P A P R S B
INSTITUTE OF HEALTH SCIENCES
UNIVERSITI BRUNEI DARUSSALAM

22nd February 2023

4TH ANNUAL GRADUATE RESEARCH DAY
Abstract Booklet

"Research in Health Sciences"

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[COMPANY NAME], [Company address]

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About Graduate Research Day

Graduate Student Research Day was initiated a couple of years ago to enable students to showcase their research work via oral presentation or e-poster, with the 1st IHS Graduate Student Research Day being held on Saturday, 19th January 2019. The 1st IHS Graduate Student Research Day saw 20 student projects being presented for the first time, illustrating a complete overview of the research works undertaken by students and staff members at the Institute. In addition, this day allows the students to practice their communication skills and interact with faculty members for the exchange of ideas.

This years' Graduate Research Day will be held on Wednesday, 22nd of February 2023 and a total of 27 students are participating. This event is again going to provide a forum for our graduate research students (both Master and Ph.D.) to showcase their research accomplishments in the past months and, at the same time for all of us, to recognise and celebrate the achievements. The students will be presenting their research either by oral presentations or by e-posters and there will be prizes for the top 3 oral and poster presentations.

The main aims of the Graduate Student Research Day

- ✓ to enhance awareness of ongoing research from the different disciplines at the Institute;
- ✓ to provide students and faculty an opportunity to critically assess the ongoing research projects;
- ✓ to promote and foster cross-disciplinary research

Guest of Honour Opening Speech

Bismillahir rahmannir rahim
Assalamuaaikum Warahmatullahi Wabarakatuh
Good day and Salam Sejahtera

Chair of the 4th Graduate Research Day 2023 organising committee, Miss Nur Aziemah Mohammad Azizi, Programme Leader for Graduate Studies at IHS, Dr Siti Rohaiza Ahmad, our distinguished key note speaker, the one and only Professor Anne Cunningham, members of the organising committee for the 4thGraduate Research Day, colleagues, students, ladies and gentlemen, it is my great pleasure to be here with you all this morning at the opening of IHS 4th GRD for the year 2023. It is the day that we have been waiting for since Dr Rohaiza proposed the date as early as September last year. Congratulations Nur Aziemah for the appointment as the Chair of this year's organising committee. I know how much work you and your committee members have put into the preparation of this year's event under Dr Haiza's guidance. I am proud to know of your and your team's commitment, hard work and enthusiasm in making this Graduate Research Day a reality today.

Graduate Study programmes at IHS, both by coursework and Research are important components in the development and to ensure success of IHS as a faculty within UBD. Our Masters by research and PhD programmes notably in the areas of Biomedical Sciences, Clinical Sciences, Nursing, Midwifery, Pharmacy, Public Health and just recently added Digital Public Health are offered with both the students and supervisors' interest in mind. This is evident where during application and besides the applicants' suitable qualifications we examine applicants' ability to produce a well-written and logically structured research proposal that has a clear aim and objectives and concise description of the methods. It is not an easy task to do and therefore at IHS we facilitate this by encouraging potential applicants to be in communication with potential supervisors from

AP Dr Mas Rina Wati Hj Abdul Hamid

Deputy Dean of Graduate Studies and Research at PAPRSB Institute of Health Sciences
Universiti Brunei Darussalam

early on and develop the proposal together. This ensures a smooth collaboration and a good and healthy student-supervisor relationship that ensues from then on throughout the graduate student's study programme. I would like to take this opportunity to thank my academic colleagues here at IHS who have taken research students under their wings for their commitment, interest and for being a good role model to their students. Your contribution to the success of graduate studies at IHS is hugely appreciated.

Before I end, I would just like to highlight our new graduate programme in digital public health (DPH). We have started a Master programme by coursework in Digital Public Health and both a Master by research and PhD programmes in DPH, all in collaboration with School of Digital Science. The future is going to be all about data and big data, we all hear about that. So the introduction of these programmes is timely and necessary and we look forward to future projects using data in the areas of our own interest. We

will probably be finding ourselves crossing disciplines with each other because of the commonality in the use of data. Yes indeed, so we ought to be prepared that we will be dealing with data more than we could expect it.

So, Congratulations once again Miss Aziemah and her team of graduate student committee in pulling off this wonderful event, and congratulations Dr Haiza for a wonderful and always fun leadership. Last but certainly not least, Professor Anne, thank you for being our distinguished keynote speaker today. Your talk is going to be wonderful, and we all are looking forward to it. Thank you for inviting me today and I wish you all a very Happy and Productive Research Sharing Day.

Assalamualaikum Warahmatullahi Wabarakatuh.

P.S. The T-Shirt is the most beautiful I have ever seen!

Student Chair Speech

Assalamu'alaikum Warahmatullahi Wabarakatuh,

To the honourable guest of honour, Dr Mas, the invited keynote speaker, Dr Anne Cunningham, the programme leader of Graduate Studies, Dr Rohaiza. All IHS lecturers and staff as well as my fellow graduates and undergraduates,

Welcome to the 4th Annual Graduate Student Research Day! A big thank you for joining us today. Alhamdulillah, today we are able to witness the Graduate Student Research Day once again after a brief pause last year due to COVID-19.

Just to share a bit of background about Graduate Student Research Day or simply called as GRD, it was initiated a couple of years ago to enable students to showcase their research work via oral presentation or e-poster, with the 1st IHS GRD being held back in 2019. The 1st IHS GRD saw 20 student projects being presented for the first time, illustrating a complete overview of the research works undertaken by students and staff members at the Institute. In addition, it also allows the students to practice their communication skills and interact with faculty members for the exchange of ideas.

This year, the event will again provide a forum for the graduate research students, both Master and PhD levels, to showcase their research accomplishments in the past years and months and, at the same time for all of us, to recognise and celebrate their achievements. Alhamdulillah, this year we received an increase in the abstracts' submissions up to a total of 28 abstracts altogether, where 14 students will be presenting via oral and e-poster, respectively. For the 1st time in GRD, this year, in sha Allah there will be prizes awarded to the top 3 oral and poster presentations, thanks to the sponsorship from various companies, which we hope will motivate the graduate students furthermore.

Nur Aziemah Binti Mohammad Azizi

PhD Candidate in Biomedical Sciences at
PAPRSB Institute of Health Sciences
Universiti Brunei Darussalam

To my fellow graduates, this is the day, for us to show and share with everyone what we have been working so passionately and hard for, as well as to get opinions and feedback for the betterment of our research work. To the supervisors and lecturers, we are very humbled by your continuous teachings, support and advice that truly has helped us tremendously especially in embarking on the research world.

I would like to end my speech with a huge appreciation to the GRD committees, especially the scientific team, media team, sponsorship team, logistic team and refreshment team, as well as those who were indirectly involved - who have been working tirelessly to make today's event successful. Last but not least, a special mention to Dr Rohaiza, thank you for your effort, encouragement and support to make GRD happen again.

Thank you

Committee Members

Student Chair
Nur Aziemah Mohammad Azizi

Advisor
Dr Mas Rina Wati Haji Abdul Hamid, Deputy Dean of Graduate Studies and Research
Dr Siti Rohaiza Ahmad, Programme Leader of Graduate Studies

Floor Manager
Dr Siti Rohaiza Ahmad
Nur Aziemah Mohammad Azizi

Scientific Team
Said Faroq Sayid Moshawih (Team Leader)
Chua Hui Ming
Nur Basirah Ghazali
Dk Nurulhuda Pg Musa
Dr Mas Rina Wati Hj Abdul Hamid
Dr Siti Rohaiza Ahmad
Dr Nadhirah Amdani

Sponsorship Team
Nurhalimah Basyirah Jamaludin (Team Leader)
Nur Aziemah Mohammad Azizi
Nurul Wafiqah Saipol Bahrin
Saifuddien Haji Bagol
Dr Aklimah Haji Mustapa

Media Team
Siti Nurzaimah Nazhirah Binti Haji Zaim (Team Leader)
Nurul Wafiqah Saipol Bahrin
Hjh Fathiin Najihah Hj Mohd Rozaini
Mohammad Ahsanuddin Awg Mohd. Jafar

Refreshment Team
Fatin Amirah Fikriyah Binti Abd. Rahman (Team Leader)
Lim Siao Suan
Rina Nurfadlina Rosli

Logistic Team
Mohammed Abd Elfattah Bin Mohammed Darwesh Badawy (Team Leader)
Aswiradi Ahmad
Rizan Amit

T-Shirt Design Team
Nurul Wafiqah Binti Saipol Bahrin (Team Leader)
Mohammad Ahsanuddin Awg Mohd Jafar
Hjh Fathin Najihah Hj Mohd Rozaini

Program Schedule

Time	Programme Schedule	
7.00 – 7.30am	**Registration**	
7.30 – 7.45am	Opening Doa Welcoming Speech from Student Chair (Student Chair, Nur Aziemah Mohammad Azizi)	
7.45 – 8.00am	Opening Speech from Guest of Honour (Deputy Dean, Associate Prof Dr Mas Rina Wati Hj Abdul Hamid)	
8.00 – 8.45 am	Keynote Speaker (Distinguished Associate Professor Dr Anne Cunningham)	
8.45 – 8.55am	**Photo Session**	
Oral Presentation (Morning – Session 1) 10 minutes presentation | 10 minutes Q&A Moderator: Nur Aziemah Mohammad Azizi		
8.55 – 9.15am	Nazurah Hamizah Salleh Main SV: Dr Siti Rohaiza Ahmad	Title: Traditional Practices and Beliefs on the Consumption of Medicinal Plants Amongst Type 2 Diabetic Patients in Brunei Darussalam: A Qualitative Focus Group Study
9.15 – 9.35am	Rina Nurfadlina Rosli Main SV: Dr Lu Zen Huat	Title: Additional Genomic Complexity of Breast Cancer Unravelled By Off-Target Variants Identified from Whole Exome Sequencing Data
5 minutes break		
9.40 – 10.00am	Mohammad Ahsanuddin bin Awang Mohd Jafar Main SV: Dr Siti Hanna Muharram	Title: Molecular Characterization of Multi-drug Resistant Klebsiella Pneumoniae Isolated from Clinical Settings in Brunei Darussalam
10.00 – 10.20am	Nurul Wafiqah bte Saipol Bahrin Main SV: AP Dr Mar Rina Wati Haji Abdul Hamid	Title: Brunei Breast Cancer Exome Project; The Importance of Quality Control of FFPE Samples.
10.20 – 10.45am	**BREAK (Refreshment will be provided) / E-poster Judging session**	
Oral Presentation (Morning – Session 2) 10 minutes presentation | 10 minutes Q&A Moderator: Siti Khuzaiyah		
10.45 – 11.05am	Mohammed Abd ElFattah Mohammed Darwesh Badawy Main SV: Dr Nik Anni Afiqah Tuah	Title: Development and Validation of an Automated AI-Based Digital Platform for Cardiovascular Disease Risk Reduction in Brunei Darussalam
11.05 – 11.25am	Amalie Chin Siaw Fang Main SV: Dr Nik Anni Afiqah Tuah	Title: Effectiveness of Health Literacy Online Intervention to Improve Diabetes Health Outcomes among Adults with Diabetes: A Systematic Review
11.25 – 11.45am	Dk Nurulhuda Pg Musa Main SV: Dr Nik Anni Afiqah Tuah	Title: A Review on The Involvement of Stakeholders in Adolescent Health Policy- Lesson for Brunei Darussalam

5 minutes break		
11.50 – 12.10pm	Siti Nurzaimah Nazhirah Haji Zaim Main SV: Dr Deeni Rudita Idris	Title: Current Research Trends on COVID-19 Home-Remedy Consumption: A Scoping Review
12.10 – 12.30pm	Nur Raihan binti Ramli Main SV: Dr Mursidi bin Haji Ali	Title: A Constructivist Grounded Theory Study of Chest Pain Perception of Patients with Underlying Cardiovascular Symptoms: Preliminary Findings
12.30 – 1.30pm	**LUNCH BREAK**	
Oral Presentation (Afternoon – Session 1) 10 minutes presentation | 10 minutes Q&A Moderator: Mohammad Abd Elfattah Mohammed Darwesh Badawy		
1.35 – 1.55pm	Siti Khuzaiyah Main SV: Dr Sarena Hashim	Title: Factors That Influence the Healthcare-Seeking Behaviour Of Pregnant Adolescents on the Utilisation of Maternal Health Services: A Scoping Review of the Literature
1.55 – 2.15pm	Nuryasmin Haji Abu Bakar Main SV: Dr Hanif Abdul Rahman	Title: Physiotherapy Intervention in Improving Functional Outcome of Acute Stroke Patients Admitted to the Intensive Care Unit (ICU): A Retrospective Analysis
2.15 – 2.35pm	Karpagam Chakkaravarthy Main SV: Dr Khadizah Mumin	Brunei Nurses' and Midwives' Readiness to Self-Directed Learning: A Mixed Method Explanatory Sequential Approach
2.35 – 3.00pm	**BREAK (Refreshment will be provided) / E-poster Judging Session**	
Oral Presentation (Afternoon – Session 2) 10 minutes presentation | 10 minutes Q&A Moderator: Amalie Chin Siaw Fang		
3.00 – 3.20pm	Said Moshawih Main SV: Pg Dr Nurolaini Pg Hj Muhd Kefli	Title: Machine Learning Applications in Chemoinformatic Analysis and Virtual Screening for Natural Products-Based Drug Discovery
3.20 – 3.40 pm	Nurhalimah Basyirah Jamaludin Main SV: Dr Lie Chen	Title: A Quantitative Investigation of Alternatively Spliced KCNMA1 Transcripts in Cancer Cell Lines And Tissues
3.40 – 3.45pm	**5 minutes break**	
3.45pm onwards	Announcement of Winner (Programme Leader, Assistant Professor Dr Siti Rohaiza Ahmad) Closing Speech (Deputy Dean, Associate Prof Dr Mas Rina Wati Hj Abdul Hamid) Closing Doa	

Poster Presentations | Format: On-going Slideshow [Morning slot: 10.20 – 10.45am, Afternoon slot: 2.35 – 3.00pm]

Name	Title
Saifuddien Haji Bagol Main SV: AP Dr Mar Rina Wati Haji Abdul Hamid	Study on Genetic Variation and Clinical Progression of Diabetic Nephropathy (DN) to End Stage Kidney Disease in Brunei Patients
Chua Hui Ming Main SV: Dr Hui Poh Goh	In Silico Investigation of Anthraquinone and Chalcone Derivatives on Breast Cancer Proteins and Establishing a Screening Workflow to Discover Novel Hit Compounds
Norafiqah binti Yusof Main SV: Dr Rajan Rajabalaya	Development and Evaluation of Polyherbal Nanoemulsion Mouthwash for Oral Mucositis
Nurul Ashifah Shafie Main SV: Dr Lim Ya Chee	Anticancer Potential of Silver Nanoparticles Synthesized from Annona Muricata Leaf Extracts On Colorectal Cancer
Nur Aziemah Mohammad Azizi Main SV: Dr Sheikh Naeem Shafqat	Inhibition Of 5-Alpha-Reductase Enzymes Activity in Cancer Cells Using Aqueous and Ethanolic Extracts of Gynura Procumbens and Pandanus Amaryllifolius as A Way to Treat Advanced Prostate Cancer
Lim Siao Suan Main SV: Dr Suwarni Hj Mohd Diah	Investigation of Anti-Cancer Activities in Neuroblastoma Cells
Mohammad Akmal Hamizan bin Haji Mohamad Nasrul Sani Main SV: Dr Noor Faizah Mohd Naim	Electrochemical Aptasensors Based on Hydrogel Polymer and Gold Nanoparticles for the Detection of Lipocalin-2 And Interleukin-6
Nor Hafizah binti Ihsan Sabre Main SV: AP Dr Mark I.R. Petalcorin	Title: Analysing the Anthelmintic Property of Justicia gendarussa 'variegata' Extract Using *Caenorhabditis elegans*
Fatin Amirah Fikriyah binti Abd. Rahman Main SV: Dr Siti Hanna Muharram	Antimicrobial Activity of Standardized Methanolic and Ethanolic Extracts of Morus alba L leaves on Selected Clinical Microbial strains
Divya Thirumalai Rajam Main SV: Dr Khadizah Mumin	Outcomes of Internationalisation of Undergraduate Medical Education: An Integrated Review
Nur Syafiqah Haji Saime Main SV: Dr Khadizah Mumin	“It may be brief, but we don’t want to be left in the dark…” A qualitative exploratory research on the transition of care for women experiencing miscarriages at the Emergency Department
Nurul Nazurah binti Haji Julaini Main SV: Dr Hanif Abdul Rahman	"Perceived Stress Level Related to Personality Trait, Chronotype Profile and Eating Behaviour Among Hospital and Community Nurses in Brunei Darussalam"
Nurfatin Amalina binti Haji Masri Main SV: Dr Hanif Abdul Rahman	Application of Digital Health Services on Caring for Patients with Life-Limiting Illnesses: An Exploratory Qualitative and Data Analytic Approaches
Hamyzan bin Layak Main SV: Dr Mursidi bin Haji Ali	Prevalence and the Predictive Risk Factors of Compassion Fatigue Among Nurses in High Dependency Units at Public Hospitals in Brunei Darussalam

Keynote Abstract

Dr Anne Catherine Cunningham

Associate Professor at PAPRSB Institute of Health Sciences
Universiti Brunei Darussalam

Survival Skills for Graduate Students

This presentation will be a reflection on 40 years at university – what have I learned along the way? How have things changed? Who has inspired me and why? I have had the unexpected privilege of spending more than a decade in I.H.S. and I have walked the journey with many of your seniors. I look forward to sharing updates from our PhD alumni – where are they now and what would they say to their former selves? To be a scientist is to be endlessly curious, research is 90% attention to detail and hard work plus 10% of absolute excitement. Question everything, particularly your assumptions and keep learning – everything changes! Graduate studies can be exciting and fun, but also challenging – like climbing a mountain…to be successful you need to be resilient and persevere. I hope my words will help you to enjoy the adventure.

Abstracts for Oral Presenters

| HBSO_20 |

Traditional Practices and Beliefs on the Consumption of Medicinal Plants Amongst Type 2 Diabetic Patients in Brunei Darussalam: A Qualitative Focus Group Study

Nazurah Hamizah Salleh, Ihsan Nazurah Binti Zulkipli, Hartini Binti Hj Mohd Yassin, Norhayati Binti Hj Ahmad, Fairuzeta Binti Hj Md Ja'afar, Siti Rohaiza Binti Ahmad

Factors such as family history, age, gender and race potentially lead to the steady rise in diabetes on a global scale, and Brunei Darussalam too is not spared from this epidemic. Before the existence of conventional medicine, traditional beliefs and knowledge on medicinal plants and their uses to relieve ailments were passed down from generation to generation. The known debilitating disease, the side effects of prolonged consumption of conventional medicine to treat type 2 *diabetes mellitus*, the positive findings and better access to medicinal plants; resulted in the resurgence of the use of herbal remedies to manage diabetic symptoms and risks associated with the disease. Hence, to understand the local trends better, this qualitative study conducted focus group discussions to investigate medicinal plants consumed by Bruneians; with the perception to treat diabetes. The target participants recruited were type 2 diabetics, over 30 years of age with diverse education and socio-economic backgrounds. Whereby, a semi-structured interview questioning guide was developed and used throughout the focus-group sessions to maintain the reliability and consistency of data collection. Three common themes were identified upon completion of the study: lifestyle changes pre- and post-diabetes, further interest to explore and consume more plant-based food sources, and lastly, willingness to improve lifestyle and maintain health and overall well-being. This study helped to provide better insights into understanding where individuals with diabetes stand on the management of diabetes, with the existence of medical care and natural remedies that are widespread and gaining more interest worldwide.

| MBSO_7 |

Additional Genomic Complexity of Breast Cancer Unravelled by Off-Target Variants Identified From Whole Exome Sequencing Data

Rina Nurfadlina Rosli, Siti Nur Idayu Matusin, Lie Chen, Mas Rina Wati Abdul Hamid, Lu Zen Huat

The analysis of mapped off-target regions using whole exome sequencing (WES) data has led to the identification of good-quality variants within introns and intergenic regions of cancer genomes. This study explored regions outside of the exome of Bruneian breast cancer samples to identify high-quality variants that might provide additional insights into the genomic complexity of the disease. WES data were first mapped against the human reference genome before variants falling on both the off-target and on-target regions were called and annotated. Non-synonymous variants were further analysed to evaluate the potential impacts on breast cancer. We observed nearly equal proportions of high-quality variants falling within both on- and off-target regions. We also identified significant variants falling on the introns of ncRNA which may have an impact on the regulatomics of breast cancer. Conventionally, off-target data from WES is not utilised for downstream data analysis. However, our results show that significant variants outside the exomic regions could be identified. Functional investigation of these variants may lead to a better understanding of breast cancer genomics.

| MBSO_3 |

Molecular Characterization of Multi-Drug Resistant *Klebsiella Pneumoniae* Isolated From Clinical Settings in Brunei Darussalam

Mohammad Ahsanuddin bin Awang Mohd Jafar, Siti Hanna Muharram

ESBL-producing and carbapenem-resistant *Klebsiella pneumoniae* infections are quite uncommon in Brunei Darussalam. Here we present the first study conducted at Universiti Brunei Darussalam regarding the molecular characterisation of ESBL-producing and carbapenem-resistant *K. pneumoniae.* The aim of this study is to explore the antimicrobial resistance profile, biofilm-production trend and genetic profile of the isolates. 34 *K. pneumoniae* isolates were obtained from March 2022 to February 2023 from RIPAS Hospital and JPMC Centre. AST was performed to test isolates against selected antimicrobial agents. Combination Disc method was performed for phenotypic ESBLs screening. mCIM test was conducted to screen for carbapenemases activities. Biofilm production was assessed using a microtiter plate assay. Whole Genome Sequencing (WGS) will be performed to sequence and determine the genetic profiles of isolates. Antibiotic susceptibility testing showed highest resistance of isolates toward cefotaxime and ceftriaxone (n=34, 100%), while the highest susceptibility was towards imipenem (n=25, 73.5%). ESBL tests yielded 25 positive and nine negative results, whereas mCIM tests showed nine positive results. Biofilm assay showed 21 strong biofilm producers (61.8%), 11 moderate producers (32.4%), one weak producer (2.9%) and one non-producer (2.9%). At this stage, this study has shown the activities of ESBL and carbapenemases in the tested *K. pneumoniae* isolates. Confirmation of the presence of the antimicrobial genes will be achieved through WGS. This study highlights the importance of effective surveillance and monitoring of this strain in order to combat the dissemination of ESBL genes.

| MBSO_6 |

Brunei Breast Cancer Exome Project; The Importance of Quality Control for FFPE Samples

Nurul Wafiqah bte Saipol Bahrin, Mas Rina Wati Abdul Hamid, Lu Zen Huat

The genomic landscape of breast cancer (BC) is highly heterogenous and complex. This study aims to determine the mutational profiles of Bruneian patients with BC using next-generation sequencing. However, deriving DNA from formalin-fixed paraffin-embedded (FFPE) tumour tissue specimens is difficult. Given the nature of the samples, the DNA extracted is prone to degradation and poor yield. DNA was extracted from breast cancer FFPE samples using QIAGEN QIAamp FPPE DNA kit. Quality control was conducted using Nanodrop, Qubit, and quantitative PCR (qPCR). A combination of gel electrophoresis and Labchip was also performed to ensure acceptable DNA fragment lengths. Subsequently, optimal samples were run for sequencing on NextSeq 2000. 96 DNA samples selected for sequencing, the extracted DNA concentration varied between 47.2 to 4074 ng/µL, with absorbance values in A260/A280 and A260/A230 ranging between 1.37 to 2.0 and 0.7 to 2.4, respectively. However, after normalisation, DNA concentrations were lower, ranging between 7.16 to 970 ng/µL. Furthermore, the qPCR results indicate that ΔCq ranges between -6.06 to 4.98. Subsequently, the whole-exome sequencing yields 111.73 Gb and 303.25 Gb with P2 and P3 reagents, respectively. The cluster passing filter generated was 83.07%(P2), and 82.1%(P3) and the Q30 Scores obtained were 94.65% (P2) and 93.79% (P3), with indexed reads ranging from 0.05% to 7.9%. The result of this study reveals that even with the same amount of DNA added as input for sequencing, the yields were different during the NGS run. However, running FFPE DNA samples for QC remains imperative for a successful sequencing run.

Development And Validation of An Automated AI-Based Digital Platform for Cardiovascular Disease Risk Reduction in Brunei Darussalam

Mohammed Abd ElFattah Mohammed Darwesh Badawy, Nik Ani Afiqah Haji Mohamad Tuah, Mohd Ayub Sadiq @ Lin Naing

The primary cause of morbidity and mortality worldwide is cardiovascular disease (CVD). Brunei Darussalam is no exception; CVDs were the leading cause of death in 2015. Therefore, CVDs have substantial effects on public health and will eventually impair Brunei's economically productive workforce. In Brunei, the sole recommended technique for assessing CVD risk is the WHO/ISH risk prediction chart, which has not been validated in the local population. During the COVID-19 pandemic, MOH Brunei Darussalam developed the BruHealth mobile application on a digital platform with several essential features that have a significant impact on the general public's health. A Supervised, Multiclass Classification Machine Learning Problem since the AI modeling pipeline will be created using data from variables that will be prospectively populated through BruHealth using standard libraries in the Python[3] environment and the TensorFlow backend. The accuracy, sensitivity, specificity, precision, area under the ROC curve (AUC ROC), and the area under the precision-recall curve (AUC PR) of the developed ML/DL algorithms and compare the performance of the different ML/DL classifiers with the existing CVD risk calculators. The originality of this research is to get the advantage of the potential value of the digital platform in the BruHealth populating Brunei-specific features data and using innovative AI modeling approaches to derive an automated, continuously evolving, AI-based, Brunei-specific CVD risk prediction calculator which outperforms the existing CVD risk calculators in Brunei Darussalam.

Effectiveness of Health Literacy Online Intervention to Improve Diabetes Health Outcomes among Adults with Diabetes: A Systematic Review

Amalie Chin Siaw Fang, Nik Ani Afiqah Haji Mohamad Tuah, Mohd Ayub Sadiq @ Lin Naing

Limited health literacy is associated with poor health outcomes in diabetic patients due to lack of skills to obtain, understand and make use of the health information for proper diabetes management. In this digital era, online technologies served as a powerful tool to advocate health. Previous studies had explored the effectiveness of online diabetes interventions. However, there is little evidence on the effectiveness of online health literacy interventions for diabetic patients. This study aimed to review the effectiveness of online health literacy interventions to improve the diabetes outcomes among adults with diabetes. Literature was searched in PubMed, ScienceDirect, and Google Scholar. CASP checklist was used to evaluate the eligibility of the reviewed articles. PICOTS model was used to extract data on participants, interventions, comparative controls and outcome measures, time durations and study designs from the reviewed study. Twelve articles comprising 2969 adults were included. Nine studies employed randomized controlled trials, two studies employed experimental pre- and post- study design, and one was cohort study. The online health literacy interventions were found to be effective in improving the participants' diabetes knowledge, ability to find and understand health information, attitude and behaviours towards diabetes self-care, and patient activation. Only two studies found an improvement in the participants' glycated haemoglobin after the interventions. Two studies found no significance in the participants' blood pressure measurements and lipids profile after the online interventions. Online health literacy interventions are effective in improving the knowledge, attitude, and intention for health behaviours as well as health literacy skills of diabetic patients. However, further research with longer duration is required to determine the effectiveness of online interventions to lower blood pressure, enhance lipid profiles, and lower glycated haemoglobin in adults with diabetes.

| HPHO_30 |

A Review on The Involvement of Stakeholders in Adolescent Health Policy- Lesson for Brunei Darussalam

Dk Nurulhuda Pg Musa, Nik Ani Afiqah Haji Mohamad Tuah, Mohd Ayub Sadiq @ Lin Naing

For a successful policy to be designed, specific criteria need to be fulfilled, and one of them is the involvement of stakeholders. Stakeholders are essential actors that make decisions that will affect the design of the policy. In Brunei Darussalam, there is a gap in knowledge or limited research is done to explore relevant stakeholders' involvement in adolescent health policy, therefore this review paper aims to strengthen the motive to facilitate better commitment from the stakeholders by highlighting the importance of their role and responsibility in the adolescent health policy. Research articles were searched in PubMed with search items: stakeholders AND adolescent AND health policy, and to only include studies published from 2012 to 2022. References were also checked for relevance and then further filtered to provide a final list of articles to be included in the review. It was found that research engagement with stakeholders can have a mutual benefit to the researchers and community, stakeholders' involvement is vital to increase the effectiveness of a programme and to identify priorities for better use of scarce resources. The lesson derived from other countries is applicable within the local context.

| MNRO_12 |

Current Research Trends on COVID-19 Home-Remedy Consumption: A Scoping Review

Siti Nurzaimah Nazhirah binti Haji Zaim, Hanif Abdul Rahman, Deeni Rudita Idris

SARS-CoV-2 has called for more evidence to better understand not only the pathophysiology but also the potential treatment of the Coronavirus Disease 2019 (COVID-19). The novelty of the virus has encouraged relevance in reviewing evidence from potential traditional medicine (TM), and complementary and alternative medicine (CAM) from the home remedy consumed by the general population to be investigated for their scientific purposes. Therefore, the purpose of this literature review was to review the current evidence in the literature on the consumption of COVID-19 home remedies as well as what are the commonly consumed home remedy for COVID-19. Literature was searched through four research databases PubMed Central, Springer Link, Science Direct, and Wiley Online Library, guided by PRISMA extension for scoping reviews (PRISMA-ScR). Preliminary findings showed the trends in the primary research designs used by the current studies included both experimental and laboratory studies, as well as surveys and interviews. The themes raised include the more specific types of TM and CAM for COVID-19 consumption. While there have been similar reviews in the past, the current trend has shown that more experiments were being conducted to find evidence to support previous reviews on COVID-19 treatment.

| MNRO_13 |

A Constructivist Grounded Theory Study of Chest Pain Perception of Patients With Underlying Cardiovascular Symptoms: Preliminary Findings

Nur Raihan binti Ramli, Mursidi Bin Haji Ali, Khadizah Hj Abdul Mumin, Sarena Haji Hashim

In Brunei Darussalam, cardiovascular disease remains the second highest leading cause of death after cancer, accounting for approximately 500 death per year. Together with other non-communicable diseases, it has contributed to about two-thirds of premature deaths among adults aged between 30 to 60 years annually. In 2022, nearly 1.5 thousand people have been hospitalised with cardiovascular diseases. International studies have suggested that delayed seeking medical attention following episodes of chest pain contributes to poor clinical outcomes. This study employed a constructivist grounded theory design that aims to discover any theory that influences the perception and care-seeking behaviour of patients following their first episode of chest pain. Eligible samples who attended Rapid-access Chest Pain Clinic (RACPC), Heart Centre RIPAS Hospital were recruited. Theoretical sampling applies for the development and refinement of theory. Data were collected and analysed in an iterative process using a constant comparative approach. This study will offer a depth-understanding of attitudes and healthcare services utilization of the patients that reflect the different cultures and religious practices of Bruneian that will help to improve the provision of support, care, and management of patients with first-time chest pain.

Factors That Influence The Healthcare-Seeking Behaviour of Pregnant Adolescents on The Utilisation of Maternal Health Services: A Scoping Review of The Literature

Siti Khuzaiyah, Khadizah Hj Abdul Mumin, Sarena Hj Hashim

Adolescent pregnancy between 10-19 years has become a global concern due to the potential impact on individual health issues and childbirth or socio-economic and psychological consequences related to their pregnancy. Understanding factors influencing adolescent utilisation of maternal healthcare services is crucial in enhancing positive healthcare-seeking behaviour (HSB) and preventing complications during pregnancy. The review adapted the five stages of Arskey and O'Malley's framework. We reviewed the literature for articles published between 2012 and 2022. Six databases were used: Science Direct, PubMed, Willey, Taylor and Francis Online, ProQuest, and Ebsco. Studies published in English which describe pregnant adolescent women's healthcare-seeking behaviour during pregnancy and childbirth were included. Twenty-five studies were included in this review. The majority of the reviewed studies were conducted in Africa, some in Asia and only one conducted in America. Most studies aimed to assess the factors influencing healthcare-seeking behaviour and utilisation of antenatal care among pregnant adolescent women, including barriers to any delay in seeking healthcare. In addition, eight studies utilised theories and models of behavioural change. Several enabling factors influencing HSB and ANC among adolescent pregnant women were identified: age, education, geographical location, marital status, socio-economic position, and family support. In comparison, barriers to HSB included: difficulty getting permission for significant others, distance from health facilities, financial problems, lack of education and knowledge on the importance of ANC, lack of decision-making authority, poverty, negative emotions towards pregnancy, negative perceptions towards care given by the healthcare professional, stigma from others, fear of unknown, those with history of violence and abuse at home, and negative experiences with healthcare services. Adolescents, families, communities and healthcare providers should work together to improve the healthcare-seeking behaviour among pregnant adolescents.

| MCSO_9 |

Physiotherapy Intervention in Improving The Functional Outcome of Acute Stroke Patients Admitted to The Intensive Care Unit: A Retrospective Analysis

Nuryasmin Haji Abu Bakar, Long Chiau Ming

Stroke patients who are usually admitted to the Intensive Care Unit (ICU) have profound neurological deficits that can lead to long-term disability and respiratory distress. Some stroke patients also developed ICU-acquired muscle weakness due to prolonged bed rest and physical inactivity. There is existing growing evidence that showed early physiotherapy intervention in ICU patients for improving functional activity, preventing pulmonary complications, reducing the duration of mechanical ventilation, reducing costs associated with time spent in the hospital, and increasing patient discharge rate from the hospital. However, fundamental questions regarding initiation time, type, and intensity of treatments given remain unclear for acute stroke patients admitted to ICU. Therefore, the aim of this study is to investigate any correlation between the initiation time of physiotherapy intervention and functional outcome for acute stroke patients admitted to the ICU of Brunei Neuroscience Stroke and Rehabilitation Centre (BNSRC) from the year January 2020 to February 2022. By using the retrospective study, the functional outcome measurement will be extracted from Bru-HIMS and will be compared at 1 month, 3 months, 6 months, and 12 months post-stroke. Consecutive adult ICU patients treated with physiotherapy following acute stroke will be evaluated. Patients will be considered responders if the functional outcome is recorded in the clinical notes from health care professionals. Potential confounders of the effectiveness assessment will also be recorded. Ethical approval will be sought.

| HNRO_27 |

Brunei Nurses' and Midwives' Readiness to Self-Directed Learning: A Mixed Method Explanatory Sequential Approach

Karpagam Chakkaravarthy, Khadizah Hj Abdul Mumin

Nurses and midwives work in multifaceted healthcare settings where they are constantly faced with challenges stemming from the ongoing social and scientific changes inherent in the healthcare field. Successful adaptation to a complex healthcare system is to become involved in lifelong learning through a self-directed learning approach. This study aims to evaluate the level of readiness for self-directed learning and to explore the perception and practices of self-directed learning among nurses and midwives in Brunei Darussalam. A mixed method explanatory sequential approach was conducted in two phases**.** The first phase of the study is quantitative. Fisher's Self-directed Learning Readiness Scale (SDLRS) was administered to 700 nurses and midwives working in Brunei's four government district hospitals. The qualitative phase involves 42 participants, from the four government district hospitals. The quantitative findings reported that the nurses and midwives had a high level of readiness for SDL. The inferential data indicated the statistical difference between some demographic characteristics such as age, marital status, professional qualification, working place, and level of readiness to SDL. The qualitative data "explores how the nurses and midwives perceive and practice self-directed learning under four major themes: Perspectives of self-directed learning, Initiation & practices of self-directed, Barriers & facilitators of SDL & Strategies to overcome the challenges of practising SDL. The current study is the first study in Brunei Darussalam to evaluate the readiness of nurses and midwives toward self-directed learning. Moreover, this study reports that the nurses and midwives had a high level of readiness for SDL. Corresponding to the study findings, nurse educators and nurse managers in the health care system should develop and support nurses and midwives using different SDL approaches such as online learning, peer learning, reflection methods and SDL mediating environments and related policies.

| HBSO_16 |

Machine Learning Applications in Chemoinformatic Analysis and Virtual Screening for Natural Products-Based Drug Discovery

Said Moshawih, Long Chiau Ming, Hui Poh Goh, Nurol Aini Kifli

Drug discovery using advanced computational tools such as machine learning has succeeded in reducing about 40% and 60% of the time and costs required by conventional drug discovery pipelines, respectively. Therefore, predicting optimum binding poses, and their free energy values, in a huge number of macromolecular targets and ultra-large libraries, requires artificial intelligence diverse applications to carry out such expensive simulations. In this study, a virtual combinatorial library (1.6M) based on 20 anthraquinones and 24 chalcone core structures was enumerated. The resulting compounds were optimized to the near drug-likeness properties. The physicochemical descriptors were calculated for all datasets and compared with commercially available databases such as FDA, Non-FDA, and natural products (NPs) datasets from ZINC 15. A novel virtual screening method workflow was optimized based on the nature of the protein target. The optimized enumeration resulted in 1,610,268 compounds with NP-Likeness, and synthetic feasibility mean scores close to FDA, Non-FDA, and NPs datasets. The overlap between the chemical space of the created library was more prominent with NPs with the lowest molecular diversity compared with other natural and synthetic medicines databases. Moreover, the consensus scoring methodology that we produced was based on structure-activity relationship, pharmacophore fitness, shape similarity, and docking scores. The optimized virtual screening for the first protein target TDP1 was beneficial in changing the single screening methods and adding more weight to the docking value since it was considered a gold standard in virtual screening. Different targets can be screened in a distinct consensus scoring methodology based on the criteria of the target and experimental datasets available.

| MBSO_8 |

A Quantitative Investigation of Alternatively Spliced *Kcnma1* Transcripts in Cancer Cell Lines and Tissues

Nurhalimah Basyirah Jamaludin, Noor Faizah Mohd Naim, Nuramalina Mumin, Hazim Ghani, Aklimah Mustapa, Zen Huat Lu, Lie Chen

Alternative splicing is one of the most important machinery employed by cells to regulate gene functions. Aberrant splicing has been reported in a broad of genes transcribed in different cancer types. *KCNMA1,* the pore-forming α-subunit gene of the BK channel, is known to generate one of the highest numbers of alternative splicing variants in the human genome to allow it to undertake diverse physiological functions. Although differences in the expression profiles of the gene have been reported in different cancer cells and tissues, the mechanism, in particular the potential role of alternative splicing of *KCNMA1* in carcinogenesis, is still largely unknown. In this study, a comparative qPCR method was used to investigate the exon splicing variants of *KCNMA1* in both lung and breast cancer cell lines, and FFPE breast cancer tissues. Multiple exon splicing variants were identified, generating up to 5 alternative start sites, 5 alternative terminal sites, and 8 alternative variants in the 2nd C-terminal splice site (C2). Furthermore, each exon variant was differentially expressed in different cell lines and tissue samples with varied histo-/molecular characteristics. Our results, thus far, show that some alternatively-spliced *KCNMA1* transcripts may play a part in carcinogenesis, and they may also serve as potential diagnostic and therapeutic markers for breast cancer tissue with different histo-/molecular phonotypes.

Abstracts for Poster Presenters

| HBSP_17 |

Study on Genetic Variation and Clinical Progression of Diabetic Nephropathy (DN) to End-stage Kidney Disease in Brunei Patients

Saifuddien Haji Bagol, Mas Rina Wati Hj Hamid, Zen Huat Lu

In Brunei Darussalam, diabetes has been the 3rd leading cause of death since 2012 with the death rate at its highest in 2017 at 10.1 percent. The prevalence of Diabetes in Brunei was 12.4% and it was estimated that 44% of adult diabetes cases in the community were undiagnosed. There are no genetic studies on patients with Diabetic Nephropathy in Brunei. Identifying genetic factors that contribute to this increased risk is of major importance in addressing renal disease progression. A blood sample will be processed for Whole exome sequencing (WES). WES and epigenetic study will be performed on all patients' samples recruited. Genomic DNA will be extracted by standard protocol from the peripheral blood of patients using a DNA isolation kit. WES will be conducted using the Illumina Nextseq2000 next-generation sequencing machine. Bioinformatics analysis of genetic data; raw data quality assessment and preprocessing, alignment mapping, and variant analysis. A database of genetic variations of patients with DN in Brunei can be produced as a reference for future diagnosis and treatment. This research will also open the door to more research on genetic variations in other diseases including exploring the strategies for therapy targeting particular pathways affected by identified genetic mutations in the pathophysiology of the disease.

| HBSP_18 |

In Silico Investigation of Anthraquinone and Chalcone Derivatives on Breast Cancer Proteins and Establishing a Screening Workflow to Discover Novel Hit Compounds

Chua Hui Ming, Nurol Aini Kifli, Long Chiau Ming, Hui Poh Goh

Cancer remains to be one of the leading causes of death as existing chemotherapy has high toxicity and moderate efficacy. There are several classes of drugs for cancer therapy. Medications sourced from natural products have a long history of treating various human diseases including cancer. Anthraquinone, the largest class of naturally occurring quinones is a potent aromatic compound with anticancer properties. For example, Aloe Emodin is one of the well-known natural anticancer agents. Another class of natural products, Chalcones and their derivatives possess interesting biological activities and these are the important intermediate compounds for the preparation of flavones, flavonoids, and flavanols with potent anti-cancer activity. Thus, virtual screening and *in silico* investigation of the Anthraquinone- and chalcone-derived combinatorial library against potential target proteins could lead to the identification and discovery of new potent anti-cancer compounds. This research is aimed to screen the novel Anthraquinone- and Chalcone-derived combinatorial library against various protein targets responsible for causing Breast Cancer. Various in-silico methods will be used which include pharmacophore modelling, shape similarity screening, docking and molecular dynamic simulation. A screening system will be created based on two software, one commercial and one open access to build models-included workflow. The results from the screening system will be used to identify the best-in-class structures to guide further in-vitro testing. This study would generate essential information for novel selective and potent anti-cancer inhibitors with viable mechanism of action. Thus, this project is expected to give new discovery and knowledge in the field of breast cancer treatment with reduced side effects, which is of national interest.

| HBSP_19 |

Development and Evaluation of Polyherbal Nanoemulsion Mouthwash for Oral Mucositis

Norafiqah binti Yusof, Rajan Rajabalaya, Sheba David

Oral mucositis is defined as inflammatory lesions of the oral mucosa which lead to swelling, redness, and ulcers, causing soreness and pain in the mouth. It is induced by chemotherapy and radiation along the head and neck region, encountered by as much as 54.5% of palliative healthcare professionals in Brunei. Efforts to reduce its severity are therefore crucial as it may interfere with the cancer therapy regimen. It can also lead to poor nutrition intake caused by difficulty in swallowing food. Opportunistic bacterial infections in the oral mucosa can also occur due to poor oral hygiene caused by increased mucus and saliva, potentially causing bacterial dysbiosis that can further aggravate oral mucositis. Efforts proposed include oral decontamination to inhibit bacterial infections such as using mouthwash. However, the use of regular mouthwash containing alcohol and chlorhexidine can cause unpleasant side effects. The development of oral decontaminants derived from natural sources has become a subject of interest. This study aims to develop polyherbal nano-formulations for treating oral mucositis using surfactants and plant extracts namely amla, ginger, curcumin, pomegranate seed oil, clove, holy basil, white tea, and myrrh thus assessing the antibacterial, antioxidant, and anti-inflammatory effects *in-vitro.*

| HBSP_21 |

Anticancer Potential of Silver Nanoparticles Synthesized From Annona Muricata Leaf Extracts on Colorectal Cancer

Nurul Ashifah Shafie, Lim Ya Chee, Rajan Rajabalaya

Green synthesis of metal nanoparticles using medicinal plants has earned immense attention due to its simple and environmentally friendly methods over the use of conventional physical and chemical techniques. Among them, silver nanoparticles (AgNPs) are known to possess therapeutic properties including antiproliferative and apoptosis-inducing properties which is ideal for cancer therapy. In the present study, the green synthesis approach was employed for the synthesis of AgNPs from *Annona muricata* leaves extract (AM-AgNPs) as well as AM-AgNPs coated with stabilising material polyvinylpyrrolidone (PVP-AM-AgNPs). The characterisation was achieved with analytical instruments of UV-Visible Spectroscopy (UV-Vis) and Fourier Transform Infrared Spectroscopy (FTIR) to further elucidate their physiochemical properties. For *in vitro* screening, potential antioxidant was assessed by means of DPPH method, whereas anticancer activities on the human colorectal cancer cell line (HT-29) was determined using MTT assay. The study expects to provide preliminary findings of *in vitro* anticancer activities from both AM-AgNPs and PVP-AM-AgNPs.

| HBSP_22 |

Inhibition of 5-alpha-Reductase Enzymes Activity in Cancer Cells using Aqueous and Ethanolic Extracts of *Gynura procumbens* and *Pandanus amaryllifolius* as A Way to Treat Advanced Prostate Cancer

Nur Aziemah Mohammad Azizi, Sheikh Naeem Shafqat, Nuramalina Mumin

Prostate cancer (CaP) is one of the most frequent cancers in men worldwide. Dihydrotestosterone (DHT), the primary growth modulator of the prostate, is also thought to contribute to the pathogenesis of CaP. 5α-Reductase enzymes (5αRs)-mediated increase in DHT level is detrimental towards CaP. The androgen deprivation approach using 5α-Reductase inhibitors (5αRis) that regulate DHT conversion represents a valid target for CaP treatment strategies. However, current synthetic 5αRis (finasteride and dutasteride) are reported to have numerous adverse effects. Plant sources rich in bioactive compounds with medicinal properties exhibit favourable side effects and have fewer toxic profiles than conventional treatment. Therefore, the present study aims to identify herbal compounds from locally found plants that can act as effective 5αRis agents with anti-5αRs activity as potential novel drug targets for advanced CaP treatment strategies. Three stages of experimental studies will be carried out, namely; i) plant studies, which include the plants' selection, extraction, and phytochemical analyses; ii) cellular studies for the cultivation and establishment of 5αRs-mediated DHT conversion expression system in cell lines; and iii) 5αRs-inhibition activities studies to investigate the inhibitory profiles of both synthetic and herbal 5αRis. The findings from the study are hoped to provide beneficial insights to improve the health of individuals with CaP.

| MBSP_1 |

Investigation of anti-cancer activities in neuroblastoma cells

Lim Siao Suan, Suwarni Hj Mohd Diah

Morus Alba L. has been used as a traditional anti-inflammatory, anti-cancer, and expectorant medicine. Their anti-cancer properties have been previously investigated in several cancer cell types. However, no studies have looked at Brunei-grown *Morus Alba*'s extracts and their anti-cancer activity thus far. Therefore, this study examined Morus Alba leaves' and root bark extract's ability to suppress the migration and proliferation of neuroblastoma cancer cells. Cell viability assessment via MTT assay showed that methanolic and ethanolic root bark extracts reduce cell viability in a concentration-dependent manner, with ethanolic root bark extract showing more potent results. However, no significant effect was observed with Morus Alba leaves extract-treated cells. Trypan blue exclusion assay demonstrated similar results. From HPLC results, ethanolic root bark extract was observed to contain morusin, one of the flavonoids believed to be the leading cause of cell reduction. Further experiments will be performed to investigate the mechanism of action for ethanolic root bark extract; this includes annexin V- propidium iodide assay, western blotting, and TUNEL assay. To the best of our knowledge, this is the first study investigating Morus Alba locally obtained from Brunei Darussalam, with promising therapeutic potential.

| MBSP_2 |

Electrochemical Aptasensors Based on Hydrogel Polymer and Gold Nanoparticles for The Detection of Lipocalin-2 and Interleukin-6

Mohammad Akmal Hamizan bin Haji Mohamad Nasrul Sani, Noor Faizah Mohd Naim

Over the past years, cancer's increasing incidence and mortality rate made it one of the world's most life-threatening diseases. Due to limitations in cancer diagnosis and therapy, patients' survival rate and treatment became highly dependent on early diagnosis. Cancer biomarker-based biosensor has a vital role in improving cancer diagnosis toward the early stages. Two electrochemical aptasensors were developed for the detection of cancer biomarkers, namely Lipocalin-2 (LCN-2) and Interleukin-6 (IL-6). LCN-2 aptasensor was designed based on glassy carbon electrodes (GCE) modified with a nanocomposite consisting of chitosan (CS), gold nanorods (AuNR), and gold nano-urchins (AuNU). IL-6 aptasensor was screen-printed carbon electrode (SPCE)-based modified with polyacrylamide (PAA), gold nano-colloids (AuNC), and gold nano-wires (AuNW). The presence of polymers and gold nanoparticles on the surface of the electrodes allowed the immobilization of thiolated aptamers on the electrode through sulfur-gold bonding. The aptamer is a DNA oligonucleotide used to specifically capture the target proteins on the biosensor surface. All modification steps on both electrodes, including optimization of the biosensor and characterization, were performed using cyclic voltammetry (CV) and deep pulse voltammetry (DPV). After the optimization steps are completed, the sensitivity, selectivity, and reproducibility of the aptasensor, including real sample analysis, will be examined.

| MBSP_4 |

Analysing The Anthelmintic Property of *Justicia gendarussa 'Variegata'* Extract Using *Caenorhabditis elegans*

Nor Hafizah binti Ihsan Sabre, Mark I.R. Petalcorin

Cases of anthelmintic drug resistance amongst parasitic nematodes that infect both humans and animals have increased the demand to find new anthelmintic drugs, creating an opportunity for drug discovery from natural sources such as medicinal plants. *Justicia gendarussa 'Variegata'* (JGV) is the variegated species of *Justicia gendarussa* which is a plant commonly found in Asian countries with tropical climates. It is a shade-loving shrub known for its various traditional medical benefits. *Justicia gendarussa* has been reported to have various pharmacological activities including anthelmintic activity against the worm, *Pheretima posthuma*, which led us to further investigate its anthelmintic property using *Caenorhabditis elegans (C. elegans)* as a model system. In this study, methanolic extracts were obtained from powdered leaves and were used to assess the toxicity, thrashing movement, chemotaxis, and fertility effects on *C. elegans* in conjunction with high-performance liquid chromatography (HPLC) analysis of fractionated compounds from the leaf extract. Results revealed that the JGV methanolic leaf extract was significantly toxic to *C. elegans*, affecting its fertility, motility, and avoidance behaviour. The percent mortality of *C. elegans* was increasingly dose-dependent on JGV extract, producing an LC_{50} of 5.50 mg/mL. Furthermore, several of the HPLC-separated chemical compounds from JGV extract showed significant toxic effects, demonstrating that JGV possesses strong anthelmintic activity against *C. elegans*, the mechanism of which is unknown, but can be further exploited for the potential discovery of a novel anthelmintic drug.

| MBSP_5 |

Antimicrobial Activity of Standardized Methanolic and Ethanolic Extracts of *Morus alba* L leaves on Selected Clinical Microbial strains

Fatin Amirah Fikriyah binti Abd Rahman, Siti Hanna Muharram

In recent years, there has been an alarming increase in antimicrobial-resistant microbial strains against available antibiotics. As a result, plants have been one of the targets for investigating compounds potentially having antimicrobial properties as they are easily obtainable and have been used by people to treat multiple diseases for thousands of years. This study aims to investigate the antimicrobial activity of local *Morus alba* L leaves on selected clinical microbial strains. *M. alba* L leaves were extracted using a microwave-assisted extraction method using ethanol or methanol. Qualitative phytochemical studies were then performed to test for the presence of active compounds in the extracts. Minimum inhibitory concentration (MIC) test, minimum bactericidal concentration (MBC) test and biofilm studies were performed to investigate the antimicrobial activity of the extracts against clinical and American Type Culture Collection (ATCC) bacterial strains. The Gram-positive bacteria strains used were *Staphylococcus aureus*, *Staphylococcus epidermidis* and methicillin-resistant *S. aureus*, whereas the Gram-negative bacteria strains used were *Escherichia coli*, *Klebsiella pneumoniae*, susceptible and multi-drug resistant *Acinetobacter baumannii*. The investigation is still ongoing. Phytochemical studies show that flavonoid, tannins and phenolic compounds, which have been shown to have antimicrobial activity, were present in both methanolic and ethanolic extracts. MIC results show that there was inhibition against all Gram-positive bacteria strains whereas there was no inhibition against any of the Gram-negative bacteria strains. MBC test was performed on Gram-positive bacteria and the results show that the MBC results were higher than that of MIC. Finally, biofilm studies on most Gram-positive bacteria showed that as the concentration of extract increases, biofilm also increases. The *M. alba* L leaves extracts have shown positive antimicrobial activity against Gram positive bacteria. Further investigation of the isolation of active compounds from the extracts can be done.

| HCSP_23 |

Outcomes of Internationalization of Undergraduate Medical Education: An Integrated Review

Divya Thirumalai Rajam, Khadizah Hj Abd Mumin

Internationalization including medical education becomes an inevitable trend in the 21st century. Global student mobility increasing exponentially due to internationalization nonetheless the benefits it is less studied. Although, diverse evidence on many aspects of the internationalization of medical education in general found, less is systematically derived on outcomes and benefits of internationalization. An integrated review was performed to collate, organize and synthesize published primary evidence, both qualitative and quantitative papers on outcomes of internationalized undergraduate medical education. Five databases used which include PubMed, Medline, Science Direct, Google Scholar, and Ovid, were systematically searched for studies published in the English language from 2000 – 2017. Reference lists and grey literature were also used as search strategies Using (Whittemore and Knafl, 2005) integrative review framework, a thematic analysis was used to analyze and identify key themes. Analysis of 7 eligible studies resulted in the formation of six themes. The real benefits expressed by a change in intellectual abilities with the knowledge gained, accreditation of the education globally, internationalized clinical practice, addressing home country health needs with cultural competence, financial recognition by the home country, and duration of students' exposure to internationalization. Our review concludes that the outcomes of internationalized undergraduate medical education enrich the healthcare of the home country through the acquired knowledge reflected in clinical practice, research, professional development, quality assurance, cultural competence, international accreditation, and global recognition. Financial appreciation and recognition of internationally trained clinicians need to be considered. Future research should address the personal, professional, and home country benefits of student mobility for higher education internationally and evaluate it on regular basis for the quality assured undergraduate medical education.

| HMWP_24 |

“It may be brief, but we don’t want to be left in the dark…” A qualitative exploratory research on the transition of care for women experiencing miscarriages at the Emergency Department

Nur Syafiqah Haji Saime, Khadizah Hj Abd Mumin

Miscarriages and stillbirths can be very distressing and traumatic for women, their families, and healthcare workers. The support provided was often superficial and focused on medical tasks rather than caring as a whole. Nurses and midwives were often taught to 'care in darkness' as it is ingrained in their identity, which represents the struggles that lie ahead as they cope with organisational difficulties, lack of knowledge and care that requires beyond. The objective of this study is to explore nurses’ and midwives’ preparedness in caring for women experiencing pregnancy loss. An exploratory qualitative study was used to better understand the gap in the care practice given to women experiencing pregnancy loss. Data were analysed using thematic analysis. In practice, nurses and midwives expressed that caring for parents following a miscarriage is stressful and challenging. They reported their lack of preparedness and confidence to provide perinatal bereavement care, was because of the feelings of inadequacy of empathy skills; or resistance to be involved with caring for the bereaved women as it involves loss or death; or cultural barriers such as the feeling of awkwardness in approaching the women; or fear of causing more stress and pain. There is a need to establish a comprehensive and systematic training programme as a foundation to meet the educational needs of nurses and midwives and enhance their preparedness when giving care. Ongoing training and support should be provided to ensure the highest quality of care.

| MNRP_10 |

Perceived Stress Level Related to Personality Trait, Chronotype Profile and Eating Behaviour Among Hospital and Community Nurses in Brunei Darussalam

Nurul Nazurah binti Haji Julaini, Hanif bin Abdul Rahman

High levels of stress brought about hazardous impacts on nurses' health, well-being, job satisfaction and abilities to cope with the job demands, which in turn may impact the provision of quality patient care. The literature suggests evidence of stress associated with personality, chronotype and eating behaviour, but no studies have examined this relationship simultaneously. Therefore, this study aims to explore perceived stress levels related to these three factors among hospital and community nurses in Brunei. This is a quantitative research method with a cross-sectional study design. The targeted participants will be nurses from public hospitals and community health centres from all districts in the country. The questionnaire will consist of a collection of demographic data to assess the general characteristics of participants, 10-items PSS to measure stress level, 10-items brief BFI to identify personality, 19-items MEQ to identify chronotype and 29-items SEBQ to identify eating behaviour. The statistical analysis will include descriptive, linear and logistic regression and structural equation modelling. This study may contribute to the body knowledge of nursing by providing a better understanding of how these factors are interlinked. The findings of this study will be beneficial for individuals and organizations to take a proactive approach to reduce stress.

| MNRP_11 |

Application of Digital Health Services in Caring for Patients with Life-limiting Illnesses: An Exploratory Qualitative and Data Analytic Approaches

Nurfatin Amalina binti Haji Masri, Asmah Husaini, Hanif Abdul Rahman, Yusuf Shaharudin

The persistent increase in cases of non-communicable diseases has resulted in a growing number of patients with life-limiting illnesses. This added to the burden of an already over-stretched healthcare system has worsened existing issues, particularly on nurses' intention to quit the profession, which further aggravates the shortage of healthcare workers. Over the past decade, healthcare organizations have turned to the adoption of digital health services as one of the main strategies to combat these issues. However, many challenges persist and we need to understand them to ensure the effective implementation of these digital health services. To explore the challenges of using digital health services amongst healthcare professionals caring for life-limiting illnesses patients, patients with life-limiting illnesses, and their carers. The two-stage exploratory qualitative study will be carried out using a semi-structured interview. In the first stage, a purposive sample of healthcare professionals that include eligible nurses and doctors will be recruited to explore their experiences. In the second stage, a purposive sample of patients with life-limiting illnesses and their carers will be interviewed. The participants will be selected via purposive sampling and a one-to-one interview will be carried out either in-person or via Zoom Online Communication. The data will be analyzed using Braun and Clark's (2006) six steps of thematic analysis. Big data analytic techniques such as text mining and Apriori association rules will also be applied to generate data-driven themes from the responses gathered. The findings of this study will provide an in-depth understanding of the experiences and challenges that arises in using digital health services in the care and treatment of patients with life-limiting illnesses. This study may also uncover opportunities and ways to improve existing services, as well as, formulate new research ideas that could be explored more in future research.

| MNRP_14 |

Prevalence and The Predictive Risk Factors of Compassion Fatigue Among Nurses in High Dependency Units at Public Hospitals in Brunei Darussalam

Hamyzan Bin Layak, Mursidi Bin Haji Ali

Nursing is a noble and caring profession. However, as nurses are directly involved with the patient's care, witnessing patients who are dealing with complex health issues, emotional demand, traumatic situations, hopelessness, pain, life-threatening situation, and even death, are not uncommon events, especially in high acuity areas and such encounters may even occur frequently. Thus, caring in nursing comes with a cost - a phenomenon known as compassion fatigue (CF). Described as the 'loss of ability to nurture', the consequences are detrimental to the physical, emotional, social, spiritual, and work of a nurse. This, in return, will affect the quality of care delivered to the patients and the patient-nurse relationship. As the phenomenon is still understudied in the local context, this study serves to investigate the prevalence and predictive risk factors of CF among nurses working in high-dependency units in primary hospitals in Brunei Darussalam. The quantitative study will be utilizing an adapted questionnaire known as the Professional Quality of Life Scale version 5 (Pro-QOL 5), comprising of 30 items as a tool for data collection. The participants recruited using purposive sampling will be nurses who are working in the high-dependency units from the primary hospitals in all four districts. The findings from the study will serve as a baseline and provide statistical evidence of how compassion fatigue is a clinical problem among nurses working in the high-dependency units in Brunei Darussalam's major hospitals. The data obtained will also be useful for policymakers as well as the organization to develop policies and interventions which will be beneficial in tackling the risk of developing compassion fatigue among nurses.

P A P R S B
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4TH ANNUAL GRADUATE RESEARCH DAY 2023

Day: Wednesday
Date: 22nd February 2023
Time: 7.00am – 4.30pm
Venue: LT. 2, IHS Ext. Building
Theme: Research in Health Sciences

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DR ANNE CATHERINE CUNNINGHAM

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Acknowledgement

Special Thanks to our Sponsors

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