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G.A.D.S.B. Siriwardhana, Sonam Yangchen, S.M.N. Sosai, D.M.S. Jayawardene

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M.P. Rajapaksha, I. Waidyatilaka

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D.A. Liyanapathirana, L. Jurmey, A.R.A. Madarasinghe, S.M. Senanayake

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K. Varatharajan, H.D.S.P. Vidumina, K.A.U.H. Vithana, W.S.P. Abeysinghe

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U.H.S.N. Wijerathne, S. Wijesekara, D.A.T.V. Wijesekara, W.M.A.C. Wijesundara, N. Chandraratne

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H. Madurangi, R. Cassim

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G.K.H.P. Sumanarathne, R. Dissanayake

SOP-11: Knowledge, practices and their correlates related to adequate water intake among schoolteachers in Colombo Educational Zone

B.D.M.N. Bandara, F.R.A. Azeez, E.A.R.Y. Athukorala, H.W.W. Goonasekera

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P.P. Karunarathne, A.W.W.W. Karunasinghe, D.T.D.H. Karunathilaka, D.C. Ranasinghe

SOP-13: Knowledge, attitudes and prevalence of selected cardiovascular disease risk factors among Advanced Level students in government schools in Colombo Municipal Council Area

S. Vinoprasath, L.V.U. Wanigasuriya, S.B.K. Warnasinghe, W.D.C.N. Adikaram

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M.S.A. Deedat, M.M.K. De Silva, D.D.I.T Dehipitiya, U. Mannapperuma

SPP-02: Level of COVID-19 related anxiety, its associated factors and coping mechanisms of Grade 9 female students in two schools

W.D.D. Silva, B.M.H.M. Singhakumara, M.A.F. Sireena, D.B.D.L. Samaranayake

SPP-03: Practices regarding NCD related risk factors among preoperative coronary artery bypass grafting patients in Teaching Hospital, Karapitiya

P.H.P. Dissanayake, G.R. Constantine

SPP-04: Risk of falls among elderly patients with type 2 diabetes mellitus attending clinic at Kegalle Teaching Hospital, Sri Lanka

B.M.R.U. Buddhasinghe, P. Galappaththy

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P.W. Abeygunawardana, L.R. Jayalath

SPP-06: Relationship between lower limb muscle strength, arm span and balance for player performance in selected basketball clubs in Colombo District

P.R.P.T. Ishani, J.L.R. Jayalath

SPP-07: Prevalence, causes and responses to work-related musculoskeletal disorders among government physiotherapists in selected hospitals of Colombo District

H.B.S.D. Kawshan, P. Galappaththy

SPP-08: Relationship between physical activity level and academic self-efficacy among physiotherapy undergraduates, Faculty of Medicine, University of Colombo.

H.M.S.N.K. Ariyaratne, R. Jayawardena

SPP-09: Relationship between perceived stress and body mass index among physiotherapy students of a university in Sri Lanka

J.V.W. Liyanage, D.G.S.K.L. Jayawardana

SPP-10: Emotional intelligence among national and university level badminton players in Sri Lanka

K.H.K.C. Kariyawasam, D.C. Ranasinghe

SPP-11: Relationship between duration of employment and ankle swelling among female garment factory workers at a selected garment factory

A. Fernando, R. Jayawardene

Non-Communicable Diseases

OP-01: Cardiovascular response to isometric handgrip in healthy long-term meditators: a comparative study

L.J.U. Karunarathne, W.D.A.L. Amarasiri, A.D.A. Fernando

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Introduction: Effects of meditation on the cardiovascular system are mediated through the autonomic nervous system. Meditators are thought to have lower sympathetic activity. We evaluated cardiovascular response to isometric handgrip test (IHG) in healthy long-term meditators (LTMs) and non-meditators.

Methods: This cross-sectional comparative study compared 18 healthy LTMs practicing Buddhist meditation consistently >3 years, selected by a validated intake interview, with 18 age-sex matched healthy non-meditators, selected through purposive sampling as controls. Participants performed IHG at 30% of maximal voluntary contraction for three minutes with MLT004/ST Grip Force Transducer and Power Lab 4/26 (AD Instruments) in the supine position. Non-dominant arm systolic blood pressure (SBP) and diastolic blood pressure (DBP) was measured in the last 15 seconds of every minute, two minutes before, after and during IHG by a calibrated automated BP metre. The differences of parameters between the highest BP during IHG and at baseline were taken as the measure of response. Mann-Whitney U test assessed between-group comparisons.

Results: The LTMs (50% male; mean (SD) age 41.44 (12.73) years) and the controls (50% male; mean (SD) age 43.39 (8.51) years) were comparable. LTMs had meditated mean (SD) 12.28 (7.18) years, with mean (SD) frequency of 10.17 (4.57) hours per week. Mean (SD) of resting SBP [103.56 (5.43) vs. 116.94 (10.86) mmHg; $p < 0.001$], DBP [63.56 (6.06) vs. 70.5 (7.38) mmHg; $p < 0.01$] and heart rate (HR) [57.11 (5.72) vs. 66.17 (9.15) beats. min^{-1} ; $p = 0.001$] were lower in LTMs compared to controls. In response to IHG, increase in DBP [mean (SD); 22.78 (5.07) vs. 28.67 (7.87) mmHg; $p = 0.012$], SBP [median (IQR); 22.5 (14.75) vs. 33 (20.5) mmHg; $p = 0.029$] and HR [mean (SD); 16.33 (8.07) vs. 17.33 (7.01) beats. min^{-1} ; $p > 0.05$] were lower in LTMs than controls.

Conclusions: Smaller increase in DBP, SBP and HR on sustained grip indicates possible lower

sympathetic activity in LTMs than non-meditators.

Keywords: long-term meditation, sympathetic nervous system function, sympathetic activity, isometric handgrip test, cardiovascular response

OP-02: Barriers to obesity management of obese young adults: perspectives of healthcare professionals

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Introduction: Understanding the barriers experienced by key stakeholders is important in planning effective population-specific weight management interventions. Obese individuals and healthcare professionals (HCPs) managing them are the key stakeholders in obesity management. This study aimed to explore the barriers perceived by HCPs in the obesity management of obese young adults in urban Sri Lanka.

Methods: This qualitative study was conducted as a needs assessment for the development of a weight management programme targeting obese (BMI ≥ 25 kg/m^2) young adults (18-35 years) in the Colombo district. A sample of HCPs ($n=8$) encompassing the specialties involved in obesity management in different settings of the Colombo district was purposively chosen for the study. The data collection was done by guided semi-structured interviews up to the point of saturation. Data were analysed by the framework method under thematic analysis. The themes identified were categorised into three groups of barriers; HCP-related, client-related and healthcare system-related.

Results: The HCPs were in the fields of nutrition (2), psychology (2), sports medicine (1), physiotherapy (1), endocrinology (1) and yoga (1), with years of

experience varying between 2-23 years. Five main themes were identified as barriers to obesity management. HCP-related barriers were inadequate knowledge and confidence of HCPs, especially on comprehensive weight management consisting of dietary, physical activity and behavioural components, and attitudes of HCPs towards their clients. Inadequate motivation and poor compliance, and cultural influences and myths were the client-related barriers. The resource and service limitations emerged as the healthcare system-related barrier.

Conclusions: This study provides new insight into the field of obesity management. Since HCPs are considered as key stakeholders, identifying the barriers perceived by them is crucial when planning culturally sensitive, population-specific weight management programmes for obese young adults in urban Sri Lanka.

Keywords: obesity, young adults, obesity management, barriers, healthcare professionals

OP-03: Early results of an amputee care pathway: a single unit experience

C.M. Gurusinghe, A.G.A.V.J. Abeysinghe, T.D. Gooneratne

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Introduction: Major lower limb amputation in critical limb ischemia is associated with significant mortality, morbidity and poor quality of life. The first multidisciplinary amputation care pathway in Sri Lanka was established in January 2022 to improve survival, use of prostheses and reintegration into society. In this study, we present the early outcomes of this amputation care pathway.

Methods: All patients with critical limb ischemia who underwent major lower limb amputation in the University Vascular Unit of the National Hospital of Sri Lanka (NHSL) were included in the amputation care pathway. The patients underwent amputation due to non revascularizability of the limb, failed revascularization, non-functional limb or sepsis. Patients were prospectively followed up at three-monthly intervals regarding their adherence to the care pathway, quality of life and use of prosthesis. The level of quality of life was measured using a standard tool; the 5Q-5D-5L index.

Results: Thirty amputees were included in the study.

The mean age was 62 years (37–82 years). The majority were female (60.0%) with diabetes mellitus (90.0%), hyperlipidaemia (56.7%) and hypertension (43.3%). All patients received preoperative optimization when possible and physiotherapy, occupational therapy and prosthesis input before discharge. 30-day and 90-day mortality were 33.3% and 46.6%, respectively. Twelve defaulted follow-up and only four were following the care pathway at the three-month analysis. Distance of residence <50 km to NHSL (75.0% vs. 8.0%; $p < 0.05$); was the only significant factor affecting compliance with the care pathway. The mean 5Q-5D-5L value before amputation was 0.62 (0-1). The mean quality of life score in the patients who followed the amputation care pathway at the three-month follow-up was 0.75. None were using prostheses at the 3-month follow-up.

Conclusions: Early results of the amputation care pathway demonstrate the potential for improving perioperative mortality, quality of life and prosthesis use. Establishing new centres or liaising with existing regional centres will enable the continuation of post-amputee rehabilitation to improve the outcome of this patient cohort.

Keywords: amputee care pathway, post-amputee rehabilitation, quality of life

OP-05: Television marketing of food and non-alcoholic beverages (FNAB) high in fats to children in Sri Lanka

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Introduction: Dietary fat exerts a significant risk of coronary heart disease (CHD) and obesity, which is on the rise in children. Television marketing of food and non-alcoholic beverages (FNAB) influences the dietary choices of children. There is a global interest in reducing fat, particularly trans-fat, contents in food and in regulating unhealthy FNAB marketing to children. This study aimed to explore the extent of the television marketing of FNAB high in fat, to which Sri Lankan children are potentially exposed.

Methods: The analysis was on FNAB products advertised over 33 hours on the three most popular television channels for children aged 4-16 years in Sri Lanka. The International Network for Food and Obesity/NCDs Research, Monitoring and Action Support (INFORMAS) Network Protocol was used, and the food products were categorised as ‘permitted’ or ‘non-permitted based on their fat content according to the WHO-South-East Asia Region (SEARO)-Nutrient Profile Model (NPM).

Results: Of the 1517 advertisements, 321 were on 56 FNAB products. Twenty FNAB products out of 56 (35.7%) were non-permitted to be marketed to children due to their high-fat content [biscuits (n=9), instant noodles (n=3), seasoning (n=2), burgers (n=2), pizzas (n=2), ice-cream (n=1) and milk formula for 2-5-year-olds (n=1)]. Notably, in all FNAB, there was no mention of trans-fat, except for pizza and burger. The advertisements on non-permitted food products included claims (e.g. biscuits: ‘Enriched with Vitamins A, D, and E’ and formula milk: ‘Fortified with Omega-3’) potentially masking the perception of the high-fat content in them.

Conclusions: More than one-third of the FNABs marketed on children’s popular television channels were non-permitted due to their high-fat content. Sri Lankan children watching popular channels are exposed to unhealthy FNAB advertisements. Regulatory actions are necessary to prevent this, therefore reducing the burden of CHD and obesity in children.

Keywords: fat, trans fat, FNAB marketing, television advertising, food advertising

Funding: International Development Research Centre (IDRC), Grant Number: 109170

OP-06: How do online and street vended lunch packets compare with nutritional recommendations for non-communicable disease prevention?

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Introduction: Out-of-home food consumption has

increased significantly over the last few years. The aim of this study was to analyse the energy, macronutrients, fibre and sodium content in lunch packets obtained from the Colombo Municipal Council Area.

Methods: Of all available online vendors selling lunch packets (n=40), twenty were randomly selected. A further eight street food vendors were conveniently selected. Three packets were obtained from each vendor, homogenised and analysed. A total of 28 samples were analysed for sodium content using flame-photometry. Contents were weighed to analyse energy, macronutrient and fibre using food composition tables and to assess adequacy of food groups in relation to food based dietary guidelines.

Results: The mean sodium content of food was 147.6 (SD=20.7) mg/100g. There was no significant difference in sodium content between online and street vended packets. Packets were categorised as chicken, fish, egg and vegetarian packets. Packets consisted of four, five or six accompaniments, and gravy was included in some. Sodium content in chicken lunch packets was significantly higher (p=0.008) than fish lunch packets. Packets with six curries had significantly higher sodium content than packets with four (p=0.012) or five (p=0.003) curries. The sodium content was significantly higher (p=0.006) in packets with gravy than without. Also, 25.0% of packets had a sodium content above recommendation. Majority of packets had carbohydrate (89.3%) content above recommendation, while fibre (64.3%) and fat (75%) content were below recommendations. Only 14.26% had protein content below recommendations, while 74.1% were above or within recommendation for the vegetable group.

Conclusions: While one fourth of packets had sodium above the acceptable limit, inclusion of gravy increased the sodium content. Majority of packets did not satisfy fibre recommendations and exceeded recommendations for carbohydrate, indicating reduced healthfulness with respect to recommendations for non-communicable disease prevention.

Keywords: energy content, nutrient composition, sodium content, online vendors

Infectious Diseases

OP-07: Rational use of diagnostics for acute dengue infection

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Introduction: Large numbers of suspected cases of dengue are admitted to hospital for monitoring and care. Considering the ongoing limitations on health budgets, we assessed the sensitivity and implications of NS1/IgM/IgG lateral flow immunochromatographic assay (LFIA) and reverse transcriptase polymerase chain reaction (RT-PCR) in the management of hospitalised patients with acute undifferentiated febrile illness (AUFI).

Methods: We prospectively recruited 151 patients admitted to a district hospital in the Western Province within seven days of fever onset. Data were collected on presumed diagnosis, investigations and treatment on admission. Serum samples were separated and stored at -80°C pending LFIA for NS1, IgM and IgG and RT-PCR. Sensitivity was compared to a composite gold standard of RT-PCR and/or NS1 positivity.

Results: Dengue diagnostics were performed on serum collected at a median of 4 days (IQR 3 to 5) post onset of fever. 82/151 were confirmed as dengue (75/151 by RT-PCR, 70/151 by NS1 and 63/151 by both). Sensitivity of NS1 and RT-PCR were 85.0% and 91.0%. Only 38/82 (45.0%) were IgM positive (median day of fever 4, range 2-6). 52/82 (63.0%) were secondary dengue infections (IgG positive). A third, 28/82 (34%) had platelets in the normal range >150 x10³/uL. Antibiotics were used in management of 14/82 (17.0%) of dengue patients. Where NS1 was not performed on admission (n=60), a clinical diagnosis of dengue was made in 15/60 (25.0%), of whom eight (53.0%) were confirmed as dengue on NS1/RT-PCR. Conversely, dengue was confirmed by NS1/RT-PCR in 10/60 (17.0%) patients without a clinical diagnosis of dengue, and antibiotics were used in 6/10 (60.0%) of these patients.

Conclusions: In this cohort, the clinical diagnosis of dengue had a low precision. Sensitivity of NS1 was comparable to RT-PCR, even in secondary dengue patients. Rational use of diagnostics reduces inappropriate use of antibiotics in hospitalised patients with AUFI.

Keywords: dengue diagnostics, inpatient management, rational use

OP-08: Improved in-house ELISA assay for serodiagnosis of *Leishmania donovani* induced cutaneous leishmaniasis in Sri Lanka

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Introduction: In Sri Lanka, cutaneous leishmaniasis (CL) is caused by a genetic variant of a visceralizing parasitic species called *Leishmania donovani*. A high seroprevalence of 82% has been observed in Sri Lanka during a previous study. The National Action Plan of Leishmaniasis Control of Sri Lanka and the World Health Organization have recognized the significance of the development of diagnostic methods in disease control. Sensitive serodiagnostic methods will minimise the cost, need for second-line investigations, and need for methods that require invasive sampling. In this study, the diagnostic accuracy of a previously developed ELISA assay was improved further.

Methods: A total of 100 samples were used (50 laboratory confirmed CL, 50 controls). Modified and previously used methods were utilised. The composition of the cell lysis buffer, blocking buffer, concentration of primary antibody and incubation periods were modified. Standard statistical methods using SPSS were used for data analysis and validation.

Results: The original method showed 78.0% sensitivity, positive predictive value of 97.5% and negative predictive value of 81.7% at a high specificity of 98.0%. The modified method showed 86.0% sensitivity, positive predictive value of 97.7% and negative predictive value of 87.5% at 98.0% specificity. The sensitivity of modified ELISA could

be further increased up to 94.0% with a reduction of specificity to 86.0%. However, this was not further examined since a high specificity is also required in a tropical setting where many clinically similar conditions are prevalent.

Conclusions: Since established serological tools gave poor response locally, improving and assessing the usefulness of the tools both in patients and field asymptomatic case screening in local settings will be useful. The modified ELISA assay can be used in the laboratory for confirmation of active CL. Its ability to be used in the field screening of asymptomatic cases can also be evaluated.

Keywords: ELISA, cutaneous leishmaniasis, *Leishmania donovani*, Sri Lanka

OP-09: Usefulness of different fractions of cell lysate of *Leishmania* in serodiagnosis of leishmaniasis: a preliminary study

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Introduction: Leishmaniasis is a vector-borne parasitic disease. Three major clinical forms exist: visceral leishmaniasis (VL), cutaneous leishmaniasis (CL) and mucocutaneous leishmaniasis (MCL). CL is predominant in Sri Lanka. Established serological assays (rK 39 dipstick assay) result in a lower response for local patients, demanding a local parasite-based assay. Therefore, an in-house enzyme-linked immunosorbent assay (ELISA) was developed using whole cell lysate of parasites. Use of whole cell lysate of *Leishmania* species in ELISA can result in non-specific binding with the ELISA plates leading to unreliable results. We examined the usefulness of different fractions of antigens in ELISA as a better diagnostic approach in leishmaniasis.

Methods: The promastigotes of *Leishmania donovani* were cultured following in-house protocols. Whole cell lysate was prepared and fractionated to obtain whole crude lysate as fraction one (F1), supernatant of whole crude lysate as fraction two (F2), total soluble antigens (F2 and mostly peripheral membrane antigens) as fraction three (F3) and

insoluble antigens as fraction four (F4). A modified micro-Lowry assay was carried out to estimate protein content. ELISA was carried out using 60 serum samples (n=30 laboratory-confirmed CL positive and 30 controls) using the in-house protocol. Ethical approval (EC-14-154) was obtained from the Ethics Review Committee, University of Colombo. A literature-based antigen study was carried out considering 20 *Leishmania* antigens to identify the distribution of antigens in each antigen fraction.

Results: Higher ELISA values were obtained for F1 (0.476) and F3 (0.444). F4 (0.158) reported the lowest values. ELISA absorbance values of control samples of F1 (0.21) were higher in comparison to F3 (0.177). According to literature-based antigen studies, F1 (20) and F3 (14) consist of a higher number of antigens which are mostly immune-dominant compared to F2 (12) and F4 (9).

Conclusions: F3 may be better than F1 for patient diagnosis. Antigen profiling can be carried out for confirmation.

Keywords: *Leishmania donovani*, cutaneous leishmaniasis, whole cell lysate, antigen fractions, enzyme-linked immunosorbent assay

OP-10: The impact of COVID-19 pandemic on visually disabled persons in Sri Lanka and their suggestions for a better support system

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Introduction: Individuals with visual disabilities (VD) are under privileged and face many challenges in their daily lives. The aim of the current study was to describe the impact of the COVID-19 pandemic on persons with VD in Sri Lanka and their suggestions for a better support system.

Methods: A descriptive cross-sectional study, using a telephone-based interviewer administered

questionnaire was carried out on fifty individuals with VD who were members of the Sri Lanka Federation for the Visually Handicapped or Sri Lanka Council of Visually Handicapped Graduates selected using convenient sampling. Suggestions for improvement were obtained by carrying out in depth interviews via telephone.

Results: Although 76% (n=38) identified N-95 masks as best for COVID-19 protection and 100% (n=50) identified that crowded places and touching surfaces used by public increased the risk of COVID-19 transmission, only 36% (n=18) knew that spread of COVID-19 occurs through air. Nearly 46% (n=23) found it challenging to secure transport to obtain medical services, while 22% (n=11) did not seek medical care due to fear of COVID-19. Majority (n=35; 70%) found not being able to touch surfaces challenging, while 50% (n=25) found maintaining social distancing a challenge. Majority (n=45; 90%) found financial issues a challenge. Nearly 30% (n=15) faced emotional violence during this period. All (n=50; 100%) stated that government policies, circulars and guidelines on COVID-19 did not pay attention to people with disabilities. A dedicated hotline for disabled persons, improved e-banking automatic teller machine facilities with read aloud option, providing educational, economic and counselling support for disabled persons were the suggestions for a better support system.

Conclusions: Although knowledge regarding COVID-19 was good, many challenges were identified that affected those with VD. Suggestions put forward should be taken into consideration to provide a better environment for them during future COVID-19 pandemics.

Keywords: COVID-19 pandemic, visual disabilities, knowledge, visual challenges, visually handicapped

OP-11: Student perceptions about the impact of the COVID-19 pandemic on their educational and personal life: a cross-sectional study in the Colombo Medical Faculty

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Introduction: The COVID-19 pandemic has impacted university education worldwide. This study aimed to examine undergraduates' perceptions on how their learning and lifestyle were affected and the institutional support they received during the pandemic.

Methods: A descriptive cross-sectional study was conducted between January 2021 to March 2022 using an online questionnaire at the Colombo Medical Faculty among all students from the first to fifth year (n=1120). The participants used a Likert scale to rate their degree of agreement on how they were affected by the pandemic. The data were dichotomized (i.e., as 'agree'/'disagree') to examine its association with the students' demographic characteristics using Chi-squared test. A p value of <0.05 was considered significant.

Results: The response rate was low (249; 22.23%). The mean age of participants was 22.3 years (SD=2.0) with a predominance of females (62.2%). A majority disagreed that they had higher monthly expenditure due to online learning, or that they faced technical problems, and that they had been negatively affected by delayed examinations. A majority also indicated that they had been negatively affected by examinations being clumped together and that they were anxious about the future, and this was seen more among junior (1st and 2nd years) as compared to senior students (3rd, 4th and final years). Only half of the sample indicated that the personal tutor scheme was helpful, while 60.0% of those residing in the hostel did not indicate satisfaction with hostel facilities. Watching movies or television series (85.1%) was the highest reported leisure activity. Cooking (56.2%) and gardening (25.3%) were reported as new skills acquired.

Conclusions: The majority of students did not face accessibility issues during online learning. The changes in the programme due to the pandemic may have led to difficulties in exam performance and feelings of uncertainty and this was more among the junior students. The faculty support services need to be further improved to meet the students' needs.

Keywords: COVID-19, medical students, online learning

OP-12: National survey of practices adopted for reconstitution, storage, administration, and disposal of antibacterial agents in neonatal units in Sri Lanka

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Introduction: Optimal use of antibacterial agents (ABAs) includes correct practices of reconstitution, storage, administration, and disposal of leftovers. Inappropriate practices contribute to emergence and spread of antibacterial resistance. These practices are challenging in neonatal units (NUs) due to the small volume required and administration difficulties. This survey was done to describe the practices adopted for reconstitution, storage, administration and disposal of ABAs in NUs in Sri Lanka.

Methods: This cross-sectional descriptive national survey included all the public hospitals having a NU. Study participants were nurses working in neonatal intensive care and special care baby units in these hospitals. From each unit, the in-charge nursing officer, and one or more nurses selected by the in-charge nursing officer provided the data. Data were collected by trained data collectors in 2020/21 using a pre-tested content and face validated structured self-administered questionnaire. Descriptive statistics were used in analysing the data.

Results: Participants, 297 nurses working in NUs from 60 hospitals, named cefotaxime, benzylpenicillin and meropenem as the commonly used ABAs in NUs. Although the majority (94.0%) indicated that they received training in handling ABAs, many incorrect practices were observed; none listed the correct steps in reconstituting ABAs while only eight listed the correct steps in getting the dose. About 90.0% failed to correctly name the solution used for reconstitution as sterile water. Regarding discarding the balance reconstituted ABA, 43.0% followed the product information leaflet and 10.0% discarded immediately, while 16.0% discarded after 24 hours. About 80.0% correctly indicated that they would store the reconstituted ABA in the refrigerator if it had to be given to another neonate later. A wide range of incorrect practices were followed to discard left-over ABAs including pouring it into the wash basin.

Conclusions: Diverse and unsatisfactory practices are adopted for reconstitution, storage, administration and disposal of antibacterial agents in neonatology units in Sri Lanka.

Keywords: antibacterial agents, neonates, nurses,

reconstitution, storage

Funding: University of Colombo
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Healthcare System

OP-13: A project to improve the environmental, economical and social performances by applying the Green Human Resource Management practices in the health sector

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Introduction: Green Human Resource Management (GHRM) is increasingly considered as a critical branch of Human Resource Management (HRM). It is interesting and highly instrumental in creating and enhancing the natural environment sustainability. This study was carried out at Base Hospital Tangalle (BHT), with the intention of identifying the gaps and improving the green inputs and employee green performance by adopting GHRM practices.

Methods: The project was carried out with three phases, by adopting the mixed method approach. Based on pre-interventional assessment, literature review and comprehensive stakeholder consultation, an intervention package was planned and implemented. Effectiveness of the interventions was assessed at the end of three months of implementation by using the same instruments. In the pre-interventional phase, it was revealed that there was a lack of a systemic mechanism that linked employee performances and organisational performance with environment related human resource management practices. Considering these gaps, interventions were designed and implemented. The main intervention was applying Milliman and Clair's GHRM model (1996) consisting of four parts. It commenced with the strategic change of organisation's vision and mission; secondly by training of the staff towards acquiring skills and knowledge in organisational green philosophy and greening; thirdly by introducing the environmental performance evaluation mechanism; and finally by recognizing their environmental activities and rewarding them.

Results: Following implementation, the green

attitude of employees improved from 2.03 to 3.83; green competency from 1.1 to 3.29; and green behaviour from 1.24 to 3.37 at $p < 0.005$ level. BHT has started practising GHRM activities: training and development, empowerment, performance assessment, reward and safety culture. Amount of waste accumulated has reduced and the "reduce and reuse" concept of energy has managed to save costs. The Environmental Protection Authority of Sri Lanka has granted the Environmental Protection Licence-2021- the highest environment related achievement of BHT in its recent history.

Conclusions: GHRM practices are a powerful tool in improving green inputs, employee green performance, and environmental organisational performance. Hence, it is recommended to create, maintain, improve and expand these practices at healthcare institutions by adopting the experience gained through the interventions.

Keywords: Green Human Resource Management, environmental performance, economic performance, social performance

OP-14: A project to improve the effectiveness of management of vehicles at Regional Director of Health Services, Hambantota

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Introduction: Transport plays a critical role in the effective and efficient delivery of health care. It enables people to access services and health workers to reach communities. This quasi-experimental research project was carried out at Regional Director of Health Service (RDHS) Hambantota with the intention of identifying the gaps in the current vehicle management, maintenance and operating system, and improving the effectiveness of management of vehicles. The project was carried out in three stages.

Methods: The pre-intervention phase aimed at identifying the existing situation and gaps in the vehicle management system, using both qualitative and quantitative techniques. It was revealed that inadequate staff training regarding proper fleet management, lack of technical knowledge of drivers, absence of preventive maintenance schedules and a poorly managed vehicle inventory system led to inefficient vehicle management at RDHS Hambantota. In the second phase of study, a digital

platform created through establishing a database for the transport section of RDHS Hambantota, helped to maintain, manage and operate the vehicles. It consisted of different sections for vehicle profiles, monitoring, managing preventive maintenance and inventory, identifying and analysing high cost vehicles, developing reports for regular complaints and monitoring vehicles used. Post interventional qualitative results indicated that the availability of the online and offline digital platform for vehicle management improved the transport related processes, streamlined the vehicle management operations and maintenance and improved the accountability of the relevant officers and their decision-making process.

Results: It is evident that after the interventional phase, significance test statistics reveal that the average time for the documentation process at RDHS improved from 16.52 days to 3.56 days at $p < 0.0001$ level. Vehicle availability increased from 62% to 81%, utilisation improved from 68 % to 76%, and performance improved from 69.0 % to 84.0% at RDHS Hambantota.

Conclusions: The multifaceted and package of interventions implemented in this project was effective in improving the vehicle management at RDHS. It is recommended to improve the online system further by adapting the experience gained throughout the intervention phase and expand the project to the other healthcare institutions.

Keywords: fleet management information system, inventory management system, key vehicle performance indicators

OP-15: A retrospective study on the safety and effectiveness of the use of KTP Laser in stapedotomy

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Introduction: This study describes the safety and effectiveness of using the KTP laser in patients with otosclerosis who underwent endoscopic stapedotomy at the Teaching Hospital Anuradhapura. The study aims to assess the effectiveness and safety of KTP laser in stapedotomy in Sri Lanka. Laser endoscopic stapedotomy is introduced as a no-touch technique; and is considered superior to conventional

stapedotomy.

Methods: This is a retrospective descriptive study conducted amongst the eight patients who underwent laser stapedotomy surgery from October 2020 to September 2021. The data were collected via a pre-formed questionnaire. The results of pre-operative pure tone audiogram (PTA) were compared with three-month post-operative PTA results. The variables analysed were pre- and post-operative air conduction, bone conduction and air-bone-gap (ABG) at 500 kHz, 1 kHz, 2 kHz, 4kHz and complications.

Results: The age distribution was from 33 years to 72 years. Five patients were females and six had surgery in the left ear. The mean 4 frequency pre-operative ABG was 37.3 dB and post-operative ABG was 13.1 dB with a mean ABG closure of 24.2 dB. ABG closure was found in the range of 0-40 dB. Dehiscent facial nerve canal was found in one patient with a stiff incus. One patient had high frequency sensorineural hearing impairment at 4 kHz.

Conclusions: Use of KTP laser in endoscopic stapedotomy has produced improvement in air-bone-gap closure resulting in improvement of hearing with less side effects, as a minimally invasive surgical modality in patients with otosclerosis.

Keywords: laser stapedotomy, conductive hearing loss, otosclerosis

OP-16: First ever Forensic Nursing Facility in Sri Lanka: experiences and way forward

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Introduction: A Forensic Nursing Facility primarily provides care to victims of crime. The scope of the forensic nurse varies worldwide, with greater responsibilities in some jurisdictions and limited in others. The Department of Forensic Medicine and Toxicology, Faculty of Medicine (DFMT), Colombo, which services five suburban police areas, introduced the first ever forensic nursing facility in Sri Lanka in 2018. The role of the Forensic Nursing Officer (FNO) was to facilitate the medicolegal management of victims of crime especially victims of sexual and gender-based violence and child abuse. The FNO develops a rapport with the victim, explains the

procedures, obtains informed consent, chaperones and assists the victim during the entire examination procedure with a compassionate, case sensitive manner in order to create a victim-friendly environment and to prevent retraumatization and secondary victimisation. This study presents the experience, its impact, limitations and recommendations for further development of the Forensic Nursing Facility.

Methods: Victim satisfaction surveys conducted by the DFMT before and after introduction of this facility were reviewed and compared.

Results: On comparison between 'pre FNO introduction' (n=59) and 'post-forensic nurse introduction' (n=20), victims 'relieved after SAFE' increased from 33.9% (pre-FNO) to 65% (post-FNO) examinations (p=0.015). The task of audio-recording the medico-legal narrative by the specialists in Forensic Medicine has been facilitated by the presence of the FNO especially in child victims where age-appropriate communication is required. Victim review and follow-up was another unique feature that was introduced through this facility. Further training and guidance was needed in injury recording and injury interpretation in both clinical and autopsy medico-legal work.

Conclusions: FNO has enhanced the victim satisfaction following medicolegal examinations, especially in sexual assaults. However, unlike in other jurisdictions, further training and experience is needed before the FNO could be given greater responsibilities regarding clinical observations, deeper clinical interpretations or providing expert evidence in courts.

Keywords: forensic nursing facility, medico legal service, forensic nursing officer, victim satisfaction survey, case sensitive manner

OP-17: A cloud application EHR with telehealth as a cost-effective model for the Sri Lanka National Health Care System

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Introduction: The current healthcare delivery system in Sri Lanka is insufficient to deliver care particularly in the rural areas of Sri Lanka. Therefore, we propose an all-encompassing-one national web-based electronic health record (EHR) based delivery system with telehealth, linking the existing national EHR project and multiple other Electronic Medical Record (EMR) systems in Sri Lanka and enabling each citizen to have a single medical record accessible to all providers.

Methods: We have reviewed over 30 EHR systems in other countries to create a model based on our national needs, considering the cost, interoperability and the early inclusion of rural areas.

Results: Our search resulted in developing a unique model based on a low-cost, cloud-based, multi-prong application-driven EHR model that can exist as a web-based EHR application with peripheral monitors. In addition, there will be a central control center with peripheral EMRs and independent telecare modules, particularly in rural areas with limited access to care, and the initial deployment would be those areas. It will be a telehealth program with tele-virtual primary care and specialist care. One of us has developed a mobile telecare application with google translate, to communicate in the patient's language and also with mobile EMR. Telehealth visits can be by audio- or video-based on Wi-fi availability. In addition, healthcare buses with diagnostic and laboratory facilities and ambulances could be strategically deployed. In the next phase, the independent telecare modules will be linked to the central control center for more efficiency, and later be part of the national EHR.

Conclusions: Our proposed national EHR will have interoperability with the current EMRs in Sri Lanka. I will improve access to care in rural areas in a short time frame, improve management of non-communicable diseases and enable patients to be transported promptly to appropriate levels of care.

Keywords: electronic health record, telehealth, chronic disease management, productivity

Electronic Health Records in primary care: a systematic review

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Introduction: It was necessary to identify Data Elements (DEs) clinicians used and make them interoperable to build an Electronic Health Record that all clinicians can use for clinical decision making, minimising repetitive clinical exams, ancillary testing, unnecessary radiation exposure, etc.

Methods: Scopus, MEDLINE and ScienceDirect databases in the English language were searched from 2010 to 2020. Search terms were identified by a simple MEDLINE search. Researchers and an independent reviewer looked at the terms and 12 were chosen. Systematic reviews, randomised controlled trials, non-controlled interventions, service evaluations, case-control studies, case studies, questionnaire surveys and qualitative research were included. After the search, titles and abstracts were extracted to Zotero. Two reviewers looked at the titles and abstracts separately for inclusion. The two reviewers addressed and resolved disagreements. If agreement could not be reached, a third reviewer was consulted. Checklists based on CASP (Critical Appraisal Skill Programme) were used to assess the quality of each included study. The protocol for systematic review was established and documented in PROSPERO. https://www.crd.york.ac.uk/PROSPERO/display_record.php?RecordID=209423

Results: Five hundred and thirty DEs were identified initially. Twenty-three duplicates were removed. The researcher and a group of two health informaticians checked the remaining 506 DEs. Ontology mapping and semantic duplicates were eliminated. Disputes have been settled, and agreement consensus has been reached. The final list included 187 DEs.

Conclusions: Many health information systems (HIS) are used in primary care. The majority of HIS operates in silos. Different DEs collected the same value. If DEs adhere to a common agreed-upon structure, the HIS can make the information we generated interoperable.

Keywords: data elements, electronic health record, primary care, systematic review

OP-19: Heterozygosity of the glucose-6-phosphate dehydrogenase gene may offer protection against chronic kidney disease of unknown aetiology (CKDu): a case-control study done in a Sri Lankan population

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Introduction: Chronic kidney disease of unknown aetiology (CKDu) is an important health burden in Sri Lanka. Prevalence of CKDu has increased alarmingly during the recent past. Multiple causative factors appear to be involved in its aetiology. This study was done to determine any association between selected glucose-6-phosphate dehydrogenase (G6PD) gene variants and CKDu in the Sri Lankan population.

Methods: Samples were collected from CKDu patients attending the Teaching Hospitals of Kandy/Anuradhapura, using probability sampling methods. A total of 180 CKDu patients and 283 healthy controls were recruited (case:control for males 1:1; for females 1:3). Genotyping of 12 single nucleotide polymorphisms (SNPs) located in/near the G6PD gene was done commercially. Three SNPs were monomorphic and excluded from further analysis. The remaining nine SNPs were analysed separately for males and females, and the association of each SNP with the CKDu status was determined. Significant genotypes found among females were analysed further.

Results: The majority of CKDu cases were male (n=133; 73.9%) and over 40 years of age (n=147; 81.6%). None of the nine SNPs analysed were significantly different between cases and controls in males (p>0.05). However, in females, six of these SNPs (rs766420, rs2071429, rs2230037, rs4898389, rs5986877, rs7879049) significantly differed between CKDu cases and controls (p<0.05), with heterozygotes being significantly greater among the control group (p<0.05).

Conclusions: Males in older age groups were the most affected by CKDu. Six SNPs seemed to offer protection (either individually or collectively) to

heterozygous females against CKDu in this population. Further studies with larger sample sizes are warranted to provide more robust information on the genetic effects of these SNPs on CKDu.

Keywords: CKDu, G6PD, genetics

Funding: Project funded by the National Research Council, Sri Lanka (Grant No: 14-069)

OP-20: Germline genetic variants, their frequency, and clinico-pathological features in Sri Lankan patients with hereditary breast cancer

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Introduction: The incidence of breast cancer in Sri Lankan women is rising at an alarming rate of 4% per year. Next-generation sequencing (NGS)-based whole exome sequencing (WES) is increasingly being utilised to detect germline variants in cancer predisposing genes and to predict inherited cancer risk. This study aims to assess the frequency of germline genetic variants and clinico-pathological features in a cohort of Sri Lankan hereditary breast cancer patients.

Methods: Genomic data of 72 hereditary breast cancer patients who underwent WES between January 2015 and December 2021 were maintained prospectively in a database and analysed retrospectively. Data were subjected to bioinformatics analysis and variants were classified according to international standard guidelines. Information including demographic data, family history of cancer, tumour histopathology and receptor status were also analysed.

Results: Germline variants were identified in 33/72 (45.8%) patients. Among them, 32 (96.9%) were females and 17 (51.5%) had cancer onset before the age of 50 years. 16/33 (48.5%) had pathogenic/likely pathogenic variants and 17/33 (51.5%) had variants of uncertain significance. Highest frequency of pathogenic/likely pathogenic variants were in *BRCA1* (n=7; 43.8%) and *BRCA2* (n=7; 43.8%) genes. *BRCA2*:c.1294_1295GA;p.Asn433fs was the most frequently occurring pathogenic variant (n=3; 18.8%). Non-*BRCA* likely pathogenic variants were detected in *PALB2* (n=1; 6.3%) and *PTCH1* (n=1;

6.3%) genes. *PALB2*:c.2768T>G;p.V923G and *BRCA1*:c.5225A>C;p.Q1742P were novel likely pathogenic variants. Predominant histopathology was ductal carcinoma (n=20; 79.1%). Oestrogen and progesterone receptor negativity was observed in (n=4; 50%) harbouring *BRCA* variants and triple negativity was seen in only two patients both of whom were harbouring *BRCA2* variants. Family history of breast cancer was present in 24 (77.4%).

Conclusions: Highest frequency of pathogenic/likely pathogenic germline variants were detected in the *BRCA1* and *BRCA2* genes, respectively. Predominant tumour histopathology was ductal carcinoma. WES allows identification of germline genetic variants in families with hereditary breast cancer predisposition which would be beneficial for guiding implementation of therapeutic and preventive risk-reduction measures.

Keywords: hereditary breast cancer, germline variants, NGS

OP-21: Optimization of initial nanobiotechnology procedures to design a gold nanoparticle-based nucleic acid lateral flow assay to detect BRAF V600E mutation in papillary thyroid carcinoma

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Introduction: Lateral flow assays (LFAs) have significant applications in point-of-care detection of cancer biomarkers. Proper validation of each step in their development process is crucial in achieving the final outcome. This study aimed to develop optimised protocols to design a gold nanoparticle (AuNP)-based nucleic acid lateral flow assay (NALFA) to detect the BRAF V600E mutation for prognostication of papillary thyroid carcinoma (PTC).

Methods: Design of primers for the multiplex polymerase chain reaction (PCR) and oligonucleotide probes for LFA and optimization of multiplex PCR to amplify fragments of *BRAF* and *GAPDH* were carried out. Characterization of AuNPs, evaluation of their

stability overtime and assessment of their conjugation to detection probes (DPs) were performed.

Results: PCR conditions were optimised to amplify a 255 bp fragment of *BRAF*, flanking the V600E mutation site and a 208 bp fragment of *GAPDH* flanking exon 2. A λ_{max} of 525 nm was obtained for AuNPs indicating an average diameter of approximately 20 nm. The sharp peak and absence of secondary spectral features in the localised surface plasmon resonance (LSPR) spectrum revealed a narrow particle size distribution and good shape homogeneity. These properties were retained until two weeks post synthesis assuring stable AuNPs. Four weeks later, λ_{max} ranged from 528-530 nm and the peak of LSPR spectrum broadened towards longer wavelengths, indicating AuNP agglomeration. The expected shift in λ_{max} averaged 3nm, was observed for the DPs specific for *BRAF* and *GAPDH* PCR fragments when conjugated with AuNPs. This indicated successful conjugation of DPs to AuNPs.

Conclusions: Since expected results were obtained for the initial steps carried out, it is possible to proceed with determination of the hybridization conditions and subsequent analyses on sensitivity and specificity of the LFA. These findings will contribute to the development of a LFA to detect BRAF V600E mutation status of patients having PTC for efficient prognostication.

Keywords: BRAF V600E, gold nanoparticle-based nucleic acid lateral flow assay, multiplex polymerase chain reaction, papillary thyroid carcinoma

OP-22: Molecular docking simulation of *Aspergillus flavus* Alma like protein binding with long chain alkanes (C16-C40)

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Introduction: Alma is a bacterial enzyme known to initiate the degradation of long-chain alkanes. Although efficient degradation of alkanes has been observed in fungi, their mechanisms and the enzymes involved are poorly understood. The objective of this study was to identify the binding capability of Alma like protein in *A.flavus* using *in-silico* methods.

Methods: A putative Alma homolog protein sequence similar to the *Acinetobacter sp.* was identified from *Aspergillus flavus* and its 3D structure

was modelled and validated using bioinformatics techniques. The 3D structures of Alkanes and the cofactors required for Alma (FAD and NADP), were optimised using Orca Version 4.2.1 and molecules were docked stepwise using AutoDock Vina 1.2.0. The cofactors were initially docked on to the Alma. The Alma homolog bound to co-factors were then docked with alkanes (C16-C40). The RMSD value and binding affinity of molecules were evaluated. Hydrophobic interactions and docking site analysis of the *A. flavus* Alma like protein and Alma of *Acinetobacter sp.* were conducted using Chimera, Protein Ligand Interaction Profiler (PLIP), and ProteinsPlus and results were compared and analysed for ubiquity of similar interactions.

Results: FAD showed a higher affinity towards the Alma like protein of *A. flavus*, than NADP suggesting it may bind to the active pocket initially. Hydrophobic interactions between the cofactor and active pocket amino acids showed comparable results with multiple programs (Chimera, PLIP and ProteinsPlus). Affinity and RMSD (0.0Å) values of tetracosane (C24 alkane) showed valid docking and docking site interactions showed ubiquity with Chimera and PLIP. The results imply that the identified Alma homolog in *A. flavus* has great potential for bioremediation of crude-oil contamination which needs to be verified experimentally.

Conclusions: It was evident that the identified Alma like protein of *A. flavus* uses long chain alkanes as substrates and therefore has a strong likelihood of structural and functional homology to the bacterial Alma.

Keywords: docking, *Aspergillus flavus*, alkane degradation

OP-23: Developing a protocol for RNA extraction and quantification from amniotic epithelial cells in gestational diabetes mellitus (GDM) and non-GDM mothers

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Introduction: Human amniotic epithelial cells (hAECs) are a source of perinatal stem cells. The altered environment in gestational diabetes mellitus (GDM) is known to leave genomic imprints on

hAECs which are potential biomarkers of GDM. Direct extraction of RNA from hAECs; instead from culture-expanded hAECs; would provide better quality RNA for further studies. We aimed to develop a protocol for direct RNA extraction using PAXgene® microRNA kit from hAECs and comparative study of RNA amount extracted from GDM versus a non-GDM cohort.

Methods: In keeping with the principles of Declaration of Helsinki; following ethical approval (ERC No: 21-014) and institutional approvals; gravid females undergoing caesarean section deliveries were recruited from De Soysa Hospital for Women. The amniotic membranes (AM) of GDM (n=7) and non-GDM (n=10) placentae were subjected to the following RNA extraction protocols. Protocol-I: Followed all the steps as defined by the PAXgene® microRNA kit manufacturer including embedding in wax and tissue sectioning prior to RNA extraction steps. Protocol-II: The AM were kept in a stabilising solution and directly subjected to RNA extraction steps bypassing the wax embedding step. The quality of RNA extraction was checked by using gel electrophoresis and quantified using a Qubit-3-fluorometer. Independent sample t test was used to compare the two groups.

Results: The GDM and non-GDM population mean ages were 33.85 and 30.7 years. RNA extraction results using Protocol-I- RNA detection using gel electrophoresis, none for both groups (GDM n=7; non-GDM n=10). Protocol-II- RNA was detected by gel electrophoresis as single bands; the mean RNA quantity for GDM (n=7) was 23,177.14 ng/ml (SD=32,189.88) and non-GDM (n=10) was 34,345 ng/ml (SD=40,339.29) (p=0.536).

Conclusions: A protocol for RNA extraction using PAXgene® microRNA kit was developed. Greater RNA extraction yield using protocol II needs to be verified in a repeat study. Whether the lower RNA yield from the GDM group is disease related, requires verification using a larger cohort.

Keywords: gestational diabetes mellitus, amniotic membrane, RNA extraction, PAXgene® microRNA kit

OP-24: The design and implementation of a novel pharmacogenomic assay to study the distribution of *CYP3A5*3* (rs776746) and *CYP3A5*1E* (rs4646453) polymorphisms and its implications to predict the response to the immunosuppressive drug tacrolimus

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Introduction: Tacrolimus is a first-line immunosuppressive agent for solid organ transplantations. Due to its narrow therapeutic index, tacrolimus demonstrates a wide inter-individual variability in pharmacokinetics. Genetic polymorphisms in *CYP3A5* are significant determinants of tacrolimus efficacy.

Methods: A total of 100 healthy individuals from the Sri Lankan population were screened for the *CYP3A5* single nucleotide polymorphisms (SNPs), *CYP3A5*3* (rs776746) and *CYP3A5*1E* (rs4646453) using a novel single variant tetra-primer amplification refractory mutation system (ARMS) polymerase chain reaction (PCR) assay and the results were validated by DNA sequencing.

Results: The *CYP3A5*3* variant was the most frequent allele detected in 82% of the Sri Lankan population, while the *CYP3A5*1E* C allele was found in 66.5% of the population. The observed *CYP3A5* genotype frequency distributions for the *CYP3A5*3* (rs776746) and *CYP3A5*1E* (rs4646453) variants in the study population were consistent with the Hardy–Weinberg equilibrium ($p > 0.05$). The expected phenotype frequency for the clinically significant *CYP3A5*3* (rs776746) variant was reported as T/T [extensive metabolizer] 4.0%, C/T [intermediate metabolizer] 28.0% and C/C [poor metabolizer] 68.0%. As 68.0% of the Sri Lankan population were identified to be poor metabolizers (*CYP3A5*3*/*3), lower doses of tacrolimus would be required to reach therapeutic concentrations.

Conclusions: A novel tetra-primer ARMS PCR assay was successfully designed for genotyping the *CYP3A5* variants *CYP3A5*3* (rs776746) and *CYP3A5*1E* (rs4646453). Further studies comprising a larger number of samples and more related genes are recommended.

Keywords: tacrolimus, *CYP3A5*, tetra-primer ARMS polymerase chain reaction, pharmacogenomic assay

Medical Education

OP-25: An analysis of learning style preferences

among second-year medical undergraduates using the VARK model

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Introduction: The purpose of this study was to examine the preferred learning styles of undergraduate medical students at the Faculty of Medicine, University of Colombo, Sri Lanka. Medical students have a wide range of diversity in their learning preferences. Proper identification of the preferred learning style is important to design and deliver the instructional contents to gain the maximum outcome of the teaching.

Methods: A cross-sectional study was performed on second-year medical students using a locally validated (Cronbach Alpha > 0.7) VARK Questionnaire in October 2021. The questionnaire consisted of 16 items that identified four different learning styles: visual, aural, reading/writing, and kinesthetic. The questionnaire was distributed online as a google form to the study population ($n=205$). The questionnaire was kept available online for two weeks. Responses were collected into the default google sheet. Inferential statistics were used to identify the associations. Pearson's Chi-squared test was used in the analysis.

Results: A total of 148 students completed the study. The response rate was 72%. 52% of the respondents were female. The majority (91.2%) favoured Quad-Model, while 8.8% favoured Tri-Model. No one favoured a single model learning style. There was no significant difference between model preferences among male and female students. The overall results suggest the students were more in favour of a multi-model. The kinaesthetic learning style was the most preferred among the study group, visual was the second most while reading/writing was the least preferred.

Conclusion: The results of this study provide useful information for improving the quality of teaching and learning experiences of the students. However, more research on this topic will be helpful to understand the association between learning style preferences and teaching/learning strategies.

Keywords: learning style preferences, VARK model, undergraduate

OP-26: Medical students' view on the curriculum: a comparison of two student batches

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Introduction: Perceptions of a medical undergraduate reflect the effectiveness of the programme offered. Teaching at the Faculty of Medicine, University of Colombo is carried out in five parallel “streams” which run longitudinally throughout the course, namely Basic Sciences, Applied Sciences, Community, Behavioural Sciences and Clinical Sciences Streams. Clinical education is carried out in a dynamic teaching environment which underwent several changes including the expansion of e-learning platforms, especially during the COVID-19 pandemic. The two consecutive student batches (2013-A/L and 2014-A/L) surveyed in this study, faced the final year examination one year apart. 2013 AL batch had to carryout learning amidst COVID-19 from January 2020 to March 2021 during their final year and the 2014 batch had to carryout learning amidst COVID-19 from January 2020 to March 2022 which included their fourth year and final year learning. During this period, online learning was introduced in the place of onsite lectures. The aim of this study was to assess the perceptions of new graduates on the academic programme amidst the COVID-19 pandemic.

Methods: A purpose designed self-administered questionnaire based on several themes including the curriculum amidst the pandemic was administered at the end of the final year examination for both 2013-A/L and 2014-A/L batches of students, including 192 students and 198 students respectively who had undergone the same curriculum.

Results: A total of 289 responded. The overall perception regarding the curriculum was that learning outcomes, teaching activities and examinations matched appropriately. More focus on clinically relevant subject matter was suggested. The 2014-A/L batch noted a considerable effect from the COVID-19 pandemic during the final year clinical training. This was mostly due to reduced clinical exposure. Compared to the 2013-A/L batch, 2014-A/L batch appreciated e-learning as a more convenient mode of

learning, especially during the pandemic.

Conclusions: The analysis showed that both batches emphasise on paying special attention to clinically relevant subject matter. As the junior batch has appreciated e-learning more, it is apparent that although e-learning was incorporated incidentally during the pandemic, it could be the new way forward in medical education as students get more accustomed to it.

Keywords: graduate perception, curriculum, COVID-19

OP-27: Effectiveness of problem-based learning in physiotherapy undergraduate curriculum: a systematic review

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Introduction: The effectiveness of problem-based learning (PBL) in physiotherapy education is not clearly studied. The aim of this study was to determine the effectiveness of PBL compared to traditional methods (TM) in physiotherapy education.

Methods: PubMed, Pedro, Science direct, and Google Scholar Databases were searched on 11 January 2022 for randomised controlled trials, non-randomised control trials, quasi-experimental trials, before and after study designs and cohort studies published in English from 2000 to 2022. Two reviewers conducted screening, eligibility assessment, data extraction, and risk of bias assessment independently. A narrative synthesis of outcomes is presented. Preferred Reporting Items for Systematic reviews and Meta Analysis (PRISMA) was used to report the review. Meta-analysis was not performed due to the heterogeneity of studies. This protocol was registered in Prospero (Prospero ID: CRD 42022301693).

Results: The primary search strategy identified 2826 potentially relevant articles, of which 1666 remained after removing duplicates. After title and abstract screening, 22 potentially eligible studies were identified. Out of those, two studies met all the predefined eligibility criteria. One had a mixed method study design and it was categorised as moderate bias while the other one had a quasi-

experimental design which was categorised as serious bias according to the risk of assessment tool. The results indicated that PBL was effective compared to the traditional methods in terms of promoting early evidence-based practice (EBP), PBL facilitated learning strategies and study preference was high for PBL in comparison to traditional teaching.

Conclusions: PBL was reported to be effective in developing different competencies in physiotherapy undergraduates such as promoting early EBP and was preferred over traditional methods. Since there is limited evidence to confirm this finding, research studies with high methodological quality should be performed in future.

Keywords: problem-based learning, physiotherapy, undergraduate, curriculum

OP-28: eHealth literacy skills and associated factors among physiotherapy undergraduates in Sri Lanka: a cross-sectional study

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Introduction: eHealth literacy or using health information on the internet allows healthcare professionals and patients to actively engage in healthcare decisions. Physiotherapy undergraduates, as future healthcare professionals, should be skilled in identifying, utilising and assessing credible online health information. Thus, the objective of this study was to determine eHealth literacy skills and its associated factors among physiotherapy undergraduates in Sri Lanka.

Methods: A self-administered questionnaire was distributed among physiotherapy undergraduates of two state universities. The questionnaire comprised questions related to demographic data and the eHealth Literacy Scale (eHEALS). The eHealth Literacy Scale has eight questions that allow respondents to select an answer from a five-point Likert scale. The association between eHEALS score and participant characteristics (gender, family status, living status, etc.) was assessed using the independent sample t test.

Results: A total of 129 participants (23.21 ± 1.57 years of age; 21.71% males) completed the questionnaire. The average eHealth literacy score (eHEALS) was 29.57 (SD ± 3.56). Those who had

done information technology (IT) as a subject in school had significantly higher mean eHEALS scores. Inadequate eHealth literacy skills were reported in 43.4 % (n=56) of the sample. Poor skills were reported especially in differentiating reliable information from unreliable information and being confident in using information from the internet to make health decisions.

Conclusions: Nearly half of the physiotherapy undergraduates had eHEALS scores lower than the mean eHEALS score and had inadequate skills particularly in finding credible information from the internet. Thus, including eHealth literacy concepts in the undergraduate physiotherapy curriculum would be invaluable.

Keywords: eHealth literacy, eHEALS, undergraduate, physiotherapy, Sri Lanka

OP-29: Disabilities and chronic illnesses - challenges faced and expectations from university support systems: a study among medical undergraduates of the University of Colombo

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Introduction: Despite a recent increase in the number of undergraduates with disabilities and chronic illnesses enrolling in tertiary education, their concerns and difficulties remain under-explored. The objective of this study was to assess the prevalence of disabilities and chronic illnesses among undergraduates of the Faculty of Medicine, University of Colombo and to identify the academic and socioeconomic challenges they face and the support they expect from the university to overcome these.

Methods: A descriptive cross-sectional study was conducted using total population sampling of 1589

undergraduates of the faculty. Data were collected through a self-administered, online questionnaire with open- and close-ended questions.

Results: A total of 408 undergraduates participated in the study. The mean age was 22.2 ± 1.80 years. Thirty-nine (9.6%), 36 (8.8%) and 39 (9.6%) had disabilities, chronic illnesses, or both, respectively. Forty-three suffered from disabilities/chronic illnesses for more than five years. Visual impairment (34.2%) and asthma (17.5%) were the most common disability and chronic illness, respectively. The majority (n=69; 61%) were reluctant to disclose their condition to the faculty due to reasons such as fear of stigma and rejection. The most frequent academic challenges were difficulty in completing assignments and academic work on time (n=39; 34.2%), difficulty in completing an exam in the given time (n=27; 23.7%), difficulty in studying due to side effects of medications (n=16; 14.0%), and poor attendance (n=14; 12.3%). The majority (n=47; 41.2%) had financial difficulties. Only 18.4% (n=21) were aware of the existing facilities and university support systems for students with disabilities or chronic conditions. They desired better understanding and support from the faculty staff (14.9%) and strengthening of the facilities (10.5%) to overcome their challenges.

Conclusions: Exploring the concerns of undergraduates with disabilities and chronic illnesses is much needed to address their challenges, improve awareness of university support systems, and identify aspects of support needed by them to overcome their challenges.

Keywords: undergraduates, disabilities, chronic illness, university support system

OP-30: Authentic learning environments through simulated crime scene investigation for medical undergraduates and stakeholders in the criminal justice system

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Introduction: Forensic medical experts, magistrates, inquirers into sudden deaths and police officers are required to examine, collect evidence and prepare reports based on crime scene investigations (CSI). Some of them formulate relevant, crucial, high impact opinions. Simulated CSI which was introduced five years ago at the Department of Forensic Medicine and

Toxicology (DFMT), Faculty of Medicine, Colombo for the first time in a Sri Lankan University setting, is an authentic learning activity since it simulates the real-life scenario. This paper reflects upon the experiences gained in implementing simulated CSI as a teaching tool and will present participant feedback of one such activity.

Methods: Diverse simulated crime scene scenarios are used, with mannequins having injuries or artefacts created through moulage. The participants observe, describe, synthesise, interpret the information gathered and formulate conclusions. Participants are divided into two groups; one performs the simulated CSI while the other observes and critically analyses their performance. The same format is used regardless of whether the participants are from a medical or non-medical background. Feedback through online surveys obtained from simulated CSI are presented and are used for further improvement.

Results: The resource persons were able to improve the simulated CSI teaching activity through formal and informal feedback obtained from participants. In one simulated CSI, 11 out of 30 participants responded to an online feedback form. While 7/11 stated that objectives were clearly communicated prior to activity, the extent of overall objectives met at the activity was rated as excellent or very good by 10/11. Some specific objectives were rated as not being fulfilled adequately. All rated the level of satisfaction regarding facilitation of the activity as very good. While the majority felt that the concept of scene was excellent, the physical design and injuries created on mannequins received a lower rating.

Conclusions: Authentic learning environments using CSI have achieved the objectives of CSI teaching and are recommended for teaching and training of stakeholders within the criminal justice system. While facilitation has been rated very good, some objectives need re-visiting and upgrading of the simulated learning activity.

Keywords: crime scene investigation, authentic learning, simulated crime scenes, moulage

Mental Health

OP-31: Child emotional and behavioural difficulties and parental stress during the COVID-19 lockdown in Sri Lankan families

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Introduction: Understanding parents' and children's mental health issues could help design population-specific intervention programs. This study explored parents' perceived stress and child emotions and behaviour among Sri Lankan families during the COVID-19 lockdown.

Methods: An online survey link was disseminated among Sri Lankan parents of children aged 11-17 years through selected schools in the Colombo district. Additional participants were enrolled using the snowball sampling method by asking respondents to share the survey link among their contacts. Validated instruments (Perceived Stress Scale-PSS; Strengths and Difficulties Questionnaire-SDQ) evaluated parental stress, child emotions and hyperactivity-inattention. Using multiple linear regression, predictors of mental health issues, including the interaction between age and gender, were assessed.

Results: A total of 355 parents responded to the survey (76% mothers). One-third of parents experienced difficulties with their children during the pandemic, as compared to before. Emotional and hyperactivity-inattention problems were measured via the SDQ scale, which had increased in 38% of children, while perceived stress had increased in 79.2% of parents. Overall, child emotional and hyperactivity-inattention problems increased with decreasing age, increasing parental stress, having middle income compared to high-income, and having a family member/close relative testing positive for COVID-19. Hyperactivity-inattention (29.3%) was more than emotional problems (22%) among children. Emotional problems were reported more with increasing parental stress, while child hyperactivity-inattention alone was reported more with decreasing age, middle-income compared to high-income families, and increasing parental stress. Also, the interaction effect of age and gender indicated that higher age was related to stronger parent-reported hyperactivity-inattention problems in male children.

Conclusions: A significant proportion of parents

experienced child emotional and hyperactivity-inattention difficulties during the COVID-19 pandemic. Parental stress had an impact on a child's emotional and behavioural problems. In addition to cautioning healthcare workers, socio-culturally appropriate preventive and supportive mental health programs may help manage parental stress and child emotional and hyperactivity-inattention problems.

Keywords: behaviour, COVID-19, emotions, psychological stress, Sri Lanka

OP-32: Exploring associations between meditation, being green and perceived quality of life

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Introduction: Meditation has been recently studied in the context of pro-environmental behaviour and perceived quality of life (PQoL). It has been found to have a favourable association with nature connectedness, PQoL and pro-environmental behaviour. The present research investigated the association of meditation experience and trait mindfulness with PQoL and per capita carbon footprint (CF), among 25 skilled meditators.

Methods: Self-reported validated questionnaires in a Sinhala-speaking context were used in collecting data on meditation experience (duration of practice of meditation, average time duration of a meditation session, perception on Impact of Meditation on Daily life (IMD), five facets of mindfulness (observing facet, acting with awareness, describing facet, non-judging of inner experiences, non-reactivity to experience) and PQoL. To collect CF data, a self-reported data collection booklet was also used. Each participant had to record CF data for 14 days within four domains: food and beverage consumption, electricity consumption at residence, travelling and solid waste disposal at residence.

Results: IMD was strongly associated ($r > 0.4$) with all facets of PQoL. Observing and non-reactivity

facets of trait mindfulness showed significant positive correlations ($r > 0.4$) with PQoL. Further, results revealed that IMD significantly mediates the negative relationship between observing facet of trait mindfulness and CF_{FB} (Indirect Effect; $IE = 0.002$; $SE = 0.001$; 95% CI [0.01, 0.417]). Further, IMD significantly mediated the association between mindfulness (based on acting with awareness) and CF (based on solid waste disposal behaviour) (CF_{SWDS}); $IE = -0.003$; $SE = 0.003$; 95% CI [-0.0124, 0.0001]).

Conclusions: The present study has contributed to the body of knowledge on meditation, PQoL, and pro-environmental behaviour by filling a gap in the literature on the effect of meditation training on per capita carbon emissions. Investigated direct and indirect relationships between meditation and per capita carbon footprint indicated that meditation could have an impact on one's climate change mitigation behaviour.

Keywords: meditation, mindfulness, carbon footprint, GHG, PEB

Funding: Supported by the Accelerating Higher Education Expansion and Development (AHEAD) Operation of the Ministry of Higher Education and funded by the World Bank (Grant No. 6026-LK/8743-LK)

OP-33: Self-reported differences in resilience and psychological distress between Sri Lankan skilled meditators and non-meditators: a preliminary cross-sectional analysis

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Introduction: Meditation is viewed to result in calm and relaxed states of mind which may buffer against psychopathology. The current study explored differences between self-reported levels of psychological distress (namely depression, stress, and anxiety) and resilience in a sample of Sri Lankan skilled meditators and non-meditators.

Methods: A purposive sample of skilled meditators (SM; $n = 32$) with a meditation experience of more

than three years, who followed meditation practices taught in Sri Lankan Buddhist meditation centres/temples/monasteries, and as identified through the "Colombo intake interview to recruit skilled meditators for scientific research (CIISMR)" and a community sample of age and gender-matched non-meditating controls (NM; $n = 32$) participated. They completed the Sinhala versions of Resilience Scale, the Depression Anxiety Stress Scale (DASS-21), and a demographic details questionnaire, after providing informed consent for participation. The study (EC-19-095) was approved by the Ethics Review Committee of the Faculty of Medicine, University of Colombo.

Results: The SM ($n = 32$) ranged from 27-59 ($M = 42.13$; $SD = 9.26$) years of age and reported 4-21 hours of meditation per week and 3-25 years of meditation practice. The NM ($n = 32$) ranged from 28-58 ($M = 42.16$; $SD = 9.0$) years of age. In terms of findings, a series of Mann-Whitney U tests indicated that levels of resilience were greater for SM ($Mdn = 145$) than for NM ($Mdn = 139$) ($U = 365$; $p = 0.048$). Levels of depression were greater for NM ($Mdn = 4.0$) than for SM ($Mdn = 2.0$) ($U = 312$; $p = 0.006$); levels of anxiety were greater for NM ($Mdn = 2.0$) than for SM ($Mdn = 0$) ($U = 328.5$; $p = 0.009$); stress levels were greater for NM ($Mdn = 10.0$) than for SM ($Mdn = 4.0$) ($U = 340.5$; $p = 0.02$); and levels of total DASS-21 scores were greater for NM ($Mdn = 21.0$) than for SM ($Mdn = 8.0$) ($U = 314.5$; $p = 0.008$).

Conclusions: Skilled meditators who follow buddhist-based meditation as practised in a Sri Lankan context show greater levels of resilience and lower levels of psychological distress.

Keywords: Buddhist-based meditation, psychological distress, resilience, depression, anxiety

Funding: AHEAD grant of the World Bank (Grant No. 6026-LK/8743-LK)

OP-34 A survey on the presentation of adolescents to a specialised child and adolescent psychiatry unit in the Colombo district

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Introduction: In Sri Lanka, there is only one specialised psychiatry in-patient unit for adolescents, with most out-patient services provided by general

adult psychiatrists. There is a lack of data on adolescents within mental health services, impeding resource allocation. This study aimed to describe the socio-demographic factors, clinical factors and management practices relating to adolescents presenting to psychiatry services.

Methods: A survey of clinic records of adolescents (10-19-year-olds) presenting to the University Psychiatry Unit, Lady Ridgeway Hospital for Children, Colombo, during the year 2020 was conducted, using a specifically designed data collection sheet.

Results: Total new patient presentations in 2020 were 114 and 52.7% were boys. The mean age was 12.3 years with 88.5% aged 14 years or younger. Most (49.8%) were residents of Colombo District, with adolescents presenting from all provinces except the Northern and Eastern Provinces. All were enrolled at schools, four in special education. Thirty-eight (33.3%) were referred from the hospital out-patient department, 32.5% from wards, and 25.4% from specialised clinics such as paediatric neurology and rheumatology. Most (28%) were referred due to behavioural problems, 23.7% due to medically unexplained somatic symptoms and 19.3% due to poor school performance. Psychiatric disorders were diagnosed in 79 (69.3%) with 46.8% of them meeting the criteria for mental retardation. Regarding management, 52.6% were offered psychological management (with or without medication); medication was offered to 38.6%. Multidisciplinary care was offered, with most referrals made to psychology (12.3%). Referrals were also made to occupational therapy, social work, speech and language therapy and physiotherapy. Liaison with paediatric neurology, rheumatology and general paediatric units occurred in 21.9%. Follow-up was arranged for 87 (76.3%) with only 54% attending the appointment.

Conclusions: Multidisciplinary input, psychological therapy, pharmacotherapy and follow-up plans have been offered but only half had attended follow-up. However, further studies are needed as this was a single-centre study in a tertiary care setting.

Keywords: adolescence, adolescent mental health, mental health services

OP-35: Advances in investigations into alleged child sexual abuse

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Introduction: Child sexual abuse (CSA) is a major health problem worldwide, associated with a wide range of physical, psychological and social adversities. Victims undergo interviewing and examination in the process of management, along with the provision of necessary treatment. Healthcare practitioners need to possess the necessary knowledge and expertise to provide optimal care. This article focuses on advances in medical and police interviewing, roles of emergency physicians, sexual assault nurse examiners (SANE) and social workers in managing CSA in the recent past.

Methods: Pubmed, ResearchGate and Google Scholar were searched for keywords for articles in the English language. Twenty-five articles published after 2005 were reviewed, while the current practice was based on articles published by Sri Lankan authors after 2001.

Results: Sri Lanka has limited forensic childcare services; therefore, interviewing is done by both specialised and non-specialised health care personnel in cases of CSA. The testimony of the child is a crucial determinant of the outcome; hence it is important to incorporate standardised methods into practice which is currently not done in Sri Lanka. The National Institute for Child Health and Human Development (NICHD) Investigative Interview Protocol is one such widely followed protocol which considers a child's age and developmental level and yields a better narrative. Roles of social workers and SANE are beneficial in providing social and emotional support to victims. Emergency physicians can contribute by early detection and emergency medical management of CSA. One-stop centres involving a multidisciplinary team provide comprehensive care in the management by preventing secondary victimisation.

Conclusions: Additional training of both medical and non-medical professionals with regards to interviewing victims of CSA incorporating NICHD protocol and establishing one-stop centres with multidisciplinary involvement including SANE and social workers could be carried out to provide holistic care and improve the victim outcome.

Keywords: advances in child sexual abuse, one-stop centres, medical and police interviewing, sexual assault nurse examiner, secondary victimization.

Support and Movement

OP-36: Evidence-based practice: attitudes, knowledge and behaviours of Sri Lankan physiotherapists

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Introduction: Evidence-based practice (EBP) is a globally accepted model of clinical decision making, which is considered a gold standard in clinical practice by many health professionals, including physiotherapists. Access to evidence, having positive attitudes and beliefs, and overcoming barriers are critical factors in implementing EBP to improve patient care. This study describes physiotherapists' self-reported attitudes, beliefs, knowledge, and barriers to EBP.

Methods: In a cross-sectional online survey, practising physiotherapists were invited to complete a google form with Likert scales, which measured the required components. Social media platforms were used to circulate the questionnaire to participants. A convenient sampling method was used. Chi-squared test was performed to analyse data.

Results: The majority of 108 participants were females (56.5%). Most of the physiotherapists (63%) belonged to the age group 30-39 years. It was found that 90% of participants had positive attitudes towards EBP. Although 89.8% of participants had learnt EBP during their academic programmes, complete awareness of the terminology of EBP was poor. More participants (57.4%) revealed that they received support to use current research in their practice, but 51% did not have access to current research. Insufficient time was the main barrier for practising EBP (26%) in clinical settings. Implementing EBP in their clinical practice was low (74%) despite training during their academic programme.

Conclusions: It is noted that there was a lack of implementation of EBP, even though participants had a positive attitude towards EBP. Based on results, it is recommended to have a national level policy to enhance EBP in physiotherapy clinical practice in Sri Lanka.

Keywords: evidence-based practice, physiotherapy,

OP-37: Effectiveness of physiotherapy in pulmonary rehabilitation program for patients with chronic obstructive pulmonary disease at National Hospital for Respiratory Diseases, Sri Lanka

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Introduction: Chronic obstructive pulmonary disease (COPD) is a chronic airway disease which could be improved by physiotherapy interventions such as pulmonary rehabilitation (PR). Improvements in physical fitness and breathing difficulty results in an increase in quality of life of COPD patients. Thus, this study aimed to determine the effectiveness of physiotherapy for COPD patients in a PR programme at National Hospital for Respiratory Diseases (NHRD), Sri Lanka.

Methods: This retrospective descriptive study included 75 patients with COPD, of which 92% were males (n=69). Physiotherapy interventions consisted of pre-designed chest clearance techniques, breathing and relaxation exercises, endurance, and stretching and strengthening exercises. Frequency and intensity of interventions were adjusted according to the baseline health status of the participants. Pulmonary function, physical functionality, level of dyspnoea, and health status of the patient were assessed using lung function tests (FEV₁), 6-minute walk test (6MWT), modified-BORG scale, COPD assessment tool (CAT) respectively at the baseline of the programme, at 7th week and at 20th week.

Results: Mean age of the participants was 68.39 years (SD=8). Mean height, weight and body mass index were 160.91 cm (SD=6.72), 53.608 kg (SD=10.36) and 20.57 kgm⁻² (SD=3.122), respectively. Majority of the participants were smoking males (n=67; 89%). The 6MWT results (mean) were significantly improved (p<0.05) from 345.81 m (SD=93.4) at baseline to 404.45 m (SD=83.37) at 20th week. Mean modified-BORG scale scores were significantly (p<0.05) reduced from 6.36 (SD=1.768) at baseline to 4.32 (SD=1.435) at 20th week, while the mean CAT score reduced from 20.89 (SD=6.287) at baseline to 13.87 (SD=5.614) at 20th week. Severity stage of

COPD did not change significantly ($p>0.05$).

Conclusions: Physiotherapy interventions in PR improved physical functionality, breathlessness and health status of COPD patients. Effects of physiotherapy interventions on severity of COPD should be further studied.

Keywords: chronic obstructive pulmonary disease, pulmonary rehabilitation, physiotherapy

OP-38: Awareness of physiotherapy specialties among bank employees in the Dehiwala- Mount-Lavinia suburb in Colombo District

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Introduction: The working environment of the bankers may cause physical health issues such as back pain, neck pain, etc. The general public frequently confuses the functions of different healthcare professionals including physiotherapists, which makes it difficult in selecting the best specialist to consult for their health problems. Thus, public awareness on physiotherapy may lead to early diagnosis, better management and prevention of several common health conditions. Accordingly, this study aimed at investigating the awareness of different physiotherapy specialties among bank employees and determining the association between the level of awareness and the socio-economic characteristics of bank employees.

Methods: A cross-sectional survey was conducted using a self-administered questionnaire on 124 bank employees at their workplaces. Data were analysed using standard descriptive statistics. Inferential statistics was used to assess the relationship between education level, gender and age groups and awareness of physiotherapy.

Results: The response rate was 67.03%. There were 61 males and 63 females. Among them, 92% were aged between 23-52 years. G.C.E. Advanced Level and diploma were the highest educational levels with 63.7%. Only 20.2% had a bachelor's degree. Awareness of physiotherapy was 93.5%. Television and internet led with 52.4% as sources of information. Well-known specialties were geriatrics (79%) and musculoskeletal physiotherapy (77.4%). Most of the fields in physiotherapy were known by 40-70%

respondents. There was no statistically significant difference between the level of awareness and age, gender or level of education of bank employees in this population.

Conclusions: Physiotherapy awareness among bank employees is high. Mass media plays a major role in information. Majority of this population is aware of geriatric and musculoskeletal specialties. Physiotherapy in head injuries is the least known field. However, knowledge on treatment options was inadequate.

Keywords: physiotherapy, awareness, bank employees

OP-39: Outcome of a psychologically based pain coping skills intervention for chronic knee osteoarthritis pain: study protocol

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Introduction: Knee osteoarthritis is a common musculoskeletal condition that causes chronic pain and psychological distress. The biological aspects of arthritis pain can be effectively managed with medication, physiotherapy and surgical procedures. However, no known psychological interventions to manage the psychosocial aspects of chronic pain have been developed in Sri Lanka. The specific aims are (1) to design a psychological intervention for chronic knee osteoarthritis pain, (2) to deliver the intervention and to assess the outcome, and (3) to train physiotherapists and occupational therapists to deliver the designed intervention in the future.

Methods: The study was approved by the Ethics Review Committees of the Faculty of Medicine, University of Colombo and the National Hospital Sri Lanka. It will be conducted in three phases: (1) designing a psychological intervention, (2) an experimental study to find the effectiveness of the intervention, and (3) training physiotherapists and occupational therapists to deliver the new designed intervention and evaluating its impact.

Results: The therapist's manual "Pain Coping Skills for Chronic Knee Osteoarthritis: a Psychological Intervention" was developed, which was based on cognitive behaviour theory. It consists of six sessions: orientation to the intervention; relaxation techniques;

physical activation and pacing; pleasant activities; cognitive restructuring and termination. The intervention was developed in English and translated into Sinhala and Tamil languages. The feasibility of the intervention was determined using a Delphi process and focus group discussions.

Conclusions: This intervention has the potential to address the psychosocial aspects of chronic pain that the biomedical model has previously overlooked. Furthermore, training physiotherapists and occupational therapists to deliver the intervention may make this new intervention more accessible to those who do not have access to psychologists.

Keywords: culturally relevant, chronic pain, coping skills intervention, knee osteoarthritis

OP-40: The effects of soccer match like exercise on ankle position sense in healthy athletes

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Introduction: Ankle proprioception is the body's ability to identify the ankle joint position during movement. It plays a major role during sports and exercise to maintain balance and upper body adjustments and is the commonly affected joint during soccer. Fatigue occurring during soccer can disturb this ability which in return can increase the injury risk in the ankle. Thus, this study aimed to investigate the effects of soccer match-like exercise on ankle position sense.

Methods: This study was a laboratory-based experimental study design. Eighteen healthy male recreational athletes with no history of ankle sprains performed a 90-minute soccer-like exercise that replicated the physiological demands of a soccer match. Main outcome measures were position matching tasks of the dominant leg (unilateral replication) which was assessed using six wireless motion tracking sensors (Xsens). The ankle was taken to a desired position measured by the Xsense and the participant was advised to match that angle with the

opposite limb. Angle matching was assessed actively at 10° dorsiflexion and 20° plantarflexion during pre-exercise and post-exercise sessions. The measurement taken before the exercise session was used as the control measurement. Body fatigue and heart rate was measured at the end of each exercise cycle using the rating of perceived exertion scale and polar heart rate monitor. Data were analysed by an independent sample t test.

Results: No significant change in matching tasks was seen between the control and pre-exercise sessions. There was a significant increase in heart rate and exertion levels after exercise ($p < 0.05$), indicating that the exercise protocol fatigued the athletes. No significant change in matching tasks was seen between the control and pre-exercise sessions. Immediately after exercise, for the 20° plantarflexion, an increase in absolute error (-1.3°; 95% CI: -2.03, -0.57) and variable error (-1.1°; 95% CI: -1.79, -0.41) was observed.

Conclusions: Ankle plantarflexion position sense was impaired by soccer match like exercise and is likely to have implications for the risk of ankle injuries

Keywords: proprioception, exercise, ankle, limb awareness

OP-41: Effects of dance on gait and dual-task gait in Parkinson's disease assessed using Vicon 3D-motion capture

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Introduction: Gait impairments are well-known in people with Parkinson's disease (PD). While dance-

based interventions could improve gait, further studies are needed to determine if the benefits generalise to different terrains and when dual-tasking. A feasibility study was performed to assess the effects of Dance for PD® (DfPD®)-program on gait under different dual-tasks (verbal fluency, serial subtraction) and surfaces (even, uneven), and to determine if a larger-scale randomised clinical trial (RCT) is warranted.

Methods: A dance group (DG; n=17; age=65.8 ± 11.7 years) and a control group (CG: n=16; age=67.0 ± 7.7 years) comprising non-cognitively impaired (Addenbrooke's score: DG=93.2 ± 3.6, CG=92.6 ± 4.3) independently locomoting people with PD (Hoehn & Yahr I-III) participated in the study. The DG undertook a one-hour DfPD®-based class, twice weekly for 12 weeks. The CG had treatment as usual. Gait analysis was performed at baseline and post-intervention while walking on two surfaces (even, uneven) under three conditions (regular walking; dual-task: verbal-fluency- DT_{VERB}, serial-subtraction- DT_{SUBT}).

Results: The spatio-temporal variables of gait for regular walking and dual-tasking did not differ significantly at baseline. Based on pre-post change scores, the DG improved significantly compared to

the CG in gait velocity (p=0.017), cadence (p=0.039), step length (p=0.040) and stride length (p=0.041) during regular walking on even surface. During DT_{VERB}, significant improvements were noted in gait velocity (p=0.035), cadence (p=0.034) and step length (p=0.039). The DG also exhibited significant improvement compared to the CG during DT_{SUBT} in the measures of gait velocity (p=0.012), cadence (p=0.021), step length (p=0.018) and stride length (p=0.151). On the uneven surface, the DG walked more cautiously during regular walking but had improved gait velocity (p=0.048), cadence (p=0.026) and step length (p=0.051) when performing serial-subtractions.

Conclusions: DfPD®-based classes produced clinically significant improvement on spatiotemporal even surface gait parameters with and without a dual-task and uneven surface walking with a serial subtraction task. This could arise from improved movement confidence and coordination; emotional expression; cognitive skills (planning, multitasking), and utilisation of external movement cues. A large-scale RCT of this program is warranted.

Keywords: Parkinson's disease, gait, dance

POSTER PRESENTATIONS

Open Poster Session 1

PP-01: A rare case of upper limb cellulitis and sepsis caused by *Sphingomonas paucimobillis* in a diabetic patient

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Introduction: *Sphingomonas paucimobillis* is a strictly aerobic, gram-negative ubiquitous bacterium causing opportunistic infections in the immunocompromised host. Infections are either community acquired or nosocomial. To our knowledge, here is the first reported case in Sri Lanka of *Sphingomonas paucimobillis* associated upper limb cellulitis, complicated by septic shock in an immunocompromised host.

Case report: We report a case of a 51-year-old female, presented to the University Hospital of General Sir John Kotelawala Defence University, Sri Lanka with cellulitis of right deltoid region; her insulin administration site. Her symptoms occurred following local application of a herbal pack for 'musculoskeletal type' right shoulder pain. Despite aggressive and timely administration of antibiotic therapy, in the background of multiple comorbidities including poorly controlled type II diabetes mellitus, her cellulitis progressed to septic shock that required intensive care unit (ICU) care. After two previous blood cultures becoming inconclusive, the fugitive organism was identified as *Sphingomonas paucimobillis* in the third.

The patient was successfully treated with IV imipenem and ciprofloxacin which had low minimum inhibitory concentration (MIC) for *Sphingomonas paucimobillis*. Subsequently, the patient got further complicated with mycoplasma pneumonia and moderate pulmonary hypertension but were successfully managed with appropriate and timely interventions.

Conclusions: Even though literature has reported insulin injection associated *Sphingomonas* infections due to contamination of injectables, it was highly likely in our patient that the organisms have been present in the herbal pack applied and have gained

access through the insulin needle-prick sites. It is prudent to keep a low threshold to suspect *Sphingomonas paucimobillis* as a causative, when encountering a case with cellulitis in an immunocompromised host with a suspicious exposure.

Keywords: *Sphingomonas paucimobillis*, immunocompromised, insulin injection, cellulitis, nosocomial infection

PP-02: Development of a PCR based assay for the detection of *Rigidoporus microporus* (causative organism of white root disease of rubber)

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Introduction: *Rigidoporus microporus*, one of the most harmful fungal pathogens which cause white root disease, affects Para rubber (*Hevea brasiliensis*) plantation, the second largest plantation in Sri Lanka. *R. Microporus*, a member of basidiomycetes division, affects the plants starting from its root to other parts. The damage is caused due to certain enzymes produced by the fungus and this occurs stage by stage. Firstly, a formation of white rhizomorphs grows and firmly adheres to the root's debris. Next, the collar region of trees gets infected and basidiocarps occur. The primary justification for conducting this study is because the roots of plants are initially affected making it difficult to detect the fungus. Hence initial identification of the fungus is important so that the pathogen can be detected at an early stage which helps to halt the progression of the disease. Accordingly, the objective of the study was to develop a polymerase chain reaction (PCR) based assay for the detection of *R. microporus*.

Methods: *R. microporus* isolates' DNA was extracted using two methods and PCR amplification was performed. For PCR amplification, β -tubulin primers were designed using the Bioedit software

and Primer3 Input (version 0.4.0). With the chosen primer, temperature, MgCl₂ and dNTPs were optimised. Sensitivity and specificity assay was performed using prior PCR conditions.

Results: The annealing temperature was adjusted to 60.7°C. Optimal PCR conditions were found to be 2.0mM MgCl₂, and 0.15mM dNTPs. Sensitivity and specificity assay showed the lowest detectable template concentration was 0.29ng and the primers were specific for this particular fungus, respectively.

Conclusions: In conclusion, the PCR assay developed in the current study is sensitive and specific for the detection of *R. microporus*.

Keywords: *Hevea brasiliensis*, polymerase chain reaction, primer, *Rigidoporus microporus*, sensitivity

PP-03: DNA methylation in methylenetetrahydrofolate reductase (MTHFR) gene promoter and 5-formyl-tetrahydrofolate (5-formyl-THF) levels in folic acid supplemented pregnant women

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Introduction: DNA methylation is an epigenetic modification critical for gene expression regulation. Folate metabolism cycle is intricately regulated to provide methyl groups for DNA methylation. The genetic and epigenetic influences on folate metabolism and on the levels of different folate forms are yet unclear. Methylenetetrahydrofolate reductase (MTHFR) is a key enzyme in folate metabolism that determines the availability of methyl groups. The study aims were to assess the methylation status of MTHFR gene promoter and to investigate the association between DNA methylation status of MTHFR promoter and concentrations of 5-formyl-tetrahydrofolate in folic acid supplemented Sri Lankan pregnant women.

Methods: Methylation Specific PCR was used to analyse methylation status of MTHFR promoter (n=20) at two time points: baseline (before FA supplementation) and delivery (after FA supplementation). Available data on 5-formyl-THF levels of these pregnant women were compared with the methylation status. Wilcoxon rank test was

performed to compare the change in DNA methylation status at baseline and delivery, while one-way ANOVA was performed to compare the mean change of 5-formyl-THF level from baseline to delivery between groups.

Results: At baseline, twelve pregnant women had fully-methylated status, seven had partially-methylated status and one had unmethylated status. All women with partially-methylated and unmethylated status at baseline were fully-methylated at delivery. Interestingly, of the twelve women with fully-methylated status at baseline, one changed to partially-methylated status at delivery. Although 5-formyl-THF levels significantly increased from baseline to delivery following FA supplementation, the mean change was not significantly different between fully and partially-methylated groups (p=0.541).

Conclusions: Results indicate that DNA methylation in MTHFR gene promoters increased in partially methylated and unmethylated groups after FA supplementation while the majority of the fully methylated group at baseline have maintained their methylation at delivery too. The fully-methylated status of MTHFR gene promoter may indicate the direction of metabolism towards 5-formyl-THF formation to maintain the stability of folate mediated 1C metabolism.

Keywords: DNA methylation, folic acid, MTHFR gene

PP-04: External ophthalmomyiasis by larvae of *Oestrus ovis* (sheep nasal botfly): second case report from Sri Lanka

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Introduction: External ophthalmomyiasis is the invasion of superficial tissues of the eye by fly larvae of the order Diptera. Human ophthalmomyiasis due to *Oestrus ovis* has been reported worldwide, typically in farmers and shepherds, especially in sheep and goat rearing countries of the Mediterranean basin. It is rare in Sri Lanka, and this is the second case that is being reported. In 2004, the first case was identified in a paddy farmer residing in Puttalam.

Case report: A 28-year-old man was admitted to the National Eye Hospital of Sri Lanka complaining of itching, redness, foreign body sensation and swelling of his right eye. On examination, visual acuity in both eyes was normal; conjunctival injection was noted in the right eye; and the presence of a few motile larvae were observed on the conjunctival surface. The patient recovered completely following the removal of six larvae and treatment with topical antibiotics. Microscopic examination revealed the larva to be translucent, segmented, white in colour and measuring approximately 1.07 mm x 0.36 mm in size. The tapering anterior end had two dark horn-shaped oral hooks connected to a cephalopharyngeal skeleton.

Conclusion: The morphological features of the extracted larvae were compatible with the first instar larva of *Oestrus ovis*. Sheep and goats are the natural hosts of these botflies. This patient gives no history of contact with either sheep or goats, nor does he give a history of trauma to his eye by any flies. Early detection and removal of botfly larvae will help minimise ocular damage.

Keywords: external ophthalmomyiasis, *Oestrus ovis*, sheep nasal botfly, Sri Lanka

PP-05: Serodiagnosis of *Leishmania donovani* induced cutaneous leishmaniasis: a method comparison study

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Introduction: Sri Lanka reports a large focus of cutaneous leishmaniasis (CL). CL is not known to exert a high humoral response. However, we detected a high seroprevalence for CL in Sri Lanka and developed a cost-effective in-house ELISA assay that has been described previously. This assay is important to detect microscopy negative patients prior to conducting second line investigations and to detect pre-clinical infections in the field. The aim of the current study was to compare the local assay with

other known assays.

Methods: Study samples (n=100) were collected randomly from patients with laboratory confirmed CL. Control samples (n=25) were collected through field visits to disease endemic and non-endemic areas. In-house ELISA, DAT, Indian dipstick test and rK39 strip test were carried out on all study samples. The specificity and sensitivity were analysed. The cost analysis was also done per patient.

Results: In house ELISA showed a high seropositivity of 81.0% (n=81/100) while DAT (57.5%; n=23/40), Indian dipstick test (22.0%; n=22/100) and rK39 test (15.0%; n=15/100) showed a comparatively less seropositivity. According to Kappa index values, there was no perfect agreement between tests. Among ELISA positive patients (n=81), DAT, Indian dipstick test and rK39 demonstrated seropositivity rates of 61.3% (n=19/31), 25.9% (n=21/81) and 16.0% (n=13/81), respectively. Among ELISA negative patients (n=19), the three assays demonstrated seropositivity rates of 44.4% (n=4/9), 5.3% (n=1/9) and 10.5% (n=2/19), respectively. The clinico-epidemiological profiles of seropositive patients in each assay were also different. Cost per patient was approximately 5.5 USD for DAT and 3.0 USD for each of the other tests.

Conclusions: In-house ELISA performs better than standard assays in the local setting. DAT can be used as an alternative test when ELISA is not available or negative. This establishes a suitable method for clinical and preclinical screening of CL in Sri Lanka.

Keywords: *Leishmania donovani*, cutaneous leishmaniasis, seroprevalence, serodiagnosis

PP-06: Development and validation of an in-house ELISA to detect *Leishmania* parasites in dogs

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Introduction: Leishmaniasis, a vector-borne parasitic disease, caused by *Leishmania donovani* is endemic in Sri Lanka. Inconclusive evidence suggests the possibility of dogs being a reservoir for

Leishmania. Identification of animal reservoirs is crucial to control the infection. The objective of this study was to develop and validate a low-cost ELISA method to screen for Leishmania in dogs.

Methods: An experimental study was conducted. Leishmania parasites were cultured, and crude protein lysate was extracted and quantified. The ELISA was optimised using checkerboard titration and was validated using a commercial kit. Accuracy, precision, linearity, specificity and sensitivity of the in-house ELISA were determined. The crosstab analysis was performed to determine the sensitivity and specificity of the in-house method. Blood samples were collected from 71 dogs: 60 from Kilinochchi and 11 from Mirigama. The collected serum samples were analysed using the optimised in-house ELISA.

Results: An antigen concentration of 5 µg/ml and 1/400 primary antibody dilution were chosen as the best combination for the ELISA. The cut-off absorbance value to detect positive cases was identified as 0.212. The sensitivity and specificity of the in-house method were 92.9% and 90.9%, respectively. The accuracy, intra-assay precision and inter-assay precision were 91.6%, 2.6%, and 3.5%, respectively. The dilutional linearity was up to 0.9904 of absorbance. Out of 71 dogs, 14 were positive for leishmaniasis according to the developed method and confirmed by the commercial kit.

Conclusion: The developed assay is a valid low-cost method to determine the presence of Leishmania in dogs. The non-specificity of the antigen used in crude lysate is a limitation. The results add evidence to suggest that dogs are potential reservoirs for Leishmania in Sri Lanka. However, it cannot be generalised due to the small sample size obtained from the limited number of hotspots. Further molecular and epidemiological studies are needed to confirm our findings.

Keywords: leishmaniasis, dogs, ELISA, development, validation

PP-07: Variations in the infrainguinal anatomical distribution of critical limb ischemia according to digital subtraction angiography

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Introduction: Chronic limb threatening ischemia is a global burden that results in death, amputation and impairment in the quality of life. It is caused by atherosclerosis of the limb vasculature with one-year mortality rates ranging from 10-40%. Digital subtraction angiography (DSA) and subsequent angioplasty are minimally invasive procedures that are currently accepted due to improved outcome and lower rates of complications. The aim of this study was to describe the anatomical distribution of critical limb ischemia.

Methods: A retrospective study was done in a single unit, inclusive of 97 patients who underwent angiography and subsequent angioplasty between February 2021-June 2022. Following the procedure, DSA reporting was done by a vascular surgeon and recorded. SPSS was used to analyse data.

Results: Among the 97 participants 71% (n=69) were males. 96% (n=93) had diabetes, 76.3% (n=74) were hypertensive and 50.5% (n=49) had a history of ischemic heart disease. 50.5% (n=49) angiograms were done in the left limb. Of the total study population, 66% (n=64) had patency in the superficial femoral artery and 64% (n=62) had the popliteal artery patent. Tibio-peroneal trunk was patent in 66% (n=64). Anterior tibial artery was patent in 19.6% (n=19) and the posterior tibial was patent in 20.6% (n=20) participants. Of 69 male participants, 69.5% and 15.9% had patency in the superficial femoral artery and anterior tibial artery, respectively. Females had 57% of patency rates in the superficial femoral artery and almost double rates of patency (28.5%) than males in the anterior tibial artery (p>0.05).

Conclusions: Majority had patency in the superficial femoral artery than anterior tibial artery. Females had a higher rate of patency in the anterior tibial artery but lower rates in the superficial femoral artery when compared to males.

Keywords: angiography, patency, infra-inguinal

PP-08: Development of an online home-based exercise intervention to reduce the risk of falls and to improve the mobility and gait in diabetes mellitus: a study protocol

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Introduction: Exercise interventions are found to be effective in reducing the risk of falls in older adults with diabetes mellitus (DM). However, there are no home or clinic-based interventions which can be used with minimal supervision. Furthermore, a digital intervention program based on validated data with a valid monitoring tool is not present in literature. The aim of this study is to develop a digital exercise intervention and to test its effectiveness to reduce the risk of falls, fear of falling, mobility and gait characteristics in older adults with DM.

Methods: A home-based digital exercise programme will be developed based on the neurophysiological and cognitive function data already obtained from patients with DM (n=103) by the principal investigator. Intervention will be given to the study group and the control group will receive general fall prevention advice. The programme will be accessible through a smartphone or a tablet. Exercises will be instructed in short video clips imaging older persons doing the exercises, and the user-interface will be clean and uncomplicated. Participants will have the opportunity to select up to 12 exercises, one from each category. Categories are upper limb strengthening (three groups), lower limb strengthening (five groups), balance training (two groups) and cognitive training (two groups). The primary outcome measure will be the number of falls during the intervention period assessed with fall calendars. Neuropathy symptoms and examination scores, physiological profile assessment (PPA), iconographical falls efficacy scale (Icon-FES), timed up and go test (TUG), balance assessments and gait analysis will also be performed before and after the intervention.

Conclusions: The generated exercise programme, if effective, could be utilised for people with DM to reduce the risk of falls. Hence, we can reduce the fear of falling and improve the quality of life of older adults with DM. The possible reduction in morbidity and mortality related to falls will contribute positively to the quality of life and economy.

Keywords: diabetes mellitus, risk of falls, fear of falling, exercise intervention

PP-09: A 10-year-old girl with a suicide attempt: are our social services failing?

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Introduction: Suicide attempts are rare under 12 years. Family conflict and lack of parental monitoring predict suicidal thoughts and acts in this age group. Data on young children with suicide attempts in Sri Lanka are scarce. This case highlights the role of psychosocial factors in suicide attempts.

Case report: A 10-year-old girl from a socioeconomically disadvantaged suburb was brought to the hospital following a hanging attempt. She needed intensive care for one week. She was unhappy with her mother for bringing a cheap alternative for breakfast and after her mother left for work, leaving her with her father and two younger siblings, she hanged herself.

Her mother is the sole breadwinner, and her father uses heroin. The two school-aged children are not schooled as they lack stable accommodation, their income is low, and their parents have taken minimal effort (both being illiterate). They spend the day watching television without adult supervision. This child looks after her three-year-old brother. They had recently watched a movie where a family had taken their lives by hanging - the mother lacked an understanding that this was inappropriate for children.

On assessment, no features of depression or trauma-related disorders were found. She had average intelligence but could only identify and write a few letters due to inadequate stimulation. There was no previous involvement of social or child protection services despite the children not attending school. A multi-agency case conference with mental health professionals, judicial medical officers, police, education, and child protection officers was held. Psychosocial concerns were discussed and a plan to support the family was formulated. Children were placed with parents under regular supervision of the Department of Probation.

Conclusions: This case reveals how social and family systems coalesced, creating a cascade of events leading to the child's hanging attempt. Early detection and coordinated action by relevant authorities are needed if these unfortunate incidents are to be avoided in the future.

Keywords: psychosocial concerns, suicide attempt, social and family conflict, parental monitoring

PP-10: Dispositional mindfulness as a moderator between the experience of subclinical post-traumatic stress symptoms and subjective wellbeing among Sri Lankans

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Introduction: The Sri Lankan population has endured many traumatic experiences such as the three-decade-long civil war and the Easter Sunday attacks. These events may have precipitated the development of subclinical post-traumatic stress symptoms (PTSS) among its people. This may negatively impact their subjective well-being (SW). A low level of SW has been associated with many adverse outcomes. Literature has established the moderating effects of dispositional mindfulness (DM) against the negative outcomes that are derived from psychopathology. As such, the present study aimed to see the moderating effect of DM on the relationship between PTSS and SW among Sri Lankan adults.

Methods: The study was carried out across 105 Sri Lankan adults aged 18-65 years through an online survey. The participants represented the major ethnic groups of the country and were residing in Sri Lanka at the time of data collection. The trait version of the MAAS, the PCL-5, and the SWLS were the measures used for data collection. The study employed SPSS version 28 for the data analysis process.

Results: The reliability analyses revealed high levels of consistency across all measures administered. The results revealed the presence of a high rate of PTSS among the participants. A weak positive correlation between DM and SW; a moderate negative correlation between PTSS and DM; and a weak negative correlation between PTSS and SW were observed. Additionally, the relationship between PTSS and SW was not moderated by DM within this sample.

Conclusions: A high level of PTSS was associated with a decrease in SW, and DM did not moderate the relationship between subclinical PTSD symptoms and SW. The presence of a high rate of PTSS among the participants suggests the need for suitable

interventions.

Keywords: dispositional mindfulness, post-traumatic stress symptoms, subjective wellbeing, Sri Lanka, moderator

PP-11: Effects of a meditation-based psychotherapeutic intervention on psychological distress and perceived health-related quality of life of stage IV and V chronic kidney disease patients: a randomised controlled trial protocol

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Introduction: Meditation is empirically supported as a sustainable and non-invasive mind-body therapy in illness contexts. The proposed randomised controlled trial (RCT) intends to explore whether a meditation-based psychotherapeutic intervention (MBPI) could alleviate psychological distress (PD) and enhance perceived health-related quality of life (pHRQOL) in a sample of Sri Lankan patients diagnosed with stages IV and V chronic kidney disease (CKD).

Methods: A repeated-measures, open RCT will be performed. Fifty-six CKD patients who are in stage IV/V of the illness, who have not undergone renal-replacement therapy and are between the ages 18-65 years will participate in an eight-week MBPI compared to an active control group (CG; n=56), who will participate in a parallel series of illness-related education sessions. The proposed MBPI will consist of eight 1.5 hourly sessions where the 1st and the 8th session will be conducted onsite while 2nd - 7th sessions will be conducted online and will require a 30-40 home-based daily individual practice of meditation between sessions. Participants will be recruited from renal care clinics at the National Hospital of Sri Lanka, Colombo (NHSL) using purposive sampling and will be grouped using block randomization. To avoid contamination bias and influence on the CG, the participants of the experimental group will be instructed not to share any information related to the MBPI with others during the study. All participants will complete validated psychometric measures to evaluate primary outcomes (i.e. PD and pHRQOL) and secondary outcomes (i.e. mindfulness, self-compassion, coping, psychological

resilience) during three-time points: before, immediately after, and three months after the completion of the intervention. The study will be conducted in the Clinical Medicine Academic and Research Centre premises at the NHSL. Outcomes between groups will be compared by adhering to standard principles for RCTs.

Keywords: meditation-based psychotherapeutic intervention, psychological distress, health-related quality of life, chronic kidney disease

Funding: AHEAD Grant of the World Bank (Grant No. 6026-LK/8743-LK)

PP-12: Effects of long-term meditation practice on expression of *CRY1* and *CRY2* genes related to circadian rhythm: a case-control study

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Introduction: Many physical, metabolic and behavioural changes in the human body follow a circadian rhythm. Cryptochrome circadian regulator (*CRY*) 1 and 2 genes encode circadian proteins important for circadian rhythmicity. Up-regulated *CRY* genes ensure the stability of the circadian rhythm which contribute to maintenance of homeostasis in the body. Practice of meditation has been suggested to up-regulate the expression of *CRY1* and *CRY2* genes. This case-control study compared expression of *CRY1* and *CRY2* genes between long-term, skilled meditators and non-meditators.

Methods: Thirty meditators were recruited from meditation centres in different parts of Sri Lanka following a two-tier screening process and age and gender matched non-meditators were recruited from the community. Socio-demographic characteristics including exercise hours per week were collected. Expression of *CRY1* and *CRY2* genes was assessed via reverse transcriptase polymerase chain reaction. Relative gene expression was determined using the $2^{-\Delta\Delta CT}$ method. Independent sample t-test was used to compare the mean fold changes of the expression of

genes between meditators and controls. Pearson correlation was used to determine the bivariate relationships between continuous variables.

Results: Nineteen of the 30 participants (63.34%) in each group were male and the average age (SD) of participants was 43.83 (9.92) years. Mean duration of the meditation practice of the meditators was 6.80 (3.27) years and they had meditated for a mean period of 5.82 (3.45) hours per day. A significant increase in the expression of *CRY1* (FC=9; p=0.037) and *CRY2* (FC=6.6; p=0.05) were found in meditators compared to controls which indicate that the meditators had stabilised circadian rhythmicity. Expression of *CRY1* gene increased significantly with the duration of meditation practice (r=0.377; p=0.040). The expression of *CRY2* gene significantly increased with the duration of exercise hours (r=0.256; p=0.046).

Conclusions: Up-regulated *CRY* genes in meditators result in stabilised circadian rhythmicity which contribute to maintenance of body homeostasis.

Keywords: meditation, gene expression, *CRY1*, *CRY2*, long-term meditators, case-control

Funding: AHEAD Grant of the World Bank (Grant No. 6026-LK/8743-LK)

Open Poster Session 2

PP-13: Impact of COVID-19 on homeless adults in Gampaha District

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Introduction: The COVID-19 pandemic was believed to be immensely challenging to the homeless. This study aimed to determine how COVID-19 has impacted the lives of the homeless in certain aspects in the Gampaha district of Sri Lanka.

Methods: This observational, qualitative cross-sectional was conducted in the first quarter of year 2022. The study included 20 respondents from Gampaha District aged above 25 years and were selected via convenience sampling method. The

participants were questioned in their native language and the answers to the interview-administered questionnaire were recorded and translated and later on analyzed using the thematic analysis software. The questionnaire assessed food, shelter, medication, sanitary needs, mental and physical wellbeing and substance abuse; before and after COVID-19 pandemic.

Results: In terms of food, the study findings reveal that the majority of homeless received 1 or 2 meals per day after the pandemic, a few stated that they just managed with water on the days food was not to be found. These people were able to fulfill all the three meals per day before the pandemic. However, there were few individuals (n=3) who stated that there was more food during the pandemic due to the increased number of donations. With regards to shelter, five subjects were negatively impacted after the pandemic because of fear of the police or due to their property being stolen during their sleep. When considering substance abuse, a prominent finding in five participants was that due to increased expenses, only alcohol was stopped or reduced following the pandemic. Regarding physical health, swelling, asthma, cold and headache were common findings after COVID-19. The majority's mental health was affected either by depression or loneliness mainly due to the fear of contracting the virus, isolation and death. Lastly, sanitary and medication seemed to be the least affected factors as they were provided free by the government.

Conclusion: As a result of this study, it was confirmed that the socio-economic status of the homeless was affected. Due to the lack of research on the area, this research will expect to stimulate further research on the topic presented here. Additionally, it will spread awareness to those who expect to support the homeless which includes the government, responsible authorities and NGOs.

Keywords: homeless, COVID-19, coronavirus, public health, poverty

PP-14: Background prevalence of genotypic variants associated severe COVID-19 in a Sri Lankan cohort

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Introduction: The global pandemic coronavirus disease 2019 (COVID-19) has impacted every individual either by affecting the health or economy. The variations in clinical manifestations and fatality ratios are attributable to the health care system, disease management strategies, variants of the virus and importantly genetic variations within populations. Hence, it is important to check the host genetic factors to understand the disease severity. Meta-analysis of 60 Genome Wide Association studies from 25 countries identified 23 genetic variants as biomarkers of severe COVID-19 disease. Our aim was to identify the background prevalence of these biomarkers in a Sri Lankan cohort.

Methods: The genomic data of patients undergoing exome sequencing at our unit is maintained in an anonymized database. The candidate variants were assessed in 323 exomes. Analysis was performed using an in-house bioinformatics pipeline.

Results: The prevalence of the risk allele of the following variants were as follows: *SFTPD* rs721917(GG)=0.68, *OAS1* rs2660(AA)=0.70, *IFNAR2* rs17860115(AA)=0.19, *EFNA4* rs114301457(TT)=0.0031, *THBS3* rs41264915(GG)=0.0712, *SLC6A20* rs2271616(TT)=0.096, *PLSCR1* rs343320(AA)=0.0341, *SLC22A31* rs117169628(AA)=0.0015, *ATP11A* rs9577175(TT)=0.0062, *TYK2* rs34536443(CC)=0.0046, *IFNAR2* rs188401375(GG)=0.0031, and *FUT2* rs516316(CC)=0.0015. The following risk variants alleles were not present: *HLA-DRB1* rs9271609(CC), *IFNA10* rs28368148(GG), *FBRSL1* rs56106917(GG), rs3848456(AA), *TMPRSS2* rs915823(CC), *LZTFL1* rs17713054(AA), *AQP3* rs60840586(del AACT), *TAC4* rs77534576(TT) and *IL10RB* rs8178521(TT).

Conclusions: The highest prevalence was seen for the *SFTPD* rs721917=0.68, *OAS1* rs2660=0.70 and *IFNAR2* rs17860115=0.19 risk alleles. Surfactant protein D coded by *SFTPD* protects the lungs from inhaled microbes, rs721917 GG leads to low expression of *SFTPD* conferring the risk for hospitalisation. Low expression of the *OAS1* in those with the rs2660 AA genotype is associated with higher hospitalisation rate. Low *IFNAR2* expression is seen in those with rs17860115 AA genotype with life threatening infections. We conclude that rs721917, rs2660 and rs17860115 as potential biomarkers for severe COVID-19 disease in the Sri

Lankan population. Further studies are needed for confirmation.

Keywords: COVID-19, alleles, biomarkers

PP-15: The effect of the COVID-19 pandemic on physical activity (PA) levels among adolescents attending selected schools in Colombo District

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Introduction: Regular PA is crucial for an individual's development throughout their lifespan. Many individuals find it difficult to get adequate PA; and there is less evidence on PA levels of Sri Lankan school-going adolescents. This study aimed to assess the effect of the COVID-19 pandemic on PA levels among school-going adolescents attending selected schools in Colombo District.

Methods: A descriptive cross-sectional study was conducted by selecting a sample of 81 school-going adolescents who were approached through a convenience sampling method. The International Physical Activity Questionnaire (IPAQ) which is a validated tool was used to collect data and circulated as a Google form. The responses were descriptively analyzed using Microsoft Excel. Ethical clearance was gained from the BioInquirer Ethics Review Committee.

Results: The questionnaire was distributed among male and female school-going adolescents where the majority were females (n=43; 53.1%). Prior to the pandemic, many people engaged in moderate PA three times per week (n=18; 22.2%), but this has decreased, with only 8.6% (n=7) engaging in PA three times per week after the pandemic. When considering walking before the pandemic, many respondents (n=31; 38.3%) engaged in walking all seven days for an average of 15 minutes on those days. Yet, after the pandemic, many participants (n=20; 24.7%) engaged in walking only twice per

week. In terms of sitting on a weekday before the pandemic, many respondents (n=19; 23.5%) were likely to sit for 5 hours per day which has increased to 8 hours per weekday.

Conclusions: According to the comparisons, the PA levels of school-going adolescents have decreased since the pandemic's onset. A PA program that can be practised irrespective of the pandemic status can be recommended to the schools via the student welfare societies.

Keywords: physical activity, pandemic, school-going adolescents

PP-16: A cross-sectional study assessing the public's awareness regarding the role of a physiotherapist in the Western Province of Sri Lanka

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Introduction: Physiotherapy is one of the vital fields of medicine. However, there appears to be a lack of awareness among the public regarding the role of a physiotherapist. Thus, the main aim of this study was to investigate the level of awareness regarding the role of a physiotherapist among the public in the Western Province of Sri Lanka.

Methods: This descriptive, quantitative, cross-sectional study included 147 respondents from the Western Province, aged above 18 years and with internet access. The snowball sampling method was used. The questionnaires were submitted online via soft copy. The questionnaire consisted of 2 parts; (1) Identified respondent's demographic data (2) Examined respondents' familiarity with the role of a physiotherapist.

Results: The majority of participants were females (58%) while most of the subjects were aged between 20-29 years (65%). The participants were aware of the physiotherapy profession or physical therapy services in the field of health care services (86%). The study population claimed to have interacted with a physical therapist due to a personal injury (86%). The

majority (80%) of the subjects stated that a female physiotherapist is responsible for delivering physical therapy services. The participants said that sports injuries most commonly required physiotherapy (78%). The study respondents considered massaging to be a therapeutic modality used in physical therapy (81%). The majority (97%) believed it is necessary to raise awareness on physical therapy services among community members and specifically via social media (86%). Lastly, 96% of the subjects trusted the physical therapy role in promoting and enhancing health care efficiency.

Conclusions: The public's level of awareness regarding the physiotherapist's role is considered satisfactory, as the majority of selected results were not wrong. Nevertheless, lack of complete understanding of a physiotherapist's role within the Western Province of Sri Lanka still persists.

Keywords: physiotherapy, awareness, medical care, physiotherapist role, health care services

PP-17: A survey of trust, self-esteem, psychological well-being, and their correlation, among journalists in the Colombo District of Sri Lanka

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Introduction: Journalists must maintain professional ethics while exercising their freedom of expression towards keeping citizens aware of their rights. This study aimed to determine the association between trust and self-esteem, and how this predicts psychological well-being among journalists aged 18 years and above, in the Colombo district of Sri Lanka.

Methods: A quantitative cross-sectional survey was conducted by purposive sampling of subjects fulfilling inclusion and exclusion criteria. The sample size was 151 (74 females; 77 males). The three scales administered were Yamagishi's General Trust Scale, Rosenberg's Self-Esteem Scale, and Ryff's Psychological Well-Being Scale. Spearman Correlation analysis and multiple linear regression analysis were used to identify correlations.

Results: Spearman-rank correlation was run to assess the association between trust and self-esteem. The results of the study indicated that there was no significant association between trust and self-esteem. Further, simple linear regression was run to understand if self-esteem and trust have an impact on six dimensions of psychological well-being (i.e., autonomy, environmental mastery, positive relations, purpose in life, self-acceptance, and personal growth), which indicated that self-esteem predicted psychological well-being, and trust predicted psychological well-being. This, therefore, indicated that an increase in self-esteem increases psychological well-being and an increase in trust levels increases psychological well-being.

Conclusions: The findings indicated that there was no significant association between trust and self-esteem and that an increase in self-esteem increases psychological well-being and, when trust increases psychological well-being increases too.

Keywords: self-esteem, trust, psychological well-being, journalist, Sri Lanka

PP-18: New model for rural healthcare: equipping community health workers with telemedicine and healthcare informatics

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Introduction: There is an unacceptably high prevalence of non-communicable diseases (NCDs) in the rural areas of Sri Lanka, causing increasing hospitalization and premature deaths. The improvement of NCDs needed a new health care model, and our objective was to research such a model.

Methods: We did a comprehensive literature search with reviews of new healthcare models for rural communities from March 2014 to March 2022 and identified one unique model with proven results.

Results: This model introduces a category of health workers called Community Health Workers (CHW) in the USA, serving rural and underserved communities. These CHWs are frontline public health workers who live in the community. They are ordinary people who are trained mainly via e-training. The CHWs act as connectors to the community and health care system, facilitating community health activities to influence lifestyle changes, helping with clinic appointments, and may do informal counselling. Their other function is to link patients to their health care team for collaborative follow-up. The first phase is the addition of a newly created "Community Health Worker (CHW) Program" to the existing health care system, which is the key to the model's success. The second phase is adding telehealth (telephonic and video) systems for CHW and other health providers to follow patients with chronic diseases as follow-up "touches" instead of clinic appointments. A telemedicine platform with an Electronic Medical Record (EMR) is best, but it can function without Wi-Fi. The third phase is a cloud-based EHR with a telemedicine platform that could replace the second phase if affordable. Finally, the fourth phase is to add Artificial Intelligence (AI) in real-time and deep learning algorithms to improve NCD management.

Conclusions: Adding CHWs and medical informatics will reduce the incidence of NCDs and the need for clinic visits, hospitalizations and deaths.

Keywords: healthcare models, chronic care, telemedicine, health informatics, artificial intelligence

PP-19: Digital spine application with the embedded technology with Artificial Intelligence and machine learning algorithms to remotely diagnose and estimate the severity of COVID-19 or other diseases

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Introduction: We developed an advanced web-based Application for virtual visit technology equipped with a mobile EMR for remote patient visits suspected of COVID-19 or other diseases. Although COVID-19 testing is available, it is expensive and often requires the patient to visit a facility for a test. Our software was developed to predict the diagnosis of COVID-19 and assess its severity. This Application is presented here since we can adapt it for the remote diagnosis and management of chronic diseases in Sri Lanka.

Methods: Our Application is in a cloud-based environment with embedded advanced application tools, including Artificial Intelligence (AI) and machine learning with prediction training of the model. The input is based on a questionnaire. Its output has three components; 1. risk stratification, 2. severity assessment and 3. diagnostic coding (ICD, CPT). The patient sees the risk assessment on his screen on a colour-coded display. In contrast, the provider will see the details of the risks of the disease and severity prediction and the computed coding on his screen, enabling him to do a consultation remotely.

Results: We have successfully used our application in simulated patients with COVID-19 to show its functionality and utility. However, clinical studies are needed to optimize its functionality

Conclusions: The Application's output will be accurate since our self-learning algorithms have reinforcement training for selected data set input. Furthermore, the Application is embedded with the virtual video tele-visits module, enabling it to be used in remote areas. This Application can be programmed to be utilized for multiple uses in Sri Lanka, such as in mental health for calculating the suicidal risk and remotely screening populations for chronic diseases such as diabetes and chronic alcoholism. Further, it has automated systems for follow-up patients using AI-based algorithms. Since Sri Lankans developed this program, its use is affordable.

Keywords: Artificial Intelligence, deep learning, COVID-19, virtual technology, chronic disease management

PP-20: Knowledge empowerment of patients via informatics for the improvement of healthcare outcomes in patients with non-communicable diseases

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Introduction: Empowering the patient through engagement in health care has been considered a "blockbuster drug of the century" with the potential to achieve the "triple aim" of improved health outcomes, better patient care, lower costs, and also improved medication adherence. This shift is primarily due to technology facilitating increased patient access to information via the internet, peer-to-peer sharing, consumer health devices and mobile applications. We reviewed the role of advanced mobile applications in patient empowerment.

Methods: We reviewed 23 articles on patient empowerment through health education via direct and indirect internet education modalities. Firstly, we collected data on non-communicable disease (NCD) management and self-education on chronic disease health and filtered it. Then, we condensed them into the most essential, which can be deployed from Artificial Intelligence (AI) embedment. The next stage is inserting data of NDCs of self-education into a mobile application with in-built AI, which can be downloaded to any smartphone. It can provide personalized information based the patient's language and literacy level and will provide updated chronic disease knowledge to the patients.

Results: Many patients have communication issues with providers not speaking in their language. Preliminary mobile phone results on 10 patients who all expressed great clarity in patient education and empowerment since we programmed the application in their language.

Conclusions: The high prevalence of NCDs is a major public health burden to Sri Lanka. Unfortunately, most patients' knowledge about NDCs and related complications is less than optimal, and the

availability of health educators is limited, particularly in rural areas. Thus, improving patients' knowledge of chronic care disease via advanced mobile devices is a cost-effective method to empower them to manage their condition and create a partnership approach that allows for shared decision-making during physician encounters leading to improved health outcomes, improving medication adherence as well as patient satisfaction.

Keywords: patient empowerment, digital technology, medical adherence, shared decision making

PP-21: Online learning during the COVID-19 pandemic: the experience of physiotherapy undergraduates in Sri Lanka

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Introduction: Online learning was an alternative method during the COVID-19 pandemic. The objectives of the study were to explore perceptions and preferences of online learning among physiotherapy undergraduates during the pandemic.

Methods: An online cross-sectional survey was conducted. Ethics approval and permission were obtained from the relevant authorities. Physiotherapy undergraduates from all three universities which offer physiotherapy degree programmes in Sri Lanka were recruited and a convenient sampling method was used. First year undergraduates were excluded since they did not have experience in clinical or onsite practical classes during the data collection period.

Results: The response rate was 48.8%. Of the 147 respondents, 72% were females. During the pandemic period, 63% of the participants spent between 10-40 hours/week on online learning. 78% mentioned that they have moderate knowledge on Information Technology. Being able to stay at home and to learn at their own pace were commonly mentioned advantages of online learning. However, 36% of participants indicated that internet connectivity issues impacted their learning, whilst 78% of the participants indicated that clinical teaching and practical classes could not be replaced by online teaching. Seventy-seven of the participants preferred

a hybrid learning method, even post-pandemic. Results indicated that online learning would be made more effective if the classes were more interactive, stimulating and engaging. Low response which may lead to a response bias was a study limitation.

Conclusions: Physiotherapy students have a positive perception towards traditional learning for clinical and practical classes compared to online learning. However, considering the advantages of online learning for theory components, students prefer a hybrid learning method for the physiotherapy study programme. Problems such as internet connectivity issues should be addressed to provide a satisfactory learning experience to students.

Keywords: physiotherapy, online-learning, traditional learning

PP-22: Study to describe key components required in a mentoring program that impact the success of the mentoring process

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Introduction: Mentoring is considered as a fundamental component of a mentee's personal and professional development. Understanding the needs of the mentee, the nature of the profession, and their experience in mentoring is necessary for a successful mentoring process and to improve mentoring relationships. This preliminary analysis was carried out to understand requirements of academics and professionals in order to design a training program on mentoring. The surveys assessed the areas in which the target population expected guidance from a mentor in order to improve their performance in their academic careers.

Methods: The sample included academic professionals and alumni staff of the University of

Colombo. Data were collected from participants who attended a pre-congress (Colombo Medical Congress-CMC) workshop in academic mentoring in January 2020, using a self-administered questionnaire. Thirty-six respondents aged 28-74 years, participated.

Results: Participants identified many areas as important components in a mentoring session [support in professionalism (n=15/36; 47%), research (n=11/36; 31%), academic life (n=11/36; 31%), personal life (n=8/36; 22%), skill development (n=8/36; 22%), motivation (n=7/36; 19%), and mental health (n=6/36; 17%). The graduates (n=5/36; 14%) mentioned improvement of academic life (n=3/5; 33.3%) and personal life (n=3/5; 33.3%) as their preponderant interests, while the postgraduates (n=31/36; 86%) were interested in the improvement of knowledge on researching (n=11/31; 35.4%) and skill development (n=10/31; 32.2%). Majority requested a mentoring program for themselves (n=27/36; 75%) and their trainees (n=15/36; 42%).

Conclusions: Expectations and the interests of academics are diverse. Mentees do not expect support only for career development, but also for their personal life and wellbeing. When planning a successful mentoring process, evaluating and understanding mentees' abilities, professional and personal situations can help select more suitable mentors according to their needs. An evidence-based approach may be useful to correctly understand the requirements before designing training programs.

Keywords: needs assessment, mentoring, mentee

PP-23: Ideal educational model for the clinical education component of B.Sc. Honours in the Physiotherapy degree programme at University of Colombo, Sri Lanka

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Introduction: Clinical education is a crucial component of an entry level physiotherapy education programme. This study aims to identify ideal educational strategies to improve the clinical education component of the B.Sc. Honours in Physiotherapy degree programme at the University of Colombo in order to produce more competent physiotherapists in future.

Methods: A qualitative phenomenological study will be conducted at the Faculty of Medicine, University of Colombo and relevant clinical training stations. Second to fourth year physiotherapy undergraduates who have commenced their clinical training, academic staff members who have actively participated in clinical teaching during the past four years, clinical educators with at least two years of experience in training physiotherapy undergraduates, internal and external examiners participating for clinical examinations of the degree programme, physiotherapy graduates with more than one year of experience in clinical practice and other health professionals who have worked with physiotherapy graduates for more than one year will be recruited as study participants using maximum variation sampling method. Selection and recruitment of participants will be terminated upon data saturation. Focus group discussions will be conducted with physiotherapy undergraduates and individual semi-structured interviews will be conducted with other categories of participants. Interviews will be audiotaped and transcribed. Document analysis will be conducted to evaluate the existing curriculum. In addition, a literature review will be conducted on the best educational strategies for physiotherapy clinical education. Framework analysis methods will be used to analyse data.

Conclusions: This study will explore the clinical education component of the B.Sc. Honours in Physiotherapy degree programme at University of Colombo more descriptively using the qualitative phenomenological approach which is frequently used to assess educational interventions in health professions' education. The investigators expect to enhance the credibility of the study through triangulation of data collection methods.

Keywords: clinical education, physiotherapy, entry-level education programmes

PP-24: Ensuring the sustainability of a diploma programme: reflection of decades long experience

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Introduction: Provision of expert testimony in Forensic Medicine and Science is crucial in court

trials. The Diploma in Forensic Medicine and Science (DFMS) for legal professionals commenced over twenty-five years ago, to empower them to evaluate, apply or challenge expert medical and scientific evidence. This paper reflects on the long-term sustenance of the programme, the programme transformation from traditional to active learning and recommendations for improvement.

Methods: The programme transformed gradually from didactic lectures and post-mortem demonstrations to active teaching learning activities (TLA) with hands-on simulated crime scene investigation and other simulations leaving a unique stamp. Based on stakeholder feedback, the content area was modified, and the resource pool expanded to include forensic psychiatrists, senior police investigators and sociologists. Prior-knowledge quizzes, formative assessments (FA), end of semester assessments including FA, continuous assessments (CA) and take-home assignments were new additions. Online teaching and uploading of the activities to the learning management system (LMS) constitutes hybrid teaching. Student- friendly management strategies include a comprehensive handbook, inclusivity education and addressing of student concerns by an empathic staff member. Managerial staff strategies included online programme planning with document sharing and compulsion of the team to regularly update their digital acumen. As an income generation project incentives to team and welfare are ensured with other minor benefits for all department staff.

Results: Increased student enrolments could be due to student-friendly environment, active teaching and learning methods and increased commitment due to CA and FA keeping students engaged. Group assignments encouraged peer-peer communication, teamwork, and breaking hierarchies. Greater teamwork, staff compliance and information technology (IT) savviness could be associated with incentives, welfare programmes and team-based planning thus contributing to a better equipped and satisfied workforce.

Conclusions: The DFMS programme has evolved with respect to its content delivery and student-friendly learning environment as well as enhanced management principles and has had increasing enrolments despite cost involved.

Keywords: forensic medicine, legal professionals, active learning, teamwork, teaching learning activities

Oral Presentations Session 1

SOP-01: Prevalence and associated factors of psychological distress of patients with stroke attending neurology clinics of the National Hospital of Sri Lanka, Colombo

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Introduction: There are many reasons for psychological discomfort in stroke patients, which has a negative impact on their prognosis. Hence, this study was carried out to assess the prevalence of psychological distress and associated factors among stroke patients attending neurology clinics of the National Hospital of Sri Lanka (NHSL), Colombo.

Methods: A descriptive cross-sectional study was conducted among 177 stroke patients attending neurology clinics of the NHSL, Colombo who were sampled by multi-stage random sampling. The level of psychological distress, dependency on activities of daily living (ADL), and disability status were evaluated using the 10-item Kessler psychological distress measure, the Barthel Index, and the modified Rankin Scale, respectively. A pre-tested interviewer-administered questionnaire was used to gather data. Bivariate analysis was conducted using Chi-squared tests and simple logistic regression, and multivariate analysis was conducted using binary logistic regression. Odds ratios with 95% confidence interval (95% CI) were used to express the results of the final regression model, and all types of analyses considered associations with p value less than 0.05 to be significant.

Results: The mean age of the participants was 59.6 (SD=12.29) years. The prevalence of psychological distress among participants was found to be 23.3% (95% CI=16.1, 31.9) using the validated K10 score of ≥ 22 . The final results of regression identified five independent predictors: age (b=-0.13; p<0.05), gender (b=4.26; p=0.05), patient being the sole source

of income (b=3.21; p<0.05), level of disability (b=2.57; p<0.001) and past personal history of psychiatric disorders (b=5.15; p<0.05) with r² of 0.77.

Conclusions: There is a considerably high prevalence of psychological distress among stroke patients at neurology clinics at the NHSL in Colombo, and it is linked to both health-related and non-health-related factors. Measures should be taken to reduce psychological distress taking into account the related factors.

Keywords: stroke, psychological distress, neurology clinics

Acknowledgment: Community Stream, Faculty of Medicine, University of Colombo

SOP-02: Knowledge, attitudes, practices and factors associated with knowledge regarding contact lens usage among undergraduate spectacle wearers in a selected medical faculty in Sri Lanka

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Introduction: Refractive error is one of the main causes of visual impairment thus increasing dependency on spectacles and contact lenses. Though spectacles are the most frequently used method, with rapid modernization, contact lenses are becoming popular. Therefore, this study aimed to assess knowledge, attitude, practices and factors associated with knowledge regarding contact lens usage among medical undergraduate spectacle wearers in Sri Lanka.

Methods: A cross-sectional study was done among 106, 1st to 4th year undergraduate spectacle wearers from a selected medical faculty in Sri Lanka via a google form. Consecutive sampling was used. While a scoring system was used to assess the knowledge,

attitudes and practices were assessed using frequency distributions. Factors associated with knowledge were determined using Chi-squared test.

Results: Majority (n=94; 88.3%) had heard about contact lenses. Of them, most (n=54; 57.4%) had good knowledge regarding contact lenses. However, only 8.5% (n=8) were aware that the maximum daily wearing time of contact lenses was 14-16 hours per day and only 6.4% (n=6) were aware that the container of contact lenses should be replaced once every 3 months. Only 27.7% (n=26) were aware that contact lenses should not be worn during swimming. Majority (n=75; 79.8%) felt that contact lenses required extra care, while only 46.8% (n=44) felt that contact lenses were more expensive. Proportion of contact lens users was 8.5% (n=9). Of them, only 22.2% (n=2) replaced the container of contact lenses once in 3 months, while only 22.2% (n=2) rinse the lenses with lens solutions daily. None of the considered factors were significantly associated with knowledge.

Conclusions: Although knowledge and practices regarding contact lens usage were moderate, attitudes regarding contact lens usage were good. Measures should be taken to improve knowledge and practices, taking into account their good attitudes.

Keywords: knowledge, attitude, practices, contact lenses, spectacles wearers

Acknowledgment: Community Stream, Faculty of Medicine, University of Colombo

SOP-03: The effect of physiotherapy in reducing pain and disability and patient satisfaction in patients with osteoarthritis of the knee joint attending the physiotherapy clinics at District General Hospital, Matara

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Introduction: It is a timely need to assess the effectiveness of physiotherapy modalities in the management of knee osteoarthritis (KOA). Patient satisfaction is also an important component in physiotherapy care. However, the number of studies

that have evaluated the effects of physiotherapy combined with satisfaction is limited. This study aimed to determine the effects of physiotherapy in reducing pain and disability in KOA and to determine patient satisfaction among patients with osteoarthritis of the knee joint attending the physiotherapy clinics at District General Hospital, Matara.

Methods: A quasi-experimental study was conducted at the District General Hospital, Matara, using convenience sampling involving 50 patients diagnosed with KOA. The existing treatment protocol of the department which included heat therapy and quadriceps strengthening was given to patients. It included 30 minutes of physiotherapy at the clinic twice a week and a home exercise programme twice a day over a period of six weeks. The outcome was taken at the baseline and six weeks after the treatment using Western Ontario and McMaster Universities Osteoarthritis Index questionnaire and the 50-foot walk test to find the effect of physiotherapy and were analysed using paired sample t-test. Patient satisfaction was assessed by descriptive statistics with mean and standard deviation (SD) of the data collected from the Physiotherapy Outpatient Survey questionnaire.

Results: There was a significant reduction ($p < 0.05$) in the time taken for the 50-foot walk test, pain, stiffness and difficulty in physical function following six weeks of treatment. There was a high level of satisfaction about the treatment and the highest and the lowest levels of satisfaction were for “therapist’s professional manner” and “treatment outcome” subscales, respectively.

Conclusions: Pain, stiffness and disability were significantly reduced with physiotherapy in patients with KOA, and patients were satisfied with physiotherapy treatment.

Keywords: osteoarthritis of the knee, effect of physiotherapy, patient satisfaction

Acknowledgement: Department of Allied Health Sciences, Faculty of Medicine, University of Colombo

SOP-04: Self-stigma in Sinhala-speaking patients receiving follow-up care for chronic mental illness at the National Hospital of Sri Lanka: a comparison between patients with chronic psychotic disorders and chronic affective disorders

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Introduction: Self-stigmatisation among persons with chronic mental illness provides insight into how these people view themselves, and indirectly on how society treats them. This study compared levels of self-stigmatisation between patients with chronic psychotic and affective disorders, among patients receiving clinic-based follow-up at the National Hospital of Sri Lanka. It also assessed the association between self-stigmatisation and several socio-demographic and health-related factors.

Methods: A cross-sectional design with descriptive and analytical components was used, recruiting 80 participants: 40 in each disorder group. Ethical clearance was obtained. The study population was selected by consecutive sampling. An interviewer-administered questionnaire via telephone, assessed levels of self-stigma using the Internalised Stigma of Mental Illness scale (ISMI scale) questionnaire. Data analysis utilised the Statistical Package for Social Sciences (SPSS) version 25. The average ISMI score was used to identify the level of self-stigmatisation, with a cut-off value of more than 2.5 considered significant, as in prior literature.

Results: The majority of the study population was female (60.0%), had received formal education of 12 or more years (63.7%), was employed (90.0%) and was married (56.3%). The mean age was 40 years. The prevalence of significant self-stigma in the study population was 16.3%. Association between the level of self-stigma and the disorder group was statistically insignificant ($\chi^2=2.29$; $p=0.13$). Additionally, no association was identified between self-stigma and socio-demographic factors (age, gender, relationship status, employment status and educational level) or health related factors (number of admissions, age of onset, duration of illness and treatment modalities).

Conclusions: Significant self-stigmatisation being present in a minority (16.3%) is an encouraging finding as self-stigmatisation is consistently linked with poorer quality of life. The absence of association with the disorder, health related factors and socio-demographic factors suggests positive attitudes within the health care service and wider society.

Keywords: self-stigma, chronic mental illness, Sri Lanka, clinic based, follow-up care

Acknowledgement: Community Stream, Faculty of Medicine, University of Colombo

SOP-05: Knowledge, practices and associated factors on food safety and hygiene among food handlers in Galle Municipal Council

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Introduction: There is an increasing trend of consumption of outside food due to urbanisation and changes in consumer behaviour. Therefore, food handlers' knowledge on food safety and hygiene and related practices plays a major role in preventing foodborne diseases. Although studies have been done across the globe regarding food safety and hygiene, only a small number of studies have been conducted in Sri Lanka targeting restaurants. Hence, this study was carried out to assess the knowledge, practices and associated factors of food safety and hygiene among food handlers working in restaurants in Galle Municipal Council (MC).

Methods: A descriptive cross-sectional study was carried out among 125 food handlers working in restaurants in Galle MC Area. From 412 registered restaurants 100 restaurants were selected using systematic sampling. A list of food handlers was collected from each selected restaurant and an interviewer-administered questionnaire was used to assess the knowledge and practices among food handlers with a working experience of more than 3 months. Data were analysed using SPSS version 25. Frequency and percentages were used to present descriptive data and Chi-squared test was used to assess the associations with knowledge and practices.

Results: In the study, most of the subjects were between 18-50 years ($n=101$; 80.8%), males ($n=96$; 76.8%) and supporting cooks ($n=59$; 47.2%). The study revealed a significant association between knowledge and the practices on food safety and personal hygiene ($p=0.006$). Education level ($p=0.026$), occupation related education ($p<0.01$) and monthly income ($p<0.01$) were found to have significant associations between practices of food safety and personal hygiene. Education level ($p=0.007$) and occupation related education ($p=0.048$) also has a significant association between

the knowledge of food safety and personal hygiene.

Conclusions: Steps have to be taken in order to improve the knowledge on food safety and hygiene among food handlers and thereby improve practices. Supportive supervision and targeted training should be given. Regular medical check-ups and strict hygiene follow-ups should be encouraged.

Keywords: food safety, food handlers, personal hygiene, knowledge, practices

Acknowledgement: Community Stream, Faculty of Medicine, University of Colombo

SOP-06: The effects of neck posture and duration of computer usage on musculoskeletal pain among computer-using office workers in selected Regional Secretariat Offices

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Introduction: Musculoskeletal (MSK) pain is associated with the rapidly increasing use of computers in occupational settings. Bad posture and prolonged computer use may lead to increased postural load resulting in MSK pain. We investigated the effects of neck posture and the duration of computer usage on MSK pain among computer-using office workers.

Methods: A descriptive cross-sectional study was carried out among 198 office workers aged 20-65

years using computers daily in two selected Regional Secretariat Offices in Matara District. The prevalence of MSK pain was assessed using self-administered Brief Pain Inventory Questionnaire and Nordic Musculoskeletal Questionnaire. Posture of the neck was recorded using photogrammetry and the angles of neck were calculated with image J software. Independent sample t-test and Pearson's correlation were used to assess significance of the difference at $\alpha=0.05$.

Results: The mean age was 39 years (SD=7.47) and 78% (n=154) were females. Majority (68.2%) had MSK pain during the last 24 hours, and 69.7% had pain in any joint for more than 3 months. Back pain was the most frequent MSK pain in the previous 24 hours and more than 3 months, while neck pain was the second. The mean degrees of head flexion, neck flexion and cranio-cervical angles were 75.92 (SD=11.25), 51.59 (SD=12.89) and 154.86 (SD=12.42), respectively. The mean duration of computer usage per day was 3.58 (SD=2.05) hours. Neck angles were not associated with MSK pain, but the duration of computer usage per day was associated with MSK pain in the previous 24 hours (t=3.25; p=0.02). MSK pain did not show significant correlations with age (r=-0.02; p=0.78).

Conclusions: MSK pain was common among computer-using office workers, while back pain was the most prevalent. However, neck posture angles and age were not related to pain. The duration of computer usage was significantly associated with MSK pain. Measures should be taken to reduce MSK pain by taking into consideration the associated factors.

Keywords: musculoskeletal pain, neck posture, computer worker

Acknowledgement: Department of Allied Health Sciences, Faculty of Medicine, University of Colombo

Oral Presentations Session 2

SOP-07: Prevalence of post-stroke depression, associated factors and its relationship with functional ability among stroke survivors during early rehabilitation in Rheumatology and Rehabilitation Hospital, Ragama

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Introduction: Post-stroke depression (PSD) is the commonest psychiatric morbidity observed among stroke survivors that has a significant negative impact on rehabilitation. This study aimed to identify the prevalence of PSD, associated factors and the relationship between severity of depression and functional impairment of stroke survivors during the first six months of rehabilitation following a stroke, among stroke survivors in Rheumatology and Rehabilitation Hospital, Ragama.

Methods: A cross-sectional descriptive study was done using 70 patients undergoing post-stroke rehabilitation at the Rheumatology and Rehabilitation Hospital, Ragama. Depressive symptoms were identified using the validated Patient Health Questionnaire-9 (PHQ-9), and functional ability using the validated Lawton Instrumental Activities of Daily Living (IADL) Scale. Demographic data and stroke-related variables were gathered to assess the factors associated with PSD. Statistical analysis was done using independent sample t-test, Pearson's Chi-squared test and ANOVA.

Results: The mean age (SD) of the participants was 56.29 (11.311) years. In this study, a high prevalence (74.3%) of PSD was detected. However, most (45.7%) showed mild depressive symptoms, and only 28.6% scored above 10 in PHQ-9, indicating major depression. A statistically significant association ($p < 0.05$) was identified between PSD and functionality level with a negative correlation ($p = 0.000$; $r = -0.429$), indicating a relationship between decreased functional ability and PSD. There was a significant association ($p < 0.05$) with female gender, employment status before the stroke, involvement of the dominant side and previous

history of stroke with PSD. Age, ethnicity, marital status and educational status were not associated with PSD significantly.

Conclusions: The high prevalence of PSD impacts on the overall rehabilitation outcome of patients. Therefore, early detection/prevention of PSD is recommended to ensure better prognosis for patients.

Keywords: stroke, post-stroke depression, functioning, rehabilitation

Acknowledgement: Department of Allied Health Sciences, Faculty of Medicine, University of Colombo

SOP-08: Knowledge and attitudes of medical officers on the healthcare needs of LGBT people

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Introduction: The lesbian, gay, bi-sexual and transgender (LGBT) community, being the sexual minority, is subjected to discrimination in healthcare settings due to the lack of knowledge and development of hostile attitudes among healthcare professionals. This study assessed the knowledge and attitudes of medical officers in two selected hospitals in Sri Lanka towards LGBT people and their healthcare needs and identified various factors associated with their attitudes.

Methods: The study was carried out as a descriptive cross-sectional study with an analytical component with the participation of 112 medical officers from two selected hospitals in Sri Lanka. Data were collected through an online self-administered questionnaire made by the amalgamation of modified Sex Education and Knowledge about Homosexuality Questionnaire and Attitudes towards Homosexuality Questionnaire (AHQ).

Results: The response rate was 97.3%. Out of 109

medical officers, the majority had a good level of knowledge (70.6%) and attitudes (94.5%) towards LGBT people. Furthermore, a moderate, positive linear correlation ($r=0.567$) between knowledge and attitudes was noted. Socio-demographic factors; sex, marital status, hometown of the participants and professional factors; years of experience and graduated university showed no association with attitudes, whereas a strong association between religiosity which was determined based on a subjective question and negative attitudes was noted ($p<0.05$).

Conclusions: Knowledge and attitudes of medical officers in the selected hospitals are satisfactory and knowledge is a possible tool in shaping the attitudes towards the LGBT community. Factors like sex, marital status, hometown, years of service and graduated university have no impact on the attitudes of medical officers towards LGBT people. However, increased religiosity has a negative impact on the attitudes towards the LGBT community.

Keywords: LGBT, medical Officers, healthcare needs, knowledge, attitudes

Acknowledgment: Community Stream, Faculty of Medicine, University of Colombo

SOP-09: Gait responses with backpack load during level walking: results from two schools in Galle District

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Introduction: Backpacks are forms of manual carriage techniques. They are very common among Sri Lankan school children. When observing the gait associated with children who carry backpacks, differences in gait have been observed among children with and without backpack loads. The aim of this study was to determine the effect of backpack load on gait response during level walking of school children in two selected schools in Galle district.

Methods: A cross-sectional study was carried out among 50 school children (25 females and 25 males) aged 11-15 years. They walked on the level floor using natural cadence with backpack loads of 0%, 5%, 10%, 15% and 20% from the children's body

weight. Spatio-temporal parameters were measured using footprint method and video records.

Results: Multiple comparisons between the duration of gait cycle, stance phase, swing phase, single support phase, stride length, step length, step width, velocity and cadence with 0%, 5%, 10%, 15% and 20% of weights were not statistically significant ($p>0.05$). Multiple comparisons between double support phase with 0%, 5%, 10%, 15% and 20% of weights was statistically significant ($p<0.05$). There was little increment in the means of stride length, step length, velocity, double support phase between walking without backpack load and with more than 15% of backpack load.

Conclusions: Increasing backpack loads were not significantly associated with the duration of gait cycle, stance phase, swing phase, stride length, step length, step width, walking velocity, cadence and duration of single support phase. These changes indicate that children respond to heavier backpack loads by increasing the duration of the double support phase. However, more research on this topic is needed in Sri Lanka to identify the effect of gait response with backpack loads in children.

Keywords: backpack load, spatio-temporal parameters, children, gait responses

Acknowledgement: Department of Allied Health Sciences, Faculty of Medicine, University of Colombo

SOP-10: The effect of obesity on pain and psychological level among women with knee osteoarthritis attending District General Hospital, Kalutara, Sri Lanka

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Introduction: Osteoarthritis is a chronic degenerative condition that mainly affects the knee joint and is characterised by deterioration of the articular cartilage, joint stiffness, pain and impaired movement. This study was conducted to examine the effect of obesity on pain intensity, pain-related fear of movement, physical functioning and depression-anxiety level in women with knee osteoarthritis attending District General Hospital, Kalutara.

Methods: A cross-sectional study was conducted at the Department of Physical Medicine, District General Hospital, Kalutara. Seventy-five women with a mean age of 61.71 years (SD=5.91) with knee osteoarthritis were divided into obese (BMI>30 kg/m²), overweight (25<BMI<30 kg/m²), or non-overweight (BMI<25 kg/m²) using simple random sampling method. Pain intensity, pain-related fear of movement, physical functioning and depression-anxiety level were assessed using Short-form McGill Pain (SF-MPQ-2), Tampa Scale-11 (TSK-11), WOMAC Osteoarthritis Index, and Hospital Anxiety and Depression Score (HADS) questionnaires, respectively. Patients were given the questionnaires according to their preferred language (Sinhala/Tamil). Weight and height were measured using a standard weighing scale and measuring tape. Data were analysed using one-way ANOVA and Pearson's correlation statistical test in SPSS version 23.

Results: Women with knee osteoarthritis in different BMI groups showed significant differences in SF-MPQ-2 (p=0.025), TSK-11 (p=0.032), WOMAC Index (p=0.043) and anxiety score of HADS (p=0.037) but not in depression score of HADS (p>0.05). The SF-MPQ-2 score (r=0.307; p=0.02), TSK-11 (r=0.301; p=0.009), WOMAC Index (r=0.287; p=0.012) and anxiety score of HADS (r=0.271; p=0.019) showed significant positive correlations with BMI.

Conclusions: There was a significant difference in pain intensity, pain-related fear, physical functioning and anxiety level among women with knee osteoarthritis of different BMI groups. Pain intensity, difficulty in functioning, pain-related fear of movement and anxiety level were higher in women with higher BMI.

Keywords: knee osteoarthritis, BMI, pain, physical functioning, anxiety

Acknowledgment: Department of Allied Health Sciences, Faculty of Medicine, University of Colombo

SOP-11: Knowledge, practices and their correlates related to adequate water intake among schoolteachers in Colombo Educational Zone

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Introduction: Adequate water drinking is essential for good health; however, often overlooked. Studies on this subject are lacking in Sri Lanka. Teachers impart knowledge and may influence water drinking practices of students. We assessed knowledge, practices and their correlates related to adequate water intake among schoolteachers.

Methods: A descriptive cross-sectional study was conducted among 111 schoolteachers of two schools in Colombo Educational Zone, using snowball sampling method. An online self-administered google-form comprising 27 questions assessed socio-demographic factors, knowledge and practices related to adequate water intake. Scores were given for knowledge (≥35 good; <35 poor) and water related practices (≥ 37 good; <37 poor). Statistical analysis was done using Chi-squared test and t-test.

Results: The male to female ratio was 4:33 with a mean age of 45.06 years. Non-science subjects were taught by 73.9% (n=82). Mean score of knowledge on adequate water intake was 42.72 (range: 24-57), while the mean score of adequate water intake practices was 29.49 (range: 12-44). There was a significant difference between the mean water intake practice scores of non-science and science teachers (p=0.03). Knowledge regarding the importance of hydration for spinal cord protection among science teachers significantly differed from that of non-science teachers (p=0.005). Teachers with experience of ≥19 years (n=45; 90%) (p=0.001) imparted knowledge on adequate water intake outside the curriculum than other teachers.

Conclusions: Overall, water intake practices were poor among science teachers despite having adequate knowledge. Older teachers preferred traditional modes of gaining knowledge while having a positive influence on water habits. The study findings could be useful for future studies on water habits among different population groups in Sri Lanka.

Keywords: adequate water intake, knowledge of water intake, practice of water intake, teachers

Acknowledgement: Community Stream, Faculty of Medicine, University of Colombo

SOP-12: Change of behavioural risk factors after myocardial infarction of patients attending cardiology clinic in two selected teaching hospitals in Sri Lanka

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Introduction: Myocardial infarction occurs when an imbalance exists between coronary perfusion and myocardial demand. According to Sri Lanka Annual Health Statistics, hospitalizations due to ischaemic heart disease in 2019 were 667.2 per 100,000 population accounting for 15.1% of hospital deaths. This study aimed to study the change of behavioural risk factors after an acute ischaemic event of patients attending the cardiology clinic in two selected hospitals in Sri Lanka.

Methods: A descriptive cross-sectional study was conducted in cardiology clinics in the National Hospital of Sri Lanka and Karapitiya Teaching Hospital among 110 patients diagnosed with ST elevation myocardial infarction or non-ST elevation myocardial infarction within the last 12 months. The change in behavioural risk factors (smoking, alcohol use, physical activity) was assessed after myocardial infarction. Smokers were categorised according to the number of cigarettes per day. Percentage change of mean number of cigarettes per day in each category was compared. Daily consumed pure alcohol mass was calculated and grouped into the WHO categories, to compare the change. International Physical Activity Questionnaire scores were used to compare physical activity.

Results: Of the sample, 17.5% (n=18) stopped cigarette smoking after myocardial infarction and among smokers who reduced cigarette smoking, the reduction rate was 50% or above. Majority (n=71; 64.5%) refrained from passive smoking and smokeless smoking completely ceased. Majority (n=62; 79.5%) totally stopped alcohol consumption, while 10.25% (n=8) reduced to low-risk category, 3.8% (n=3) remained as before, and 6.4% (n=5) increased alcohol consumption while still remaining in low-risk category. Binge drinking was reduced by 92.3%. Physical activity level reduced in 88.1% (n=96), while it increased in 9.2% (n=10) and remained unchanged in 2.7% (n=3).

Conclusions: Although physical activity decreased after myocardial infarction, active smoking, passive smoking and smokeless smoking were reduced greatly. Daily alcohol use too had reduced to the low-risk category, while the majority had completely stopped.

Keywords: myocardial infarction, secondary prevention, smoking, alcohol, physical activity

Acknowledgement: Community Stream, Faculty of Medicine, University of Colombo

SOP-13: Knowledge, attitudes and prevalence of selected cardiovascular disease risk factors among Advanced Level students in government schools in Colombo Municipal Council Area

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Introduction: Cardiovascular diseases (CVD) have been the subject of numerous researches, but there haven't been many that specifically target adolescents in Sri Lanka. This study aimed at assessing the knowledge, attitudes and the prevalence of behavioural risk factors, and the association between behavioural risk factors and knowledge on CVD among Advanced Level (A/L) students of government schools in Colombo Municipal Council area.

Methods: A cross-sectional descriptive study was done in a total of 109 students using a pretested self-administered questionnaire, prepared from selected parts of a validated questionnaire used in STEPS survey.

Results: The mean score on knowledge on CVD risk factors was 68.2%, while 54.1% had sufficient knowledge (above the mean score) on CVD. It was found that 98.2% students did not meet the WHO recommendation on daily vegetable intake. Only 18.3% consumed the recommended daily number or more of fruit servings. However, 38.5% of students always consumed more than the recommended amount of salt, while 28.4% of students ate oily food all the time. Similarly, the WHO recommended level of physical activity was not met by 51.4% of the students. Regarding attitudes, 70.64% agreed that

heart diseases are preventable, 88.9% disagreed that learning about CVD is a waste of time, and 73.39% agreed that heart diseases are a public health problem in Sri Lanka. On the contrary, students with a good level of knowledge on CVD, consumed oily food all the time ($p=0.008$). However, there was no significant association between knowledge and other risk factors, such as salt intake or physical activity.

Conclusions: Adequate knowledge alone is

insufficient to reduce the prevalence of behavioural risk factors, thus action to uplift healthy lifestyle behaviour among school children is warranted.

Keywords: knowledge, attitudes, risk factors, cardiovascular diseases, adolescents

Acknowledgment: Community Stream, Faculty of Medicine, University of Colombo

Poster Presentations

SPP-01: Prevalence and attitudes of using herbal medicines during the COVID-19 pandemic among adults residing in Western Province, Sri Lanka

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Introduction: Herbal medicines include herbs, herbal materials, herbal preparations and finished herbal products that contain parts of plants, other plant materials or combinations, as active ingredients. During the COVID-19 pandemic, the use of herbal remedies as a primary treatment, both in conjunction with prescription drugs and on their own, dramatically increased. Hence, this study was carried out to determine the prevalence and attitudes of using herbal medicines during the COVID-19 pandemic among adults in Western Province.

Methods: A descriptive cross-sectional study was done among 121 adults residing in Western Province, Sri Lanka. Stratified cluster sampling was used. An interviewer-administered telephone-based questionnaire was used to collect data.

Results: Among 121 participants, 89.3% had used herbal medicine during their lifetime. There was no association between herbal medicine use and socio-demographic factors. There was a 20.6% increase in the prevalence of usage of herbal medicine as a preventive measure against diseases from before to during the pandemic. The use of herbal medicine was considered to be harmless by 61.98%. Vast majority (99.07%) felt that using herbal medicine helped as a preventive measure against any diseases during the pandemic, while 96.25% (n=77) felt it helped in relieving symptoms like cough, cold, fever and pain during the pandemic. The participants mainly used herbal medicine due to its previously reported or self-perceived effectiveness (64.81%). The majority (78.05%) that did not disclose their use of herbal medicines to their physicians did not do so as the doctor did not ask.

Conclusions: The study findings point out that regardless of the facet of life that patients belong to,

most use herbal medicines. Based on these current findings, it is good practice for doctors to ask their patients regarding their use of herbal medicines and for patients to disclose their use which may minimise potential harm due to interactions with western medicines.

Keywords: herbal medicines, COVID-19 pandemic, Sri Lanka

Acknowledgement: Community Stream, Faculty of Medicine, University of Colombo

SPP-02: Level of COVID-19 related anxiety, its associated factors and coping mechanisms of Grade 9 female students in two schools

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Introduction: Adolescents are a vulnerable group at risk of developing COVID-19 related anxiety, with long-term consequences. However, local evidence on the mental health of adolescents during the pandemic is scarce. This study determined the level of COVID-19 related anxiety, its associated factors and coping mechanisms among Grade 9 female students in two schools.

Methods: A descriptive cross-sectional study with an analytical component was conducted among 268 Grade 9 female students selected using cluster sampling from two schools in Colombo and Gampaha Districts. Data were collected using an online self-administered questionnaire, where anxiety level was assessed using Coronavirus Pandemic Anxiety Scale (CPAS-11), which was not validated in Sri Lanka but showed strong positive correlations with the scales which are widely used in local settings. Data analysis was done using the Chi-squared test and correlation analysis.

Results: The prevalence of severe COVID-19 related anxiety in the study population was 7.1% (95% CI=4.3, 10.9) using the recommended cut-off of ≥ 15

in the CPAS-11 score. Considering the factors associated with anxiety, having frequent disagreements with family members ($p<0.001$), experiencing stigmatisation ($p=0.01$), frequent searching of COVID-19 related information from the media ($p=0.04$), distractions during online classes ($p<0.001$) and neglecting other activities due to social media ($p=0.01$) were statistically significantly associated with severe anxiety. A significant moderate correlation was found between anxiety level and maladaptive coping mechanisms score ($r=0.52$; $p<0.001$).

Conclusions: The level of COVID-19 related anxiety in our study population was higher than in other populations in the local and foreign contexts. Some factors related to COVID-19 infection, family, education and social media as well as maladaptive coping showed a significant association with the level of anxiety. Increasing awareness, promoting mental well-being, expanding available counselling services and introducing psychosocial support services are recommended.

Keywords: COVID-19 pandemic, adolescents, anxiety

Acknowledgment: Community Stream, Faculty of Medicine, University of Colombo

SPP-03: Practices regarding NCD related risk factors among preoperative coronary artery bypass grafting patients in Teaching Hospital, Karapitiya

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Introduction: Coronary Artery Bypass Graft (CABG) patients have poor practices regarding the factors that might affect them preoperatively worldwide. No research was found on these aspects in Sri Lanka. This research aimed to identify the practices regarding non-communicable disease (NCD) risk factors among preoperative coronary artery bypass grafting patients in a teaching hospital, Sri Lanka.

Methods: A descriptive cross-sectional study was conducted among 85 selected patients in Teaching Hospital Karapitiya using convenience sampling. The

data were collected by using a self-administered questionnaire. Data were analysed by descriptive statistics using SPSS version 23.0.

Results: The mean age of participants was 58.53 years ($SD=10.55$). Their age ranged between 35-75 years. Majority (90%) of patients checked their blood pressure within the past year and 77.5% of patients had normal blood pressure status. Majority (92.1%) of them checked their blood cholesterol within the past year, and 52.6% of patients had normal blood cholesterol status. Majority (67.5%) of patients reported that they performed some light physical activity every week and 100% of patients used vegetables with rice for their main meal. Majority (87.5%) of patients consumed fruit once a week or more. Most (52.5%) patients never read food labels to look for low sodium content and low saturated fat. Majority (97.5%) of patients did not smoke cigarettes at the time of data collection although 50% had previously smoked.

Conclusions: Patients should be encouraged to maintain normal blood pressure and cholesterol levels, do light physical activities, do flexibility and strengthening exercises, smoke cessation and read food labels.

Keywords: blood pressure, cholesterol, physical activity, diet, tobacco

Acknowledgement: Department of Allied health Science, Faculty of Medicine, University of Colombo

SPP-04: Risk of falls among elderly patients with type 2 diabetes mellitus attending clinic at Kegalle Teaching Hospital, Sri Lanka

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Introduction: Type 2 diabetes is a major non-communicable disease in the world and falls are common among elderly population. Complications of diabetes, such as peripheral neuropathy, poor vision, sarcopenia and reduced muscle strength can contribute to falls. Hence, the objective of this study was to determine the risk of falls among elderly type 2 diabetic patients attending the clinic at Kegalle Teaching Hospital.

Methods: Convenient sampling was used. Balance,

lower limb muscle strength and other risk factors for falls were evaluated. Balance was measured using the timed 'up and go' test. Patients with >13.5 seconds were considered as having high risk for falls. Lower limb muscle strength was measured using a hand-held dynamometer (Lafayette Manual Muscle Tester). Dynamometer was placed perpendicular to the test surface, and subjects were instructed to perform maximum isometric contractions for 5 seconds. Other information was gathered using an interviewer-administered questionnaire.

Results: Mean age was 67 (SD=4) years. Mean test completion time was 10.57 (SD=1.93) seconds. According to the balance test, 6% of the participants had a high risk of falls. Mean knee extensor and ankle dorsiflexor strengths were 18.29 (SD=3.61) kg and 9.36 (SD=2.04) kg, respectively. Participants with a high risk of falls had a mean knee extensor strength of 14.56 kg, which was significantly lower ($p=0.01$) than that for the patients with low risk (18.66 kg). A significant relationship was identified between insulin use and test completion time ($p=0.03$). Test time was higher in participants with previous falls (13.67 seconds) and vision impairments (10.84 seconds). All the participants who had previous falls were at a high risk for falls ($p<0.001$). Mean duration of diabetes was higher (17 years) in participants with high risk than others with low risk (9 years).

Conclusions: Insulin use affects the balance of this population. Furthermore, lower limb muscle strength, previous falls and vision impairments affect the balance. Patients with high risk of falls had reduced knee extensor strength, previous falls and higher duration of diabetes than other participants.

Keywords: type 2 diabetes, elders, risk of falls, muscle strength, balance

Acknowledgment: Department of Allied Health Science, Faculty of Medicine, University of Colombo

SPP-05: Injury prevalence and pattern of injury among professional and university level basketball players in Colombo district Sri Lanka

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Introduction: Basketball is a popular non-contact

team sport with high vulnerability for injuries. Injury pattern is known to be related with sports movement. Identifying the prevalence and pattern of injuries can be utilised in decreasing the risk of injuries in basketball. No study has been done to identify basketball injury prevalence and pattern in the Sri Lankan context. Therefore, this study was conducted to identify the prevalence and pattern of injury among Colombo district basketball players and assess how age, gender, body mass index (BMI) and playing position affect the results.

Methods: A descriptive cross-sectional study was conducted among 104 basketball players aged 18-35 years (52 males and 52 females) who were selected by random sampling method from Colombo District. Data were collected through a self-administered questionnaire which recorded the injuries during the previous 10 months. Descriptive statistics and correlation test with 0.05 significance level was used for data analysis using SPSS version 23.0.

Results: There were 106 injuries among 104 players with a mean age of 24.8 (SD=3.68) years. The prevalence of injury was 57.7%. Majority were lower limb injuries (62.3%) followed by ankle sprain (34.9%) and knee injuries (18.9%). Males had more ankle sprains (38.5%) than females (32.7%). Females had a higher percentage of knee injuries (25%) compared to males (13.5%). Guards (playing position) had the highest percentage of ankle sprains (39.6%) and centres had the highest percentage of knee injuries (25%). A statistically significant relationship was found between age and anterior cruciate ligament injury ($p=0.046$), age and meniscal injury ($p=0.031$). Furthermore, a statistically significant relationship was found between BMI and medial collateral ligament injury ($p=0.007$). The most common period of returning to training after an injury was 1-7 days (48.1%).

Conclusions: This study suggests that ankle sprains are common among males, while knee injuries are common among female basketball players. Furthermore, age and BMI are contributory factors for knee injuries.

Keywords: basketball, injury prevalence, pattern of injury

Acknowledgment: Department of Allied Health Science, Faculty of Medicine, University of Colombo

SPP-06: Relationship between lower limb muscle strength, arm span and balance for player performance in selected basketball clubs in Colombo District

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Introduction: This study aimed to identify the relationship between lower limb muscle strength, arm span and balance for performance (sprint ability, vertical jump height) among players in selected basketball clubs in Colombo District.

Methods: A descriptive cross-sectional study was done in a sample of eighty (40 males and 40 females) aged 18-30 years. Height and weight were taken as anthropometric parameters. Strength was measured by using a handheld dynamometer. Balance was measured with the Star excursion balance test. Arm span was measured by using measuring tape. Performance was measured using the sprint test and maximum jump height test. Descriptive analysis and Bivariate Pearson correlation test was performed.

Results: The mean age of players was 24.09 years (SD=1.72), mean height was 1.72 m (SD=0.08), mean weight was 64.40 kg (SD=7.23), mean BMI was 21.71 kg/m² (SD=1.03), mean arm span was 1.72 m (SD=0.09), vertical jump height was 0.35 m (SD=0.04) and sprint ability time was 4.41 seconds (SD=0.95). The mean strength of right hip extensor was 21.404 kg (SD=2.69), left hip extensor was 20.45 kg (SD=2.67), right knee extensor was 41.39 kg (SD=2.67), left knee extensor was 40.25 kg (SD=2.96), right plantar flexor was 46.21 kg (SD=2.65) and left plantar flexor was 44.89 kg (SD=2.98). There was a significantly strong correlation between arm span and performance (sprint ability, vertical jump height) ($p<0.01$); and between lower limb muscle strength and performance ($p<0.01$). Also, there was a significantly strong correlation between balance and sprint ability ($p<0.01$), while no significant correlation was identified between balance and vertical jump height of players.

Conclusions: Significant relations were found between lower limb muscle strength, arm span, balance and performance of basketball players in Sri Lanka.

Keywords: lower limb muscle strength, arm span, balance, vertical jump height, sprint ability

Acknowledgement: Department of Allied Health Science, Faculty of Medicine, University of Colombo

SPP-07: Prevalence, causes and responses to work-related musculoskeletal disorders among government physiotherapists in selected hospitals of Colombo District

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Introduction: Physiotherapists are at higher risk of developing work-related musculoskeletal disorders (WMSD) due to tasks that demand intense and repetitive physical activities. WMSDs among physiotherapists in Sri Lanka remain unknown. This study aimed to determine the prevalence, causes and response to WMSDs among government physiotherapists in selected hospitals in Colombo District.

Methods: A descriptive cross-sectional study was conducted among 100 government physiotherapists from 3 selected hospitals in the district of Colombo using simple random sampling, where 99, 23 and 25 participants were recruited from National Hospital of Sri Lanka, Lady Ridgeway Hospital and Rehabilitation Hospital Ragama, respectively. WMSDs were assessed using a self-administered questionnaire on occupational injuries. Data were analysed using descriptive statistics and Pearson correlation test in SPSS version 23.0.

Results: The mean age was 31.3 years (SD=3.5) and 61.2% (n=60) of participants were males. The 24-month prevalence of WMSDs was 83.7%. The highest prevalence of injured body parts were low back (n=36; 47.4%) and shoulder (n=24; 31.6%). Results revealed that 25% (n=20) of physiotherapists were injured when performing manual therapy techniques for patients. Maintaining a position for a prolonged period (n=28; 41.2%) had the highest rate of prevalence that led to the recurrence of symptoms. There was no statistical significance found in gender ($p=0.2$) and years of working experience ($p=0.8$) for having WMSDs among participants. Fifty percent (n=30) of injured physiotherapists changed their work position frequently and 46.7% (n=28) used improved

body mechanics to avoid further injuries. Despite the high prevalence of WMSDs, the majority continued their work without changing to another job.

Conclusions: There was a high prevalence of WMSDs among the selected population with a higher prevalence of lower back and shoulder injuries. This might be due to exposure to higher physical stresses while performing manual therapy techniques, transferring patients and incorrect body mechanics during work.

Keywords: musculoskeletal disorders, work related, physiotherapy, prevalence, risk factors

Acknowledgment: Department of Allied Health Sciences, Faculty of Medicine, University of Colombo

SPP-08: Relationship between physical activity level and academic self-efficacy among physiotherapy undergraduates, Faculty of Medicine, University of Colombo.

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Introduction: Physical inactivity is a major risk factor for various non-communicable diseases. Currently, physical inactivity is becoming increasingly prevalent among university students as they are more focused on their academic activities. Academic self-efficacy is having confidence to perform academic activities successfully at a required level. Hence, this study explored the relationship between physical activity level and academic self-efficacy among physiotherapy undergraduates.

Methods: A cross-sectional descriptive study was conducted among 100 physiotherapy undergraduates in Allied Health Sciences of the Faculty of Medicine, University of Colombo. Data were collected through google form using International Physical Activity Questionnaire (Short form) and the Academic Self-efficacy Scale. The Academic self-efficacy scale was previously validated for use among Sri Lankan undergraduates.

Results: Response rate was 95.2%. The mean age of participants was 24 years (SD=2.1). The majority

(57%) were physically inactive, while 26% were moderately active and only 17% were highly active. Males had significantly higher physical activity levels compared to females ($p=0.028$). Females had significantly higher mean time in sitting than males ($p=0.017$). Final year undergraduates had significantly higher academic self-efficacy compared to the first year ($p=0.008$), the second year ($p=0.017$) and the third year ($p=0.017$). A significant positive relationship was found between physical activity level and academic self-efficacy among physiotherapy undergraduates ($p=0.041$). Furthermore, results revealed that gender and academic year affects this relationship.

Conclusions: The majority of physiotherapy undergraduates were physically inactive. Physical activity level showed a significant positive relationship with academic self-efficacy. The study strengthens the idea that engaging in physical activities enhances academic self-efficacy. Hence, the current study suggests a more proactive approach to be taken to improve physical activity level of physiotherapy undergraduates.

Keywords: physical activity level, academic self-efficacy, physiotherapy undergraduates

Acknowledgment: Department of Allied Health Sciences, Faculty of Medicine, University of Colombo

SPP-09: Relationship between perceived stress and body mass index among physiotherapy students of a university in Sri Lanka

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Introduction: Stress is the body's response to external or internal demands. University students encounter different types of stressors during their academic life, and they use different mechanisms for coping. The prevalence of eating disorders is increasing worldwide. Factors such as stress also play a role in eating disorders, thereby influencing the body mass index (BMI). Similar types of relationships have been found among university students. This study aimed at assessing the relationship between stress and BMI among physiotherapy students of a university in Sri Lanka.

Methods: A descriptive cross-sectional study was conducted among 105 physiotherapy students of a selected university. Convenient sampling was used. Information on stress scores, related stressors (example - frustrations) and stress reactions (example - physiological) were collected using the Students-Life Stress Inventory, which is a validated self-administered questionnaire. Self-reported height and weight measurements were taken for this study. BMI was calculated from the height and weight of the participants. BMI was categorised according to the standard World Health Organisation guidelines. The relationship between stress score and BMI was analysed using Pearson correlation test.

Results: The sample consisted of 26% males. Mean age of the participants was 23.85 years (SD=1.25). The mean total stress score was 25.35 (SD=7.869). The mean BMI was 21.882 kgm⁻² (SD=4.211). The self-imposed stressors were the most prevalent category of stressors (79% above midpoint) and frustrations were the least common category of stressors among participants (64% above midpoint). Cognitive responses were the most prevalent reactions, being 73% above the midpoint. The correlation coefficient between total stress score and BMI was 0.121 (p=0.231).

Conclusions: The mean BMI of the population falls under the normal weight category. There was no significant relationship between stress score and BMI among the participants.

Keywords: stress, body mass index, Students-Life Stress Inventory

Acknowledgment: Department of Allied Health Sciences, Faculty of Medicine, University of Colombo

SPP-10: Emotional intelligence among national and university level badminton players in Sri Lanka

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Introduction: Badminton is a popular sport that needs both physical and mental fitness. As part of mental health, emotional intelligence (EI) is defined as the ability to accurately perceive and express

emotion. Identifying the EI of players is useful for improving badminton performance. This study aimed to determine the patterns and associated factors of EI among national and university level badminton players in Sri Lanka.

Methods: A descriptive cross-sectional study was conducted with a comparison group. National (Sri Lanka Badminton Association) and university (Universities of Colombo and Sabaragamuwa) level badminton players were used as the population. Four-dimension Wong and Law Emotional Intelligence Scales were used to assess the EI. A score from 4 to 28 for each EI dimension (1. Self-Emotional Appraisal, 2. Others' Emotional Appraisal, 3. Regulation of Emotion, 4. Use of Emotion) and a score from 16 to 112 was given for total EI. Descriptive statistics and independent sample t-test were used to analyse the data.

Results: Out of the 106 players (86% response rate) with mean age of 22.12 (SD=2.4) years, 52.7% were male and 48% were national level players. The total EI of national level players was 94.33 (SD=8.9) and university players was 91.96 (SD=10.3). This difference was not significant (p>0.05). Male national players scored the highest total EI 98.0 (SD=6.6) and female university players scored the lowest 90.1 (SD=11.3). Among different domains, national players scored higher in the "use of emotions" (p<0.05) and university players scored higher in "others' emotional appraisal" (p<0.05) and these differences were significant. In the total sample, males scored significantly higher than females in total EI (p<0.05) and "regulation of emotion" (p<0.05).

Conclusions: In the studied sample, the total EI did not differ among national and university level badminton players, where males were better than females. In sub-dimensions of EI, the national players used their emotions well, compared to university players who appraised others' emotions well.

Keywords: badminton, emotional intelligence, national players, university players

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SPP-11: Relationship between duration of employment and ankle swelling among female garment factory workers at a selected garment factory

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Introduction: Prolonged usage of sewing machines with limited ankle movements in the same forwardly bent-over sitting posture for years, leads to several health issues among workers from garment factories. Ankle swelling is one of them. The objectives of this study were to assess the level of ankle swelling and relationship between ankle swelling and the duration of employment among female workers at a selected garment factory.

Methods: This cross-sectional analytical study was conducted among 45 female garment workers who were in sitting posture from 7 a.m. to 11 a.m. by using convenient sampling. The subjects were assessed for the duration of employment, foot usage (screening questionnaire) and ankle volume (figure of eight method). Ankle swelling was calculated by subtracting the initial volume from the final volume. The relationship between ankle swellings and employment duration was assessed with Pearson correlation test.

Results: The mean age of the sample was 31.0 years (SD=7.9), while the mean body weight was 57.1 kg

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(SD=11.3). The mean height was 1.5 m (SD=0.1) and the mean BMI was 24.3 kg/m² (SD=4.1). Foot pedal usage to operate the machines was highest at right (n=34; 75.6%) followed by both feet (n=7) and left foot (n=4). Mean ankle swelling was 9.96 mm (SD=8.4) for the right ankle (range: -9.7, 24.4) and 11.2 mm (SD=7.6) for the left ankle (-6.0, 28.6). Correlation between ankle swelling and duration of employment analysed as continuous variables for the right side (r=0.34; p=0.021) and left side (r=0.25; p=0.097) showed a statistically significant, positive but weak in strength relationship.

Conclusions: Reduced ankle swelling was present in the right ankle compared to the left. The duration of employment showed a significant positive correlation only with the right ankle swelling.

Keywords: prolonged sitting, ankle swelling, duration of employment, figure of eight method, garment workers

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