, there was no significant association between infant birth weight and time of weaning initiation. Besides, there was a significant association between mode of delivery and breastfeeding initiation. As a conclusion, some mothers in UniSZA failed to practice breastfeeding according to the recommendation. Optimum encouragement and support can change the current trend of breastfeeding practice in UniSZA and also worldwide.

Keywords: Breastfeeding, weaning, infant feeding pattern, method of delivery, infant birth weight
Knowledge, Attitude and Practice Towards Exclusive Breastfeeding Practice among Lactating Mothers in University Sultan Zainal Abidin (UniSZA)

Norhayati AH* and Lim M

School of Nutrition and Dietetics, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

*Corresponding author: norhayatihadi@unisza.edu.my

ABSTRACT: Exclusive breastfeeding brought beneficial impact to both mother and infants, however prevalence of exclusive breastfeeding in Malaysia remain low. Adequate knowledge and positive attitude are essential to promote exclusive breastfeeding practices. The aim of this study was to identify the current knowledge, attitude and practice towards exclusive breastfeeding among lactating mothers in University Sultan Zainal Abidin (UniSZA). This was a cross-sectional study carried out among lactating mothers in UniSZA. There were 81 respondents participated in this study. Data on socio-demographic, knowledge, attitude and practices towards exclusive breastfeeding were collected using questionnaire. The result showed that 69% of respondents practiced exclusive breastfeeding, 54% of respondents had high knowledge and 70% of respondents had positive attitude towards exclusive breastfeeding. There was a significant association between knowledge and attitude score. Besides, there was a significant difference between knowledge and practice, attitude and practice, educational level and attitude, and income level and attitude. These results clearly demonstrate that lactating mothers in UniSZA have high knowledge, positive attitude and performed well exclusive breastfeeding to their infants. Hence, knowledge and attitude are the key concept to successfully practice exclusive breastfeeding. Accurate knowledge and information should be delivered to mothers to promote exclusive breastfeeding practices.

Keywords: Knowledge, Attitude, Practice, Exclusive breastfeeding
Cytotoxicity Effect of *Catharanthus roseus* Leaves Extract on Glioma Cells

Norhazilah M<sup>a,b</sup>, Hasmah A<sup>a</sup> and Tan SC<sup>a</sup>

<sup>a</sup>School of Health Sciences, University Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

<sup>b</sup>School of Basic Medical Sciences, Faculty of Medicine, Universiti Sultan Zainal Abidin, Jalan Sultan Mahmud, 20400 Kuala Terengganu, Terengganu, Malaysia

*Corresponding author: norhazilah@yahoo.com

---

**ABSTRACT:** *Catharanthus roseus* (*C. roseus*), also known as Madagascar periwinkle and Kemunting Cina, is a well-known plant that contained potent anticancer agent which has been used in research and clinical trial for various cancer types. However, its effectiveness in treating aggressive and deadly Grade IV brain tumor; Glioblastoma multiforme (GBM) remains unclear. Despite advanced treatments of GBM, the patient’s survival rate is dismal; with median survival is below a year. Therefore, in this study we are aimed to evaluate the cytotoxicity effect of *C. roseus* leaves extracts on the GBM cells. Extraction of *C. roseus* leaves was done using percolation method to obtain crude *C. roseus* extract (80% methanolic extract) and followed by acid-base extraction to obtain Vinblastine (VBL) rich-fraction extracts. GBM cells (DBTRG-05MG) were treated with gradient concentrations (0, 12.5, 25, 37.5, 50, 62.5, 75, 87.5 and 100 µg/mL) of 80% methanolic *C. roseus* extract, VBL rich-fraction and two synthetic drugs as positive controls; VBL sulfate and Tamoxifen, respectively, for 72 hours. Cell proliferation was measured using MTT assay. Effects of the extracts or synthetic drugs were expressed by IC50 values. VBL rich-fraction (IC50: 6.2 µg/mL) showed effective reduction of glioma cells compared to crude extract (IC50: 9.0 µg/mL) and VBL sulfate (IC50: 8.0 µg/mL) respectively. However, there is no significant difference (p > 0.05) of IC50 between the samples. In conclusion, VBL rich-fraction of *C. roseus* extract is effective in killing the glioma cells *in vitro* which depicted natural derived active compound is a potent anticancer agent.

**Keywords:** *Catharanthus roseus*, *Glioblastoma multiforme*, Vinblastine
The Potential of *Passiflora foetida* L. As A Therapeutic Agent for Skin Infection

Norizzati MN* and Farid CG

School of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: norizzatimohdnoor@gmail.com

**ABSTRACT:** Skin infections are commonly implicated by many pathogens including *Staphylococcus aureus, Staphylococcus epidermidis, Pseudomonas aeruginosa, Tricophyton rubrum* and *Candida albicans*. Increasing antimicrobial resistance has raised the concerns of the scientific community. Natural products such as plant including *Passiflora foetida* L. has been widely used as an alternative medicine as it contains various compounds with therapeutic values. In order to evaluate the antimicrobial activity of this species, it is important to correctly identify the species to avoid any adverse effect. Hence, this study aims to enrich the taxonomical update of *Passiflora foetida* L. pertaining to its macromorphology and microscopic features, so that a novel antimicrobial agent can be elucidated to meet needs of bottom million population agenda. The organoleptic evaluation and anatomical study of leaf and stem was carried out via stereomicroscopy technique. The antimicrobial activity was assessed by disc diffusion assay. The Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration was determined following a potential effect exhibits during disc diffusion assay. The anatomical inspection evidenced some distinguishing features of leaf despite the typical similarities of the genus in terms of leaf shape, colour, venation pattern, and stomata distribution. *Passiflora foetida* L. leaf extract demonstrated a significantly lower activity as compared to control, Ciprofloxacin and Amphotericin B (*p* < 0.001), and there is no significant difference of antimicrobial potential of extract from two different locations, Kg. Kenali and Kg. Pulau Pasir (*p* > 0.05), tested using One-way Anova analysis. The MIC and MBC of both extracts are 125 mg/ml and 500 mg/ml respectively. The MBC:MIC ratio is 4. In conclusion, the taxonomical update may act as a diagnostic parameter and aid in correct identification of *Passiflora foetida* L. This plant species may be exploited as a bactericidal antimicrobial agent, thus providing a better healthcare to the human population globally.

**Keywords:** Medicinal plant, organoleptic, anatomy, plant extract, antimicrobial activity
Evaluation the Effect of *Azadirachta Indica* A. Juss Crude Extract on Drug Resistant *P. falciparum* Growth

Normadiana MS* and Khairul Mohd Fadzli M

*School of Health Sciences,

Institute for Research in Molecular Medicine (INFORMM),

Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: madi_diyana94@yahoo.com

ABSTRACT: Malaria is a mosquito-borne disease caused by *Plasmodium* species which become the leading cause of morbidity and mortality worldwide. Among all *Plasmodium* species, *P. falciparum* is the most prevalent and highly pathogenic malaria parasite. The upsurge growth of *P. falciparum* resistance strain toward current antimalarial drugs, artemisinin and partner drug (ACT) has been reported in certain parts of the world causing urgency in discovering new promising alternative antimalarial drugs. The widely use of *Azadirachta indica* A. Juss (Neem) leaves as alternative malaria treatment in different countries lead to increasing number of research involving investigation of antimalarial effect of Neem had been conducted throughout the world. However, currently there have been no such a study found in Malaysia. Thus, evaluation the antimalarial properties Malaysian *Azadirachta indica* A. juss (Neem) leaves crude extract has been carried out in this current study. The crude water extract of Neem leaves was prepared through soxhlet extraction technique. The 96-well microplate assay was performed to determine the total phenolic content and flavonoid content of Neem. This extract also was testing for its cytotoxicity activities using brine shrimp lethality assay. The antimalarial effect of Neem was evaluated by performing SYBR Green I fluorescent based drug sensitivity assay in order to determine 50% inhibitory concentration (IC$_{50}$) of the parasite growth. The final product for Neem water extraction gave low percentage yield of crude extract which is 5.54%. High phenolic content (51.2620 mg/g GAE) and flavonoid content (805.00 mg/g of QAE) of Neem has been successfully quantified from the extract. The water extract from Neem showed no cytotoxicity effect on the brine shrimp after been tested for 24 hour. The water extract was considered as inactive toward drug resistant *P. falciparum* (Dd2) due to high value of IC$_{50}$ (1225.2 + 4.60 µg/ml ) was obtained from this study in comparison with other Neem study for malaria. Finding from this study help in reveal the potential of Malaysian Neem leaves crude water extract in malarial treatment and suggest the use of other possible extraction solvent for future study.

Keywords: *Azadirachta indica* A, *P. falciparum*
Bone Health Status, Isokinetic Muscular Peak Torques and Power, and Body Composition of Young Female Silat and Taekwondo Practitioners

Norsuriani S* and Foong KO

Exercise and Sport Science Programmes, School of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author:norsurianisamsudin@gmail.com

ABSTRACT: This study investigated differences of bone health status, isokinetic muscular strength and power, and body composition of young female silat and taekwondo practitioners. A total of 36 participants (mean age: 17.31 ± 1.6 years old) were recruited in this study. They were divided into three groups, i.e. sedentary control, silat and taekwondo groups with 12 participants per group. Participant’s percent body fat and fat-free mass were measured. BIODEX isokinetic dynamometer was used to measure participant’s knee and shoulder extension and flexion muscular peak torque (strength) and power at 3 angular velocities, i.e. 60°.s⁻¹, 180°.s⁻¹ and 300°.s⁻¹. The quantitative ultrasound measurement of bone speed of sound (SOS) (an indicator of bone mineral density) of participants’ legs and arms were measured. There were no statistically significant differences in percent body fat and fat free mass among sedentary control, silat and taekwondo groups. Additionally, there were no significant differences in bone SOS among these three groups. Silat and taekwondo groups showed statistically significant higher values in most of the muscular peak torque and power measurements compared to sedentary control group. Silat group exhibited statistically higher values of knee extension and shoulder extension peak torque and power measurements compared to taekwondo group. However, taekwondo group showed statistically significant higher values of shoulder flexion peak torque and power measurements than silat group. The results of the present study can be applied and help to facilitate the development of specific training programmes for optimal performance of martial arts in silat and taekwondo practitioners.

Keywords: Bone health status, isokinetic muscular strength, power
Concentration of Heavy Metals in Cooked Rice and their Potential Health Risk

Nur Balkish AB* and Hasmah A

Environmental and Occupational Health Programme, School of Health Sciences, Health Campus Universiti Sains Malaysia 16150 Kubang Kerian Kelantan, Malaysia

*Corresponding author:balkish397@gmail.com

ABSTRACT: Heavy metals in the environment become worldwide great concern due to their adverse effects to human health. The contamination of heavy metals in soil resulted from anthropogenic rather than natural activities. Anthropogenic activities is one of a factor that contribute to the elevated concentration of heavy metals such as cadmium, copper, lead and arsenic in soil that possibly up to the harmful levels. Therefore, high concentration of heavy metals in soil would increase the potential uptake of these metals by plants and crops which are more or less can interrupt the quality of food chain. This study was conducted to determine the concentration of cadmium, lead and copper in cooked rice from local production and imported from Thailand, Pakistan and India. Cooked rice were used because rice ingestion in one of the major pathway for heavy metals to accumulate in human body. The analysed heavy metals concentrations were utilized to measure, Total Hazard Quetient (THQ) and Hazard Index (HI) to determine health risk assessment as indicator risk associated with the consumption of heavy metal in contaminated rice. The method used was according to The United State Environmental Protection Agency (USEPA) to evaluate the potential health risk of heavy metals. In this study, three stages were involved; cooking process, acid digestion and and lastly analysis of samples using Atomic Absorption Spectrometry (AAS). The mean concentration of heavy metals in cooked rice samples were 0.357 mg/kg for Cd, 0.428 mg/kg for Pb and 0.226 mg/kg for Cu. The heavy metal concentration in cooked rice samples were in the following order, Pb > Cd > Cu. There were no significant different for mean heavy metal concentrations from different countries. Beside, the THQ values and the HI value from different countries were less than 1, indicating there were no adverse health effect to human. In conclusion, all cooked rice samples were safe for consumption as the THQ values and the HI values for all samples gives a value less than 1 implicating no carcinogenic health risk present.

Keyword: Cd, Pb, Cu, Cooked rice, Health Risk Assessment
Study of Necrophagous Fly Species Important for Postmortem Identification Around the World

Nur Fareeza MZ

Universiti Tun Hussein Onn Malaysia (UTHM) 86400 Parit Raja, Batu Pahat Johor, Malaysia

ABSTRACT: Necrophagous species can be defined as species that eat the corpses and essential for estimating post mortem interval (PMI) in forensic entomology. Post mortem interval is significant in forensic entomology as it can determine the time a person died. In this research, fly species were studied because it is one of the first species to populate a cadaver. The adult flies will lay their eggs on the corpses within minutes to hours after the death. Their eggs hatch into a maggot and the PMI is determined from the maggots size. The research was carried out by reviewing papers which is related with necrophagous fly species. Data mining research methods including the use of Google Scholar and literature review from books. From the literature review, each country has its own species of necrophagous flies and the variation is due to the different climates. For tropical climate, the dominant fly species are the Chrysomya Megacephala and Chrysomya Rurifacies. In cold climate, the most dominant necrophagous fly is the Lucilia Vicina while in continental climate, Lucilia Albiceps is the most abundant fly species. There is also a rare species from family Sarcophagidae. Adult Sarcophagidae only lay a few of eggs on corpses. It is hoped that this study aides researchers to identify the different types of necrophagous flies around the world.

Keywords: Necrophagous fly, forensic entomology
Noise Exposure and Hearing Symptoms among Quarry Workers in Bukit Buloh, Kelantan

Nur Fasihah MK and Siti Marwanis A

Environmental and Occupational Health Programme, School of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: smarwanis@usm.my

ABSTRACT: Noise is one of the hazards faced by quarry workers. Quarries with loud deafening sounds from machineries and trucks create the risk of hearing loss to workers. This study was designed to determine the noise exposure and hearing loss symptoms among quarry workers. A cross-sectional study was conducted at a selected quarry in Bukit Buloh, Kelantan. Using purposive sampling method, questionnaires were distributed among 40 quarry workers to obtain their socio-demographic data, employment information, factors associated with hearing symptoms and related hearing symptoms. Area and personal monitoring were conducted to measure noise exposure level for 8 hours using sound level meter (Brul & Kjaer, Denmark) and noise dosimeter (Larson Davis Spark 706 RC, USA). The result of area monitoring showed that the highest noise exposure level was 98.1 dBA at Secondary Crusher Plant which exceeded the Permissible Exposure Limit (PEL) of 90 dBA. The median of personal noise exposure level among workers was 81.6 dBA (IQR: 74.48-85.05 dBA). It was found that the median noise exposure level were significantly different between Primary Crusher Plant and Secondary Crusher Plant (p=0.005), Primary Crusher Plant and Grading Bunker Plant (p=0.009), Primary Crusher Plant and Premix Plant (p=0.024) and Primary Crusher Plant and Weighing Section (p=0.012). Significant association was found between usage of Personal Protective Equipment (PPE) and difficulties in understanding conversation symptoms reported by the quarry workers (p=0.027). However, there was no significant association between noise exposure levels and hearing loss symptoms among them. Inconclusion, although there was no established significant association between noise exposure levels and hearing loss symptoms, the result of noise level at Primary Crusher Plant was found to exceed the PEL. Therefore, it is highly recommended that the hearing protection programme is conducted to educate the workers and to provide the PPE in to prevent the hearing loss problems among the quarry workers.

Keywords: Noise Exposure, Hearing Symptoms, Quarry Workers
ABSTRACT: Malaria is mosquito-borne disease that cause by plasmodium species and killed nearly 429 000 people in 2016. With the emergence of plasmodium resistant, many studies are conducted to find alternative drug to treat malaria. In addition, with the resurgent of traditional medicine that are uses to treat various diseases nowadays, the propolis is one of the traditional medicines that possess many medicinal values including anti-malarial properties. Propolis is the resinous mixture that is produced by bees from the resin that collected from the surrounding plants. Bees use propolis to protect its hives from the external intruder by patching the propolis on the crack or the opening of hive. There were very few studies on the Malaysian stingless bee propolis (*Trigona itama*), therefore the aim of this study was to investigate the properties and the ability of Malaysian stingless bee propolis as antimalarial agent. The propolis was macerated using water and 70% ethanol. The total phenolic and flavonoid were identified using Folin-Ciocalteau reagent and aluminium chloride method respectively. The toxicity of propolis extracts was determined using Brine Shrimp Toxicity Assay and the antimalarial activity was determined by spectrophotometric method using SYBR 1 Green dye. The ethanol extract propolis, EEP showed higher extraction yield (3.64%) and total phenolic content (31.3 ± 0.004 mg GAE/g EEP) compared to water extract propolis, WEP (0.9%; 16.4 ± 0.001 mg GAE/g WEP). In contrast, the total flavonoid content of WEP was higher than EEP. The preliminary study of toxicity for both extracts, showed the LC50 of WEP and EEP were LC50 > 1000µg/ml and were consider non-toxic. In correlation with phenolic content, the study showed EEP (352.3 µg/ml) exhibited more potent anti-plasmodium activity compared to WEP (1691 µg/ml). In conclusion, Malaysian stingless bee propolis shows inhibition to *P. falciparum* (3D7). Further investigations need to be done to investigate the phenolic compound that responsible to the antimalarial activity of propolis.

Keywords: Antimalarial, Brine shrimp toxicity assay, propolis, total phenolic content, total flavonoid content
Microbial Contaminations on Mobile Phones and Hands among Nurses in Critical Units, Hospital Universiti Sains Malaysia

Siti Nur Anis S\textsuperscript{a}, Siti Marwanis A\textsuperscript{a} and Nurzafirah M\textsuperscript{b}

\textsuperscript{a}Environmental and Occupational Health Programme, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia
\textsuperscript{b}Faculty of Health and Life Sciences, Management and Sciences University, University Drive, Section 13, 40100 Shah Alam, Selangor

*Corresponding author: smarwanis@usm.my

ABSTRACT: Mobile phones play an important role to facilitate communication in the medical field in the event of an emergency, sharing the medical information, and communication between healthcare workers and patients. However, mobile phones had become a concern as it may cause microbial cross-contamination between hands of workers, patients and community. This study aimed to determine the presence microbial agent on mobile phones and hands among nurses in Critical Units. This is a cross-sectional study which was conducted at the Critical Care Unit (CCU), Intensive Care Unit (ICU), Coronary Intensive Care Unit (CICU) and Neuro Intensive Care Unit (NICU) of HUSM. Utilising simple random sampling, a total of 30 nurses were recruited in this study. The questionnaire was distributed to participant to collect information on socio-demographic, work data, frequency of mobile phones cleansing and hands hygiene practices. Swab samples from mobile phones and their dominant hands were collected from each nurse to identify the presence of methicillin resistant of staphylococcus aureus (MRSA) and Escherichia coli (E. coli). It was found that all mobile phones and hands (n=30, 100%) were contaminated with bacterial agents. The mean bacteria count on mobile phones was $6.315 \times 10^7 \pm 7.086 \times 10^7$ CFU/ml and on hands was $9.670 \times 10^7 \pm 2.656 \times 10^8$ CFU/mL. It was found that 10% (n=3) of mobile phones of nurses were contaminated with MRSA but no presence of MRSA was found on their hands. While, E. coli was found contaminating 16.7% (n=5) of mobile phones and 23.3% (n=7) of hands of the nurses. There was no significant association of bacterial contamination between mobile phones and hands (p =0.493), mobile phones and its cleaning practices (p=0.838) and hand contamination and hand hygiene practice (p=0.640). Although there was no significant association established but the presence of bacteria MRSA and E. coli found on the mobile phones and hands may cause nosocomial infection. Thus, the microorganisms presented may cause nosocomial infection. Simple control measure such as hand washing, hand sanitizer usage and practice of infection control may reduce the rate of nosocomial infection.

Keywords: Mobile phones, hands, hygiene practice, Escherichia coli (E.coli), methicillin resistant of staphylococcus aureus (MRSA)
Prevalence and Risk Factors of Metabolic Syndrome among Temiar subtribe in Kuala Betis, Gua Musang, Kelantan according to IDF (2005) and NCEP-ATPIII (2005) definitions


Faculty of Health Science, Faculty of Medicine, Universiti Sultan Zainal Abidin, Medical Campus, Jalan Sultan Mahmud, 20400 Kuala Terengganu, Terengganu, Malaysia

*Corresponding author: mhnursakinah@gmail.com

ABSTRACT: Metabolic syndrome (MetS) is categorized as a cluster of metabolic disorders, which is a steering force causing type 2 diabetes mellitus (T2DM), cardiovascular disease, stroke and mortality. Over the last 10 to 20 years, the Malaysian government has begun the relocation process of Orang Asli (OA) community, such as Temiar subtribe to a new location with improved facilities. OA community has started to face the sedentary lifestyle, which then become a contributing factor to health problems including diabetes, hypertension and obesity, thus, contribute to metabolic syndrome. This study aimed to determine the prevalence and risk factors of MetS in Temiar subtribe OA using International Diabetes Federation (IDF) (2005) and National Cholesterol Education Program Expert Panel Adult Treatment Panel III (NCEP-ATP III) (2005) definitions. A cross sectional study was conducted on 123 subjects from Temiar subtribe OA in Kuala Betis, Gua Musang, Kelantan, Malaysia. Blood pressure, height, waist circumference and weight measurements were performed on all subjects. Overnight fasting blood samples were analyzed for lipid profile, liver profile and renal profile using chemistry analyzer, whereas, fasting blood glucose was determined using glucometer. Statistical analysis was done using SPSS software. Chi square was used to determine significance between categorical variables and MetS. The concordance between both definitions was determined using kappa statistic (κ test). The prevalence of MetS were 39.8% (49/123) and 35.8% (44/123) according to NCEP-ATP III (2005) and IDF (2005) respectively, and showed a very good concordance (κ = 0.91). MetS was significantly associated with education level (P=0.016). Reduced high-density lipoprotein cholesterol (HDL-C) (P<0.001), increased waist circumference (P<0.001), and increased triglycerides (P<0.001) were the highest prevalent risk factors. In conclusion, the prevalence of MetS was higher according to NCEP-ATP III (2005) compared to IDF (2005). There was a very good concordance between both definitions. HDL-C, increased waist circumference, and increased triglycerides contributed the most to MetS. High prevalence of MetS reported in this present study, warrants an attention from related local authorities to address this problem in order to decrease the MetS rate and to sustain healthy lifestyle.

Keywords: Metabolic syndrome, Temiar subtribe, Orang Asli, IDF, NCEP-ATP III
Isolation of *Salmonella* spp. in Chicken Meat-Based Food Samples in Kota Bharu, Kelantan

Raveena–Mei L, Erkihun A* and Fadhilah K

*Faculty of Veterinary Medicine, Universiti Malaysia Kelantan, 16100, Pengkalan Chepa, Kota Bharu, Kelantan, Malaysia

*Corresponding author: erkihun@umk.edu.my

**ABSTRACT:** *Salmonella* gastroenteritis is one of the most common and widely distributed foodborne diseases worldwide. *Salmonella* spp. are naturally found in the intestinal tract of poultry and mammals and these animals can act as a source of foodborne infection in humans. This study was conducted to determine the prevalence of *Salmonella* spp. in chicken meat-based food samples in Kota Bharu, Kelantan. A total of one hundred food samples consisting of chicken meat based foods namely 55 samples of chicken pieces in curry, 21 samples of fried chicken, 12 samples of sweet sour chicken and 12 samples of stir fried chicken were obtained from roadside stalls and eateries around Kota Bharu. The samples were predominantly from the Panji (n=33), Pengkalan Chepa (n=38) and Kota Bharu town area (n=29) and were analyzed using routine bacteriology and molecular identification techniques for the presence of *Salmonella* spp. Using routine microbiology, 12% (12/100) of the samples were presumptively positive for *Salmonella* spp. However, only two out of those 12 samples were confirmed to be positive for *Salmonella* spp. by using *Salmonella* spp. specific polymerase chain reaction (PCR). As a conclusion, this still raises concern over the food safety standards in Kota Bharu as many serotypes of the *Salmonella enterica* species contaminate food and can act as a source of a potential foodborne Salmonellosis outbreak in humans.

**Keywords:** *Salmonella* spp., non-typhoidal Salmonellosis, gastroenteritis
Linguistic Validation of Cariogenic Food Frequency and Oral Health Knowledge, Attitudes and Practice Questionnaires for Parents of 6-11 Years Old Children in Kota Bharu, Kelantan.

Rosnani N*, Ruhaya H and Normastura AR

School of Dental Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: rosnani.ngah@student.usm.my

ABSTRACT: Cariogenic food intake frequency and oral health knowledge, attitude and practice of parents are contributing factors that influence oral health status of the children. Based on literature search, there is no Malay version questionnaire to measure these factors. This study was carried out to develop a linguistically validated Cariogenic Food Frequency (CFFQ) and Oral Health Knowledge, Attitude and Practice (OHKAPQ) for parents of children aged 6-11 years old in Kota Bharu, Kelantan. This was a cross sectional validation study which the established CFFQ and OHKAP questionnaires had undergone a translation process through multi-step procedures. Forward translation had been done by two independent and bilingual translators for each questionnaire. Both forward translations have been synthesized to produce common Malay versions of CFFQ and OHKAPQ before sent for backward translation. First pre-final Malay translated versions of both questionnaires were achieved during consolidation stage. Following pre-test stage, ten parents from a primary school in Kota Bharu were recruited via purposive sampling. Respondents were asked to give their opinion, suggestion and comments regarding the first pre-final Malay translated CFFQ and OHKAPQ via face-to-face interview. The findings were reviewed back to produce second pre-final Malay translated versions. Semantic, idiomatic, experiential and conceptual issues with the items were resolved during synthesis, consolidation and pre-test stage to produce common Malay version, common English version as well as first pre-final Malay version of CFFQ and OHKAPQ. Second pre-final Malay translated versions of CFFQ and OHKAPQ had been achieved after pre-test stage. Both second pre-final version were satisfactorily achieved equivalence between the English version questionnaires. In conclusion, the second pre-final Malay translated versions of CFFQ and OHKAPQ appeared to be a linguistically valid.

Keywords: linguistic, cariogenic, oral health, questionnaire, children
Cognitive Function Impairment and Oral Health among the Community – Dwelling Elderly in Mukim Bukit Jawa, Pasir Putih, Kelantan

Syirahaniza MS*, Mohd Zulkarnain S, Basaruddin A and Akram H

School of Dental Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: syirahaniza@student.usm.my

ABSTRACT: Cognitive function impairment is an increasing health and social problem in Malaysia and worldwide due to a growing number of advanced age in the population. The impairment causes health, behavioral and lifestyle changes and affecting oral health. The aims of this study were to determine the prevalence of cognitive function impairment and their association to oral health among community-dwelling elderly in Mukim Bukit Jawa, Pasir Putih, Kelantan. This is a cross-sectional study where 166 community-dwelling elderly were identified as participants. List of participants was generated from multiple sources including welfare recipients and local authority records. The elderly are later randomly selected and invited to participate in the study. The criteria for participant’s recruitments are Malaysian, able to converse in Malay Language or English, age 60 and above and without self-reported psychiatric conditions. Data collection involved a structured interview using questionnaire, cognitive assessment using Six-Item Screener (SIS) –Malay Version and intra-oral examination. The dependent variables were the scores from the SIS (Score: 0-6; cut-off point 2 for cognitive impairment). Independent variables included socio-demographic characteristics, medical conditions, oral health conditions, practices and behaviour which tested for associations with the dependent variables. The prevalence of cognitive impaired elderly in this study is at 46.9% participants. Data analysis using independent t-test shows statistically significant results (p ≤ 0.05) for independent variables including number of sound teeth and filled teeth, teeth with root caries and a number of missing teeth. In bivariate analyses, significant associations were found for periodontal health status, edentulism tooth brushing frequency, regular dental visit and betel nut chewing. In this study, root caries, number of sound, filled and missing teeth, edentulism status, tooth brushing frequency, regular dental visit and betel nut chewing were associated with cognitive decline.

Keywords: Aged, Cognitive Dysfunction, Oral Health
Microbial Contaminations on Hands among Visitors of Hospital’s Critical Units

Nurul Aimi M\textsuperscript{a*}, Siti Marwanis A\textsuperscript{a} and Nurzafirah M\textsuperscript{b}

\textsuperscript{a}Environmental and Occupational Health Programme, School of Health Sciences, Health Campus, Universiti Sains Malaysia 16150 Kubang Kerian, Kelantan, Malaysia
\textsuperscript{b}Faculty of Health and Life Sciences Management and Science University, University Drive, Seksyen 13, 40100 Shah Alam, Selangor, Malaysia

*Corresponding author: nurulaimi94@yahoo.com

ABSTRACT: Pathogenic microorganisms can be transferred to hands from contaminated surfaces. The vulnerable critical unit patients are highly susceptible to infection of pathogenic microorganisms and visitors’ hands can be colonised with pathogens that are dangerous and immunocompromised to them. Inadequate cleaning of hands could carry the pathogenic organisms and transmit disease to one self as well as to the visited patients. This study was done to determine the presence of \textit{Escherichia coli} and Methicillin-resistant \textit{Staphylococcus aureus} (MRSA) contamination on hands among visitors at critical units with respect to their hand hygiene practices. A total of 52 visitors were recruited into the study using grab sampling. Questionnaire gathering information on behaviour and attitudes on hand hygiene were distributed among the visitors prior hand swabbing. Hand swabs were taken from visitors at Critical Care Unit (CCU), Intensive Care Unit (ICU), Coronary Intensive Care Unit (CICU) and Neuro Intensive Care Unit (NICU) for bacterial count from their dominant hands. The isolated microorganisms and the mean of total number of colony forming units on hands of visitors was $3.87 \times 10^{14} \pm 1.65 \times 10^{15}$ CFU/ml. Only 40.4% (n=21) visitors performed hand hygiene before meeting with patients. Of the 52 participating visitors, it was found that 98.1% (n=51) of their hands were contaminated by microorganisms. \textit{E.coli} was isolated from the hands of 10 (19.2%) visitors and there was no isolated MRSA found. There was marginally significant association between washing hands before meeting patients and the presence of \textit{E.coli} ($\chi^2 = 4.405$, $p = 0.052$). In conclusion, higher bacterial contamination on hands might be contributed by inadequacy of proper hand hygiene practices as it was unacceptably low (less than 50%), despite no MRSA was found. Thus, behaviour and attitudes regarding hand hygiene among visitors need to be improved by a multidisciplinary approach.

Keywords: Hand hygiene, Hand contamination, Critical unit patients, \textit{Escherichia coli} Methicillin-resistant \textit{Staphylococcus aureus}
Antiproliferative Effects of *Clinacanthus Nutans* (CN) Methanol Extract on Breast Carcinoma Cell Lines

Zarif Liyana M* and Sabreena S

School of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kedah, Kelantan, Malaysia

*Corresponding author: zarif_liyana@yahoo.com

**ABSTRACT:** Cancer is defined as the uncontrolled growth of abnormal cells which are able to proliferate in uncontrolled ways and metastasise or spread to other organs in the body. There are several treatments that can be used to treat cancers such as chemotherapy, surgery and hormone therapy but these treatments may cause several side effects. Due to the problems faced by using current treatments, a lot of researches were done to find alternative treatment. The aim of the study is to study the effect of *Clinacanthus nutans* extracts on the proliferation and morphological changes of breast carcinoma cell lines. CN was extracted by using methanol and the antiproliferative effect of CN towards breast carcinoma cell line, MCF-7 and MDA-MB-213 was observed. The determination of IC$_{50}$ was done by using MBA assay and the proliferation assay was done by using trypan blue method. The result shows that CN methanol extract have higher IC$_{50}$ compared to cisplatin for both cell lines. Proliferation assay by using trypan blue method shows that the number of treated and untreated cells does not have much difference. It shows that for p-value for 10 µg/ml, 50 µg/ml and 100 µg/ml were 0.869, 0.795 and 0.511 respectively. There is no morphological difference between treated and untreated MCF-7 cells. In conclusion, CN methanol extract does not show antiproliferative effect and does not affect the morphology of breast cancer cell.

**Keywords:** *Clinacanthus nutans*, Breast cancer, MBA, Proliferation assay, Morphology
Roselle Improved the Endothelial Dysfunction in Obese-hypercholesterolemia Rat


*School of Health Sciences,
Department of Physiology, School of Medical Science,
Universiti Sains Malaysia Heath Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author:syuhana.rason91@gmail.com

ABSTRACT: Obesity combined with hypercholesterolemia negatively affects the function of the endothelial cells and results in endothelial dysfunction. Hibiscus sabdariffa L. (Roselle) has been shown from our previous study to have anti-obesity and hypocholesterolemic effects. The present study was designed to investigate the therapeutic effects of Roselle aqueous extract (RAE) on improving endothelial function in aorta of obese-hypercholesterolemia (OHC) rat. Twenty-four Sprague-Dawley (SD) rats at 6 weeks old (200-250 g) were induced to be OHC with high fat diet (4% cholesterol) over 6 weeks. RAE (300 mg/kg) and control drugs (Orlistat as anti-obesity and atorvastatin as hypocholesterolemic drugs; respectively) were orally administered for 4 weeks (sub-acute) after OHC induction. Descending thoracic aorta was dissected out at the end of 4 weeks and evaluated with histopathological studies (hematoxylin & eosin stain) and scanning electron microscope. In addition, femoral artery was also assessed for hyper-reactivity in functional myograph study. Roselle extract significantly improved aorta morphology. There was also significant reduction in the vascular hypersensitivity. In conclusion, these evidences suggest that Roselle possess the therapeutic effect on improving endothelial dysfunction caused obese-hypercholesterolemia.

Keywords: Roselle, obese, hypercholesterolemia, endothelial dysfunction, histopathological
Optimization of Real-Time PCR for HER4 Isoforms Expression Analysis in Triple Negative Breast Cancer Cell Lines

Nurzuliana Hassim\textsuperscript{a*} and Siti Norasikin MN\textsuperscript{b}

\textsuperscript{a}Biomedicine Programmes, School of Health Sciences, \textsuperscript{b}Department of Pathology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

\*Corresponding author: zulianahassim94@gmail.com

\textbf{ABSTRACT}: Breast cancer is a leading cause of cancer mortality in women population worldwide and Malaysia. TNBC was characterized as aggressive form of malignancy, lack of immunohistochemical expression and has limited targeted therapies. TNBC has poor prognosis and short survival rate. In breast cancer, human epidermal growth factor receptors (HERs) play crucial roles as prognostic markers and therapeutic targets. HER4 receptor expressions become a target receptor to determine breast cancer prognosis and survival rate in TNBC. HER4 is a member of HER family and tends to produce different functional isoforms as a result of alternative splicing mechanism.HER4 isoforms mainly generate signaling in carcinogenesis cellular process. However, there is no previous study was conducted on assessment of HER4 isoforms expression in TNBC cell lines. This study was conducted to optimize Real-Time PCR for HER4 isoforms expression analysis in triple negative breast cancer cell lines. The expression of HER4 isoforms in TNBC cell lines by optimization of Real-Time PCR conditions using different primer concentrations, 100, 250, 500 and 700nM. Optimization was validated with amplification plots and melting curves. The 700nM of primer concentration was used to optimize the Real-Time PCR condition as recommended by the manufacturer. There were no significant differences on each HER4 isoform gene expressions noted as the primer concentration increased. In addition, the differences of relative gene expression for HER4 CYT-1, CYT-2, JM-a and JM-b isoforms at primer concentration of 700nM were also not significant. The 700nM is a recommended primer concentration of HER4 isoforms and GAPDH primers for better performance of Real-Time PCR. In conclusion, optimization of Real-Time PCR conditions using different primer concentrations for measurement of HER4 isoforms gene expression was not succeed. Optimization of Real-Time PCR conditions in correct procedure can be used as a standard assay applied in clinical laboratories especially in determine prognosis and targeted treatment in breast cancer.

\textbf{Keywords}: TNBC, HER4, primer concentrations, Real-Time PCR
Cytotoxic and Apoptotic Effects of *Cosmos Caudatus* and *Ocimum Sanctum Linn* on Oral Squamous Cell Carcinoma Cell Line (HSC-2)

Wan Nuramiera Faznie WEE, Wan Nazatul Shima S and Khairul Bariah AAN

*Biomedicine Programmes, School of Health Sciences, School of Dental Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: amierafaznie@gmail.com*

**ABSTRACT**: This present study aimed to investigate the cytotoxic and apoptotic effects of the methanolic extracts of *Cosmos caudatus* (CC) and *Ocimum sanctum Linn* (OSL) on an oral squamous cell carcinoma (OSCC) cell line; HSC-2. Growth inhibitory effect of different concentrations of methanolic extract of CC: 0 µg/mL, 100 µg/mL, 200 µg/mL, 300 µg/mL, 350 µg/mL, 400 µg/mL and 500 µg/mL, as well as the methanolic extract of OSL: 0 µg/mL, 40 µg/mL, 80 µg/mL, 100 µg/mL, 120 µg/mL, 160 µg/mL and 200 µg/mL, were studied using MTT assay. The percentage of inhibition was calculated, graphs of percentage of inhibition against concentration of CC and OSL were plotted and the concentration of CC extract that caused fifty percent of inhibition (IC\(_{50}\)) was noted. The IC\(_{50}\) value was then used to treat the HSC-2 cell line for DNA laddering assay. Reverse transcriptase PCR (RT-PCR) on the apoptotic genes, *BAX* and *BCL2*, was also employed following treatment of the HSC-2 cells with the IC\(_{50}\) value of CC methanolic extract. Our result showed that the methanolic extract of CC was found to have cytotoxic effect on HC-2 cells at concentration 197 µg/mL following 24-hour treatment. However, for our OSL methanolic extract, the cells were only inhibited for 70% when treated at the maximum concentration (200 µg/mL). Result from DNA laddering assay did not show any DNA fragmentation on agarose gel for both treated and untreated HSC-2 cells. Our RT-PCR results showed amplification of *BAX* gene in both treated and untreated HSC-2 cells. In conclusion, the methanolic extracts of CC and OSL showed cytotoxic effect on HSC-2 cell line. However, further investigations need to be done to confirm the apoptotic effect of both extracts.

**Keywords**: Oral squamous cell carcinoma, *Cosmos caudatus*, *Ocimum sanctum Linn*, methanolic extract, anticancer potential
Heat Exposure and Physiological Changes among Laundry Workers

Nurul Atikah MY* and Siti Marwanis A

Environmental and Occupational Health Programme, School of Health Sciences, Health Campus Universiti Sains Malaysia 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: nurulatikahyunos4@gmail.com

ABSTRACT: Laundry is one of the workplace that has activities exposed to heat. The machine used generated heat during the washing and drying process and directly exposed workers to heat. They are at high risk of heat related illnesses such as heat exhaustion, heat fatigue and heat stroke which are influenced by physiological response. This cross sectional study was carried out to determine the heat exposure and physiological changes among laundry workers. Purposive sampling method was used to recruit 54 workers as respondents from the selected laundry in Kelantan namely Laundry A, Laundry B and Laundry C. The Wet-Bulb Globe Temperature (WBGT) (3M QUESTemp Technologies, USA) was used to measure the area temperature for 8 hours. For the physiological changes; body core temperature, blood pressure and heart rates were taken at three different times which were before work, after 2 hours of work and after complete work. The results found that Laundry B and Laundry C had exceeded the Threshold Limit Value (TLV) of WBGT-index with average WBGT value of 28.16°C and 29.15°C respectively. The WBGT-index value was significantly higher among these two laundries compared to Laundry A (p=0.001). With regards to physiological changes, there was a significant different of body core temperature between before work and after 2 hours of work (p=0.001) and after complete work (p=0.001) respectively. There was a significant different between systolic blood pressure before work and systolic blood pressure after 2 hours of work (p=0.045) and systolic blood pressure after completed work (p=0.032), respectively. A moderate and significant correlation between body core temperature and systolic blood pressure after 2 hours of work (r=0.387, p=0.004) as well as between body core temperatures and heart rate before work (r=0.428, p=0.001). Continuous heat exposure to workers can affect the physiology of the body that will affect their health status. Engineering controls measures (i.e. cooling air with air-conditioning, natural air circulation) and administrative controls measures (i.e. hot work training, job rotation) should be emphasized in order to reduce the risk of heat stress.

Keywords: Wet-bulb Globe Temperature, Heat Exposure, Physiological Changes
Preliminary Normative Study of Visuospatial Working Memory Test among 8;0-8:11 Years Old Malay Children

Zati Atharina Z*, Wan Najibah WM and Azlinda AG

Audiology & Speech Patology Programme, School of Health Sciences, Universiti Sains Malaysia 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: zati.atharina@gmail.com

ABSTRACT: Low working memory ability has been associated with poor academic performance. Therefore, an assessment tools that tap on specific role of working memory components is essential. However, normative data for this task that can be used on children for clinical assessment guidelines are not available in Malaysia. For this reason, the present study, modelled on the visuospatial component of working memory (Baddeley, 2000) was conducted to determine the preliminary normative data of visuospatial working memory test in Malay children. This study involved a group of 53 Malay participants (28 male and 25 female) aged between 8;0 and 8;11 years old in a standard primary school. The standard Corsi Block Tapping Task with nine square blocks positioned on a wooden board (CBTT) was used to administer forward and backward conditions. The result showed that the mean score is significantly higher in the forward CBTT (mean=26.7, SD=11.074) compared to the backward CBTT (mean=12.7, SD=8.459). The result also shows there is no significant difference in both forward and backward CBTT scores between genders. This finding may suggest both male and female students have better ability in retaining visuospatial memory whereas having at par ability in manipulating visuospatial memory.

Keywords: visuospatial, working memory, Corsi Block Tapping Task
Organ at Risk (Skin and Lung) Dose Evaluation for Three-Dimensional Conformal Radiotherapy in Post-Mastectomy Breast Cancer Patients

Nur Hafizah Y*, Reduan A and Chen SC

Medical Radiation Programme, School of Health Sciences, Health Campus, Universiti Sains Malaysia, 16150, Kubang Kerian, Kelantan, Malaysia

*Corresponding author:fierdzh@gmail.com

ABSTRACT: The accuracy of dose calculation is vital to the quality of treatment planning and dose delivered to patients in radiotherapy treatment. This study evaluates the dose of Organs at Risk (OAR) which are skin and lung in tangential beam three-dimensionally planned conformal radiotherapy (3D-CRT) of breast case using two different dose calculation algorithms, pencil beam (PB) and collapsed cone (CC) provided by Oncentra Treatment Planning System. 10 left-sided post-mastectomy breast cancer cases were re-planned and re-calculated using both PB and CC algorithms with 6 MV and 10 MV energies. The patients were divided into 3 groups, group A with 1 cm bolus (4 patients), group B with 0.5 cm bolus (4 patients), and group C without bolus (2 patients). Dose-volume histograms (DVH) were carried out by the 3D treatment planning system (TPS) to assess for OAR and clinical target volume (CTV). Dosimetric comparison between PB and CC were performed in term of dose distribution in target, OAR volumes and average dose of 10 points at interface between skin and lung. The CC algorithm showed that the CTV dose at V_{40} was decreased to 85.98% (Group A), 89.81% (Group B) and 62.70% (Group C) for 6 MV. The CC algorithm showed that the CTV dose at V_{40} was decreased to 91.54% (Group A) and increased to 92.83% (Group B) and 86.95% (Group C) for 10 MV. The mean of skin doses with the CC algorithm were reduced to 37.77% (Group A), 36.54% (Group B), 23.76% (Group C) for 6 MV and 37.56% (Group A), 34.91% (Group B), 22.88% (Group C) for 10 MV. The mean of lung doses with the CC algorithm were reduced to 6.93% (Group A), 5.39% (Group B), 1.96% (Group C) for 6 MV and 7.16% (Group A), 5.51% (Group B), and increased to 2.09% (Group C) for 10 MV. Differences were found when comparing the calculation algorithms. The results indicated that the dose to unnecessary organs can be reduced with CC algorithm. The PB algorithm overestimated the dose compared with the calculated by the CC algorithm.

Keywords: Left-sided post-mastectomy breast cancer, dose calculation algorithm, pencil beam, collapsed cone, bolus
Symptoms and Risk Factor of Musculoskeletal Discomfort among Office Workers in Setiu, Terengganu

Siti Zulaikha F* and Nurul Ainun H

Environmental and Occupational Health Programme, School of Health Sciences, Health Campus, Universiti Sains Malaysia 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: nurulainun@usm.my

ABSTRACT: Musculoskeletal disorder is one of the occupational health problems listed in International Labour Organization (ILO) as an occupational diseases. The trend of musculoskeletal discomfort or disorder cases have been raising for years and office workers is one of the affected groups. A cross-sectional study was conducted to determine the symptoms and associated with the risk factors on Musculoskeletal Discomforts (MSDs) among 63 office workers in Setiu, Terengganu. Stratified and convenience sampling methods were used in this study. For this study, self-administered questionnaires include Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) were distributed among the respondents to seek the information on variables of study and access the musculoskeletal discomfort. This study found that the most commonly affected regions were neck (42.9%), followed by lower back (36.5%) and shoulder-right (34.9%). wrist-left, knees, thigh-left and knee-right were the less reported pain by office workers with 4.8%, 4.8%, and 1.6% respectively. Neck, lower back and shoulder were the three leading MSDs complaints among the respondents. The study also found that repetitive movement was significantly associated with neck pain ($x^2= 6.696$, $p=0.014$). Upper back also was significantly associated with work psychosocial factor ($x^2 = 4.855$, $p= 0.043$). Generally, this study served as early information on MSDs problems in the local perspectives in order to implement any necessary preventive measures. Adequate office ergonomic training and campaign program should be organized to promote the safe and healthy work practices in the office.

Keywords: Musculoskeletal Discomfort (MSDs), symptoms, risk factors, office workers
Knowledge, Attitude and Practice towards Repetitive Strain Injury among Health Students using Computer Laptop at Universiti Sains Malaysia

Siti Masrifah MH* and Mohd Nazhari MN

Environmental and Occupational Health Program, School of Health Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: mashanahasibuan93@gmail.com

ABSTRACT: Repetitive strain injury (RSI) is one of disorder, sub-topic from musculoskeletal disorder (MSDs) which is well-known to occur among computer laptop usage. People that was diagnosed with RSI, due to expose with activities such as repetitive movement, sustain force exerted, and awkward body posture in a prolonged time. This study was conducted to determine the association between knowledge, attitude and practice of RSI towards student using computer laptop. A cross-sectional study was conducted, recruiting 80 students from all schools in Health Campus, Universiti Sains Malaysia. Questionnaires was distributed randomly among students and data was analyzed using SPSS version 22 along with Fisher’s Exact test. There was significant association between knowledge of the student and their attitude using laptop per day ($p = 0.005$). There was also significant association of knowledge with their practice during working is sitting on chair with computer laptop on desk ($p = 0.042$). Overall, results shown all respondents did experienced RSI. In conclusion, there was significant relationship between knowledge, attitude and practice towards RSI among health students using computer laptop. Implementation of suitable countermeasures should be taken as first step to improve health and safety performance in the academic institutional industry.

Keywords: Repetitive strain injury (RSI), laptop
Geometric Morphometric Analysis of Cephalopharyngeal Skeleton of Chrysomya Fly Species

Siti Nor Fatihin MZ* and Helmi Mohd Hadi P

School of Health Sciences, Universiti Sains Malaysia Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: fatihin_zawawi@yahoo.com

ABSTRACT: Blowflies of the genus Chrysomya are one of the fly species in forensic field which helps in the estimation of post-mortem interval (PMI). The maggots from the genus Chrysomya species are one of the earliest to populate cadavers during decomposition and the growths of these maggots are useful for PMI estimation. The objective of this study is to analyze the possibility of identifying the cephalopharyngeal skeleton of chrysomya fly species maggot related to post-mortem interval using Geometric Morphometrics. Geometric morphometrics is the analysis of shape using Cartesian geometric coordinates rather than linear, areal or volumetric variables. Geometric morphometric methods (GMM) include 2D and 3D points representing landmarks, curves, outlines, or surfaces. In this project, a total of 97 cephalopharyngeal skeleton were collected and photographed from Chrysomya rufifacies (n=81) and Chrysomya megacephala (n=16). Tpsdig2 was utilized to landmark the cephalopharyngeal skeleton (x-, y-configuration) and data was analyzed by Principal Component Analysis (PCA) in MorphoJ. The PCA of PC1 and PC2 show a cumulative variance percentage of 74.43%. Based on the Procrustes ANOVA, the shape variation accounts for 59.49%. There is a significant difference of cephalopharyngeal skeleton morphology of the two maggot species analyzed at the base of parastomal bar, apical tooth, clipeal arc, concavity of the pharyngeal sclerite, and union between hypostomal sclerite and the mouth hook. Geometric morphometrics is useful in identifying the cephalopharyngeal skeleton of Chrysomya fly species. Knowing the type of fly species will aid investigators in determining the PMI.

Keywords: Geometric morphometric, post-mortem interval (PMI), cephalopharyngeal skeleton.
Oral Health Literacy among Pregnant Women Attending Hospital Universiti Sains Malaysia

Sarah N*, Sumaiya Zabin E and Norkhafizah S

School of Dental Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: drsarahniazi@student.usm.my

ABSTRACT: Health literacy is an important parameter to measure the quality of a person’s daily healthcare regimen and overall health. The study aimed to determine the oral health literacy among pregnant women. This cross-sectional study involved 150 pregnant women attending Hospital Universiti Sains Malaysia (USM) for antenatal care. The Malay version of Oral Health Literacy Instrument (OHLI-M) was used to assess the women’s oral health literacy. Additionally, a structured questionnaire was used to obtain information on socio-demographic background, self-reported oral health problems and self-reported oral health care practices. The questionnaires were self-administrated. Out of 150 pregnant women, 96 participants (64%) were in the third trimester of their pregnancy. Mean age of participants was 32 with lowest being 20 and highest being 44. About half of the women (53%) have adequate oral health literacy while the remaining participants have either marginal (34%) or inadequate (13%) oral health literacy. The mean OHLI-M score was 73.75 (SD = 13.12). Most participants (76%) perceived their oral health status as either very good or good. More than half of them (55%) have at least one oral health problem with 17% reported 2 or more oral health problems. Cavities and bleeding gums were the highest reported oral health problems. The last dental visit for some of the women (28%) was more than a year ago and almost half of them (45%) have not been to dentist during the current pregnancy. Most (91%) participants reported that they brush their teeth at least twice a day. Approximately half of the pregnant women in this study have inadequate or marginal oral health literacy. Oral health problems were common among them but their perception was low. Additionally, low dental attendance among the participants is of concern and calls for measures to increase their awareness about the importance of regular dental check-ups.

Keywords: Oral health, oral health literacy, oral health problems, oral health practices, Pregnant women.
Evaluation of Bacterial Contamination in Beverages Sold by Street Vendors Around Chow Kit Area

Nur Syakirah MN\textsuperscript{a}, Elizabeth Sinirisan C\textsuperscript{b}, Nur Faizah AB\textsuperscript{c} and Siti Shahara Z\textsuperscript{*}

\textsuperscript{a}Environmental Health and Industrial Safety Program, \textsuperscript{b}Biomedical Science Program, School of Diagnostic and Applied Health Sciences, \textsuperscript{c}Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abd Aziz, Kuala Lumpur 50300 Malaysia

\textsuperscript{*}Corresponding author: sitishahara.zulfakar@ukm.edu.my

\textbf{ABSTRACT:} Consumption of roadside foods and beverages potentially increases the risk of foodborne diseases caused by pathogens. Improper handling and poor hygienic practice among the street vendors will cause this problem. 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. A total of 31 samples of beverages were analyzed to determine the total viable count, total coliform, \textit{Escherichia coli}, \textit{Staphylococcus aureus} and presence of \textit{Salmonella} spp. by using the standard plate count method. Milk-based drinks were found to have the highest mean of total viable count at $5.30 \pm 1.11 \text{ Log CFU/mL}$ followed by cordial-based drinks and fruit juices ($4.90 \pm 1.42 \text{ Log CFU/mL}$ and $4.90 \pm 0.87 \text{ Log CFU/mL}$ respectively). About 71% of the samples showed the positive presence of total coliform with an average of $4.75 \pm 0.79 \text{ Log CFU/mL}$ in fruit juices, $4.30 \pm 1.13 \text{ Log CFU/mL}$ in milk-based drinks and $4.45 \pm 0.75 \text{ Log CFU/mL}$ in cordial-based drinks. Meanwhile, only one sample of milk-based drinks was found to be \textit{E. coli} positive. \textit{Staphylococcus aureus} was detected in 58% of samples. The highest mean of \textit{Staphylococcus aureus} is $3.42 \pm 1.15 \text{ Log CFU/mL}$ in fruit juices, while $3.29 \pm 0.86 \text{ Log CFU/mL}$ in milk-based drinks and $2.82 \pm 0.46 \text{ Log CFU/mL}$ in cordial-based drinks. There are 19% of the samples positive \textit{Salmonella} spp. which 50% (n=3) of them are fruit juices and another 50% (n=3) are cordial-based drinks. There was no detection of \textit{Salmonella} spp. in the milk-based drinks. Based on the results, bacterial contamination in beverages that sold around Chow Kit area is at low level. However, there is still room for improvement as to reduce the beverages contamination. This study suggests that the related authority should provide education and provision of the sanitary facilities at vending sites. This will help to maximize the quality of the beverages sold at the vending sites and thus increasing the consumers’ confidence regarding the street food safety.

\textbf{Keywords:} Beverages, street vendors, bacterial contamination
Study of Particulate Matter Concentration at Convenience Stores in Kubang Kerian, Kelantan

Nurfarahiah Z* and Nurulilyana S

Environmental and Occupational Health Programme, School of Health Science, Universiti Sains Malaysia, 16150 Kubang Kerian, Kota Bharu, Malaysia

*Corresponding author: farahiahzakaria@gmail.com

ABSTRACT: Particulate matter (PM) is the substance that could affect the air quality as well as the health of surrounding people. Indoor air exposure to air pollutant may occur in convenience stores. The purpose of this study is to investigate the level of indoor air quality (IAQ) [particulate matter (PM10 and PM2.5) concentration] at selected convenience stores in Kubang Kerian, Kelantan. The comparison of PM10 and PM2.5 concentrations between five selected convenience stores around Kubang Kerian area was determined. This study was also conducted to obtain the associations between PM10 and PM2.5 concentration with number of occupants, temperature and relative humidity. After that, the poorest IAQ and the cleanest convenience store was determined. Particulate matter concentration was measured at convenience stores using Lighthouse HANDHELD 306 IAQ airborne particulate counters. The data was collected for 24 hour for each convenience store with 15 minutes interval. An IAQ checklist was also used to support and strengthen results obtain from this study. Based on Kruskal Wallis test, there was significant differences of PM10 and PM2.5 concentration between convenience stores (p<0.05). Number of occupant had significant associations with both PM concentration through Spearman Correlation test (p<0.05). Furthermore, there was also significant associations between temperature and relative humidity with PM10 and PM2.5 concentrations. However, the correlation between particulate matter concentration with these parameters were poor (r PM10=-0.149, r PM2.5=-0.114; r PM10=0.167, r PM2.5=0.164). Regular maintenance of the ventilation system and housekeeping activities need to be done to minimize IAQ problems and to provide the healthier indoor environment.

Keywords: Indoor air quality, Particulate matter, Convenience stores, Temperature, Relative humidity
Association Analysis between Polymorphisms in Dopamine Receptors (DRD1, DRD3) and Dopamine Transporter (DAT) (SLC6A3) Genes with Smoking Behavior

Siti Khariem Sophia M*, Imran A and Ruzilawati AB

aDepartment of Pharmacology, 
bDepartment of Family Medicine, 
School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: karensofia812@gmail.com

ABSTRACT: Imaging studies of the human brain revealed an association between dopamine and smoking. There is substantial evidence of dopamine receptors (DRD1 and DRD3) and dopamine transporters (DAT) (SLC6A3) have a role in smoking behaviour. The aim of the study was to investigate the association analysis between polymorphisms in dopamine receptors (DRD1, DRD3) and dopamine transporter (DAT) (SLC6A3) genes with smoking behavior. The association between the dopamine receptors (DRD1, DRD3) and dopamine transporter (DAT) (SLC6A3) gene with smoking behavior were examined in a total of 476 Malay male subjects (238 smokers, 238 nonsmokers). Genotyping of the DRD1, DRD3 and DAT (SLC6A3) gene polymorphism were performed using polymerase chain reaction/restriction fragment length polymorphism (PCR/RFLP) method. Significant difference was found in frequency of DRD1 and DRD3 genotypes with smoking behavior between smoker and nonsmoker group (X²= 54.70, p=<0.001; X²=12.82, p=0.002). No association was observed in frequency of DAT1 in both groups. Multivariate logistic regression analysis examining age, BMI, systolic and diastolic blood pressure, pulse, marital status, family members who smoke, and genotypes found that age (OR=1.09, p=<0.001), systolic blood pressure (OR=0.96, p=<0.001), heterozygous mutant (C/T) of DRD1 (OR=8.66, p=<0.001), homozygous mutant (C/C) (OR=9.61, p=0.006) and heterozygous mutant (TC) (OR=4.23, p=0.033) of DRD3 were independent and significantly associated with smoking behavior. These findings suggest that DRD1 and DRD3 polymorphisms have an effect on an individual’s smoking behavior in Malay population. This study supports linkage of the DRD1 and DRD3 with smoking behavior.

Keywords: DRD1, DRD3, DAT1, smoking behavior
An Intervention Study to Reduce Room Temperature by using Reuse Bottles

Nurra’aisyah MR* and Nurulilyana S

Environmental and Occupational Health, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: aisyahraf94@gmail.com

ABSTRACT: Malaysia has an equatorial climate, which associated with increasing temperature. This higher temperature may cause health problems to resident and people who work under the sun. This research aimed to study the changes of room temperature using selected reuse bottles; to determine the number of selected reuse bottles in reducing room temperature and to find the best size and material used in reducing the room temperature. The room temperature was measured using VelociCalc Multi-Function Ventilation Meter-Model 9565 based on different size and materials used. The room temperature was still in the range 26°C as stated by Department of Occupational Safety and Health (DOSH). But, the baseline room temperature was fix at 26.7°C because of limitation. The room temperature between two sizes of plastic materials showed that 1500ml plastic bottles has a lower temperature value compared to 500ml plastic bottles. Besides that, the room temperature between three different materials (1500ml plastic bottles, glass bottles, and aluminum cans) showed that 1500ml plastic bottles has the lowest temperature value and aluminum cans has a high temperature value. According to Spearman correlation coefficient test, it showed that room temperature had inverse relationship with two sizes of plastic bottles (500ml and 1500ml), while for three different materials (1500ml plastic bottles, glass bottles, and aluminum cans) the relationship was positive. The results of this study are useful to help people who are economically unstable to have a comfortable temperature at their residence. Thus, the responsible parties should help this to be implemented it with some improvements.

Keywords: Room temperature, plastic bottle
Development of Latent Fingerprint Using Natural and Waste Products

Nurul Asyiqeen G* and Nik Fakhuruddin NH

Forensic Science Programme, School of Health Sciences, Universiti Sains Malaysia Kampus Kesihatan, Kubang Kerian, 16150 Kota Bharu, Kelantan, Malaysia

*Corresponding author: asy.iqen@gmail.com

ABSTRACT: Various methods have been investigated by forensic scientists to develop latent fingerprints on non-porous surfaces. The most common method employed is powdering by using commercial fingerprint powder. However, the chemical composition of the powder is often toxic and poses health hazards to humans. This study attempted to investigate the effectiveness and the potential of natural resources and waste materials such as sawdust, egg shells, rice husks, green algae, and purple algae for developing latent fingerprints. Five substrates were selected for deposition of the latent fingerprints; glass, canned drink, plastic, painted wood, and rubber. The tested products were prepared in fine powder form and latent fingerprints were developed using each powder. The developed marks were visualized and photographed under white light and Crime-Lite using wavelengths of 420 nm-470 nm (Blue) and 450 nm-510 nm (Green) with orange and yellow filters. The results indicated that powders from natural and waste products have successfully developed good quality of fingerprints with high clarity of ridge characteristics on most of the tested surfaces. In conclusion, the application of natural and waste products for the development of latent fingerprints has been demonstrated.

Keyword: latent fingerprint, development, waste product, natural product, non-porous
Evaluation of the Male Reproductive Performance of Aqueous Extract of *Lignosus rhinocerus* in Rats

Bayani HSZ\(^a\), Nurul Asma A\(^a\), Gan SH\(^b\) and Wan Ezumi WMF\(^a\)

\(^a\)School of Health Sciences,  
\(^b\)School of Medical Sciences,  
Universiti Sains Malaysia, Health Campus, 16150, Kubang Kerian, Kelantan, Malaysia  

tszbh14_psk011@student.usm.my  

**ABSTRACT:** *Lignosus rhinocerus* (LR) or locally known as “tiger milk mushroom” is a valuable herb with abundant medicinal properties but unfortunately, its safety profiles is still lacking. This study was conducted to provide evidence on the potential effects of LR on the reproductive performance of male rat. The aqueous extract of LR at doses of 0 (control), 250, 500, 1000 mg/kg/day were orally administered to four groups of Sprague Dawley rats for 30 days and sacrificed on day 31. The males exhibited no significant differences in libido, mating and fertility indices. The daily body weight of animals treated with 250 mg/kg was slightly higher than other treatment groups but no statistical differences were found. Similarly, the absolute and relative weights of reproductive organs (testis, epididymis, prostate gland and seminal vesicle) showed no significant differences among all groups of animals. The sperm count analysis and the serum testosterone levels of males receiving 1000 mg/kg exhibited the highest value but statistically, there were no significant differences compared to others. No significant differences were also noted in the level of serum Luteinizing Hormone and Follicle Stimulating Hormone. These findings may suggest that the aqueous extracts of LR of up to 1000 mg/kg/day did not cause any adverse effects towards reproductive performance of male rats.

**Keywords:** *Lignosus rhinocerus*; male reproductive performance; aqueous extract
Isolation of Peptide Specific to ICAM-1 Monoclonal Antibody (α-15.2) using Phage Display

Nurul Allia Ezzati ML*, Armando Ab, Maria ESb and Khairul MFMb

*aSchool of Health Sciences, bINFORMM, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: nurulalliae@yahoo.com

ABSTRACT: Plasmodium falciparum (P. falciparum) is the causative agent of human malaria and is responsible for a huge burden of global mortality and morbidity. One molecule identified on the surface of P. falciparum infected erythrocyte, known as P. falciparum erythrocyte membrane protein-1 (PfEMP-1), has been correlated with P. falciparum severity. Falciparum malaria has become increasingly refractory to chloroquine and this emergence of drug resistance in Southeast Asia and Africa was closely associated with the increased incidence of cerebral malaria. Pathology study of cerebral malaria indicated a higher level of parasites and parasitic pigments were mostly retained in the cells of vascular and attached to the protein ICAM-1 (α-15.2) has been shown to reverse the parasite adhesion. However, the antibody therapy is very limited due to expensive production of monoclonal antibody and the anti-species blocking immune response of the patients. In this study, panning was carried out by incubating a library of phage displayed peptides on a plate coated with the target antibody. After three rounds of panning, the peptides were characterized by peptide sequencing. This issue can be addressed by isolating the specific peptide epitope that would resemble the protein ICAM-1 by using α-15.2 antibody to create molecules or drug search system in accordance with the rapid. Therefore, the importance of finding a specific therapy to the protein ICAM-1 is important in order to reduce the cases of cerebral malaria.

Keywords: Plasmodium falciparum; malaria; reverse binding; adjunct therapy; ICAM-1 monoclonal antibody (α-15.2); phage display
Evaluation of Effectiveness Anti-cancer Effect of Vernonia amygdalina Aqueous Extract in Combination with Cisplatin Towards Human Breast Cancer Cell Line, MCF-7

Nur Nafisa N* and Yusmazura Z

Biomedical Sciences Programme, School of Health Sciences, Universiti Sains Malaysia, 16150, Kubang Kerian, Kelantan, Malaysia

*Corresponding author: nurnafisanadia@yahoo.com

ABSTRACT: Breast cancer is the leading cause of death among women between 40 and 55 years old age and is a second overall death among women. Fortunately, the mortality rate from breast cancer has decreased in recent years due to an increased emphasis on early detection and more effective treatment. By MTT assay methods, the cytotoxicity of MCF-7 cell lines towards combination treatment were measured. The Hoechst Nuclear Staining were done to define the morphology of cell death either necrosis or apoptosis. Data obtained from MTT assay shows that MCF-7 resulting lowest IC$_{50}$ value, 17.01±0.09µg/mL compared to the other cell line used. Thus, MCF-7 was selected for combination treatment. Data showed that combination treatment with VA was able to increase toxicity in MCF7 and minimize the harmful effect towards NIH with IC$_{50}$ 16.28±0.17µg/mL and 25.45µg/mL respectively. The combination index (CI) was confirm that combination with VA extract produces synergistic effect by which CI value was (CI<1). Moreover, the Hoesnct Nuclear staining showed there were nuclear fragmentation and chromatin condensation. These findings provide evidence that VA extract exert synergistic cytotoxicity effect on breast cancer cell and showed cytoselective properties on normal cell, therefore a good potential candidate for cancer therapy.

Keywords: Vernonia amygdalina, combination treatment, synergistic effect
ABSTRACT: Lignosus rhinocerus or Tiger Milk Mushroom (TMM) is one of the medicinal mushrooms used by indigenous people of Southeast Asia and China to treat various diseases including fever, cough, asthma, cancer and food poisoning. Mushrooms are considered healthy because they contain various nutraceutical compounds including polysaccharides and unsaturated fatty acids. This study is aimed to quantify linoleic acid and beta-glucan (β-glucan) from TMM which extracted using various methods. TMM was extracted using four methods i.e. hot water, cold water, hexane and petroleum ether. Measurement of linoleic acid in these extracts was performed using high performance liquid chromatography (HPLC) while quantification of β-glucan was done using Mushroom and Yeast β-glucan Assay Kit. The amount of linoleic acid in water-based extracts such as hot water, cold water, hexane residue and petroleum ether residue extracts were 0.2g in 100 g of extracts respectively. While the amount of linoleic acid in extracts that were extracted using non-polar solvents such as hexane and petroleum ether were 23.5g and 23.5g in 100 g of extract respectively. Analysis of β-glucan composition in water-based TMM extracts indicated 29.0g, 33.6g, 39.8g and 32.1g in 100 g extracts of hot water, cold water, hexane residue and petroleum ether residue extracts respectively, while the amount of β-glucan in non-polar extracts such as hexane and petroleum ether extracts were 31.5g and 24.1g respectively. In conclusion, non-polar solvent extracts yield more linoleic acid compare to water-based extracts while the yield of β-glucan composition is not affected by the extraction methods used in the study.

Keywords: Beta-glucan, HPLC, Lignosus rhinocerus, linoleic acid, tiger milk mushroom
Effects of Tualang Honey Supplementation on Bone Markers and Estradiol in Breast Cancer Patients

Zaida Z*, Zairos Fadiela ZA, Wan Zuraida WAHb and Mahaneem M*a

aDepartment of Physiology, 
bDepartment of Immunology, 
School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: zaida_zakaria@ymail.com

ABSTRACT: Honey is a natural product that has been widely used for its medicinal and health promoting properties. The objective of this study was to determine the effects of Tualang honey supplementation on bone markers and estradiol among breast cancer patients. A randomised controlled-trial was conducted on breast cancer patients who were treated with anastrozole. All patients were recruited from Oncology Clinic, Universiti Sains Malaysia. They were randomised into control and honey groups. Honey group was supplemented with Tualang honey at 20 g/day for 12 weeks. Blood sample was collected at pre-intervention and post-intervention to evaluate the levels of bone markers such as bone formation marker amino-terminal propeptide of type I procollagen (P1NP), bone resorption marker carboxyl-terminal cross-linked telopeptide of type I collagen (CTX) and estradiol. At pre-intervention, P1NP level was significantly higher whereas CTX level was significantly lower in control group than in honey group. No significant differences were found for the level of estradiol between the two groups at both pre- and post-interventions. In control group, CTX level was significantly higher at post-intervention compared to pre-intervention. However, in honey group, there were significantly higher P1NP level, significantly lower CTX level, and unchanged estradiol level at post-intervention compared to pre-intervention. Our findings indicate that supplementation of Tualang honey at 20 g/day for 12 weeks may increase bone formation and reduce bone resorption without changes in estradiol level in breast cancer patients treated with anastrozole.

Keywords: Tualang honey, postmenopausal, breast cancer, bone markers, estradiol
Effects of Tiger Milk Mushroom (*Lignosus rhinocerus*) Extract on Ovalbumin-induced Airway inflammation in A Mouse Model of Chronic Asthma

Siti Aminah M*, Sabreena S, Wan Amir Nizam WA and Nurul Asma A

School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: sitiaminahmuhamad@gmail.com

ABSTRACT: Asthma is a chronic disease that causes inflammation and narrowing of the airways. Current medications are effective, but these drugs are mostly steroid-based which have various side effects. Thus natural products should be explored as a safer alternative for the management of asthma. *Lignosus rhinocerus* (*L.rhinocerus*) or locally known as Tiger Milk Mushroom is a unique mushroom that solitary grows in the jungle. Traditionally, it has been used in treating various kinds of diseases including asthma by communities in Malaysia. However, there is scarce information available on its efficacy on chronic asthma. Thus, this study investigate the anti-asthmatic potential of *L.rhinocerus* extract (LRE) on ovalbumin (OVA) induced chronic airway inflammation in Balb C mice. Female Balb/C mice were divided into six groups of five animals each: 1) normal mice 2) sensitization plus OVA challenged mice 3) sensitization plus OVA challenged with 125mg/kg of LRE 4) sensitization plus OVA challenged with 250mg/kg of LRE 5) sensitization plus OVA challenged with 500mg/kg of LRE 6) sensitization plus OVA challenged with dexamethasone treatment. In this study, bronchoalveolar lavage fluid (BALF) was collected for analyses of differential cell counts by Giemsa staining and Th2 cytokines (IL4, IL5 and IL13) by ELISA. Blood serum was collected for analysis of immunoglobulin E (IgE) by ELISA. Our study indicated that treatment with LRE have significantly reduced the number of inflammatory cells especially eosinophils in BALF compared to untreated OVA group. In addition, treatments with 125mg/kg and 250 mg/kg of LRE have reduced the level of Th2 cytokines in BALF, while treatment with 125 mg/kg and 500 mg/kg of LRE showed decreasing level of IgE in serum compared to OVA group. In conclusion, the study indicates that LRE could be a potential alternative for the management of chronic asthma.

Keywords: Asthma, Airway inflammation, *Lignosus rhinocerus*, Tiger milk mushroom
The Effect of *Clinacanthus nutans* Extracts on the Migratory Ability of Breast Cancer Cell Lines

Redzwan H*, Nor Fazila CM and Sabreena S

*School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia*

*Corresponding author: wan_hasni92@yahoo.com*

**ABSTRACT:** Breast cancer was one of the commonest cancers among Malaysia women for all ethnic groups. A woman in Malaysia had 1 in 20 probability of getting a breast cancer in her lifetime. Breast cancer spread through invasion and metastasis. This process caused neoplastic cells to move from the primary tumour to the lymphatic and blood vessel for spread into the circulation and undergo metastatic growth in different and distant organ. The prognosis of women with metastatic breast cancer is very low compared to the primary cancer. Current treatment for metastatic breast cancer is cisplatin and tamoxifen. The chemotherapeutic drugs cause a lot of side effects such as vomiting, weight and hair lost, and fatigue. Therefore, researches are now focussing on alternative treatment of breast cancer based on natural resources. Anti-proliferative effects of *Clinacanthus nutans* were studied by using Methylene Blue Assay (MBA) and anti-migratory effects of CN extracts determine by using scratch wound assay. Cancer prevention and treatment by using *Clinacanthus nutans* (CN) leaves are not proven albeit the claims of its effectiveness. So this project can contributed towards cancer prevention and treatment options especially breast cancer.

**Keywords:** Breast cancer, *Clinacanthus nutans*
Traditional Medicine Myth: Used Palm Oil against *Staphylococcus aureus*

Sharidatul Amira U*, Erkihun A and Syaliza O

Faculty of Veterinary Medicine, Universiti Malaysia Kelantan, 16100 Pengaklan Chepa, Kota Bharu, Kelantan, Malaysia

*Corresponding author: sherry_amira@hotmail.com

**ABSTRACT:** *Staphylococcus aureus* is an important pathogen that causes various diseases in both humans and animals. Traditionally used palm oil is used to treat skin diseases including bacterial skin diseases. However, little is known regarding the antibacterial properties of the palm oil, specially used palm oil. This study was conducted to determine the antibacterial activity of used palm oil against *S. aureus* and to compare the effectiveness of antibacterial properties between palm oil and commercial antibiotics against *S. aureus*. Three palm oil samples were selected including one unused palm oil and two post deep-frying chicken palm oil. Antimicrobial susceptibility test (AST), minimum inhibitory concentration (MIC) and *in vitro* antimicrobial activity testing using total plate count were conducted. The palm oil samples showed minimum effect against the *S. aureus* as determined by the zone of inhibition. Based on AST results, the commercial antibiotics are more effective against *S. aureus* compared to the palm oils. As for MIC, the resazurin colour changes and optical density revealed that the colour changes and greater optical density occurred in higher concentration of palm oil samples. This may be due to the higher molecular weight of the palm oils that might have affected its rate of diffusion. The total plate count (TPC) for the media treated with palm oils was lower compared to the positive control indicating the antibacterial properties of palm oil against *S. aureus*. Further investigation using different methods adjusted to the characteristics of the palm oil are recommended to establish the effectiveness and antibacterial properties of palm oil as one of the new alternative therapies against *S. aureus*.

**Keywords:** *Staphylococcus aureus*, palm oil, AST, MIC, TPC
A Study of Phytoremediation at Paddy Cultivation Areas in Kota Bharu Kelantan using Ipomoea aquatic and Pistia stratiotes

Wan Haniff Aiman WK

School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

ABSTRACT: Heavy metals known to be accumulated and adversely affect human health. Therefore, a study of phytoremediation by using Ipomoea aquatic and Pistia stratiotes was conducted at paddy cultivation area in Kota Bharu, Kelantan, in order investigate the issue. This study was carried out to determine phytoremediation using I. aquatic and P. stratiotes as an indicator. This study was conducted in two types of experiment. The parameter studied were bioconcentration factor (BCF), relative growth rate (RGR), Tolerance Index and correlation between heavy metal with temperature and pH. Results showed that Fe recorded the highest concentration in experiment 1 and experiment 2: 30.50 mg/L and 34.11 mg/L respectively. Independent t-test had been carried out to determine whether there is any difference in mean concentration of RGR and tolerance index between I. aquatic and P. stratiotes. Results showed that there is no mean difference for RGR in P. stratiotes for experiment 1 and experiment 2 (p> 0.05). RGR was higher in I. aquatic in experiment 1 and experiment 2 with mean difference of -0.035 mg/L, 1.664 mg/L respectively. Whereas for tolerance index, result showed that there is no difference in mean for tolerance index in I. aquatic and P. stratiotes for both experiment 1 and 2 (p > 0.05). In Experiment 2, the mean tolerance index rate was higher for P. stratiotes compared to I. aquatic with the mean difference of 114.24 mg/L and 122.23 mg/L respectively. Mann-Whitney test had been carried out to determine BCF. Results showed that, median BCF_Pb is significantly different for P. stratiotes. The median of BCF_Pb in Experiment 2 (median: 0.1250, IQR: 0.937) is higher compared to Experiment 1 (median: 0.000. IQR: 0.010). Similar result applied for BCF_Pb of I. aquatic. The median of BCF_Pb was higher in Experiment 2 (median: 0.1250, IQR: 0.937) compared to Experiment 1 (median: 0.000. IQR: 0.0068). Spearman's Rho correlation Test was performed to see if there is linear relationship between heavy metal and pH in both plants within both experiments. For P. stratiotes, there is significant correlation between heavy metal (Cd, Pb) and temperature (r=0.881, p=0.00) and (r=0.852, p=0.00). In contrast, there is no significant correlation between heavy metal and temperature for I. aquatic. In conclusion, P. stratiotes was a good phytoremediation plant in paddy cultivation area.

Keywords: Heavy metals, phytoremediation, Ipomoea aquatic, Pistia stratiotes
Health Risk Assessment of Heavy Metals in Street Foods from Selected Area in Kubang Kerian, Kelantan

Nurul Syuhada I* and Hasmah A

Environmental and Occupational Health Programme, School of Health Science, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: addasyuehada@gmail.com

ABSTRACT: Heavy metal contamination of the environment is a major problem especially in the developing countries. It is primarily due to the uncontrolled contamination from pollution caused by rapid industrialization and fuel combustion of higher vehicles number on the roads. These contaminations are possible affect food chain as environments were polluted. Heavy metal intake through food chain has gain a lot of attention as the exposure to human become more serious. Lead (Pb) and cadmium (Cd) are among toxic heavy metals which known to induce multiple organ damage even at lower levels of exposure. Meanwhile, manganese (Mn) exposure in food chain is known to be associated with an array of neurotoxic health effects. This study was conducted to determine the level of Pb, Cd and Mn concentration among street foods in Kubang Kerian, Kelantan. Health risk assessment of heavy metal from street foods was evaluated to identify risk associated with the consumption of metal contaminated food. The methods used were according to The United States Environmental Protection Agency (USEPA) to evaluate the potential health risk of toxic metals. Three steps involved in this study include preparation of food sample by refining and drying, destruction of organic matter and sample analysis. The samples were digested prior to analysis with Atomic Absorption Spectrometry (AAS) method. The mean concentration of Pb, Cd and Mn were 0.577 mg/kg, 0.235 mg/kg and 0.207 mg/kg respectively. This show that concentration of Pb, Cd and Mn increased in the following sequence: Mn < Cd < Pb. On top of that, the target hazard quotient (THQ) of all metal in the street foods were below the threshold value of 1 which indicating no significant health risk towards human. In conclusion, the presence of heavy metals in street food was unlikely to cause any adverse effect to human health because THQ value was less than 1. Consumption of these street foods is not harmful to the consumer. Results of this study might prepare informations on the heavy metal content in the street foods.

Keywords: Heavy metal, Street food, Health risk assessment, Target hazard quotient
Gross Motor Skills Status among School-aged Children with Dyslexia

Nur Sakinah B, Dzalani H, Masne K, Hanif Farhan MR and Suhaili I

Occupational Therapy Program, School of Rehabilitation Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur, Malaysia

*Corresponding author: nursakinah.0288@gmail.com

ABSTRACT: Children with dyslexia are commonly associated with gross motor difficulties. However, this non-literacy symptom is often overlooked as an important feature of dyslexia. Therefore, the aims of this study were to determine gross motor skills status among children with dyslexia and to compare the gross motor skills between younger and older children. A cross-sectional study was conducted on 82 children with dyslexia from government schools and Dyslexia Association Malaysia. The participants were divided into two groups (younger (4 to 10 years) and older children (11 to 17 years old)), and were recruited randomly. The gross motor skills were measured using the Bruininks-Oseretsky Test of Motor Proficiency, Second Edition (BOT-2) (subscales: Body Coordination, and Strength & Agility) and the Movement Assessment Battery for Children, Second Edition (MABC-2) (subscale: Aiming & Catching). Standard scores and percentile rankings were used for statistical analysis. A total of 82 children with dyslexia were recruited for this study, consisted of younger (n=57) and older group of children (n=25). In general, the participants had an average performance of BOT-2’s Body Coordination (M=52.06, SD=11.28) and Strength & Agility (M=43.55, SD=9.72). Meanwhile, for the MABC-2’s Aiming & Catching, the mean percentile (M=2.34, SD=0.87) indicated movement difficulties. The younger children were found to have significantly lower performance in gross motor skills compared to older children. A significant difference between the two groups for Body Coordination (d= 6.15, medium), Strength & Agility (d=1.33, negligible) and Aiming & Catching (d=0.77, negligible) were also reported. Children with dyslexia can have significant difficulties in gross motor skills, particularly in Aiming & Catching. The oldest children were found to demonstrate highest level of gross motor skills. Thus, this study suggested that intervention to addresses motor skills is necessary during an early intervention program for children with dyslexia. Furthermore, future studies that assess gross motor skills using longitudinal study design is recommended to investigate the effect of age on gross motor performance.

Keywords: assessment, children, dyslexia, gross motor, occupational therapy
Dust Exposure among Worker in Cement Industry and Its Effect towards Worker’s Respiratory Health

Siti Hanisah J

Environmental and Occupational Health Programme, School of Health Sciences, Health Campus, Universiti Sains Malaysia 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: sitihanisah5494@gmail.com

ABSTRACT: Dust can be produced by almost all production processes in cement industry. Exposure to cement dust has long been associated with respiratory illnesses. A cross-sectional study was carried out to determined relationship of dust exposure (Total Suspended Particulate, TSP) and its effect towards worker’s respiratory health. The investigation included ambient air monitoring, respiratory symptoms questionnaire and Lung Function Test (LFT). The questionnaire was completed and LFT were carried out on 76 exposed and 76 control group. Additionally, the level of dust exposure (TSP) was determined by ambient air monitoring at five selected work area. The mean of dust exposure (TSP) was highest at packing plant area (1700.68ug/m$^3$) compared to raw mill, kiln, cement mill and administration. This result exceeding permissible exposure limit (PEL) (260 ug/m$^3$ in 24 hour) according to Recommended Malaysian Air Quality Guidelines (Ambient standard). Nose irritation was more prevalence of respiratory symptoms among exposed (44.7%) and control group (28.9%). This study found that there was no association between respiratory symptoms among exposed and control group ($p$-value > 0.05). For lung function test, the mean of FVC, FEV$_1$ and FEV$_1$/FVC were declined between exposed (2.74, 2.34 and 99.9) and control group (3.86, 3.04 and 86.00). Moreover, gender, age, smoking status and Personal protective equipment usage was significant associated with lung function test result ($p$-value < 0.05). In conclusion, there was significant association between level dust exposure (TSP) and respiratory health among cement workers. However, improvement on engineering control and work practice modification should be done to reduce exposure of cement dust among workers.

Keywords: Dust, cement industry, respiratory symptoms
The Association of Respirable Dust (PM$_{2.5}$) and Respiratory Health among Garment Manufacturing Workers, Kota Bharu Kelantan

Nur Izzati MR, Siti Marwanis A and Nurul Ainun H*

Environmental and Occupational Health Programme, School of Health Sciences, Universiti Sains Malaysia 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: nurulainun@usm.my

ABSTRACT: Dust exposure in the workplace commonly may cause respiratory illness to the workers. Garment workers usually were exposed to cotton dust, but there were a few studies conducted among them in local perspective. The aim of this study was to determine the association between respirable dust exposure (PM$_{2.5}$) and respiratory health among garment manufacturing workers manufacturing in Kota Bharu. Purposive sampling method was used to recruit 87 female workers as respondents from garment manufacturing in Kota Bharu. The instruments used were spirometry and validated questionnaire from British Medical Research Council (BMRC) Questionnaire on respiratory symptom. Personal exposure of respirable dust was measured by TSI SidePak™ AM510 for 8 hours of the working period. Multiple Logistic Regression (MLog) was used to determine associated factors to reported respiratory symptoms while Multiple Linear Regression (MLR) was used to determine associated factors to lung function parameters; Forced Expiratory Volume in 1 second (FEV$_1$) and Forced Vital Capacity (FVC). Respiratory symptoms reported were chest tightness (31.0%), phlegm (31.0%), cough (18.4%) and dyspnea (32.2%). The mean of FEV$_1$, FVC, and %FEV$_1$/FVC were 1.82L, 2.06L and 87.75% respectively. Personal dust exposure (PM$_{2.5}$) in all sections were recorded below Permissible Exposure Level (PEL) 8 hours Time Weight Average (TWA-8hr) according to Industry Code of Practice on Indoor Air Quality 2010. Age was significantly associated with FEV$_1$ ($b$=-0.020, $p<0.002$) and FVC ($b$=-0.026, $p<0.003$). History of dusty workplace was significantly associated with FVC ($b$=-0.299, $p<0.019$). Dyspnea had significantly associated with personal monitoring ($Adj$ OR=2.636 E+10, CI 95%=51.854, 1.340E+19) and history of dusty workplace ($Adj$ OR=6.487, CI 95%=1.166, 3.60). In conclusion, there was an association between respirable dust exposure (PM$_{2.5}$) with dyspnea ($p=0.019$) while no association with lung function parameters ($p>0.05$) among the garment manufacturing workers. Hence, improvement of engineering control and work practices modifications should be done to overcome this problem.

Keywords: Lung Function, Respiratory Symptoms, Respirable Dust
The Proportion of the Severity of Preeclampsia in Hospital Universiti Sains Malaysia

Nurdiyana T*¹, Sarimah A², Siti-Azrin AH³ and Jummaat F⁴

¹Unit of Biostatistics and Research Methodology;
²Department of Obstetrics and Gynaecology,
Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author:nurdiyanatamizi@gmail.com

ABSTRACT: Preeclampsia (PE) complicates 2-8% of pregnancies worldwide, and is one of the leading cause of maternal mortality and morbidity. It occurs after 20 weeks of gestation with the presence of hypertension and proteinuria. However, in the absence of proteinuria, PE can be identified by several signs and symptoms of end-organ damage. The aim of this study was to determine the proportion of PE according to its severity of mild, moderate and severe among patients in Hospital USM. A cross-sectional study involving 202 patients diagnosed with PE between years of 2011 to 2016 who were followed up and delivered in Hospital USM were included in this study. However, those with chronic kidney disease were excluded. The list of PE patients were obtained from the medical record and information of interest was extracted. Descriptive analysis was performed in assessing the proportion of PE among patients based on the severity. The percentage of PE among patients in Hospital USM were found to be 34.7% in mild, 30.2% in moderate and 35.1% in severe cases. It was noted that 70 patients developed mild PE (proportion: 0.35, 95% CI: 0.28, 0.42), 61 developed moderate (proportion: 0.30, 95% CI: 0.24, 0.37), and 71 had severe PE (proportion: 0.35, 95% CI: 0.29, 0.42). As a conclusion, those who developed severe PE was higher compared to mild and moderate PE in this population. Late booking and poor standard practice of laboratory assessments had increased the chance of getting severe PE during pregnancy. A routine screening for PE based on blood pressure, urine protein and other laboratory measurements should be practiced and done at every antenatal visit as recommended by World Health Organization (WHO).

Keywords: preeclampsia, severity, prevalence, mild, moderate, severe
Adherence to Insulin Therapy in Type 2 Diabetes Mellitus Patients Treated at The Government’s Primary Health Care Centers in Klang, Selangor

Nasruddin A*, Norsa’adah B, Naing NN, Norul Badriah H and Azlina S

*Unit of Biostatistics and Research Methodology, 
*Department of Pharmacology, School of Medical Sciences, Universiti Sains Malaysia, Malaysia, 16150 Klang Kerian, Kelantan
*Klang District Health Offices, Selangor State Health Department, Ministry of Health Malaysia

*Corresponding author: azrinasruddin@gmail.com

ABSTRACT: Insulin therapy is necessary for Type 2 Diabetes Mellitus (T2DM) patients to accomplish targeted glycaemic controls and prevent diabetes-related complications. This study aimed to determine the proportion of adherence to insulin therapy and to determine the association between adherence level and glycaemic controls (HbA1C, Random Blood Sugar, Fasting Blood Sugar) in patients who attended Ministry of Health primary care centers in Klang, Selangor. This cross-sectional study was conducted among T2DM patients who were on insulin therapy for at least two months. A purposive sampling method was used. Patients were interviewed, and records were accessed to collect data on socio-demographic characteristics. A self-administered validated questionnaire was used to measure the adherence level to insulin therapy. This study involved 249 subjects from five Ministry of Health’s primary care centers in Klang, Selangor. The proportion of adherence to insulin therapy was only 8.43% (95% CI: 0.05, 0.12) and there was no association between adherence level to insulin therapy and glycaemic controls. As a summary, adherence to insulin therapy was poor. In addition, the adherence level to insulin therapy was found to be not associated with glycaemic controls. T2DM patient’s adherence level could be improved through a better and specific identification of factors that could lead to the adherence to insulin therapy. There might be other confounding factors that was associated with glycaemic controls.

Keywords: Insulin, adherence, diabetes mellitus, glycaemic control
Evaluation of Antimicrobial Activity of Different Solvent Extracts of *Pithecellobium bubalinum*

Fatimah Z\(^a\), Nur Syahriah S\(^a\), Siti Suraiya MN\(^b\), Norsuhaily A\(^c\) and Ruzilawati AB\(^b\)*

\(^a\)Universiti Teknologi MARA Shah Alam, Selangor \\
\(^b\)School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian Kelantan, Malaysia \\
\(^c\)Universiti Sultan Zainal Abidin, Gong Badak, Terengganu

ABSTRACT: *Pithecellobium bubalinum* or kerdas is one species of tropical plants from the *Fabaceae* family and genus of *Pithecellobium*. *P. bubalinum* seed is eaten raw with rice and many believe that it has medicinal values. However, there is no local data on antimicrobial nature of *P. bubalinum* seed is available. This study reported influences of three different extraction solvents in efficiency towards the antimicrobial activity. In this study, the hexane, chloroform and methanol extracts of *P. bubalinum* seeds were evaluated for antibacterial and antifungal activity. These extracts were tested for their antimicrobial agents against five gram positive bacteria, six gram negative bacteria and three fungal strains using disc diffusion and serial microdilution (MIC) assay. Chloromphenicol was used as standard for antibacterial assay, while nystatin was used as standards for antifungal assay. The results revealed that only methanolic extract of *P. bubalinum* seeds showed the antimicrobial and antifungal activities against the test organisms. The results of present study appear to indicate that methanolic extract of *P. bubalinum* seeds have higher potential of antimicrobial property.

Keywords: *Pithecellobium bubalinum*, Antibacterial activity, Antifungal activity
Progression of Visual Field Loss and It’s Prognostic Factors among Malay Adult Primary Glaucom Patients

Wan Ezatul A, Yaacob Najib M, Bachok N and Ahmad Tajudin LS

Unit of Biostatistics and Research Methodology, Department of Ophthalmology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: arisyamasri@yahoo.com

ABSTRACT: Glaucoma remain as the leading cause of irreversible blindness globally. The study on progression of glaucoma among Malay was common however relatively scarce among Malaysia population. Information on progression of visual field and prognostic factors for progression is needed to help ophthalmologist to determine the prognosis and aid clinical decision for better management of glaucoma patients. This study is to determine five years progression of visual field loss and to identify prognostic factors of the progression of visual field loss among Malay patients with adult primary glaucoma. A retrospective cohort record review study was conducted involving 222 primary glaucoma patients (222 eyes). The period of this study was 1 January 2009 to 31 December 2014. Additional follow-up of one year after recruitment of the study subject was done from 1 January 2015 to 31 December 2015. All patients who fulfilled the selection criteria were included in the study. All patients must be diagnosed with POAG or PACG and must have regular follow up more than 6 month. The source data was from glaucoma research database. Glaucoma research database was screened and any uncompleted data were retrieved from medical records. The Kaplan Meier and Cox Proportional Hazard regression analysis was used in statistical analysis. The five year survival rate in progression of visual field loss was 68.8%. Based on Cox’s regression analysis after adjusting other variables, there are no important significant prognostic according to socio-demographic. The significant prognostic factors that influence progression in visual field loss were disc haemorrhages (HR=2.76, 95%CI: 1.61,4.76; P-value<0.001) and ocular pain (HR=2.46, 95%CI: 1.37,4.44; P-value=0.003). In conclusion, disc haemorrhages and ocular pain were identified as important prognostic factors in visual field progression among Malay patients with primary glaucoma.

Keywords: progression, visual field, glaucoma
A Validation Study of Malay Version of Press Ganey Questionnaire

Syahmina NR*, Muhammad Akmal IA, Noor Aini H and Mohd Shaharudin CH

*aBiomedicine Programme, School of Health Sciences,
*bNursing Degree Programme, School of Health Sciences,
*cDepartment of Emergency Medicine, School of Medical Sciences,
Health Campus Universiti Sains Malaysia 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: syahmina@usm.my

ABSTRACT: Patient satisfaction is an important and frequently used indicator for measuring the quality in healthcare. Hence, a validated and reliable instrument is very important for measuring the level of patient satisfaction. The study aimed to assess the validity and reliability of the Malay version of the Press Ganey Questionnaire (PGQ) among patients attending Green Zone in Hospital Universiti Sains Malaysia (HUSM), Kelantan. This cross-sectional study design included 252 patients attending Green Zone in HUSM. The sampling was done by the convenience sampling method. The sample size was divided half into Exploratory factor analysis (EFA) and Confirmatory Factor Analysis (CFA). The instrument was answered by respondents with self-administered. Data was analyzed using AMOS software. The EFA resulted in reduction of items from 21 to 17, which comprised of four factors with Eigenvalues greater than 1. Meanwhile, the CFA results exhibited that the data fitted the model very well with Chi square/df (1.674), CFI (0.952), TLI (0.941) and RMSEA (0.073). The Average Variance Extracted (AVE) value for four factors was greater than 0.50 indicate that the convergent validity of PGQ was met. Overall PGQ produced very good reliability with Composite Reliability value of 0.966. Four factors were renamed as During Your Registration, Attitude of Hospital Staff, Attitude of Doctors and Overall Assessment. In conclusion, Press Ganey Questionnaire was concluded to be a reliable and validated instrument in measuring the level of patient satisfaction.

Keywords: Validity, reliability, patient satisfaction, convergent validity
Primary Care for Tinnitus: The Perception of Tinnitus among Medical Officers in Kota Bharu, Kelantan

Wong YT*, Aw CL and Wan Najibah WM

Audiology & Speech Pathology Programme, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: wyteng.upsk13@student.usm.my

ABSTRACT: Effective tinnitus treatment starts with a standard referral pathway. The primary purpose of the study was to assess the perception of tinnitus among medical officers in Kota Bharu, Kelantan. The study consisted of two phases. The first phase involved a group of panelists reviewed the content validity of the questionnaire. Taking consideration of the panelists and pilot study, the second phase established a 28-item questionnaire on the perception of tinnitus. A cross-sectional study was conducted with 63 medical officers from private clinics in Kota Bharu, Kelantan. There was no significant correlation between years of working experience and the number of patients with the complaint of tinnitus seen by medical officers within 3 months. All medical officers know what is tinnitus and approximately eighty-nine percent (n=56) of medical officers referred tinnitus patients to appropriate professionals. The highest referral to ear, nose, throat (ENT) specialist (92.9%) and followed by audiologist (26.8%) and Family Medicine Specialist (26.8%). Counseling is the highest perceived rate of success in tinnitus treatments. For gender perception, female medical officers had a significant higher referral and more knowledge in tinnitus treatment compared to male medical officers. Eighty-nine percent of the medical officers were interested in the workshop or seminar in the future. Further work should emphasize to promote a standard tinnitus management including a validated tinnitus questionnaire and agreed pathway as they are the first line of healthcare providers.

Keywords: Tinnitus, medical officers, perception
Reading Speed among Typically Developing Malay Children: A Preliminary Study

Nur Hazirah M*, Mohd Normani Z and Azlinda AG
Audiology & Speech Patology Programme, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia
*Corresponding author: nurhazirahmuslim@gmail.com

ABSTRACT: Adequate rate of reading is important in children who are acquiring decoding process and in transition to acquire reading comprehension. Reading too slow would indicate that the working memory is overloaded for labored decoding only, left behind the reading comprehension. What is considered adequate rate of reading in Malay language is still unknown. Thus, the purpose of the study is to determine the preliminary normative data of reading speed test among typically developing Malay children. A total of 58 participants (24 Male and 34 Female) aged 8;0 -8;11 years old were selected from a primary school in Kubang Kerian, Kelantan. Two short articles were developed and validated based on the linguistic features found in the bahasa Melayu text book of the standard one primary school. Data for reading fluency were obtained by administering the Oral Reading Fluency (ORF) and Silent Reading Fluency (SRF). Each student were instructed to read the articles silently and aloud within one minute before answering to a set of questions after each reading. The questions were testing on the readers ability in comprehending literal, inferential and evaluative type of questions. Test for gender and class differences in reading were saught. The results revealed that there are significance differences among the scores of all three classes of standard two students in both ORF and SRF. A secondary findings from this research showed that there is no significance difference between gender in both ORF and SRF mean score. The results showed a potential in discriminating student reading performance for the purpose of intervention/teaching and classroom placement.

Keywords: Reading speed, Malay readers, reading comprehension, reading fluency
Motion-Induced Dizziness and/or Vertigo amongst Patients in Hospital Universiti Sains Malaysia: Preliminary Findings

Nurul Syarida MS, a* Mohd Normani Z a, Roskejura @ Rosdan S b and Nor Haniza AW c

a* Audiology Programme, School of Health Sciences, University Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

b Department of Otorhinolaryngology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

c Audiology Programme, School of Rehabilitation Sciences, Faculty of Health Sciences, National University of Malaysia, Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur, Malaysia

*Corresponding author: nurulsyarida@gmail.com

ABSTRACT: Balance disorders are common in adults. In order to develop an effective vestibular rehabilitation method, specific profiles of balance disordered patients should be explored. The objective of this study, thus, to determine motion-related activities that trigger or worsen dizziness and/or vertigo among patients of Hospital Universiti Sains Malaysia. In this descriptive study, 60 respondents who fulfilled the inclusion criteria were phone interviewed. Prior to the data collection, a simple checklist known as “Balance Profiles Checklist” was developed and validated accordingly. Of 60 respondents, 78.33% (n=47) of them reported that head or body movements would trigger their dizziness and/or vertigo. 35 of the respondents reported that amongst the movements that triggered dizziness and/or vertigo were looking up and/or down (n=30), head turn to the left or right (n=8), from sitting to standing up (n=7), standing too long (n=6), walking (n=3), quick turning to the back (n=1), and jumping (n=1). Of the 60 respondents, due to the motion-induced dizziness, 11 of them had difficulties associated with sleeping, 10 respondents reported to have difficulties in driving in which six of them have to stop from driving. Of 56 Muslim respondents, 24 of them were having difficulty in performing their prayer. Compromised quality of life was reported in 20% (n=12) from the 60 respondents, particularly in driving and social life. As revealed in the present study, a high percentage of balance disordered patients (78.33%) had difficulties in pursuing daily life activities as head or body movements would trigger or worsen their dizziness and/or vertigo. The findings from the present study can serve as the reference for future big scale research, as well as for developing an effective rehabilitation technique for balance disorders.

Keywords: motion-induced, dizziness, vertigo, head and body movements
A Review of Shoulder Pain and Injuries – Opportunity for an Automated System

Hidayah Nt\textsuperscript{a} and Shafriza NB\textsuperscript{b}

\textsuperscript{a,b}School of Mechatronics Engineering, Universiti Malaysia Perlis (UNIMAP), Ulu Pauh Main Campus, 02600, Arau, Perlis, Malaysia

\textsuperscript{b}School of Mechatronics Engineering, Universiti Malaysia Perlis (UNIMAP), Ulu Pauh Main Campus, 02600, Arau, Perlis, Malaysia

*Corresponding author:nurhidayahismail90@gmail.com

ABSTRACT: According to statistics, the third most common musculoskeletal pain of upper extremity is from human shoulder. Shoulder pain and injuries are extremely typical for those who are involved in overhead sports such as swimming, tennis, baseball, volleyball as well as weightlifting. There is also a huge challenge to diagnose, clinically examined and recovery monitoring of shoulder related pain, since relevant medical standard is yet to be developed. Owing to the rapid development of sensor technology and their associated algorithm, leading to huge opportunities on the applications towards diagnosis and recovery processes of shoulder pain and injuries. Thus, the motivation of this review is to identify the current sensor technologies that have been developed for the purpose of diagnosis as well as rehabilitation of shoulder pain and injuries. In this paper, the priorities are given to identify the types of sports involved, diagnosis methods as well as further recovery processes.

According to statistics, the third most common musculoskeletal pain of upper extremity is from human shoulder. Shoulder pain and injuries are extremely typical for those who are involved in overhead sports such as swimming, tennis, baseball, volleyball as well as weightlifting. There is also a huge challenge to diagnose, clinically examined and recovery monitoring of shoulder related pain, since relevant medical standard is yet to be developed. Owing to the rapid development of sensor technology and their associated algorithm, leading to huge opportunities on the applications towards diagnosis and recovery processes of shoulder pain and injuries. Thus, the motivation of this review is to identify the current sensor technologies that have been developed for the purpose of diagnosis as well as rehabilitation of shoulder pain and injuries. In this paper, the priorities are given to identify the types of sports involved, diagnosis methods as well as further recovery processes.

This review has identified all information regarding the development of current sensor technologies for the purpose of diagnosis and monitoring the rehabilitation process of shoulder pain and injuries to assist medical practitioners. Thus, it is recommended that researchers to explore on suitable monitoring system specifically for motion or type of sport that have greater risk of shoulder injuries.

Keyword: Image sensors, Medical tests, Real-time systems, Shoulder injuries
Evaluation of Total Phenolic Content and Antibacterial Activity of Methanolic Extract of *Polygonum minus* Leaves Against Foodborne Pathogens

Nurul Alia Farhah MZ a,b,* , Wan Ezumi MF b and Wan Kamil WM a

*Department of Medical Laboratory Technology, Faculty of Health Sciences, Universiti Teknologi MARA, Puncak Alam, 42300 Kuala Selangor, Selangor, Malaysia
bSchool of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: aliafarhah752@gmail.com

**ABSTRACT:** *Polygonum minus* or locally known as daun kesum among Malaysian has long provided mankind with its tremendous medicinal benefits in treating various illnesses. Despite its aromatic flavors, *P. minus* has been reported to possess high polyphenol content that responsible for its antibacterial and antioxidant activities. It has also been traditionally used to treat gastrointestinal related diseases in which this property could provide the solution in order to resolve the emerging elevated multi-resistant of foodborne pathogens. The present study was conducted to determine the total phenolic content of the methanolic extract of *P. minus* leaves through Folin-Ciocalteu assay. Whereas, the antibacterial activity of this plant extract at two concentrations (250mg/ml and 500mg/ml) were evaluated using disc diffusion method against foodborne pathogens; *Staphylococcus aureus* (ATCC 43300), *Bacillus cereus* (ATCC 14579), *Escherichia coli* (ATCC 25922) and *Salmonella typhimurium* (ATCC 133311). Further, only the susceptible bacteria were then tested with the determination of Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) using microbroth dilution method. Findings obtained indicated that the polyphenol content, extracted from *P. minus* was 11.67±0.77 GAE/g. For antibacterial activity, the preliminary screening of inhibition zone depicted that the *P. minus* extract was more susceptible towards Gram positive bacteria than those of Gram negative. From this initial screening, *Staphylococcus aureus* and *Bacillus cereus* were subsequently subjected to MIC and the most remarkable finding was that both bacteria activities were inhibited at 31.25mg/ml of *P. minus* extract. Additionally, the Minimum Bactericidal Concentration (MBC) of this plant extract was 3.91mg/ml. This study suggests that *P. minus* methanolic extract would be a promising source for an alternative microbial growth inhibitor in foods and has potential as the natural antioxidant agent due to the presence of total phenolic content.

**Keywords:** *Polygonum minus*, total phenolic content, antibacterial activity, foodborne pathogens.
Association Between Ppara Gene Intron 7 G>C Polymorphism, Isokinetic Muscular Strength and Power, and Bone Health Status in Malay Female State Level Athletes and Non-Athletes

Siti Azizah S \textsuperscript{a*}, Foong KO\textsuperscript{a}, Chee KC\textsuperscript{a}, Ravindran A\textsuperscript{b}, Ahmad Aizat AA\textsuperscript{b} and Jamaayah MO\textsuperscript{a}

\textsuperscript{a}Exercise and Sports Science Programme, School of Health Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia
\textsuperscript{b}Human Genome Centre, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia
*Corresponding author: sitiazizah8989@gmail.com

ABSTRACT: This study investigated the association of \textit{PPAR} \textit{α} gene intron 7 G>C polymorphism, muscular performance and bone health status in Malay female state level athletes and non-athletes. A total of 64 participants were recruited in this study. The study participants included Malay female state level hockey, volleyball and netball athletes (n = 32) and non-athletes (n = 32). Blood samples from the study participants were collected, DNA was extracted and genotyping for \textit{PPAR} \textit{α} gene intron 7 G>C polymorphism was carried out by using PCR-RFLP technique. Participants’ isokinetic muscular peak torque (PT) (peak torque, an indicator of muscular strength), peak torque per body weight (PT/BW) and average power (AVG.P) of knee and shoulder extension and flexion at velocities of 60\textdegree.s\textsuperscript{-1}, 180\textdegree.s\textsuperscript{-1} and 300\textdegree.s\textsuperscript{-1} in dominant and non-dominant legs and arms, and qualitative ultrasound measurement bone speed of sound (indicator of bone health status) were measured. Study results showed that athletes with GC genotype showed significantly higher (p=0.02) isokinetic shoulder extension peak torque per body weight at 300\textdegree.s\textsuperscript{-1} in the shoulder compared to athletes with GG genotype. In addition, athletes with GC genotype also showed significantly higher (p=0.045) bone speed of sound of the arm compared to athletes with GG genotype. GC genotype seems to be associated with greater muscular strength and better bone health status in Malay female state level athletes. These findings provide new scientific information on the role of genetics in the Malay female population in the field of sports science and sport medicine.

Keywords: \textit{PPAR} \textit{α} gene intron 7 G>C polymorphism, isokinetic muscular strength and power, bone health status
Confirmatory Factor Analysis of Malay Version of Smartphone Addiction Scale (SAS-M) among Medical Students at Universiti Sains Malaysia (USM), Kelantan

Rubiaehtul HS*, Arifin WN*, Kueh YCa and Nor AzwanyYb

aUnit of Biostatistics and Research Methodology, bDepartment of Community Medicine, School of Medical Sciences, Health Campus, Universiti Sains Malaysia 16150 Kubang Kerian, Kota Bharu, Kelantan, Malaysia

*Corresponding author: bisyarah_istikharah@yahoo.com

ABSTRACT: Smartphone addiction will give bad effect from many aspect especially in health among university’s student. Thus, it is necessary to have a validated questionnaire to assess the level of addiction to smart phone among university’s students. The study aimed to assess the validity and reliability of the Malay version of SmartPhone Addiction Scale (SAS-M) among medical students in Universiti Sains Malaysia (USM), Kelantan. A cross-sectional study design was applied. Stratified random sampling were conducted among 375 medical students of USM. Then, all students were selected from list of each year by using simple random sampling. Participants were asked to complete two questionnaires namely, SAS-M and Malay version of Internet Addiction Test (MVIAT). Validity of SAS-M was assessed using confirmatory factor analysis (CFA). Then, Pearson correlation was used to assess the strength of relationship of subscales between SAS-M and MVIAT. Data analyses were conducted using R software. The results show that, all the requirements for model fit of CFA which was chi-square (df / p-value) = 931.337(468), < 0.001; SRMR = 0.067; Robust RMSEA (90% CI) = 0.059 (0.054,0.065); CFI = 0.895; TLI = 0.882; AIC = 30895.245; BIC = 31369.659. The range of factor loading was between 0.320 and 0.875. The value of reliability by using Raykov's rho for each domain was between 0.713 and 0.858. Furthermore, there was exist a significant fair correlation between several factors in both SAS-M and MVIAT module since all the value of fair correlation was range 0.258 and 0.511. This study indicated that, SAS-M showed a good model fit, validity and reliability. These findings indicated that a valid and reliable questionnaire SAS-M was establish.

Keywords: Smartphone Addiction, Internet addiction, Medical student, Validity, Reliability
Association between Eating Behaviour and Body Mass Index (BMI) among Pre-schoolers in Taska Permata Keluarga, Kuala Nerus Terengganu

Wong MH* and Hasmiza H

School of Nutrition and Dietetics, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Gong Badak Campus, 21300 Kuala Nerus, Terengganu, Malaysia

*Corresponding author: 037522@putra.unisza.edu.my

ABSTRACT: Eating behaviours are developed during children first years of life and continue to develop throughout childhood. The psychological perspective of eating behaviour which reflects the acceptance or rejection of food is one of the major factors that affecting children’ nutritional status. Sustainable escalating of weight problem among pre-schoolers remains the challenging health issue in Malaysia. Therefore, this study aims to investigate the association of eating behaviours with BMI in pre-school children aged 4 to 6 years. This study was conducted in 9 Taska Permata Keluarga in Kuala Nerus, Terengganu. A total of 131 subjects were recruited via convenience sampling method. Anthropometry assessment of weight and height were measured. Meanwhile, eating behaviour of the pre-school children were assessed by using validated Malay version of parental-reported Children Eating Behaviour Questionnaire (CEBQ). Gender, age, parental education level and the socioeconomic status difference in eating behaviour were investigated. Association between eating behaviour and BMI z-scores were examined with simple linear regression. The prevalence of underweight, normal weight, overweight and obesity of pre-schoolers were 5.3%, 86.3%, 4.6% and 3.8% respectively. A positive association was found between food approach eating behaviour (food responsiveness and emotional overeating) and children’ BMI. Inversely, food avoidant eating behaviour (satiety responsiveness and slowness in eating) was negatively associated with children’ BMI. Food approach behaviours may predispose the children to higher risk of developing obesity whereas food avoidant behaviours may lead to underweight. Hence, future longitudinal studies are required to further understand multivariate eating behaviours in the etiology of malnutrition to develop appropriate prevention and intervention strategies.

Keywords: Pre-school children, eating behaviour, body mass index (BMI)

Suriani A, a* Farid CG, a Maliki H, a Siti Azizah MN b and Sirajudeen KNS c

a School of Health Sciences, b School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia
c School of Biological Sciences, Universiti Sains Malaysia, Main Campus, Minden Penang

*Corresponding author: hasya121@gmail.com

ABSTRACT: The impact on coastline and aquatic ecosystem from the worst ever North East monsoonal flooding event in Malaysia history in years, December 2014 to January 2015 ‘Tsunami mud-like’ flood, in east coast Malaysia can range from unnoticeable to devastating. Floods can accelerate fluxes; destroy riverine systems causing raw sewage, nutrients and sediments to spill out into bodies of water that may have detrimental influence to east coast Malaysia coral reef structure and dynamics, especially of its benthic populations. The plumes affect coral reefs by burying decreasing light levels of depleting oxygen supplies by introduction of large amounts of organic matter settlements. This study aims to extrapolate, scientifically data pertaining to riverine and coral reef life sciences ecosystem livelihood post flood disaster by identify its dissolved oxygen, water quality, pH, nutrients and sediments load discharge. Hopefully the data can be an integral strategies preparedness of forecasting, risk and related issues of better integrating future efforts to monitor significant flood events. In-situ field survey of identified coastline riverine mouth / channels close to east coast states shorelines to assessments coral bleaching and where, the questions of differential survivorship, the identification of apparently resistant locations and bleaching avoidance. Sediment cores was collected, and analyzed microscopically via field emission scanning electron microscopy (FESEM) and ICP-MS to test for coliform diatoms and sediment-associated pathogens incidence that coincided with increasing nutrient suggesting a cause-effect relationship. This analysis was cross-reference and backtracked check with available local governmental agencies monitoring databases. The level of dissolved oxygen varies from 6.16 mg/l to 9 mg/l. Reduced DO levels readings may relate to water warming. Cd, Cr, Cu, Fe, Ni and Pb were detected under ICP-MS. FESEM revealed nano-sized phyto-planktonic microfossils presence and there are suggestions of severe damage to benthic reef communities. The study do have putative conclusion that there is stress responses onto the local aquatic ecosystems and with that a declining health of the marine ecosystems.

Keywords: Coral Reef Ecosystems, Sediments, Water Quality, East Coast Floods
Phonological Working Memory Test among 8;0-8:11 Years Old Malay Children: A Preliminary Normative Study

Nurul Farhani MR*, Wan Najibah WM and Azlinda AG

Audiology & Speech Patology Programme, School of Health Sciences, Universiti Sains Malaysia 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: fanyrodzi@gmail.com

ABSTRACT: It is important to assess working memory capacity of school age children in order to identify the possible factors for poor academic or learning achievement. The current research aimed to determine the normative data of phonological working memory of digit span task in Malay children. A total of 53 participants (28 male, 25 female) aged 8;0 to 8;11 years old were selected from a primary school in Kubang Kerian, Kelantan. The test was taken from one of the subtests in Cognitive Linguistics Assessment Profile (CLAP) (Lee, Rickard Liow, Kuan and Tan, 2015). This test was administered in backward and forward conditions by using the pre-recorded audio file via headphones. Finding showed there is no significant difference between genders for forward and backward digit span tasks scores. The result also showed that the mean total score was significantly higher in the forward digit span (mean=8.89, SD=2.415) compared to the backward digit span (mean=4.85, SD=1.364). The results also showed the total mean score for both forward and backward digit span were progressively worse with decreasing academic performance. This study may suggest the backward digit span task involves phonological loop and central executive, whereas the forward digit span only involves the phonological loop of the multicomponent working memory modelled by Baddeley (2000).

Keywords: phonological, working memory, digit span
The Molecular Screening of Alpha Thalassemia among Orang Asli in Pos Brooke, Gua Musang, Kelantan

Siti Zawani MS*, Zefarina Z, Pim CD, Suhaida MA, Nor Azita MN, Rozieyati MS and Lim BH

School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

*Corresponding author: sitizawani37@gmail.com

ABSTRACT: α-thalassemia is an inherited autosomal recessive disorder caused by absence or decrease in production of alpha globin peptides due to deletion or mutation of one or more of the four alpha globin genes. In Malaysia, the presence of α-thalassemia in the indigenous populations is relatively limited as studies have focused mainly on the major ethnic groups including Malays, Chinese and India. The aim to this study was to screen α-gene deletion and provide data on the incidence of various forms of α-gene deletion among Orang Asli population in Pos Brooke, Gua Musang, Kelantan. A total of 45 blood samples were collected from recruited respondents in Pos Brooke, Gua Musang, Kelantan. The presence of three types of α-thalassemia gene deletion in Southeast Asian population which were –α^3.7, -α^4.2 and -α^SEA deletion was identified by using Multiplex Gap-Polymerase Chain Reaction assay. One out of 45 Orang asli respondents had α-gene deletion which is 1(2.2%) single gene deletion of –α^4.2. In conclusion, the understanding of prevalence and spectrum of α-thalassemia among Orang asli is essential for national thalassemia awareness and prevention program, especially in Orang asli communities.

Keywords: Alpha thalassemia, deletions, α-globin gene cluster, Multiplex-GAP Polymerase Chain Reaction