



Biolnquirer
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Editor in Chief- Dr. E. A. K. K. Edirisinghe

Managing Editor- Dr. Dinusha Kanatiwela Niriella

Co-Editor- Mr. Damith Rajakulathunga



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From the Managing Editor

It is my honor to welcome you to the Proceedings of IIHS, 16th BioInquirer- Annual Academic Sessions, 2019 on the topic of “**Seeding Innovation in Education and Healthcare**”.

It has been a real honor and privilege to serve as the managing editor of the BioInquirer Journal. This year, the BioInquirer research forum mainly aims at encouraging researchers to consider healthcare and education as an area for a wide scope of research. Since innovation is considered to be a critical component, this gives a wide opening for everyone who is interested to engage in innovation and as a result we all will be benefited from new and creative approaches.

The BioInquirer– Annual Academic Sessions are conducted aligning with United Nations’ Sustainable Development Goals (SDGs). This year session is based on the SDGs; Goal 3 – Good health and wellbeing, Goal 4 – Quality education, Goal 5 – Clean water and sanitation, Goal 9 – Industry, innovation and infrastructure, Goal 11 – Sustainable cities and communities, Goal 12 – Responsible consumption and production and Goal 17 –Partnerships for Goals. The conference proceedings include over 100 research abstracts covering the above-mentioned subthemes.

Furthermore, I am grateful to all authors who trusted us with their work; without them there would not be a conference. I would also like to extend my sincere gratitude especially to the abstract reviewing committee and all the individuals involved in this rigorous process.

We look forward to an exciting day of insightful presentations, discussions, and sharing of technical ideas with colleagues from around the world. On behalf of the organizing committee, I welcome you all to the IIHS BioInquirer 16 – Annual Academic 2019.

Dr. Dinusha Kanatiwela Niriella

Managing Editor

BioInquirer Journal

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KEYNOTE SPEECH

“Innovation in Biomedical and Health Informatics training – How Sri Lanka creates its digital health leaders”

VIDYA JYOTHI PROF. VAJIRA H. W. DISSANAYAKE (MBBS, PHD, FNNASSL)

*Medical Geneticist/ Head, Chair and Senior Professor of Anatomy/ Director,
Human Genetics Unit/ Founder Chairperson, Specialty Board in Biomedical Informatics*

Sri Lanka has a long tradition of excellent training in the field of medicine. The implementation of information and communication technology in the field of medicine has lagged behind. In 2008, the postgraduate institute of medicine embarked on a programme of developing digital health leaders for Sri Lanka. This programme had the vision of developing a generation of leaders in biomedical and health informatics in Sri Lanka with expertise in both the health domain and the IT domain who will spearhead the development of ICT in the Health Care Services in Sri Lanka working with and under the guidance of the decision makers at the highest level. An integral part of this programme was Innovation - “frugal innovation” – innovations that are low cost, highly effective, scalable, sustainable, open source, open standards, interoperable, meets a local need, solutions custom built for Sri Lanka, MoH owned and maintained. This combination of producing digital health leaders with innovative skills has helped Sri Lanka grow its digital health ecosystem. This is a unique programme unparalleled in the world. In my address I shall illustrate the background, development, and achievements of this programme.

PLENARY – OP 01

Health Administration – Building an understanding of the competencies needed

DR. SARATH SAMARAGE

Senior Fellow, Institute for Health Policy, Sri Lanka/ Former Deputy Director General of Health Services, Ministry of Health

Healthcare is one of today's most dynamic and growing fields, with a wide range of opportunities and challenges. Rapid change in the healthcare environment has pressured healthcare organizations, health management professional associations, and educational institutions to begin examining more carefully what it means to be a fully competent medical administrator or healthcare executive. As a result, interest in healthcare management core competencies has increased.

Many challenges in healthcare today create a special need for great leadership. This presentation reviews the leadership competencies needed by Health Administrators.

A Study on the Factors Affecting the Employee Engagement in Corporate Wellness Programmes: Do ROI Intentions Play a Role?

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Introduction: The growing non-communicable disease (NCD) burden affects all communities on a global scale. A sedentary lifestyle and unhealthy habits make a person more prone to develop NCDs. The typical lifestyle of corporate employees put them at a higher risk of developing NCDs like cardiovascular diseases. Corporate Wellness (CW) is adopted by many workplaces to mitigate these adversities. However, it will deliver its expectant results only if there is an adequate engagement of employees. Studies show that employee engagement levels are inadequate and that the factors that affect the level of engagement among employees are diverse and inconsistent. This study investigated the factors affecting the level of engagement in CW programmes among the employees.

Methodology: A cross-sectional survey was conducted among a sample of 164 employees from 13 selected corporates, belonging to 13 different industries in Colombo, Sri Lanka, where CW programmes were being conducted. Data were collected via a self-administered questionnaire, circulated among employees via respective HR departments.

Results and Discussion: Level of engagement in CW programmes was 53.5% ($CI = 50.7\%-55.9\%$). Age ($p = 0.006$), position in the organisation ($p = 0.016$), highest educational qualification ($p = 0.038$), time spent to go home ($p = 0.012$) and negative attitudes ($p = 0.003$) were found to have a significant effect on employee engagement. The regression model significantly predicts the variability of the level of engagement by 30%. The strongest predictor of the outcome was negative attitudes (standardised beta = -0.254). The programme design was found to have a significant moderating effect on the outcome. Gender, earnings per month, distance to the workplace, combined knowledge on NCDs and self-reported health status did not significantly affect employee engagement. Though the measuring is complex, a wellness campaign, as an employee benefits scheme, could yield favourable results and ultimately a satisfactory return on investment to the employer.

Conclusion: Age, position in the organisation, highest educational qualification, time spent to go home and negative attitudes towards wellness programmes significantly affect employee engagement in wellness programmes, while negative attitudes were the strongest predictor. Programme design has a moderating effect on this model. Results give some insight into how to improve engagement levels for CW programmes.

Keywords: *Corporate Wellness, Non-communicable diseases, NCDs, Wellness programmes, Employee engagement.*

**A Study on the Factors Leading to Medical Errors among Healthcare Professionals
Employed in the Health Sector**

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Introduction: Medical errors are a significant cause of human morbidity and mortality: knowing the root cause causative factors that lead up to them is essential to help prevent and improve patient safety in the Sri Lankan health sector. The aim of the study was to investigate what factors contribute mainly to medical errors among healthcare professionals.

Methodology: A mixed research was done, where a cross-sectional survey was conducted using a self-administered questionnaire followed by in-depth interviews in a sample of healthcare professionals.

Results and Discussion: A majority of the respondents (59.2%) believed that medical errors are common in Sri Lankan hospitals. Moreover, 33% of the respondents perceived that the average of the frequency of errors in the health sector in a year in Sri Lanka is less than 500 cases. There was also a statistically significant positive correlation [$r = .588, p = .000$] indicating that the individuals who perceived that human factors lead to medical errors also thought that the unavailability of resources equally contributes to errors in healthcare practice.

Conclusion: Medical errors are affected by both human and hospital/resource-related factors where more or less it was perceived to equally contribute to errors in healthcare practice. Educating healthcare professionals on medical errors would help build more awareness and minimise them from occurring. Continuous development of current systems and operationalisation of checklists regularly would aid to prevent medical errors.

Keywords: *Healthcare professional, Medical errors, Stakeholders, Health sector*

A Study on the Relationship Between Job Satisfaction and the Service Quality among Health Professionals in Selected Hospitals in Gampaha District, Sri Lanka

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Introduction: Healthcare service quality is the degree to which healthcare services for individuals and populations increase the likelihood of desired health outcomes. Human resource in healthcare is one of the key components which is scarcely available and needs to be utilised in an efficient way. Assessment of employee satisfaction and identifying the key areas for workplace improvement is important to be able to deliver timely and quality care. Job satisfaction in the healthcare field and the consequences of that satisfaction are good indicators of the wellbeing and quality of life of the workers. The purpose of this study was to examine how job satisfaction is related to service quality among health professionals in selected hospitals.

Methodology: A descriptive, cross-sectional, quantitative survey was conducted using an interviewer-administered questionnaire. Data were analysed using SPSS, version 20. The questionnaire was distributed among 100 healthcare professionals who work in selected hospitals in Gampaha District, Sri Lanka.

Results and Discussion: Out of the 100 participants, 30% were doctors, 28% were nurses, 26% were laboratory technicians, 14% were pharmacists and 2% were phlebotomists. Half of the participants (50%) strongly agreed that the performance could be affected by job satisfaction at the hospital. Similarly, 39.6% of the participants strongly agreed that the quality of care could also be affected by job satisfaction at the hospital, whereas, 11.40% disagreed with that. Stress level (76.5%), job environment (42.3%) and quality of care provided (39.6%) were the top three factors mentioned by the participants that could affect their job satisfaction. Similarly, stress (87.5%), workload (81.3%) and unsafe work environment (42.4%) were the main factors that could affect the delivery of quality care as mentioned by them. It could be identified from the results that all participants liked the type of work they do and similarly, 93.8% of them reported overall satisfaction with their job.

Conclusion: Based on the findings, it could be concluded that there is a positive correlation between employees' overall job satisfaction and the quality of care they deliver. The findings also confirmed stress to be a determining factor in both job satisfaction and the delivery of quality care. It could also be concluded that the quality of care they delivered affected their satisfaction with their work.

Keywords: *Job satisfaction, Service quality, Healthcare professionals, Stress*

**A Study on Using Telemedicine for Healthcare among General Public
In Western Province, Sri Lanka**

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Introduction: In the era of technology, most service fields have digitalised their systems to provide a more convenient, faster, safer and better-quality service to their clients. However, Sri Lankans have not adapted to the Telemedicine field as fast. Past literature indicated a lack of research conducted, related to the Sri Lankan Telemedicine field. Therefore, this research was aimed to fill that gap by finding out the relationship between knowledge, satisfaction and attitudes of Telemedicine and efficiency and effectiveness of a Tele-consultation.

Methodology: This was a quantitative, descriptive, cross-sectional study, conducted among 390 participants via a self-filled, online questionnaire. Those who were between the ages of 18 years and 64 years, literate in English and IT and resided in Western Province, Sri Lanka were included in the research study using convenience Sampling. The study examined the level of knowledge, satisfaction and attitudes of the general public towards Telemedicine as independent variables and analysed the relationship of each variable with efficiency (overall efficiency, efficiency of input, process and outcome) and effectiveness (overall effectiveness, cost-effectiveness, time-effectiveness and quality-effectiveness) of Tele-consultation, which were the two dependent variables of the study.

Results and Discussion: The majority of the population (65.9%, n=257) had no previous experience with Telemedicine. There was no significant relationship between the use of Telemedicine and age ($p=0.54$), gender ($p=0.703$), or income ($p=0.786$). The majority of the people had good knowledge, high satisfaction and a positive attitude towards Telemedicine. They found Telemedicine as effective and efficient. There were statistically significant relationships between knowledge and efficiency ($p=0.001$), knowledge and effectiveness ($p<0.001$), satisfaction and efficiency ($p<0.001$), satisfaction and effectiveness ($p<0.001$), attitudes and efficiency ($p<0.001$) and attitudes and effectiveness ($p<0.001$).

Conclusion: Age, gender, and income are not barriers to use Telemedicine. Better knowledge, greater satisfaction, and positive attitudes improve the effectiveness and efficiency of Teleconsultations. Based on the factors that have been tested, spreading and improving the awareness of Telemedicine is the only measure that can help the growth of Telemedicine in Sri Lanka. Given the current circumstances, it is essential for Telemedicine service providers to give priority to improve awareness, at the same time, working on implementations.

Keywords: *Telemedicine, Tele-consultation*

A Study on Customer Satisfaction with Service Quality of Laboratory Services in a Private Hospital in Colombo District, Sri Lanka

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Introduction: Patients, nurses and physicians are considered primary customers of laboratory services and the quality of services would be a major factor in strengthening the customer relationship. Therefore, assessing customer satisfaction with laboratory services is an essential indicator in improving the quality of laboratory services. This study measured the level of satisfaction of physicians, nurses and patients who avail of the clinical laboratory and phlebotomy services, respectively, at the inpatient and outpatient departments in a private hospital in Colombo District in order to evaluate the possible issues and carry out corrective actions.

Methodology: A cross-sectional survey design was used to evaluate the level of satisfaction (SERVQUAL) using modified self-administered questionnaire. The patients were randomly selected in phlebotomy sections, at the outpatient department and clinics. Paper-based questionnaires were distributed among all physicians and nurses in the wards. The collected data were coded, entered, checked for outliers and/or missing data and analysed using SPSS statistical package, version 22.

Results and Discussion: A total of 400 patients and 260 physicians and nurses were evaluated and most of the patients (66%) and most of the physicians and nurses (72%) were satisfied with the services. There was a positive association between satisfaction and the employees' knowledge, responsible responsiveness and courtesy of professionals towards the patients, quality of results, laboratory equipment and facility and environment in the phlebotomy room.

Conclusion: Most of the customers were satisfied with the laboratory services provided to them. Therefore, it can be concluded that the patients in the private hospital in Colombo District value customer satisfaction with the service quality of the laboratory services. Even though customers usually think differently as outpatients or inpatients, they pretty much experience the same scopes. Nevertheless, patients are the key to the hospital and hence, retention and satisfaction of patient are important to the hospital.

Keywords: *Customer satisfaction, Service quality, SERVQUAL, Laboratory services, Physicians, Nurses, Outpatients*

**Burden and Cost of Treatment in Females Diagnosed with Osteoarthritis
Presenting to the Teaching Hospital, Kandy, Sri Lanka – 2018**

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Introduction: Osteoarthritis was the commonest joint disease in the developed world in 2010 and females are affected more than men. Osteoarthritis would negatively affect a person's life physically, socially, psychologically and economically and would disable them. The treatment for osteoarthritis is mainly based on managing the symptoms of the affected.

Methodology: A descriptive study was conducted over 53 days, interviewing females diagnosed with osteoarthritis presenting to the Rheumatology ward, Rheumatology clinic and Physiotherapy unit in the Teaching Hospital, Kandy during 1st January 2018 and 28th February. Data were analysed using SPSS statistical software.

Results and Discussion: A total of 222 females diagnosed with osteoarthritis visited the Rheumatology ward, Rheumatology clinic and Physiotherapy unit in the Teaching Hospital, Kandy, during the study period. The mean age of the participants was 57 years (SD= 10.4). The total mean family income of the participants was Rs.31,773.65 (SD= 24,033.45, USD= 158Rs.). The majority (62.9%), had osteoarthritis in knee joints. The physical burden was evaluated by assessing the physical activity level and pain level of the participants. A majority (55.4%) of them had normal physical activity levels but 52.7% suffered from pain affecting their day-to-day activities. The total mean out-of-pocket expenditure for treatment was Rs.853.46 (SD- 1,503.6, USD= 158Rs.). The most common types of treatment among the participants were Western medical treatments and physiotherapy treatments.

Conclusion: This study shows the physical burden of osteoarthritis in females due to pain but the physical activity level has not been affected significantly to hinder their day-to-day activities. It was also noted that the cost of transportation was higher among females than other types of costs.

Key Words: *Osteoarthritis, Females, Burden, Cost of treatment, Rheumatology, Physiotherapy*

PLENARY – OP 08

Beyond Clinical Reasoning: Design Thinking for Therapists

MS NICOLA KNOWLES

Associate Professor/ Deputy Director of Undergraduate Programmes/ Director Student Experience/ Course Director Digital Healthcare Science, WMG The University of Warwick

Healthcare professionals are problem solvers, first and foremost; we are here to help service users to improve their functional capacity and life experiences resulting in a flourishing life. No one can deny the importance of problem solving as good clinical discipline and mentality; it has saved or transformed many lives. It does, however, have its limitations; it can be associated with a relatively narrow mindset; a focus on known tools and approaches and well-trodden pathways.

A problem-solving mindset is what Argyris and Schon (1978) would call ‘single-loop learning’ – making improvements within our existing paradigms and mindsets. This is an important approach, however, equally important in driving healthcare improvement is ‘double-loop learning,’ associated with challenging norms and paradigms to create innovative approaches and breakthrough outcomes. For the most part, this innovation largely takes place in research teams and can be limited with the pressures that a clinical situation delivers. This paper argues that we need to make innovation a central part of clinical education for physiotherapists in order for the profession to take a full part in a rapidly-evolving technological and healthcare environment.

Design thinking is a well-established approach in industry and business which combines the rational, scientific mind-set and tools with creative thinking and techniques to generate effective innovation. We will discuss how physiotherapists (and other healthcare disciplines) might benefit from being introduced to this breakthrough mentality at an early stage in their education.

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Assessment of Musculoskeletal Pain among Bank-Employed Female High Heel Users in Gampaha District, Sri Lanka

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Introduction: Among the wide variety of footwear available for females, high-heeled shoes are considered as the highest preference. The aim of this study is to conduct an assessment with an epidemiological perspective about the association between wearing high-heeled shoes and musculoskeletal pains while assessing the severity of pain in relation to the daily activities.

Methodology: A quantitative research was performed among 102 females aged 21-50, using convenience sampling method. A self-administered, closed-ended questionnaire was provided to these frequent high heel wearers (minimum of thrice a week) employed at private banks. A globally accepted questionnaire, the Oswestry Disability Index was included in the questionnaire upon receiving the consent from authorised personnel. Statistical Package of Social Sciences (SPSS) version 22 and Microsoft Excel was utilised to analyse all the gathered data.

Results and Discussion: From the approached sample of 102 females, 82 respondents wear heels for a minimum of thrice a week, were aged between 20-30 years and did not have a previous history of any muscular disorder. In this study, the majority of the eligible participants (94.1%) stated that they experience pain during or after wearing heels. Out of the respondents, 83.3% admitted to having suffered from pains of the lower limb where, predominantly, 32.4% and 30.4% of the sample experienced pain in their calves and ankles respectively. Moreover, 9.8% experienced pains in their knees and 8.8% in their toes while 13.7% experienced lower back pains. Only 3% admitted to having no pain at all. Most of the participants responded to have an occasional disturbance of sleep due to the pain in their legs (70.6%).

Conclusion: The results obtained provided evidence to the relationship between musculoskeletal pains in lower limbs associated and wearing high-heeled shoes. Strict dress codes were the main causative agent for the usage of the shoes which led to the agony. Increasing awareness on the relationship between usage of high heels and leg pains, techniques of avoiding musculoskeletal problems and methods of relieving pain would aid in minimising the prevalence of pains.

Keywords: *High heels, Musculoskeletal pain, Females, Assessment, Oswestry Disability Index, ODI*

Effects of Plantar Fascia Mobilisation on Hamstring Flexibility – A Pilot Study

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Introduction: Hamstring muscles are the most common group of muscles which tend to become shortened and tightened, especially in young adults, due to the recent trends of the lifestyle. The hamstrings muscle group is a two-joint muscle which acts as an extensor on the hip joint and as a flexor of the knee joint. It comprises of four muscles originating from the ischial tuberosity and is inserted on the medial condyle of the tibia and on the fibula. The plantar fascia is the distal part of the plantaris which has its proximal attachment at the medial tubercle of the calcaneum and divides into five processes at the heads of the metatarsals. This study will examine the effects of using roller massager on the plantar fascia on hamstring flexibility.

Methodology: An experimental study design was used and a sample of 24 university students was recruited by simple random sampling who were divided into two groups (control and experimental). The control group was treated with only passive stretching and the experimental group was treated with passive stretching and golf-ball rolling (3 sets of 30 seconds for each). All the participants were tested for hamstring flexibility with the sit-and-reach test, both before and after the intervention, to measure the effect.

Results and Discussion: The experimental group has shown to have a more significant increase in hamstrings flexibility than the control group. There was a significant effect in the pre-test for the stretching group from 12.7 cm (± 3.1 cm) to post-test at 5.1 cm (± 3.2 cm) with a mean difference of 7.6 cm (± 3.2 cm) and p-value of 0.001. There was also a trend effect in the pre-test for the roller massager group from 14.9 cm (± 4.5 cm) to post-test at 4.5 cm (± 4.3 cm) with a mean difference of 10.4 cm (± 1.9 cm) and p-value of 0.001.

Conclusion: The use of a roller massager such as a golf ball could be used to enhance the flexibility of the hamstring along with other conventional techniques for better results.

Keywords: *Roller massage, Plantar fascia mobilisation, Hamstring flexibility, Experimental*

Work-Related Musculoskeletal Disorders among Garment Workers in South Asia: A Systemic Review

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Introduction: Work-related musculoskeletal disorders (WMSDs) are considered as one of the central occupational health problems in both developed and developing countries. Localised pain, swelling and discomfort in the affected areas are the commonest symptoms. Aim of this systematic review was to estimate the burden of WMSDs among garment workers in South Asian Countries.

Methodology: The protocol and search strategy were registered with PROSPERO [CRD 42018089638] and 15 electronic databases and 4 grey literature sources were reviewed. Reference lists of selected articles and two academic search engines were used to find missing articles. Studies in the English language-focused garment workers of South Asia were included, irrespective of the type and date of publication. Joanna Briggs critical appraisal tools were used for quality assessment.

Results and Discussions: 2534 studies were identified. Following screening and assessing eligibility, 45 journal articles and 5 theses from Bangladesh, India, Nepal, Pakistan and Sri Lanka were included in the final review. Heterogeneity existed in study design, population, sample size, and measurement of determinants. The 43 descriptive, cross-sectional studies included sample sizes ranging 20-1191, reported age ranging 16 - 62 years and reported an overall prevalence of WMSDs among both male and female garment workers between 15.5% and 92%. Lower back pain was reported by twenty-nine studies and prevalence ranged 6.2% - 90%. Twenty-eight studies reported shoulder pain and prevalence ranged 1.4% - 88%. Neck pain was reported by twenty-five studies and prevalence ranged 1% - 91%. Twenty-one studies reported knee pain and prevalence ranged 2% - 80%. Thirty-six studies reported pain as the most common symptom of WMSDs, while numbness and stiffness were also reported by several studies. Static work posture, long working hours, repetitive actions and low job satisfaction were reported as the main contributing factors. The most frequently used assessment instrument was the Nordic Musculoskeletal Questionnaire.

Conclusion: Compared to Western countries, the burden of WMSDs among garment workers in South Asia is high. There may be opportunities to intervene and minimise WMSDs based on identified factors.

Keywords: *WMSDs, Garment, Pain, Sri Lanka, South Asia*

Prevalence of and Predisposing Factors of Chronic Lower Back Pain among Food Delivering Motorcyclists in Colombo District, Sri Lanka – 2019

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Introduction: Online food delivery is currently one of the most promising business ideas in the E-commerce industry with the rapid urbanisation of the Colombo area due to its easy availability and access. The number of young motorcyclists has predominantly chosen online food delivery as an occupation. Studies show chronic lower back pain is a disability and a burden, especially, for motorcyclists. Therefore, the aim of the study is to identify the prevalence of and predisposing factors of chronic lower back pain among food delivery motorcyclists in the Colombo District.

Methodology: A descriptive, cross-sectional, quantitative study was done among 125 food delivery motorcyclists in Colombo District using a convenience sampling technique to answer the proposed question. A self-administered questionnaire was used to collect data and data were analysed using the Statistical Package of Social Sciences (SPSS) version 22 and Microsoft Excel.

Results and Discussion: Out of 125 responders, 81 (65%) of them were subjected to lower back pain among which 41.1% were suffering from chronic lower back pain. A significant percentage of those with back pain (63.7%) carried a backpack, with 53.7% of them carrying the weight rather than resting the backpack on the seat. Over a quarter of those with lower back pain (25.6%) had episodes of severe back pain, out of which 36% had episodes more than five times a year. A majority of the food delivery motorcyclists were young adults, where 41.5% of them were of age 20-25 years and 38.2% of them were of age 26-30 years. This reflects the fact that many young adults were suffering from chronic lower back pain. A higher percentage of 83.3% of those who worked for a long duration had a severe toll on their bodies and were subjected to lower back pain, showing that the duration of work had an impact on the body. From the participants who were suffering from lower back pain, 30% of them referred to their backpain as moderate, while 20% of them rated it as extreme on the VAS scale, with the majority of them were subjected to an aching pain with a percentage of 39.3. Among the predisposing factors, 83.3% of them were due to long hours of motorbike usage and 81.4% considered the same factor responsible for aggravating the pain. To reduce pain, 37.4% of them have used pain killers while 40.7% have used sprays; however, unfortunately, 93.6% have not sought any proper treatment other than painkillers and/or sprays. The correlation between the type of bike and lower back pain was insignificant.

Conclusion: A majority of the young adults had shown a high prevalence of chronic lower back pain and prolonged working hours and carrying backpacks are proved to be predisposing factors for lower back pain among young food delivery motorcyclists. A majority of those subjected to lower back pain did not seek any proper treatment.

Keywords: *Chronic lower back pain, Prevalence, Food delivering motorcyclists, Young adults*

A Systematic Review on the Effectiveness of Pelvic Floor Muscle Training for Treating Patients with Stress Urinary Incontinence

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Introduction: Stress urinary incontinence (SUI) is involuntary leakage of urine due to abdominal pressure (exertion from coughing, laughing or sneezing), resulting from weakness of pelvic floor muscles and laxity of surrounding structures which is usually considered as one of the most distressing incidences experienced if left untreated. Out of many treatment approaches, pelvic floor muscle training (PFMT) is a cost-effective intervention practised by physiotherapists. Hence, this study was demonstrated to determine the effectiveness of PFMT in treating women with SUI symptoms.

Methodology: A systematic review was designed to answer the proposed question. A comprehensive search was done in Pedro, ScienceDirect, PubMed, Cochrane library, Academic search complete and SCOPUS to gather articles using key terms, subject heading, mesh terms, word truncations, wildcards and also hand searching was done. Studies were collected, screened against the eligibility criteria and filtered using PRISMA 2009 flow chart. Pedro scoring was used to critically appraise the articles published during the last 10 years (2010-2019) and the results were presented in a narrative manner.

Results and Discussion: Seven studies were chosen from databases and when appraising for the quality, it was found that two studies had high-, three had moderate-and two had low-risk of bias. Most of the outcomes were measured objectively. A majority of the studies had measured urinary symptoms by pad test and quality of life by ICIQ-LUTS QoL, five-point scale and King's health questionnaire. Out of these studies, almost all the studies concluded that the patients in the intervention group had statistically significant improvement in regards to the quality of life and reduced symptoms of SUI. Three studies measured pelvic floor strength using perineometers and an oxford scale that noted a significant improvement in muscle strength. Duration of the intervention in the majority of the studies was 12 weeks. However, a long-term follow-up was not demonstrated in the studies.

Conclusion: Studies revealed that PFMT can be considered as a cost-effective, first-line treatment for treating women with SUI. Further high-quality studies focusing on long-term follow-up should be performed in the future.

Keywords: *Stress urinary incontinence, Pelvic floor muscle training, Effectiveness, Quality of life*

A Network Meta-Analysis of Effectiveness of Specific Modes of Exercise for Chronic Low Back Pain

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Introduction: Meta-analyses showed that passive therapies, such as ultrasound and massage are ineffective for treating CLBP. However, various modes of exercise have been shown by pair-wise meta-analysis, to be effective for reducing CLBP. It is unclear however whether some specific modes of exercise be more effective than others for non-specific CLBP. The aim was to conduct a network meta-analysis to compare, and rank, different kinds of interventions to examine the effectiveness of specific exercise approaches for reducing pain and improving function in non-specific CLBP.

Methodology: Five electronic databases and references of previous systematic reviews were searched (PROSPERO registration: CRD42017068668). Eligible studies were randomised controlled or clinical trials that examined the efficacy of exercise training compared to either non-exercise training treatments or a different exercise training on pain and physical function in adults with non-specific chronic low back pain. Intervention effects were estimated using standardised mean differences (SMD). Random effects network meta-analyses were conducted to compare different exercises and non-exercise interventions.

Results: After title and abstract review of 6,217 records and subsequent full text screening by at least two reviewers, 71 studies were included in the qualitative synthesis with 103 exercise interventions, 42 control comparators, and a total of 4414 participants. For reducing pain, Pilates (pooled SMD [95% CI]: -1.76[-2.75,-0.78], $p<0.0001$), aerobic exercise (-1.33 [-2.51,-0.15], $p=0.027$) and stabilisation/motor control (-1.44[-2.10,-0.78], $p<0.0001$) were, respectively, 55%, 19% and 15% likely to be the best intervention. No-treatment control (reference) and hands-off control (-0.09[-1.14,0.96], $p=0.87$) were 51% and 37% likely to be the most ineffective interventions. For improving function, 'other' (-0.85 [-1.45,-0.26], $p=0.005$), Pilates (-1.03 [-1.71,-0.35], $p=0.003$) and stabilisation/motor control (-1.09 [-1.56,-0.62], $p<0.0001$) were, respectively, 25%, 25% and 24% likely to be the best intervention. No-intervention control (reference) and 'hands-on' control (-0.28 [-0.93,0.37], $p=0.39$) were 71% and 12% respectively to be the least effective interventions. The test for network inconsistency was significant for both the pain ($p=0.02$) and function ($p<0.0001$) outcomes. 51 studies (72%) were at high risk of bias on at least one domain (excluding participant blinding) of the Cochrane Collaboration Risk of Bias Tool.

Discussion and Conclusion: Whilst it is known that exercise, in general, can improve CLBP, the current study is the first network meta-analysis to consider the effectiveness of specific kinds of exercise for improving pain and function in non-specific CLBP. Our findings suggest that active modes of exercise (such as aerobic exercise, Pilates, stabilisation exercise) may be more beneficial for non-specific CLBP than light forms (such as stretching). The findings provide additional evidence against passive therapies for CLBP. Heterogeneity between studies and few studies with low risk of bias are limitations.

Keywords: Physical activity, Spine, Rehabilitation, Physical therapy modalities, Behavioural symptoms, Analgesics

PLENARY-OP 15

Simulation

MS. LOUISE PRICE

Assistant Professor and Simulation Lead

Gaining experience through the use of simulation across a range of care settings is aimed at building confidence and knowledge, such as how to act in an emergency. The increases in patient co-morbidity and demand for safe and quality services within the healthcare system has put greater demands on education settings to deliver students who are competent nurses.

There is an increasing demand for nursing students to have gained expertise and confidence through experience of lifelike simulations; in order to prepare students for real-life situations in clinical areas. As a method for developing key nursing skills, simulation is increasingly used in healthcare education settings.

Nursing students will be increasingly required to work as autonomous practitioners and take a leadership role in decisions regarding patient care within multi-professional settings. Student nurses will, therefore, need to be encouraged to develop an in-depth understanding of the new organization and culture of modern healthcare systems and take a stronger role in the leadership and management of resources in delivering treatment and healthcare options to patients. Nurses routinely have the most frequent and intense contact with patients and must be competent in recognizing changes in patients' conditions requiring collaboration with other members of the Health and Social Care team.

In response, Coventry University has developed a bespoke programme of simulation for all pre-registration nursing students including, Child, Learning Disabilities, Mental Health and Adult to work together, learning from each other, sharing and comparing knowledge in a protected environment.

The simulation programme has been designed to deliver real-life situations where students will have opportunities to practice and enhance their skills in a safe environment. The programme will involve the use of professional actors to enhance the realism of the experience.

Nurse Educators' Perceived Organisational Factors Affecting Psychological Empowerment: An Exploratory Qualitative Study

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Introduction: Organisational culture affects nurse educators' psychological empowerment. Limited research exists on the organisational culture and psychological empowerment in nursing educational environments and about the type of organisational factors affecting nurse educators' psychological empowerment. Hence, the aim of this study was to explore nurse educators' perceived organisational factors that affect their psychological empowerment.

Methodology: A qualitative, descriptive, exploratory study was drawn from a larger sequential exploratory-mixed-methods study. Semi-structured interviews were conducted with 12 educators with both clinical and educational experience. The data were analysed using thematic analysis.

Results: Three themes were generated: poor organisational structure, dynamics of educators'-academic administrators' relations and educational tools and physical environment. The educators' perceived factors were poor organisational structure, lack of collaboration across institutions and regulatory bodies, condescending attitudes of administrators and educators toward novice educators, limited teaching aids and scholarly resources, poorly defined roles and underdeveloped and inconsistent curricula.

Discussion: This exploratory study outlined some of the organisational cultural factors that affect nurse educators' psychological empowerment and abilities to teach undergraduate nursing students. Overall, the poor organisational culture, lack of collaboration, unavailability of essential physical resources and lack of support influence educators' empowerment. Spreitzer described that psychological empowerment entails meaning, competence, self-determination and impact. Based on the findings, it seems apparent that the lack of autonomous decision-making, condescending attitudes of academic administrators and senior educators, non-supportive and authoritarian administration and lack of physical resources affected all four elements of psychological empowerment. The finding concerning the condescending attitudes of experienced educators and academic administrators toward novice educators brings to the attention the lack of mentorship in institutions and its effect on the psychological empowerment and acclimation of novice educators.

Conclusions: The identified organisational factors should be addressed to enhance educators' psychological empowerment so that they can effectively teach students. Emphasis should be placed on developing collaboration among educators, academic administrators and regulatory bodies to address these factors. Further quantitative research is warranted to assess the degree and strength of association of these factors with psychological empowerment.

Keywords: *Nurse educators, Psychological empowerment, Organisational culture*

Factors Contributing to the Efficient Implementation of Nursing Care Plan in the National Hospital of Sri Lanka – 2019

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Introduction: The nursing process is a systematic problem-solving approach that is used to identify, prevent and treat actual or potential health problems and promote wellness (Carlson, 2010). It is made up of five interrelated steps; assessment, diagnosis, planning, implementation and evaluation. The nursing process is dynamic and it is used in clinical practice worldwide to deliver quality, individualised care to patients and lack of its application can affect the quality of nursing care in health institutions. The main objective of the study was to assess the factors contributing to the effective implementation of nursing care plans in the National Hospital, Sri Lanka.

Methodology: This is an institutional-based, descriptive, cross-sectional, quantitative study conducted among 460 nursing officers, selected using convenience sampling. A self-administered questionnaire was given. Data were analysed using Excel and Statistical Package for Social Science (SPSS) version 20.

Results and Discussion: The mean age of the nurses participating was 34.3 years and 66.4% were female participants. From the sample, 57.5% of the nurses had only a diploma and 109 (81.3%) nurses have got trained in the nursing process. The distribution of knowledge score among 460 participants was such that 405 nurses (88%) had adequate knowledge regarding the nursing process whereas 12% of the nurses have reported an average or below average levels of knowledge on the nursing process. More than half of the nurses (55%) have reported that they actively participated in the nursing process. One-third (33.1%) of the nurses reported that they were actively implementing the nursing process, even though, only 11 (8.2%) nurses correctly listed all the steps of the nursing process. Nursing process implementation was significantly associated with nurses' demographics (age $p=0.001$, experience $p=0.001$, training $p=0.013$ and institutional factors $p=0.048$). Social ($p=0.078$) and cultural ($p=0.993$) factors were not significantly associated with nursing process implementation.

Conclusion: Overall, it can be seen that the nurses have good knowledge regarding nursing process. Training and institutional support were identified as major factors that may affect the implementation of nursing process. Improving nursing education, allocating adequate time, support from the administration, increasing nurse-patient ratio and providing adequate supplies were identified as suggestions that can be used to improve effective implementation of nursing care plans.

Keywords: *Nursing care plan, Nursing process*

The satisfaction of Clinical Learning Environment among Nursing Students of Nursing Training School, Kalutara, Sri Lanka

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Introduction: Clinical learning environment is a setting where clinical skills are learned with direct or distant supervision. Students are satisfied with a clinical education programme when the environment is conducive to acquire knowledge, skills and professional attitude, essential for their career. It is important to assess students' satisfaction with the clinical learning environment as it is indicative of the skill level of future nurses with regards to the institutional effectiveness, the quality of the academic staff and resources of the hospital environment. Hence, this research was done to assess the satisfaction of the nursing students with the clinical learning environment of the nursing training school, Kalutara.

Methodology: The research is a descriptive, cross-sectional study, which was conducted among nursing students of the nursing training school, Kalutara. The sample consisted of 180 nursing students. The satisfaction of the clinical learning environment was evaluated by a self-administered questionnaire regarding support of the healthcare team, guidance of the academic staff and resources of the hospital environment. Data analysis was done using SPSS software.

Results and Discussion: The sample size was 180 (response rate 100%) which included 6.1% (n=11) males and 93.9% (n=169) females. The majority of the students were somewhat satisfied or satisfied with the support from the healthcare team (90.0%, n=162), the guidance of the academic staff (90.0%, n=162) and the resources in the hospital environment (81.7%, n=147). Few of the students were not satisfied with the support from the healthcare team (10%, n=18), the guidance of the academic staff (10%, n=18) and the resources in the hospital environment (11.7%, n=21).

Conclusion: Most nursing students were satisfied with the clinical learning environment. Reported cases of dissatisfaction probably could have linked with the improvements required to attain a standardised quality of education and to meet the developments to form an inclusive and equitable quality education and to promote life-long learning opportunities to all.

Keywords: *Clinical learning environment, Nursing students, Satisfaction, Academic guidance, Hospital resources*

The Same, But Still Different – Comparison of Nursing Students in Sri Lanka, Finland, Japan and China

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Introduction: Education and life, in general, are more and more virtual. In addition, online teaching is increasing. This means that the students have fewer face-to-face contact with their student fellows and teachers. This also means that there is less social support during the studies. Working with laptops and other devices decreases the sports activities, and at the same time increases the possibilities for tension neck and other musculoskeletal disorders. In addition, stressful life situations increase the general stress and mental disturbances. The aim of this study is to compare and understand the differences between the background information of nursing students. This presentation is part of the joint research Project of health status, health behaviour, health counselling and vocation among nursing students in Finland, China, Japan and Sri Lanka - a comparison of nursing students in four countries. This presentation focuses on the following background information of nursing students: age, gender, marital status, employment status during the studies.

Methodology: The data was collected from 795 nursing students and it was analysed statistically using mix methods of SPSS. The data of this presentation is collected by an electronic electric questionnaire consisting the following background information: Country of home university, age in years, gender, marital and family status, multicultural family background, semesters studied so far, and employment status during the studies.

Results and Discussion: The age, gender and marital status of students in four countries differed highly significantly. In Finland and Japan, more than half of the students worked during their studies, but in China and Sri Lanka students mainly focused on their studies.

Conclusion: The results of this study can be used in developing student services and interventions for promoting the health and wellbeing of the students in these four higher education institutions.

Keywords: *Background of nursing students, lifestyle, life situation, student services.*

Factors Associated with the Current Formative Clinical Evaluation among Nursing Students at School of Nursing, Anuradhapura, Sri Lanka

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Introduction: Formative assessment is a bridge between learning and teaching. In nursing education, formative assessment has been proven to be highly effective, not only for student learning but also for teaching which, as a result, increases the overall quality of learning. The assessment of clinical competence is, therefore, an important issue in nursing education. Nursing students in Sri Lanka should complete the three-year nursing curriculum and should also complete continuous evaluations throughout the training course. The implementation of continuous clinical assessment and feedback in stimulating student learning has been stressed, but this needs to be studied in more detail. The objective of this research was to assess the associated factors for current formative clinical evaluation among nursing students in the school of nursing, Anuradhapura.

Methodology: A descriptive cross-sectional study with a simple random sample of (n=293) first-year, second-year and third-year nursing students in the school of nursing, Anuradhapura, using a pre-tested self-administered questionnaire was conducted. Significance was set as $p < 0.05$. Permission to conduct the study was obtained from the principal, school of nursing, Anuradhapura.

Results and Discussion: The response rate was 91.56%. The majority (52.6%) belonged to the age group of 23-24 years. The mean age was 23.8 (SD 1.342). The majority of the nursing students were female (88.7%), Sinhalese (99.3%) and Buddhist (98.3%). The findings indicated that more negatively affected factors were seen in all categorical parameters; supervisor factors (74.6%), environmental factors (63.5%) and student factors (54.6%). The identified barriers were insufficient time, space, equipment, clinical staff, stress, overcrowding, subjective bias and tight schedules of the nursing tutors. The significance between the mean of student factors with gender ($p=0.036$) and supervisor factors with the academic year ($p=0.008$), with the number of evaluations ($p=0.000$) and with the staying place ($p=0.024$) were identified. A positive, weak correlation was found between supervisor factors and the number of evaluations (0.265).

Conclusion: The majority of the students had problems with factors related to supervision to the formative clinical evaluation. Nursing trainers should apply other appropriate and objective clinical evaluation methods and tools to perform a formative clinical evaluation. The workload adjustment of the nursing trainers needs revision as well. It is also necessary to facilitate adequate time for practising in clinical, facilitate areas to arrange procedures and improve the ability to finish the procedures within the allocated time period. In addition, staff nurses should be encouraged to be mentors for student nurses.

Keywords: *Formative clinical evaluation, Nursing student, Student factors, Supervisor factors, Environmental factors*

Assessment of Motivation to Continuous Nursing Education and the Relationship between Motivation and Continuous Nursing Education among Nurses in the National Hospital, Sri Lanka

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Introduction: The motivation to enrol in Continuous Nursing Education (CNE) among nurses may greatly influence the effectiveness of CNE and its outcome. This study was aimed to assess the motivation towards continuous education among nurses in the National Hospital of Sri Lanka (NHSL) and the relationship between the motivation and the continuous nursing education.

Methodology: This was a descriptive, cross-sectional study conducted with 337 registered nurses working in the NHSL. Stratified sampling technique was used and a self-administered questionnaire was distributed to collect data. Descriptive analysis was done by using SPSS version 22. Binary logistic regression analysis was used to identify the relationship between motivation and CNE.

Results and Discussion: Among the participants, 86.1% (n= 290) have participated in CNE. In respect of the source of motivation for CNE is concerned the majority of the participants were motivated since they had a strong desire to upgrade their professional status (strongly agree= 15.7%; agree= 66.8%). Self- motivation (strongly agree= 12.8%; agree= 68.2%) and motivation from their family members (strongly agree= 21.1%; agree= 64.1%) were also at an excellent level. The motivation from the colleagues (strongly agree= 6.5%; agree= 66.5%) was at a very good level. Motivation from the hospital management (strongly agree= 2.7%; agree= 56.1%) was also at a satisfactory level. There was no statistically significant relationship between CNE and motive factors (p=0.542).

Conclusion: Results reflect that all the motivative factors considered in the study stand at a positive side to continue professional learning among nurses. However, the relationship between motivation and continuous nursing education was not significant.

Keywords: *Continuous Nursing Education, CNE, Motivation, NHSL, Nurses*

Prevalence of and Factors Associated with Adjustment to the Learning Environment among First-year Nursing Students in Government Nursing Schools, Sri Lanka

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Introduction: Adjustment to the college as a freshman is crucial for the future academic progress and successful career of an individual. To be an effective nurse in the future, the new students should enjoy the optimal level of physical and psychological wellbeing, spiritual sense of serving the society and best practice of study and work. The study was conducted to assess the level of factors associated with adjustment to the new learning environment among first-year nursing students at government nursing schools in Sri Lanka.

Methodology: A mixed-method was used for the study where a quantitative, descriptive survey with a random sample of first-year nursing students (n=420) from schools of nursing, Ampara, Batticaloa, Jaffna and Vavuniya, using a pre-tested, self-administered questionnaire comprised of Students Adjustment to the College Questionnaire (SACQ) and a qualitative study with a purposive sample of nursing tutors (n=08) from the same nursing schools, using a semi-structured interviewer guide was conducted. Significance was set as $p < 0.05$.

Results and Discussion: Response rate was 99.5%. The majority (53.1%) belonged to the age group of 21-22 years. The mean age was 22.5 (SD 1.07). The majority of nursing students were female (75.7%), Sinhalese and Buddhists (55%). The total adjustment was found to have low value among the majority of the participants (98.8%) in the sample. Similar trends were seen in all categorical parameters; academic adjustment (91.3%), social adjustment (91.3%), personal adjustment (51.2%) and institutional adjustment (98.1%). Gender, ethnicity, age, receiving psychological support and receiving academic assistance with adjustment were found to have significant associations ($p < 0.05$). Personal factors were described as of the highest difficulty in adjusting during the first academic year as perceived by 61.6% of the sample. Using professional knowledge in clinical practice (62.2%), socialising (60.8%), regular attendance to the clinical training (65.5%) and receiving learning support (60.2%) were perceived as most difficult in their adjustment. Similar factors associated with the students' adjustment were identified from the nursing tutors' experiences as a theory-practice gap, students' social relationships and personal traits.

Conclusion: The majority of the students had a poor adjustment to the learning environment. Institutional maladjustment was very common. The personal factors were affecting the adjustment mostly during the first academic year. Continuous learning support, supervision and socialisation programmes need to be strengthened in both nursing school environment and clinical learning environment.

Keywords: Academic, Personal factors, Socialising, Learning environment

Attitude, Motivation, Orientation and Perceived Barriers towards Postgraduate Education among the Registered Nurses in a Private Hospital

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Introduction: Continuing professional development in nursing is extremely important especially because of rapid and continuous progress in medical sciences and specialisation. Nursing is no longer viewed as simply a practical occupation but a profession that values higher education as a means to build competent practitioners at all levels. The nurses need to be prepared educationally in order to meet several complex health problems among the population. Hence, this study is aimed to explore and identify registered nurses' attitudes, motivation, orientation and perceived barriers towards post-graduate education among the registered nurses in a private hospital.

Methodology: This study used a quantitative descriptive research design to study registered nurses' attitudes and to identify the motivation orientation and perceived barriers regard to postgraduate education. Convenience sampling was used to select the research sample of registered nurses working in a private hospital in Penang, Malaysia. Demographic data and research variables of the study were analysed using descriptive statistics such as mean, standard deviation, frequency and percentage, based on calculations using the SPSS (Statistical Package for the Social Sciences) Version 23 statistics software.

Result and Discussion: There were a total of 170 responses recorded from registered nurses from four groups of the nursing department in a private hospital. The research results indicated that most registered nurses perceive continuing postgraduate education as beneficial to their personal and professional growth and to improve the quality of patient/client care, however, barriers exist which prevent or deter them from undertaking continuing formal education programmes. The main barriers were identified as structural barriers, including lack of funding, job and family responsibilities and lack of coherent staff development planning.

Conclusion: The authors conclude that achieving a higher level of competency through postgraduate education among registered nurses requires personal commitment and cooperation between the individual registered nurses, the employing organisation and the university.

Keywords: *Attitude, Postgraduate education, Registered nurse, Motivation, Barriers, Attitudinal barriers*

A Study on the Prevalence of and Perceptions on Academic Incivility among First-Year Nursing Students in School of Nursing, Kalutara, Sri Lanka – 2019

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Introduction: The incidence of incivility in nursing education is increasing in most countries and is affecting the culture of safety and the teaching and learning processes. Moreover, this may have implications in terms of the future of the profession, patient care, staff turnover, number of errors, learning outcomes and wellbeing of nursing students. Therefore, there is a need for studies to document the extent, source and nature of nursing students' academic incivility and associated factors. The aim of this study was to assess the prevalence of and perceptions on academic incivility among first-year nursing students in the School of Nursing, Kalutara, Sri Lanka – 2019.

Methodology: A descriptive, cross-sectional design was used to collect data. All first-year nursing students in the school of nursing, Kalutara were taken as the sample. A self-administered questionnaire was used to collect data. Academic incivility was assessed based on their response to a given set of predetermined incivility activities depending on whether they have engaged in them or not. Data analysis was done using SPSS version 20.0.

Results and Discussion: Females were the majority (89.6%, n=180) of the total sample of 201 participants. Majority of the students were in the 22-23 age group (71.1%, n=143). The most common uncivil behaviours were holding conversations with friends (60.2%, n=121) and sleeping (55.7%, n=112) during lecture time. According to the participants, tiredness after clinical placements was the main reason for most of the uncivil behaviours (80.1%, n=161). Most probable time for uncivil behaviours was during the classes that were held subsequent to clinical sessions. Likewise, 92.03% (n=185) from all the participants were hoping for a more educational-friendly environment to prevent academic incivility. There was no statistically significant relationship between the number of close friends in the same batch, having a family member in the healthcare field or the students' liking or disliking of the course and the prevalence of academic incivility. Furthermore, there was no statistically significant relationship between holding a leadership position and the prevalence of incivility.

Conclusions: First-year student nurses' academic incivility may have implications for the future of the profession and patient care. There is a need for more accordant policies and strategies to reduce the incidences of academic incivility and to make future nursing generations more efficient by maintaining a safe and effective learning environment.

Keywords: *Nursing education, Nursing profession, Incivility*

A Study on Perspectives of Nursing Tutors and Students on Current Teaching and Learning Practices in Nursing Education in the School of Nursing, Kandy, Sri Lanka

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Introduction: Nursing is a profession that requires theoretical and practical training to be integrated. Teaching and learning strategies in nursing education have been used to improve students' nursing knowledge and skills, and nurse educators hold a particular obligation to ensure that they are preparing the professionals who will take that further forward. This study was conducted to explore nursing tutors' and students' perspectives on current teaching and learning practices in nursing education in the school of nursing Kandy.

Methodology: A descriptive, cross-sectional survey design was used for this study. The target population was the nursing students who were studying in their first, second and third years of the diploma course (n=345) as well as all the nursing tutors. However, the tutors who pre-tested the instrument were excluded from the study and the questionnaires were distributed (online) among nursing tutors who did not participate in the pilot test. Similarly, a self-administered questionnaire was shared (online) only among the students who did not participate in the pilot test. Data analysis was done using the SPSS software package.

Results and Discussion: Regarding the perspectives of the existing curriculum, a majority of the students agreed that the course facilitates intrinsic motivation for themselves and that theories and skills essential for the profession are covered in the curriculum. Administrative and academic support was found to be very important when implementing the curriculum, which represented a mean score of '4.00.' They also highlighted that resources available were not sufficient when implementing the curriculum and the time frame is not sufficient to cover the whole curriculum when studying. The majority of the students state that the curriculum was good (46.4%), where 23.3% suggested that the curriculum was very good while 14.5% suggested it was excellent. Mean and standard deviation of students' practices on current teaching and learning methodology summarised that all the students (n=345) agreed with the statements given. Open book exams, a problem-solving method, essay type, short answer test, multiple-choice tests, true or false, matching questions are all strongly agreed on the current assessment methods. The most frequently identified barrier for using Active Learning Strategy (ALS) was the class size (mean=4.00, SD=0.730, Mode=4.).

Conclusion: The results summarise that existing nursing course was good, but need to improve curriculum content, need for improving information technology skills for both students and tutors, encourage more student-based learning, enhance facilities, training to be given to tutors regarding new teaching methods, more exposure in teaching ALS mixed with traditional methods, and finally, e-learning to be introduced and promoted. Suggestions were made to develop teaching and assessment methodology and to overcome the specific barriers found.

Keywords: *Nurse tutor, Nursing student, Teaching, Learning, Nursing education*

PLENARY – OP 26

Current Trends and Future Directions in Biotechnology: Innovative Solutions to Meet Future Needs

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Biotechnology encompasses a number of biological research areas including agriculture, dairy, marine, genetic engineering, nanotechnology and human health. Major biotechnology research discoveries have enhanced our understanding of all these areas, especially, in the last 10 years. My talk will specifically focus on the latest advances in cutting-edge health biotechnology. All economies in the world are struggling with the increasing health costs of chronic disease conditions. Biotech discoveries and the global biotechnology market is likely to exceed 700 billion dollars in the next five years. I will cover not only the advances in health biotechnology but also the major future health trend, namely personalised medicine. Some of the other aspects of health improvements attributed to biotechnology covered in the plenary talk will be in molecular diagnostics (malaria, TB, AIDS), recombinant gene and protein therapies, vaccine development and CRIPR-Casp9 mediated clinical therapies. This talk will also address research opportunities available to students in multiple biotechnology themes.

Potentials of AI-based Solutions in Optimisation of Radiation Doses in Medical Imaging - A Literature Review

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Introduction: Artificial Intelligence (AI) based solutions have become available for medical imaging. In radiology, AI-based applications are already being used in speech recognition and computer-aided diagnosis (CAD), just to mention few. Several applications are being developed and tested. For radiographers, one of the most important tasks is optimising radiation doses according to the ALARA principle. ALARA stands for ‘as low as reasonably achievable,’ meaning that radiation doses should not be higher than the quality of images required. Aim of this literature review is to describe how AI-based solutions could help optimise radiation doses in medical imaging.

Methodology: Literature search in PubMed, Cinahl and Medline databases were conducted. Research articles and survey articles from the year 2014 onward were accepted. Data were analysed using qualitative content analysis.

Results and Discussion: AI-based solutions for optimising radiation doses have been developed especially to modalities using high doses of radiation, for example, computed tomography (CT), fluoroscopy and positron emission tomography (PET). Solutions use machine learning algorithms or deep learning algorithms such as convolutional neural networks (CNN). Algorithms can reduce noise and artefacts from images or reconstructions and thus, imaging can be done with less radiation. AI could be also used as an optimising tool for radiographers to choose personalised patient protocols for CT or tracking patient dose parameters. Improved workflow can also be seen as an optimising tool as it reduces unnecessary imaging.

Conclusion: AI-based solutions for radiation optimisation in medical imaging are available and new ones are being developed. With the help of AI-based applications, radiographers can perform examinations with less radiation, while the quality of images remains equal or better.

Keywords: *Artificial intelligence, AI applications, Radiation dose optimisation, radiographer*

Aquaponics: The Revolution in Agriculture

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Introduction: Aquaponics systems have plenty of advantages that can be suggested to amplify the modern methods of farming and resolve controversies being uprooted by these systems. In the basis of water usage, aquaponics systems have been statistically proven to use less water than conventional agriculture and the results of this project can also be suggesting to support the ideas.

Methodology: An experimental study design was used and the integration of the aquaponics system was done in three stages. Stage 01: Gathering and assembling components needed for implementation of the mechanical system. Stage 02: Implementation of the mechanical system. Stage 03: Testing the proposed Aquaponics System. After the third stage, the aquaponics system was closely monitored in order to monitor the fish, circulate the system and reap the harvest.

Results: A swirl biofilter was successfully made using a barrel and a swirl flow system. The biofilter filters the sediments and passes the nutrients needed to the floating bed as intended. The components needed to implementation were constructed and the system was completed. Thereafter, the system was successfully implemented and two rounds of water spinach (Scientific name: *Ipomoea aquatic*) was harvested. However, Lettuce (Scientific name: *Lactuca sativa*) was not successful. This was due to the constant rain conditions in Sri Lanka and the system lacking an enclosure. Mosquito breeding was prevented by adding guppy fish to the floating beds and the pond itself. The pH value of the water was maintained at 6.6 and the temperature was around 23°C.

Conclusion and Recommendations: The Aquaponics system set up was successful as a healthy crop of water spinach could be harvested twice. In order to facilitate the growth of lettuce, which was the originally-intended crop, which was halted due to the rain, it can be recommended to initiate building of an enclosure for the system and plan to harvest a large amount of healthy lettuce plants in the near future. Furthermore, factors such as oxygen demand, nitrate and phosphate levels, ammonia concentration, introducing a new variety of plant species, water quality tests (since there are no heavy metals present) should be considered at the next level.

Keywords: *Aquaculture, Aquaponics, Hydroponics, Tilapia, Water spinach, Lettuce*

A Study on Sample Rejection Rates due to Pre-Analytical Errors at the Clinical Haematology Laboratory at a Teaching Hospital in Sri Lanka

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Introduction: Clinical diagnosis is mostly dependent on the laboratory test results. Haematology laboratory plays a major role in clinical diagnosis. Studies have shown that the majority of the sample is rejected due to pre-analytical errors. It is of paramount importance to study regarding the sample rejection and associated factors in hospital laboratories. The objective of the research was to assess the rejection rates and major reasons for the rejection of blood samples due to pre-analytical errors, in the haematology laboratory at the teaching hospital Karapitiya (THK).

Methodology: In this descriptive, cross-sectional study, details of the rejected blood samples were collected using a data sheet for each rejected specimen for 20 consecutive weekdays. Data were analysed using descriptive statistics, student's t-test and ANOVA using Statistical Package of Social Sciences (SPSS).

Results and Discussion: Overall sample rejection rate was 3.33% and the major cause for rejection was clotting of the specimen (59.95%). Insufficient volume (10.79%), haemolysis (10.07%), no request form for investigation (2.63%), BHT differences (2.39%), name differences (0.95%) and use of the IV line (0.47%) were among the other reasons for sample rejection. From the rejected samples, the majority of the sample was from medical wards. The highest rejection rate was reported for PT/INR (6.74%). Rejection rates for ESR, APTT, RC and FBC were 6.21%, 3.38%, 2.32% and 1.46% respectively.

Conclusion: Overall rejection rate was higher in the haematology laboratory of THK when compared to the values reported from other departments. Higher rejection rates were found in the samples waiting for PT/INR, ESR and APTT. Clot formation, insufficient volume, haemolysis, no request forms for samples and BHT differences were among the major causes for sample rejection.

Keywords: *Rejection rate, Pre-analytical error, Haematology, Blood, Sample collection*

PLENARY – OP 30

The changing aspects of public health over the years

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Our world, now described as a global village, suggests that it has gotten smaller, crowded, distances shorter, transport faster and information more readily available and accessible. That is the way, human populations developed from families to clans, to villages, to towns, to cities, to countries and to a global village.

Primitive man could only be concerned with his own health but with larger populations, one's own health and those of others became intertwined to the point that healthcare had to be organised and managed. This became the impetus for the concept of public health.

Crowding led to unsanitary living conditions that resulted in epidemics of ever-expanding borders which had to be controlled. The poor majority was malnourished, immunologically compromised, illiterate, deprived of reliable information and most died at about 30 years till about the 1800s.

After WW2, rapid advances in science, technology, literacy and information systems led to the formation of international organisations like the UN and the WHO - the latter now policing the world's state of health - its inhabitants and the environment.

In the distant past, civilisations went extinct due to epidemics, mostly by infectious agents not even discovered as yet. Over the last 100 years, after the discovery of smaller and smaller microbes, epidemics of major diseases have been eliminated or contained.

Today we have newer problems of pandemic proportions like obesity, diabetes, malnutrition, cardiovascular disease, ageing populations, dementia, the drug menace, antibiotic resistance, smoking, alcohol and environmental changes affecting health-burdening society with increased morbidity.

Fortunately, in the present digital age, we also have tools to diagnose, monitor, treat, manage and contain these NCDs with immediate availability of reliable information - called 'Informatics' - that can be customised even to a personal level in the form of "wearables".

This is the wave of the future. Learn and be ready for it.

Work Stress Management Strategies Preferred and Commended by Medical Delegates Employed in the Western Province: A Survey

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Introduction: Medical delegates working for Pharmaceutical firms constantly complain about mental stress experienced at work hours. Since, the profession is extremely competitive due to meeting doctors at hospitals, constant travelling and achieving financial targets, medical delegates tend to resort to different work stress management strategies. The aim of the study is to probe such work stress management strategies commended by medical delegates.

Methodology: Fifty selected medical delegates above 20 years and below 35 years from the Western Province were provided with a self-administered questionnaire comprising eight multiple-choice questions encapsulating individual biography, work status and preferred stress management strategies. The research was conducted in the form of a survey. Further, the research adopted both qualitative and quantitative approaches.

Results and Discussion: As per previous research findings, four work stress management strategies were identified. The survey revealed that 24% of the sample prefers to smoke, 12% for the consumption of alcohol, 20% for a friendly conversation with a colleague and the majority which is 44% prefers to engage in sexual activities with unspecified individuals. Therefore, the survey results revealed that the majority prefers to engage in sexual activities in order to manage work stress.

Conclusion: Work stress is observed excessively in medical delegates since they work under pressure due to duties assigned. Thus, they attempt to manage their stress through different strategies. Out of four previously revealed strategies through the research literature, the majority of medical delegates recommend and commend sexual activities as a strategy to manage mental stress caused by work.

Keywords: *Work stress, Medical delegates, Pharmaceutical industry, Manage stress, Stress management strategies, Sexual practices, Sexual activities*

Assessment of Knowledge and Attitudes on Epilepsy and Drug Compliance among Epilepsy Patients Attending to Neurology and Medical Clinics in Karapitiya Teaching Hospital, Sri Lanka

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Introduction: An epileptic seizure is a transient occurrence of signs and symptoms due to abnormal, excessive or synchronous neuronal activity in the brain. Epilepsy is a disorder of the brain characterised by an enduring predisposition to generate epileptic seizures. According to the Epilepsy Task Force of Sri Lanka, the crude prevalence of the disease is around 9 to 11 per 1000 in Sri Lanka accounting for a population of around 300,000 patients. This study expects to evaluate knowledge, drug compliance, their associated factors and effects of epilepsy in the social life of patients with epilepsy in Sri Lanka.

Methodology: A descriptive, cross-sectional study was conducted in which conveniently selected 60 patients with epilepsy were assessed by using a self-developed, pre-tested, interviewer-administered questionnaire. Statistical Package of Social Science (SPSS) version 20.0 was used for the analysis of data.

Results and Discussion: The mean knowledge score of the participants was 45.56 (SD=23.64) out of a total score of 100 and there were positive correlations between patients' knowledge and educational level ($p=0.002$), family history of epilepsy ($p=0.012$) and family support ($p=0.001$). Mean drug compliance score of the participants was 47.0 (SD=24.37) out of a total score of 100 and there were positive correlations between drug compliance of the patients and monthly income of the family ($p=0.046$), advice received from healthcare personnel in clinics ($p=0.036$) and family support ($p=0.007$). There was a positive correlation between patients' knowledge and drug compliance ($r = 0.334$, $n=60$ and $p=0.009$). Considering the effects of epilepsy, the majority of patients' (60%) schooling, school performances (58.3%) and/or marriage life (46.7%) have been affected due to the disease.

Conclusion: Based on the findings, the majority of the respondents had average knowledge regarding their disease and medications and the majority did not have optimal drug compliance. An increase in knowledge regarding epilepsy and anti-epileptic medications was positively correlated with drug compliance. Therefore, there is a need for more advanced educational programmes.

Keywords: Epilepsy, Drug compliance, Knowledge

Knowledge, Practices and Associated Factors of Physical Activity among School Children in Negombo Area, Sri Lanka

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Introduction: Physical inactivity is a serious health problem in children. Epidemiological studies have shown that a sedentary lifestyle will contribute to early-onset and progression of many diseases such as cardiovascular diseases or diabetes mellitus. Regular physical activities increase exercise capacity and physical fitness which will lead to many health benefits. The aims of this study were to assess the knowledge, practices and associated factors (socio-demographic, socio-economic, health status and academic performance) of physical activities in school children and to identify the associations of physical activities with such factors.

Methodology: A school-based, descriptive, cross-sectional study was conducted among 386 students aged 12-15 years from two schools in Negombo area. Informed consents were obtained prior to the study. A self-administered questionnaire was used for data collection. Physical activities were assessed using modified and culturally-adapted International Children's Physical Activities Questionnaire (CPAQ) for Sri Lanka. Height and weight were measured and body mass index (BMI) was calculated. Students' progress reports were assessed. Data were analysed using Excel and Statistical Package for Social Sciences (SPSS) version 20.

Results and Discussion: A majority of (99.5%, n=384) students had good or average knowledge regarding physical activities with a mean score of 25.7 (± 3.9). The students who were more engaged in physical activities were more aware of physical activities. The majority of the children (63%; n=243) were physically active. The frequency distribution shows that students had spent a mean time of 4891 minutes per week for home activities (sleeping and talking) and had spent a mean time of 656 minutes per week in sports. Over half of the participants (53%, n=205) were underweight and 9% (n=35) were overweight or obese. Enrolment in vigorous-intensity physical activities were more prevalent among malnourished children, whereas enrolment in moderate-intensity physical activities were more prevalent among average-weight students. Average-weight children were physically active mainly with three types of physical activities. Among 386 students, a higher proportion (58.5%; n=226) had a good academic performance with a mean (SD) score of 66.05 (± 15.39). Correlation between physical activities and academic performance were positive ($p < 0.001$).

Conclusion: According to the study, physical activity is an important factor to maintain healthy body mass index and good academic performances among school children. Further research with a larger sample and considering other confounding factors is recommended to get a better understanding of the knowledge, practice and associated factors of physical activities. It is important to assess the attitudes and effects of behaviour modification among schoolchildren in order to improve the quality of life of schoolchildren.

Keywords: *Knowledge, Practices, Physical activity, Schoolchildren*

Assessment of the Level of Awareness among Antenatal Mothers on Neonatal Jaundice in Kandy District, Sri Lanka

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Introduction: The high mortality and morbidity rate from neonatal jaundice is exacerbated by a lack of knowledge and mismanagement by the mothers in the general population. Hence, it is an urgent requirement to assess the level of awareness and improve the same among antenatal mothers.

Methodology: A cross-sectional design was carried out among 230 mothers with a self-administered questionnaire to obtain data. A hospital-based survey was conducted among antenatal mothers aged 18–44 years, living in Kandy District, to determine the level of awareness of and treatment practices towards neonatal jaundice.

Results and Discussion: Two hundred and thirty antenatal mothers qualified for the study. More than half of the respondents (58.7%) were in the 25–34 age range, with a mean age of 29.8 (± 9.28) years. Around 60% of them were unemployed. From the whole sample, 216 (93.9%) mothers had never heard the name of the condition. Over three quarters ($n=184$) of the mothers correctly identified the jaundice condition. However, improper breastfeeding was the only known cause by nearly half of the respondents (46.6%). Only 38 (17.6%) mothers knew that neonatal jaundice could cause brain damage, whereas 43.4% had the opinion that exposing babies to sunlight could prevent the condition. More than half of the respondents had a poor level of awareness of neonatal jaundice. Maternal age did not show any statistically significant relationship with the awareness of neonatal jaundice ($p > 0.05$). However, educational qualification showed a significant association with the awareness of, management of, identification of and treatment practices towards neonatal jaundice ($p < 0.05$).

Conclusion: Maternal education is an important factor influencing the health and illness of the newborn. Education helps mothers prepare for new situations while loving for their babies. Awareness of neonatal jaundice was low in this community and ineffective preventive practices were being used. Efforts must be made to increase awareness among the general public and health workers must play a leading role in this.

Keywords: Knowledge, Treatment practices, Antenatal mothers, Neonatal jaundice, Maternal education

A Study on the Level of General Health Education and the Barriers to Health Literacy among the Public in Gampaha District, Sri Lanka

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Introduction: Health plays an integral part of life and determines the quality of life. Health education inspires people to make good choices in order to maintain health. Health education makes them aware of good health habits, precautions, illnesses, management strategies, etc. The ability to understand the changes in health conditions, to avoid complications and to get rid of diseases is known as health literacy. Many Sri Lankans are deprived of proper health education and health literacy and as a result, they suffer from various diseases and health complications. Therefore, it is of paramount importance to find ways to solve this social issue. The purpose of this study was to assess the level of general health education and the barriers to health literacy among the general public.

Methodology: A quantitative, descriptive, cross-sectional study was conducted on the study sample recruited through convenience sampling. Online questionnaires in both English and Sinhala with closed-ended questions were circulated among adults in Gampaha District. The data collected were statistically analysed by using Microsoft Excel and SPSS (Statistical Package for Social Sciences) version 22.

Results and Discussion: In accordance with the data collected, 91.9% agreed on the fact that health education is important for a happy and healthy life. Similarly, 64.7% believed that their level of health education is sufficient for self-diagnosis and 69.9% stated that they can avoid risks that would result in any conditions or complications. From the participants, 74.2% indicated that the level of education, unavailability of reliable sources and their socio-economic conditions are the main barriers to health literacy. The best modes of communicating health information, as per them, are the internet, healthcare awareness programmes and television. About 41.2% of the respondents have stated that healthcare providers do not educate people enough on their illnesses with a sense of responsibility. However, 88.2% of the respondents were confident and satisfied with their level of health literacy.

Conclusion: From the results on health literacy and health education, it was evident that people need more knowledge on health education and the health providers should also play their role with a sense of responsibility to enhance healthy lifestyles of people.

Keywords: *Health education, Barriers, Health literacy, Awareness, Healthcare*

For the Quality of Geriatric Care: A Study on Awareness and Attitudes on Dementia among the General Public in Gampaha District, Sri Lanka

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Introduction: The increase in the geriatric population increases the prevalence of dementia in Sri Lanka. Nonetheless, this area remains untouched for decades. In order to master the quality of care for demented patients, this research focuses on assessing the level of awareness and attitudes on dementia among the general public.

Methodology: A cross-sectional, quantitative survey was done among the residents of Gampaha District, aged 20–65 years. A convenient sample of 363 males and females were given a self-administered, printed questionnaire and the results were analysed using Statistical Package for Social Sciences (SPSS) version 22.

Results and Discussion: Out of all the participants, 54.8% (n=198) knew the word ‘Dementia,’ yet more than half of the participants lacked awareness on the actual condition; 59.6% (n=214) agreed that memory loss is a part of ageing while 65% (n=227) was not certain of the difference between signs of ageing and symptoms of dementia. Meanwhile, 42.3% (n=150) stated that feeding difficulties do not occur in the presence of dementia and 38.8% (n=139) and 42.5% (n=152) considered visiting mental hospitals and out-patient departments during the onset of symptoms respectively. However, the majority of the sample (61.1%, n=217), had a positive attitude and did not consider dementia as shameful. Depending on the results, it is arguable that even though the level of awareness is low, there is a positive attitude on dementia among the general public.

Conclusion: This research showed that although the public has a positive attitude towards dementia, they lack awareness. Therefore, since the general public will be the primary caregivers for demented patients, it is recommended to use workshops and/or social media as modes of creating awareness on dementia.

Keywords: Dementia, General public, Quality of care, Geriatric care, Awareness, Attitudes

An Assessment of the Knowledge and Healthcare-Related Practices of Parents Regarding Home Management of Children with Nephrotic Syndrome

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Introduction: Nephrotic syndrome (NS) is the commonest glomerular disorder in childhood. Proper home management is required to monitor the condition of the child on a daily basis to check for signs of relapses. This study was conducted to assess the knowledge and healthcare-related practices of parents regarding home management of children with NS.

Methodology: A descriptive cross-sectional study was conducted among parents attending to Paediatric Nephrology Clinic at the Teaching Hospital, Karapitiya. Data were collected through an interviewer-administered questionnaire on sociodemographic information and knowledge and practices of parents on home management of their children with NS. Knowledge and practices scores were calculated. One-way ANOVA and independent-sample t-test were used to identify associations between selected variables. Chi-square test and Pearson's correlation were used to assess correlations between variables.

Results and Discussion: The study included 94 participants. The majority of the respondents (71.3%) were mothers, 20.2% were fathers and the rest were other caregivers. The highest educational qualification of the majority (67.0%) was up to G.C.E. Ordinary Level. The majority of the children were boys (70.2%) and the mean age of the children was 7.6 years (± 3). About 40.4% of the children had the onset of disease at the age of 2-3 years.

The majority of the participants (53.2%, $n = 50$) had scored more than 75 out of 100 for knowledge. The practices score of the majority (66%) was between 50 and 100 and was considered as satisfactory. There were statistically significant relationships between knowledge score and duration of management ($p = 0.008$), and family history ($p = 0.000$). There was no statistically significant association between knowledge scores and age, educational level, occupation or ethnicity categories. There was a statistically significant relationship between practices score and the number of living children ($p = 0.009$). There was no statistically significant association between practices score and age group, educational qualification, occupation, ethnicity, duration of management or family history. A weak negative correlation ($r = -0.240$, $n = 94$, $p = 0.020$, 2-tailed) was found between knowledge and healthcare-related practices of the participants.

Conclusion: The overall knowledge and practices of parents regarding home management of children with nephrotic syndrome, attending to Paediatric Nephrology Clinic, Teaching Hospital, Karapitiya were adequate and satisfactory.

Keywords: Home management, Paediatric, Nephrotic syndrome, NS

Prevalence of Depression and Associated Factors among Patients with End-Stage Renal Disease Undergoing Haemodialysis in Teaching Hospital, Anuradhapura, Sri Lanka

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Introduction: End-stage renal disease (ESRD) is the decompensated stage of chronic renal failure, defined as renal insufficiency of a degree that requires dialysis (haemodialysis or peritoneal dialysis) or kidney transplantation for survival. Haemodialysis patients are prone to a variety of psychological problems. Depression is the most common of these psychological problems, with a morbidity rate that could reach up to 25%, four times the rate among normal populations. As per statistics, there is a significant population of haemodialysis patients in Sri Lanka. Thus, it is important to assess depression and associated factors among end-stage renal disease patients who are undergoing haemodialysis.

Methodology: A descriptive, cross-sectional study was conducted in which 130 patients with end-stage renal disease on haemodialysis were assessed using a self-administered, standard scale (Beck Depression Inventory). Convenience sampling method was used and the Statistical Package for the Social Sciences (SPSS) version 22.0 was used for the analysis of data.

Results and Discussion: The majority of the participants were males (87.7%, n=114) and belonged to the age category of 39-59 years (68.5%, n=89). Many participants (38.5%, n=50) had studied only up to grade five and only 25.6% (n=32) were employed. From the participants who were unemployed, the majority 64.6% (n=84) had either lost or has been unable to do a job due to the disease. Based on the scores for the depression scale, only 13.1% (n=17) belonged to the non-distressed category. Over one-quarter of the participants (25.4%, n=33) belonged to the mild mood disturbance category and 20% (n=26) belonged to the borderline clinical depression category. Majority (26.2%, n=34) belonged to the moderate depression category and 13.8% (n=18) and 1.5% (n=2) belonged to severe depression and extreme severe depression categories respectively. There was a positive correlation between depression score and number of years since diagnosis of ESRD ($p=0.015$).

Conclusion: According to the findings of the study, it is evident that the majority of end-stage renal disease hemodialysis patients are suffering from depression varying from mild to extreme-severe depression. Thus, it is important to evaluate the psychological aspects of these patients, alongside their medical management.

Keywords: *End-Stage Renal Disease, ESRD, Haemodialysis, Depression*

Prevalence of Hyperuricaemia and Anaemia among Patients with Chronic Kidney Disease of Unknown Aetiology in Wilgamuwa, Sri Lanka

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Introduction: Chronic kidney disease of unknown aetiology (CKDu) is a progressive disease that causes irreversible renal failure and eventually, death. The causative factors for CKDu are yet to be conclusively proven, unlike the chronic kidney disease (CKD), which is linked to known risk factors such as hypertension, diabetes and chronic glomerular nephritis. Sri Lanka is one of the countries affected by CKDu and it has become a severe health issue among the farmers in the dry zone. CKD/CKDu progresses via five stages and symptoms become more visible at the advanced stages (i.e. stage 4 and 5). The progression of the disease can be monitored by periodic analysis of biochemical parameters such as serum creatinine, haemoglobin, uric acid and electrolytes. Hyperuricemia (uric acid >7 mg/dl) and anaemia (haemoglobin <12 mg/dl) are characteristic clinical features in CKD patients. The main objective of this study was to assess the prevalence of hyperuricemia and anaemia among stage 3 CKDu patients in Wilgamuwa, a recently identified CKDu hotspot in Mathale District, Central Province, Sri Lanka.

Methodology: A descriptive, cross-sectional study was carried out to identify the socio-demographic features and to assess the prevalence of hyperuricemia and anaemia in selected CKDu population. An interviewer-administered questionnaire was used to evaluate demographic features. The selected CKDu population was comprised of 302 CKDu stage 3 (i.e. eGFR 30-60 ml/min/1.73m²) patients registered at the renal clinic in Wilgamuwa regional hospital.

Results and Discussion: Biochemical parameters were obtained from the clinic records. The majority (76%) of the patients were males indicating the usual CKDu distribution of male to female as 3:1. The mean age was 53 years. The majority of the patient's body mass index (BMI) was within the normal range (18.5-24.5 kg/m²). From the whole population of participants, 76% of females and 68% of males were anaemic and 2% and 64% of male and female patients respectively had elevated uric acid levels (uric acid >7mg/dl). Farming behaviour, alcohol and tobacco usage and water drinking behaviour were also assessed.

Conclusion: The findings of this study indicate a strong relationship between the CKDu occurrence and hyperuricemia and anaemia among the patients in Wilgamuwa region. Association between hyperuricemia and anaemia to the progression of CKDu needs to be assessed.

Keywords: Chronic Kidney Disease, CKDu, Anaemia, Hyperuricaemia

Knowledge and Practices Regarding Diet Control and Exercises among Diabetic Patients Attending the Endocrine Clinic at General Hospital, Kalutara, Sri Lanka

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Introduction: Diabetes mellitus is a rapidly growing health problem in Sri Lanka. A healthful eating pattern, regular physical activities and pharmacotherapy are key components of diabetic management. The most challenging part in the control of diabetes is determining the practice of consuming recommended food. Many individuals with diabetes mellitus have insufficient knowledge, poor self-control and poor interest in diet control. Therefore, it is important to assess the knowledge regarding diet control of follow-up diabetic patients of the Endocrine Clinic at General Hospital, Kalutara.

Methodology: Quantitative, descriptive, cross-sectional study design was used. A total of 100 adults (age over 30 years) attending the Endocrine Clinic at General Hospital, Kalutara were selected using convenience sampling method. Data were collected using a questionnaire consisted of three main sections to assess knowledge, practices and problems regarding diet control of diabetic patients. Informed consent was obtained from all participants and all the information was kept confidential. The data were analysed by means of the Statistical Package for Social Sciences (SPSS).

Results and Discussion: Among the 100 participants, 80% were female participants. The majority had less than two years of a clinical history of diabetes mellitus. The findings of the study concluded that 97% of the participants knew diabetes is a controllable disease. All participants were aware of the importance of diet in the management of diabetes mellitus. However, awareness of the importance of exercise and physical activities was seen among only 51% of the participants, only 31% were aware of the importance of stress management and only 14% were aware of the importance of lifestyle modifications. The results indicated that 92% had knowledge regarding food that should be consumed as a diabetic patient. However, only 17% regularly followed a recommended diet. Others mentioned several reasons as to why they do not follow the diet plan, where 39% had no interest in the recommended diet, 23% had a busy daily schedule and 21% had poor self-control. The patients with type-2 diabetes attending the Endocrine Clinic at the General hospital in Kalutara had good knowledge in dietary management, however, had poor practices and attitudes towards diet control.

Conclusion: Healthcare providers should focus on clinical care and health education for patients with an emphasis on meal plans and more research is warranted to have a better understanding of the actual reasons.

Keywords: *Diabetes mellitus, Lifestyle modification, Pharmacotherapy, Diet plans*

Sexual Awareness of Sri Lankan Undergraduates is Paramount

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Introduction: The concepts of gender equality and equity are long established as the preferred wording for equal rights, life prospects, opportunities and power for whom it should deserve without gender bias. Gender equality and equity have come as an important international agreement, from the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 1979 to the Sustainable Development Goals (SDG) of 2015 to 2030. Gender equity sets the focus on fairness and justice regarding benefits and needs for all human beings without considering their gender in the first place. Equity is used in education, health and humanitarian sectors, etc. stating to the equal distribution of resources based on the needs of different groups of people. Globally, 750 million girls were married before the age of 18 and at least 200 million women and girls in 30 countries have undergone female genital mutilation. One in five women and girls, including aged 15 to 49, have experienced physical or sexual violence by an intimate partner. Yet, 49 countries have no laws that specifically protect women from such violence.

Methodology: This is mixed-mode approach research. With the qualitative blend, a need analysis of undergraduates both male and female was conducted from five faculties namely Education, Science, Law, Management and Information Technology. The data collected was focused on the key factors such as awareness of contraceptive methods, prevention of sexually transmitted diseases, sexual myths and awareness of physical and mental sexual abuse. The data were statically analysed through the MINITAB software.

Results and Discussion: In order to determine the inequity of knowledge of sexual awareness, a preliminary survey conducted at Horizon Campus, Malabe, Sri Lanka, depicted only 15% of students have knowledge of sexual education which is unsatisfactory. The evidence confirmed an urgent need for raising awareness of sexual education among young adults of the campus.

Conclusion: Survey concludes that 80% of students showed an urge to have sexual awareness programmes at the University. The aforementioned statistics indicate that it is an urgent and timely requirement to empower students' equity through sexual education programmes in universities as more females are engaged in higher education.

Keywords: *Gender equality, Gender equity, Sexual awareness, Sexual education*

Awareness on Effects of Induced Abortion among Young Adults in Colombo District, Sri Lanka – 2019

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Introduction: Sri Lanka's successes in maternal and young adults' health are impressive. Nevertheless, illegally-induced abortions and their problems remain to be a burden on the healthcare system of Sri Lanka to date. Hence, this study aimed at studying the level of awareness on the effects of induced abortion among young adults (18-to 35-year olds) in Colombo District, Sri Lanka.

Methodology: A quantitative, descriptive, cross-sectional study was conducted among young adults in Colombo District, who are 18 to 35 years of age. The sample was selected using convenience sampling and data were collected using a questionnaire via an online form.

Results and Discussion: Among 115 participants in the study, the majority were female (59.1%). From the sample, 85.1% were aware of what abortion is. The majority (54.4%) of them have learned regarding abortion from media or newspapers. While 80% of the majority knew that abortion is illegal in Sri Lanka, 20% believed that it is legal. From the sample, 82.6% agreed that abortions could cause both mental and physical problems. Over half of the participants (53.6%) said that abortion is not the right of a woman and 93.9% believed that the age group with the highest abortion rate is between 16-25 of age. About three fourth of the participants (74.6%) considered abortion as murder; however, only 4.3% of the participants thought that only women are responsible for abortion. A lot of participants (39.1%) were not sure of how to react if any of their relatives were opting for abortion and 46.1% said that the main reason for abortions is unplanned pregnancies. In terms of complications, only 29.5% of the participants were aware that heavy bleeding and injury from the surgical procedures could be a complication.

Conclusion: It was evident that the majority of the people in the Colombo District were aware of abortion and some understand the effects of abortion.

Keywords: *Abortion, Awareness, Young adults, Colombo District*

Insight to Parenting: A Study on Attitudes and Practices on Child Rearing and Emotional and Social Development among Parents in Western Province, Sri Lanka, 2019

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Introduction: Problems including drug addiction, behavioural problems and occasional suicides and homicides are experienced among Sri Lankan children. The aim of the research is to investigate the child-rearing practices, focusing on the emotional and social development in order to identify the cause for the problematic behaviours among the children.

Methodology: A cross-sectional, qualitative research was done among Sri Lankan parents (residents of Western Province) who had regular interactions with at least one of their children aged 5–17 for a minimum of five years. A convenience study sample of 11 parents was approached with focused-group discussions in families using a question guide, until the point of saturation.

Results and Discussion: It was found out from the results that the parents use a friendly approach with the child. Parents that spend less time with their child had less awareness of the child's life and those children were not open to their parents. Parents who spent ample time with their children had a good insight into the child's life, especially the mothers. Some parents believe self-learning and sharing experiences are effective when advising a child than restricting them without providing a proper reason. Mothers are the first responders to all the children's problems. Sources of the knowledge included family members, parents, and clinics. However, none of the parents had specified on emotional and/or social health and rather focused on the physical development of the child. Fathers stated that they are having a lack of information sources, hence they use social media as a way of acquiring knowledge. Research articles show supportive results.

Conclusions: No major problems were faced by the parents other than the children showing some characteristics of being introvertive, smoking addiction and a few episodes of temper tantrums. Considering the results, it would be recommended to conduct another qualitative study, focused on the parenting styles practiced, based on the children's achievements (successful children and children with problematic behaviours) followed by a quantitative study to assess the effectiveness of the parenting styles in order to provide further recommendations.

Keywords: *Parenting, Development, Child rearing, Parenting styles, Emotional development, Social development*

Assessing the Awareness of the Screening Methods for Breast Cancer among Females in Colombo District, Sri Lanka – 2019

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Introduction: Breast cancer has been considered as the commonest cancer form that affects women according to the worldwide setting. The aim of this study is to identify whether the prevalence of breast cancer in women, leading to higher risks, is due to the lack of awareness on the screening methods which may help identify breast cancer.

Methodology: A closed-ended questionnaire on screening methods and awareness, presented in both Sinhala and English languages, was distributed among 400 women aged 10-49 years in the Colombo District, Sri Lanka. The collected results were then analysed using SPSS v22 software in order to find the correlation between the prevalence of breast cancer amongst females aged 20-29 due to lack of awareness in the screening methods available.

Results and Discussion: It was found from the results that 91.1% of the individuals have heard regarding breast cancer through media, newspapers, magazines and books and also through hospitals. In addition to that, 73.5% of individuals have had a family member who had been diagnosed with breast cancer. Furthermore, with the connection of whether or not females are aware of breast cancer signs and symptoms, 72.8% of the individuals stated about the discharge from the nipple, 46.6% about the changes to the skin's texture and 50.4% mentioned redness and swelling. In addition to that, only 59% of the individuals have heard about breast cancer screening methods, however, 77.4% stated that they are aware of mammography. It is only about 43.4% of females aged 20-29 have responded in this study. The significance levels obtained were 0.554 and 0.000 in correlation to the age and the level of education respectively with the awareness of screening methods for breast cancer.

Conclusion: It can be concluded that the age does not affect the awareness level of screening methods in women and the data which were analysed led to the finding that over one-third of the respondents have had their secondary education but about one-sixth were not aware of the screening methods which is a considerable amount. Further research is required to be done in order to find the effectiveness of current awareness campaigns.

Keywords: *Awareness, Breast cancer, Screening methods, Prevalence*

PLENARY- OP 45

Solution-Focused Coaching – A New Approach to Improve Leadership Skills

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Introduction: I have been working for over 20 years as a director in educational organisations. I am also a psychotherapist, which uses a solution-focused working method. About three years ago, I noticed that the same solution-focused methods are nowadays also used in organisational development, called solution-focused coaching (SFIO 2019). In August 2019, I participated in one-week Solutions Focused Retreat in Switzerland with 30 coaches from 10 countries in Europe. After that, I became more interested in using the solution-focused methods also as part of my leadership style as a Director of Lifelong Learning in the university context.

Methodology, Results and Discussion: Both case study and action research methods are used in this study. The study has just begun, hence only preliminary research results will be available by November 2019. The progress of the research results can be followed by the blog; Katri's Meaningful Experiences.

Conclusion: The research results combine both the positive (Grant & O'Connor 2010) and also critical (Grant & O'Connor 2018) results of previous studies with the use of solution-focused methods in coaching. I will also present own experiences of using solution-focused coaching as part of my leadership during the fall of 2019.

Key Words: *Solution-focused coaching, leadership.*

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Understanding Personal and Social Transformational Learning Aspects in Societal Crisis: An Interpretation from Easter Sunday Attacks

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Introduction: Sri Lanka's Easter Sunday (April 21st, 2019) bombing was felt deeply across Sri Lanka and the globe, but what is the meaning for adults as lifelong learners in Western Province and other parts of Sri Lanka as they cope up with it emotionally as well as its impact is felt across personal, religious, economic and political spheres during this time? This paper examines an understanding of adult learners' interpretation of experiences in such times of need.

Methodology: This research study was within the paradigm of qualitative research with an open-ended questionnaire administered as both hardcopy and online (Cranton, 1996; Cresswell, 1998). The research questions explored in this study were: What kind of transformational learning elements adults described in their experiences during this time? Which, if any, grief stages did learners identify within these experiences? Are there benefits and learning to be gained through a critical reflection in grief stages? If so, what is the nature of this learning?

Results and Discussion: The tragedy had aroused psychological and personal feelings among groups which included fear, sadness, shock and stressful feeling depression, disappointment, uncertainty and insecurity. Most religious leaders are doing their maximum to maintain peace while a few may take another direction with extremist elements. This tragedy and aftermath of it had an economic impact on work-life in different ways while some lost jobs and income, others saved more due to fear of economic troubles ahead. All groups expressed dissatisfaction with government and all political leadership and desired honest, strong and efficient leaders for the country as well as one system of law for the whole country instead of different systems of law for religious groups.

Conclusion and Recommendations: Based on the findings, various stages of transformational learning were identified focusing on critical reflection, questioning their beliefs and values. Some major aspects of transformational learning emerged from these data were from the loss of feelings of security to the need for a stronger leadership and greater unity and patriotism. The theme of community building was of special significance in the analysis. Outcomes that do not follow a 'positive' direction need to be identified to promote understanding, tolerance and respect for diverse groups to avoid future tragedy, distrust and lack of harmony to stand as a nation. Suggested implications of this study include that religious, political and community leaders need to realise their responsibilities for the nation with strong and ethical leadership.

Keywords: *Easter Sunday attack, Societal crisis, Transformational learning*

A Study on the Educational Status of Transgender Population in Colombo District, Sri Lanka

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Introduction: Transgender is the term used to relate or denote a person whose sense of personal identity and gender does not correspond with their birth sex. Transgender youth have been allowed to transform from a long period of time and they have avoided being educated and other reasons as well. Education is the passage to progress and the key to success for anyone and it is essential for the development of any country. The objective of this study is to assess the educational level of the transgender population in Colombo District and to explore the challenges affecting the education of transgender youth, including the family support and the social, financial and economic factors affecting the education of transgender youth.

Methodology: A qualitative research was done using one-to-one in-depth interviews with the help of a question guide including open-ended questions. The sample size consisted of 10–15 transgender youth and data were gathered until the point of saturation. Thematic analysis was used to analyse results.

Results and Discussion: Some of the participants stated that education has been halted due to family and social unacceptance, lack of support, discrimination, financial issues, unstable mental status, low personality development and low self-esteem. Even though some transgender youth prefer to study, due to the problems they have faced, they could not complete their education. Some of the transgender youth are willing to complete their transformation successfully as well as the education to achieve their life goals in the future. The rest of the participants are satisfied with their transformation as well as their education and are receiving higher education as well.

Conclusion: The majority of the transgender youth stopped their education due to discrimination, financial issues, family and social unacceptance, lack of support, unstable mental status, low personality development and low self-esteem. Firstly, there should be more acceptance and people should be taught to be unbiased. Society must not obstruct their access to education due to their lifestyle, but should instead encourage them to overcome their difficulties.

Keywords: *Transgender, Education, Challenges, Barriers, Transformation*

English Teacher Education in Sri Lanka

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Introduction: In Sri Lanka, for the last two decades, increasing concern has been expressed about the quality of English education as a Second Language (ESL) and its teacher education. The present era of the knowledge economy, demands higher standards, competence and proficiency in English of learners and teachers than ever before. Thus, higher education institutions need to cater to the local and global demands of this supply-demand chain. This study explores a sustainable and effective Continuous Professional Development (CPD) for English teacher education to enhance English language competence among learners. The core aim is to improve the standards and quality of ESL learners through a focus on CPD of their teachers/teacher educators. It aims to critically examine how the existing English teacher education system as a whole responds to the wider context of the crisis of sustainability in quality and standards of teaching and learning.

Methodology: This study investigates the perception of stakeholders on quality assurance and required changes to enhance effective and sustainable English teacher education systems. A mixed-mode research approach and different data collection methods (survey questionnaires/interviews/literature reviews) were used to implement the proposed CPD programmes. The stakeholders are the Ministry of Education, Provincial Ministry of Education, National Institute of Education, National Colleges of Education and Regional English Support Centers. With the constant balancing of their regular courses and programmes, teachers of English, In-Service Advisers (ISA), and teacher educators have participated in the research.

Results and Discussion: It is intended to have a bottom-up, competence-based approach in changing English teacher education on the system-thinking notion as a whole. The key emphasis is teacher professionalism, based on quality assurance of teachers, delivering content and core-skills, effective communication/ICT strategies, study/soft skills, improved and constructive classroom teaching/testing on student-centred and competence-based methodologies, capacity building for effective change management and develop capacities on latest CPD approaches.

Conclusion: The findings of the stakeholders will enable to form ‘Competence-based teacher education’ programmes offering insights to the ESL learners, teachers and educators. Thus, inclusion of English teacher education policy at the national/provincial levels addressing the existing issue of teacher recruitments, inequalities and distribution of resources with teacher rights and obligations on CPD as a whole would make a required transformation.

Keywords: *English as a Second Language (ESL), English Language Teaching (ELT), Professional development, Competency-based teacher education*

Perception of the Importance of Education and Associated Factors among Adult Tea Pluckers in Rathnapura District, Sri Lanka

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Introduction: Tea cultivation is one of the most important sources of foreign exchange for Sri Lanka. In addition, more than one million Sri Lankans are utilized in the tea plantation industry, directly or indirectly. A huge extent of the workforce is young women. Even though everyone enjoys the scenery of plucking tea leaves, as a research was conducted on ‘Adult Tea pluckers’, and now the hardships they face and the real story behind their worn hands are clearly known. Through the research it was able to reveal the difficulties and the challenges they face daily, their reasons to select this career and also the factors that affected their education.

Methodology: This is a one to one, interview-based qualitative study with a population of female Tea Pluckers who work in the Rathnapura District, Sabaragamuwa Province, Sri Lanka. Data was collected from 10-15 female tea plucking adults in the area, using the purposive sampling method.

Results and Discussion: Most of them were at their early 50’s and most of them have stopped schooling during their middle school years due to many reasons. A few of them have never attended school and all of them are married and have children. All of their children have attended school and many of them are working now. Yet none of these children are following the tea plucking industry. They also stated that they couldn’t complete their studies due to poverty which was the main reason for them to proceed with this career. All of their mothers were tea pluckers. Therefore these people have settled in their parents’ career rather moving for another job due to easy access and didn’t require any educational qualifications. Beyond poverty, few of them stated that one or both of their parent’s death, affected their education. They were also facing health factors such as asthma, wheezing, fits and other illnesses that were barriers on completing their studies. Very few of them mentioned that they didn’t have many facilities in schools and therefore they did not go to school which is seen as a social barrier they faced that prevented them from attending school. Hence we can see that there are personal, economic, health and social factors that have disturbed their education. They all agree with the fact that education is very important. Many of them believe that if a person studies and becomes educated that will benefit that particular person in many ways. They even say that education will never go for waste. They also mentioned that they would not want their children to work as tea pluckers.

Conclusion: According to the discussions with the tea pluckers around 30’s to around late 50’s, it is understood that ‘Poverty’ had highly affected their education due, to which they had to stop their education. Thus as a result of their poor economic background, they have embraced this career. Other than financial factors personal factors, health factors and also the society has somewhat limited their education in a fatal way. Anyhow they have started this career in order to cover up their daily expenses. Furthermore, some have selected this as an ancestral career and some are engaging in this career so that they do not have to depend on their children. The most important and highlighted fact to mention is that all of their younger children are schooling, some of their elder children are working in better places and none of these children are following the tea plucking industry as their parents. It is honestly surprising and is a positive fact to introduce how these uneducated people appreciate the importance of education and how they have shown it to the whole society.

Keywords: Tea pluckers, Education, Factors

**A Reflection on how English is taught as a Second Language in Local Schools
and How RHR – the Brain-Based Learning Theory, Could be Used to Teach
English to Achieve a Higher Language Competency**

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Introduction: English has been taught as a second language (ESL) in Sri Lanka since the early 1950s. However, the English language competency of students from the State-owned schools, especially in rural schools, remains to be inadequate when compared to the context of increased globalisation and technological advancements.

Methodology: A systemic observation of the Sri Lankan ESL classrooms in local schools will be done. The common methods used to teach English will be observed and analysed.

Results and Discussion: Information gathered from these ESL classrooms will be used to generalise the teaching practices used in local schools. Recursive Hierarchical Recognition (RHR), the brain-based theory will be discussed as an alternative methodology to teach ESL in order to obtain automaticity.

Conclusion: This research aims to discuss the differences between the traditional ESL classrooms, which focus on grammar teaching and the Blended Approach that incorporates RHR to achieve language automaticity. It also aims to put the RHR theory forward as a means to actualise language competency and proficiency.

Keywords: *English as a second language (ESL), Language competency, Recursive Hierarchical Recognition (RHR), Automaticity, Blended Approach*

A Study on Challenges of Secondary School Children in Teaching-Learning Process in Kuliypitiya Education Zone, Sri Lanka

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Introduction: Teaching and learning are processes that include many aspects. These aspects affect the learner when they work towards their goals and incorporate new knowledge, behaviours and/or skills that add to their range of learning experiences. The aim of the study was to ascertain the challenges of secondary school children in the teaching-learning process in Kuliypitiya Educational Zone, Sri Lanka.

Methodology: This was a qualitative study carried out using open-ended interview questions specifically prepared for students and teachers. The study populations included the students between grade 6 and 11 and academic grade teachers. Data were collected through a focused group discussion.

Results and Discussion: It was found out that in rural areas, due to the fact that the children do not focus on learning English in their primary years, when they join the secondary grades almost all the students have difficulty speaking and writing English. While some teachers stated that they have not faced any barrier while teaching the children, some teachers mentioned that they faced some problems due to limited space and time and that there is a lot of noise and that makes it difficult for them to concentrate during teach. In addition, they mentioned that since they live in rural areas, most of them do not have an internet connection, which makes it difficult for them to perform evidence-based practices. A majority of the teachers try to understand the students' situations and try to help them individually based on their level of competence. Regarding the opinion on the facilities provided for teaching, most of the teachers stated that they have their required facilities. All the teachers explained that attendance is very good; however, during the harvest time, the attendance drops down.

Conclusion: More attention needs to be paid to rural areas and should also be given to the kids who are living there. In addition to that, they should also get modern facilities such as the internet for them to explorer the world and overcome the changes they may face in the future.

Keywords: *Teaching, Learning, Knowledge, Rural*

A Study on the Educational Life of Deaf and Blind School Students in Sri Lanka

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Introduction: An educational life of a student includes everyday activities, the guidance they get from the school, the barriers and difficulties they face, the support they get from the people around them and also the facilities they get, which all make their educational life more effective and efficient. The study was aimed to explore the educational life of the deaf and blind students in Sri Lanka.

Methodology: The samples were accessed from the Siriraja Deaf and Blind School, which is located in Mahawewa, Sri Lanka. In-depth interviews were conducted with teachers and students until the saturation point was reached (n=15). Interviewing was carried out using a question guide, which was developed with three main criteria as educational means, barriers and support with regards to students' educational lives.

Results and Discussion: A majority of the teachers and the students commented that the learning and teaching methods are effective and efficient; however, there were some difficulties the deaf and blind students faced. When it came to communication, the students were really good at communicating with each other, despite very few difficulties. When considering non-academic activities, the students would participate in events such as sports meets and concerts just like an average student. It was also evident that the school syllabi that an average student would follow, would be followed by these students as well for the most part, except for certain topics in some subjects. When it came to the barriers faced by the students, most students were from orphanages or they were boarded in nearby hostels. Only a few students came from their homes. They did not mention that they have any personal issues. The students had no problem with socialisation. The students did not have any other emotional barriers.

Conclusion: The students were well supported financially, mostly by the school itself. The teachers do their best to motivate and support the students by doing various activities. The school has given them good educational facilities. In addition, the students are also given stationery items, a small library and also computing facilities. Furthermore, there are monthly medical checkup facilities given by the government to the students and the school has basic first aid medical facilities.

Keywords: Deaf and blind school students, Educational life, Barriers, Educational support

Action Research on Teaching ESL for Grade 9 Students in a Public School in Kuliyapitiya Education Zone, Sri Lanka: Identifying Challenges and Implications

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Introduction: This paper offers an example of applying action research to improve English-as-a-Second-Language (ESL) instruction in a public school for grade nine students whose first language is Sinhala. As Young, Rapp and Murphy (2010) illustrated, the action research model used the process as iterative or cyclical in nature involving multiple cycles. The process included the first cycle that moves through the major steps of planning, action, observation and reflection, which are then used to revise the process in the next cycle. The underlying goal of the study was to understand the relationship between teaching styles in ESL and to subsequently understand the students and better discern what approaches would both accommodate and challenge them.

Methodology: This qualitative research was conducted over a three-month period while the researcher taught 22 lessons over the three-month period in the year 2019. The research venue was a public school in Kuliyapitiya education zone. Data sources were curriculum and lesson plans, supervisor observations, teachers' portfolio, students' work samples and reflective journal entries of the teaching. The portfolio documentation included a timetable, curriculum and lesson plans, teaching materials, supervisor and co-teacher evaluations and student evaluations and reflective journal entry of one's teaching practice. Daily reflections targeted self-observations of the teaching activity, evaluation of the teaching activity, short-term and long-term actions. Secondary school students' feedback included getting student attention, classroom management, lesson organisation, encouragement, variety of teaching methods and challenging to students.

Results and Discussion: The 22 lessons were conducted for the second academic semester (second term) covering different ESL themes. Reading, writing and grammar were targeted skills. The motivating factors for the students were group activities, use of images and modern technology and topics that interest them. The students disliked grammar such as passive and active voices, writing descriptions and vocabulary development activities. As a result of the findings, what is suggested is following different grouping methods according to the lessons, using modern technology in the lessons, giving more opportunities to the students to use modern technology when learning. It is necessary to provide learner-centred opportunities to acquire the language.

Conclusion: Challenges were identified in the reflective journal including frequent use of mother tongue, noisy background and lack of facilities. Suggestions were made including making requests to the administration to provide less-noisy classroom space, learning to use the multimedia unit and using learner-centred approaches.

Keywords: *Action research, English as a Second-Language, Teaching methods*

An Assessment of the Level of Work-Related Stress among Nurses in Private Hospitals in Gampaha District, Sri Lanka

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Introduction: Stress is a state of emotional, cognitive, behavioral and physical reaction to unfavorable situations and is characterised by a high level of arousal, distress and feeling of not coping. Healthcare workers are a high-risk group for work-related stress. Nurses are at high risk of stress due to their enormous responsibilities. This hospital-based, descriptive, cross-sectional study was aimed to assess the level of work-related stress, describe the factors affecting, evaluate the relationships with relevant socio-demographic factors and describe the coping strategies used in private hospitals situated in Gampaha District, Sri Lanka.

Methodology: Socio-demographic questions and internationally-validated 'Nursing Stress Scale' were used to develop a self-administered questionnaire. Analysis of Variance (ANOVA) was used for statistical analysis of data.

Results and Discussion: The response rate was 90.1%. According to the study, nurses of age between 22 to 33 years, nurses residing in a hostel or a rented place, nurses with a lack of spouse's support, nurses with poor financial status and loneliness were significantly associated with a high level of stress ($p < 0.05$). Other than these factors, nurses with children aged less than six years, nurses with a service period of one to five years and grade I and grade II nurses also showed a significant association with a high level of stress ($p < 0.05$).

Conclusion: There was no significant difference between the mean stress score of nurses in relation to the working unit. All units were busy and full of work. Mainly the superiors of nursing staff and the Human Resource Department of the hospital would involve and take appropriate actions according to the situation in cases of complaints against nurses, mistakes or negligence by nurses, conflicts between healthcare staff, etc. High levels of stress among nurses is a considerable health issue in private hospitals, which needs to be addressed by further implementing effective coping strategies.

Keywords: *Stress, Nurses, Nursing Stress Scale, Coping strategies*

A Study on Knowledge and Practices of Healthcare Workers on Healthcare Waste Management

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Introduction: The issue of hospital waste was discussed first at the international level by the World Health Organisation. Due to modernisation, the lives of people in Sri Lanka have become so busy and hectic so that no one is concerned about the health of others. Furthermore, even sometimes knowingly or unknowingly people try to avoid circumstances, which can cause great danger to everyone's lives and one of such danger is biomedical hazards. Healthcare waste creates a great threat and danger to the general public and environment if it is not properly managed. Healthcare waste is generated as a byproduct of healthcare activities and includes sharps such as syringes, needles and blades; non-sharps, such as swabs and bandages, blood and body parts; chemicals, such as mercury, solvents and disinfectants; also pharmaceuticals and radioactive materials. In addition to that, medical waste includes expired, unused, split and contaminated pharmaceutical products such as drugs, vaccines and sera that need to be disposed of appropriately.

Methodology: The study was conducted as a cross-sectional survey with on the healthcare waste management knowledge and practices among the workers in healthcare facilities. Their knowledge and practices on healthcare waste management were examined using a self-administered questionnaire consisting of a set of closed-ended questions. A sample of 115 healthcare workers was surveyed.

Results and Discussion: A total of 115 healthcare workers were surveyed using a self-administered questionnaire. Overall knowledge of the sample subjects on healthcare waste management was satisfactory. The study also found that the healthcare waste management equipment was provided at a satisfactory level even though the supervision by the authorities was minimum. Policies and regulations, waste disposal methods, needle-stick injuries and usage of personal protective equipment related to healthcare waste management were the areas that need attention from the health authorities/hospital administration as per the results. This study found that there are knowledge gaps in the national and local policies on how to manage hospital sharp waste, discarding of needles and also the methods of discarding clinical waste.

Conclusion: The conclusion of this study was that the level of knowledge and the practices in the said hospital were somewhat satisfactory. However, it was revealed that continues improvements are required with regard to healthcare waste management. The study observed unsatisfactory practices regarding training and improvement of the skill gaps was insufficient.

Keywords: *Healthcare waste management, Waste management, Healthcare activities*

A Study on Students' Perception of Delivery of Nursing Education in Government Nursing Schools in Sri Lanka

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Introduction: In Sri Lanka, government nursing schools give a major contribution to producing nurses to the country. Currently, nursing training in Sri Lanka is moving from diploma level to degree level. In this transitional period, assessing students' perceptions of their training can be used as an indicator of the quality of training. The aim of the study was to identify students' perceptions of the delivery of nursing education in government nursing schools in Sri Lanka.

Methodology: A mixed method was used. Quantitative data were collected by giving a self-administered questionnaire and qualitative data were collected by an interview. Both methods were used to assess student factors, teacher factors and environmental factors. The sample size for the quantitative study was 300 students and eight for the qualitative study. Study settings were schools of nursing Ampara, Kandy, Rathnapura and Badulla. Quantitative data were analysed by using Microsoft Excel and SPSS, qualitative data were analysed by using the thematic analysis.

Results and Discussion: According to statistical analysis, the general response of students with regards to the number of factors assessed has exceeded 40% positive results from all students. Pre-reading before attending to class, using extra learning materials/technology for learning and receiving friendly support from the non-academic staff of the nursing school were rated by only about 20% of the students, indicating the attitudes were 'poor.' Student responses to the majority of the teacher-related factors assessed were positive for an overall response percentage of 35.3%. However, fairness to students, follow up on homework, monitoring of student progress, response to student needs and abilities and counselling of students when needed, which indicated the attentiveness of the teacher to student performance has been rated by the students with a low positive response percentage of less than 30%. Students have responded that the support from their families was quite significant, reaching 40.2% positive responses. Moreover, the response rate for environmental factors assessed in the research was again 45% of positive results. Telephone facilities during free time, facilities for spiritual support for the students and students' security have been rated as 'good' by over 50% of the participants. Only 30% of the positive responses were received for 'the comfortable level of furniture' and less than 30% positive responses to 'availability of canteen facilities.' Yet, the students have given a high rate of negative response for 'any disease condition' and 'any social problems,' indicating that they suffer from some disease conditions and/or social problems.

Conclusion: Study showed a positive student perception towards an effective delivery of nursing education in government nursing schools in Sri Lanka. The study also showed that certain external factors supporting the perception towards an effective delivery of nursing need more improvement as an overall negative result was found in students' perceptions.

Keywords: Perception, Delivery, Nursing education, Government nursing schools

A Study on Stress Level of Postoperative Cancer Patients in Kandy District, Sri Lanka

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Introduction: Cancer is a broad term for a class of diseases characterised by abnormal cells that grow and invade healthy cells in the body, which can affect the physical, mental and social aspects of an individual. Impact of psychological distress on heterogeneous cancer patients in Sri Lanka is largely unknown. Although cancer victims are a severe burden to the health system of the country, little attention has been paid. Thus, this study aims to assess the level of stress and associated factors in postoperative cancer patients.

Methodology: A descriptive, cross-sectional study was conducted in which 106 postoperative patients with cancer were assessed by using a self-administered, standard scale (GHQ-12). Convenience sampling method was used and the Statistical Package of Social Science, version 22.0 (SPSS) was used to analyse the data.

Results and Discussion: A majority of the participants were males 55.2% (n=58) and a majority (50.5%, n=53) belonged to the age category 39-59 years. Most of the participants (43.8%, n=46) had education up to G.C.E O/L and most of them (65.7%, n=69) were unemployed. Based on the scores given for the GHQ-12 questionnaire, a majority (51.4%, n=54) had scored 13-24 out of a total score of 36 meaning they have mild stress levels. Only 16.2% (n=17) of the patients belonged to the category of no distress (score 0-12) but there were 32.4% (n=34) who belonged to the category of moderate-to-severe stress level (score 25-36). A positive correlation was identified between the patients' stress level and age ($p=0.037$); however, there was no statistically significant correlation between stress level and other variables.

Conclusion: Based on the findings of the study, it is evident that the majority of the participants were either suffering from mild stress or moderate-to-severe stress whereas it was associated with the age. Therefore, the psychological evaluation of cancer patients has become an important aspect alongside medical and surgical management.

Keywords: *Stress level, Cancer patients, Post-operative*

Awareness and Attitudes on Pap Smear Test among Women Who Live in Dambulla MOH Area in Sri Lanka

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Introduction: The success of Papanicolaou (Pap) smear testing in the developed world is largely based on extensive screening programmes and awareness regarding the test's importance in preventing cervical cancer. In order to move towards that, it is first required to understand what the current situation is. Hence, the purposes of this study were to determine the level of knowledge and attitude of the target population regarding cervical cancer and the methods of its early detection, to identify the target population's preferences and to assess the factors influencing participation of women in screening programmes.

Methodology: A cross-sectional, inferential study was done using a peer-reviewed, self-administered questionnaire. One hundred women from Dambulla MOH (Medical Officer of Health) area were chosen using simple random sampling technique during the month of June in 2018. Data were analysed inferential statistics.

Results and Discussion: This study showed that although the women have good knowledge about Pap smear tests, they are not commonly practising it. Overall, the most frequently reported reasons for not having a recent Pap smear were a belief that 'it might be painful' followed by 'embarrassment.' This study clearly demonstrated that there were no statistical relationships between women's knowledge and attitude and age, husbands' education or marriage duration. The majority of the women who participated in the study wanted the Pap smear test to be done in the gynaecology clinic in the hospital and 36% of them liked a midwife to perform this test, while only 2% would prefer it to be performed by a family physician. The major source of information about Pap smear test has been delivered by midwives, which represents 86%, whereas information distributed by the family physician represented only 3.6%.

Conclusion: Efforts to increase coverage in cervical screening programmes need to be directed towards medical practitioners as well as towards women. Long-term education programmes should be made available to motivate the female population in the Dambulla MOH area. In addition, training should be given to general practitioners and primary-care physicians to encourage optional screening.

Keywords: *Pap smear test, Cervical screening, Papanicolaou*

Effects of Mobile Phone Usage among A/L Students in Gampaha Area, Sri Lanka

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Introduction: The mobile phone plays an integral part of modern telecommunication. In addition to that, it also provides a wide range of other services such as internet access with social networking and gaming. It is also evident that most of the A/L students use mobile phones excessively, as it could be used anytime and anywhere for various purposes. Excessive mobile phone usage could pose several issues, which could be categorised under physical problems, psychological problems, social problems and spiritual problems. In addition to that, excessive mobile phone usage could affect their academic performances negatively as well.

Methodology: Descriptive, cross-sectional design was used in this survey to assess the effects of mobile phone usage among A/L students. The study was carried out within the Art, Commerce and Science classes in Gampaha area. The inclusion criteria of this study were female or male, consented A/L students who can understand and write in Sinhala and/or English language, who own at least one mobile phone. The study was carried out until the sample size of 100 was achieved. A pre-tested, self-administered questionnaire was administered to the participants and incomplete answer sheets were disregarded.

Results and Discussion: Out of the 100 participants, 58% was male and 42% was female. The most common purpose for mobile phone usage among them was to use the internet (48%), which was the favourite feature in mobile phones according to most of them (61%). However, 47% said that mobile phone usage was a waste of time and agreed that it may affect their academic performance negatively. There were lots of physical and mental problems associated with mobile phone usage, the commonest health problem being painful fingers (45%). Other physical problems associated with mobile phone usage were headaches (34%) and neck pain (18%). The commonest psychological problem associated with mobile phone usage was sleep disturbance (38%) followed by fatigue (14%) and restlessness (12%).

Conclusion: It is generally agreed that mobile phone usage has a profound negative influence on students' academic performances and achievements. It could, therefore, be recommended that mobile phone usage should not be encouraged in classrooms, during lectures, because of its sophistication. It was also found that most of the students were addicted to mobile phones and they use features such as the internet and/or gaming excessively. This suggests that taking immediate action regarding this and identifying a solution that would limit mobile phone usage is paramount. A future study to assess the relationship between mobile phone usage and academic performance would be warranted to identify mobile phones' effect on students' academic careers.

Keywords: *Mobile phone, Usage, Students, Physical problems, Psychological problems.*

Knowledge, Practices and Attitudes on Nosocomial Infections among Third-Year Nursing Students in College of Nursing Galle, Sri Lanka

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Introduction: Nosocomial infections (NI), also known as hospital-acquired infections which are acquired after 48 hours of patient admission. Such infections are neither present nor incubating prior to a patient's admission to a given hospital. Nurses play an important part of the healthcare team that plays a unique role in the control of NI. Compliance on the part of healthcare workers including nurses with standard precautions has been recognized as being an efficient means to prevent and control NI. The aim of this research is to understand the level of knowledge, attitude and practice regarding NIs among third-year nursing students in the college of nursing, Galle.

Methodology: A descriptive, cross-sectional study was done among third-year nursing students of the college of nursing Galle. Data were collected using a convenience sampling method using a self-administered questionnaire. Data were analysed using the Statistical Package of Social Sciences (SPSS) software.

Results and Discussion: Sample of 50 students of third-year nursing students in the college of nursing, Galle are included in this research. All the participants were females. Among the total participants in the study, 97% considered that the prevention of NI's was a valuable part of the nurses' role. The total number of participants had received formal training regarding hand hygiene. The results showed that 91.2% of the participants had adequate knowledge regarding NIs. Nearly all of the participants (96%) felt that they would be less likely to transmit infections to the patients if they performed hand hygiene. From the sample, 20% of the subjects identified that hand hygiene agents were not readily available and 80% stated that hand towels were not available in current settings. When considering about practices, all of the participants performed hand hygiene before patient contact and 70% of the students knew the correct way of using 'hand rub.'

Conclusion: The nursing students had adequate knowledge regarding NI's which was reflected through their knowledge and practices on the importance of hand hygiene to prevent NIs. However, there was a need for regular training and performance feedback regarding hand hygiene. Furthermore, the hospital environment should be well facilitated with easy access to the handwashing area, hand towels and other necessary requirements.

Keywords: *Nosocomial infections, Knowledge, Attitude, Practice, Nursing students*

Knowledge and Practices on Needle-stick Injury Management among Nursing Students in College of Nursing, Galle, Sri Lanka

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Introduction: Nursing students have a high risk of occupational exposure to bloodborne pathogens. Poor practical and theoretical knowledge on infection control can aggravate the risk of needle-stick injuries. Understanding safe practices while handling needles and sharps will create a risk-free workplace environment. The present study is aimed to measure the knowledge on preventing needle stick injury along with post-exposure measures.

Methodology: A quantitative, descriptive cross-sectional study was done using a self-administered questionnaire to collect data among nursing students in their first year, second year and third year (n=100). Simple random sampling method was used to collect data and data analysis was done using excel 2013.

Results and Discussion: From the participants, many were females (83.3%), many of the participants were third-year students (38%). Majority of the student nurses had adequate knowledge regarding needle-stick injuries. Out of all participants, third-year student nurses had a better idea regarding knowledge and practices about precautions and practices compared to first-year nursing students and second-year nursing students. A minority of student nurses (13%) did not have sound knowledge regarding the prevention of needlestick injuries.

Conclusion: Study revealed that even though the level of knowledge was satisfactory regarding needle-stick injury management, some aspects should be developed in order to ensure the safety of nurses. Health education and in-service training should be mainly directed towards improving practices and attitudes towards safe practices to prevent needle-stick injuries.

Keywords: *Needlestick, Injuries, Student nurses, Negligence*

Knowledge and Attitudes towards Kangaroo Mother Care among Healthcare Professionals in a Primary Care Hospital, Nuwer Eliya District, Sri Lanka

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Introduction: Lower-birth-weight and premature babies are unable to maintain their temperature constantly. This cause is a leading factor for most babies' illnesses and death. To prevent those type of injuries, kangaroo mother care (KMC) can be promoted and it may increase the health and wellbeing of low-birth-weight and premature babies, therefore, the research aimed to assess the knowledge and attitudes towards kangaroo mother care among healthcare professionals.

Methodology: A quantitative method was followed in this research. A self-administered questionnaire was used to gather data from 100 healthcare professionals including doctors, special grade nursing officers and nurses, using random sampling method, in one of the Primary Care Hospital in Nuwara Eliya, Sri Lanka.

Results and Discussion: The mean age of healthcare professionals was 31 years. The mean work experience was 5–8 years. Out of the total 95 healthcare professionals, excluding five incomplete questionnaires, 29 (30.57%) were males and 66 (69.47%) were females. Over half of the participants (53.7%) had adequate knowledge regarding effective breastfeeding and have considered kangaroo mother care as useful for infants who are having low birth weight and had adequate knowledge regarding the advantages of kangaroo mother care. Furthermore, all of the participants (100%) agreed that kangaroo mother care is beneficial and connects both mother and baby.

Conclusion: Knowledge related to kangaroo mother care was poor among healthcare professionals. There was a statistically significant relationship between the level of knowledge and the working department. Considering the results, it can be concluded that conducting training programmes should be considered to improve healthcare professionals' knowledge levels regarding kangaroo mother care. The researchers recommend that future research on knowledge and attitudes of breastfeeding would benefit as well.

Keywords: *Kangaroo mother care, Low birth weight, Healthcare professionals*

A Study on Factors Influencing Fast Food Consumption among Adolescents in Miriswatta Area in Kalutara District, Sri Lanka

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Introduction: The consumption of different types of fast food is increasing in all parts of the world. The rising popularity of fast food has led to a high intake of calories among adolescents. Nutritional intake during adolescence is important for growth, long-term health promotion and development of healthier, life-long eating behaviour. However, fast-food consumption has become a great problem and finding reasons for this may lead to a solution to this problem.

Methodology: This quantitative study was done using convenience sampling technique and a self-administered questionnaire was used for data collection. A total of 393 respondents were approached from Miriswatta Nawodya Maha Vidyalaya, Mathugama, Western Province. The questions were focused on influencing factors, awareness and related behaviours regarding fast food.

Results and Discussion: In this research, 70% (n= 275) of the respondents perceived fast food as tasteful and also 70% (n=275) of the responders confirmed that fast food is easy to prepare. Moreover, 46% (n=180) believed advertisements affected their desire for fast food and also that they would ingest fast food more when they are with friends. A relationship between the level of fast-food consumption with friends and the age could be seen from the results where the consumption increases with age. Despite the high consumption of fast food, 85%(n=334) of the students were aware of fast food and the knowledge regarding associated potential complications was found to be satisfactory.

Conclusion: It was found from the study that the tastefulness, ease of preparation and advertisements might affect the consumption of fast food. A comprehensive study on the adolescents' perception of the effects of fast-food usage would give a clear understanding of whether they are aware of the long-term complications.

Keywords: *Adolescents, Fast food, Consumption, Nutrition*

Perception of the Quality of Healthcare among Patients Seeking OPD Care at Selected Primary Care Hospitals in Galle District, Sri Lanka

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Introduction: The clients' perception of the quality of healthcare (HC) is important for healthcare managers and policymakers to design measures to improve the quality of healthcare. This research was aimed to determine the perception of the quality of healthcare among patients seeking outpatient department (OPD) care at selected primary care hospitals in Galle District.

Methodology: A descriptive, cross-sectional study was conducted at six randomly selected Divisional Hospitals (DH) in Galle District (Rathgama, Batapola, Ahangama, Imaduwa, Induruwa and Baddegama) with patients who are seeking OPD care. The study sample included randomly selected 422 patients. Data were collected using a pre-tested, self-administered questionnaire. Permission was obtained from the directors of the hospitals through the Ministry of Health. Quality of healthcare (QH) was assessed under the domains of responsiveness, dispensing adequate information, patients' perceived satisfaction, perception about basic facilities provided, effective utilisation of resources and out-of-pocket expenditure and public complaints/grievance handling.

Results and Discussion: The participants had a positive perception of the responsiveness of hospital staff and towards dispensing adequate information. From the sample, 96.7% (n=408) mentioned that hospital staff talked well with them and 93.8% (n=396) that they had the opportunity to ask questions and to clarify doubts regarding illnesses respectively while 87.2% (n=368) mentioned that adequate information was given regarding illness and treatments. With regard to their perceptions towards basic facilities at the hospital, only 48.3% (n=204) mentioned that the provision of drinking water in the hospital was up to their level of satisfaction and only 37.9% (n=160) were satisfied with the cleanliness of the toilets. Regarding public complaints and grievance handling, 47.4% (n=200) responded that they were not aware of any complaint lodging procedure and 42.9% (n=181) had the perception that hospital administration does not make necessary changes according to suggestions/complaints made by the public.

Conclusion: As per the findings, the majority of the respondents had negative perceptions of the basic facilities of the hospital and showed no trust in public complaints and grievances handling.

Keywords: *Quality health care, Perception, OPD*

A study of the Prevalence of Poor Indoor Air Quality-Related with Sick Building Syndrome

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Introduction: Sick building syndrome (SBS) is an illness that occurs among the occupants that symptoms appear to be linked to the time they spend in a building. The causes of sick building syndrome can be various. But most prominent causes is poor indoor air quality inside the building. due to SBS comprises of various nonspecific symptoms can occur, in the occupant of a building.

Methodology: A cross-sectional quantitative study was conducted using a self-administered questionnaire among hospital staffs in selected two hospitals in Battaramulla and Mulleriyawa areas. The sample size was 60 and they were randomly selected. Data were analysed using SPSS version 20.

Results and Discussion: about 70 % female and 30% male participate in this study. Selected different age category 20 – 40 years 56% and 40 – 60 years 44% microbial factor and irritants as main causes and general symptoms as most major symptoms for both categories. noise and illumination were the minor cause and behavioural symptoms were less selection for both categories. In the Hospital Medical staff, nursing staff, minus staff, paramedical staff and office staff experienced microbial and irritants are the major causes even oropharyngeal and general symptoms as major symptoms. They all selected noise and illumination as minor cause and psychological and behavioural symptoms as fewer symptoms. only kitchen staff selected air circulation was major and tobacco smoke and illumination were minor causes. They selected physical symptoms as more frequently and general and psychological symptoms were fewer. according to the morning and evening shifts selected microbial and irritants major cause and noise and illuminations minor causes. night shift selected humidifier as major causes and illumination as minor causes. but all the shifts staff selected physiological symptoms more and behavioural symptoms fewer.

Conclusion: All the staff except the kitchen staff selected microbial and irritants as a major cause and noise and illumination as minor causes. kitchen staff found the major difficulties with air circulation and less problem with tobacco and illumination. All the staff satisfied with illumination. Physiological, General symptoms and Oropharyngeal symptoms were more common and behavioural symptoms and psychological symptoms were very few in all the staff.

Keywords: SBS, Indoor Air quality, Hospital occupants, Symptoms.

A Study on Knowledge Regarding Type-II Diabetes Mellitus among Young Adults in Bulathsinghala Central Division, Kalutara District, Sri Lanka

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Introduction: Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood sugar. Hyperglycaemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time, it may lead to serious damage to many of the body's systems, especially, the nerves and blood vessels. Knowledge regarding diabetes is one of the best methods to fight against the disease. Young adults are the most vulnerable group that should be targeted in improving the knowledge as they are the future generation. Hence, evaluating their current knowledge and prevalence of the condition will help in creating appropriate strategies. This study was focused on assessing the knowledge on Diabetes type-II among young adults in Bulathsinghala Central Division, Kalutara District.

Methodology: This was a cross-sectional study carried out with 100 youths aged 20-40 years, selected using random sampling technique. The study was conducted from August to September 2019 to evaluate their knowledge. Participants were selected from Kalutara District.

Results and Discussion: All respondents had a low-to-moderate level of knowledge regarding diabetes. The majority of the participants did not have any knowledge regarding gestational diabetes mellitus, where only 20% were aware of it. Only 24% of the participants had adequate knowledge regarding type-II diabetes. Not many were well aware regarding the blood glucose investigations where only 20% were aware of the investigation HbA1C and only 44% knew what the normal values of blood glucose should be. However, many participants had knowledge of complications (73%), healthy food habits (67%), general knowledge (51%) and healthy lifestyle (76%) related to diabetes.

Conclusion: The majority of young adults had a low-to-moderate level of knowledge regarding diabetes. The current level of knowledge has led to some changes in disease prevention and control; however, they are not sufficiently equipped with the knowledge to comprehensively manage, prevent and control the disease.

Keywords: *Knowledge, Diabetes mellitus type 2*

Knowledge on Prevention of Pressure Ulcers among Student Nurses in School of Nursing, Kalutara

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Introduction: Pressure ulcers are a preventable medical complication of immobility. It has psychological, economic and also social impacts on individuals and families and also the cost of treatment is more than twice the cost of prevention. It is a primary responsibility of nurses to maintain skin integrity, prevent pressure ulcers and to determine the barriers to prevention. This study was conducted to assess the knowledge on prevention of pressure ulcers among student nurses in the school of nursing, Kalutara.

Methodology: The research was a descriptive, cross-sectional study. Participants included 248 students (n=248) from the school of nursing, Kalutara. Convenience sampling method was used. A self-administered questionnaire was used to collect data. The questionnaire was administered in the English language as it is the medium of nursing education in Sri Lanka. SPSS software was used as the data analysis tool.

Results and Discussion: The total number of student nurses was 248. From the total number of students, 8.5% (n=21) were male students and 91.5% (n=227) were female students. Most of the students (97.1%, n=241) were below 25 years, 83.1% (n=206) were first-year students and 16.9% (n=42) were third-year students. Analysis of the study displayed inadequate knowledge of pressure ulcer prevention. The study participants had the highest mean item score of 49.6% under the theme of nutrition and scored lowest (24.7%) on classification and observation. Moreover, 60.1% (n=149) of students had not read articles regarding pressure ulcers and lack of staff (88.7%), the shortage of pressure-relieving devices (50.4%), and lack of training (43.1%) were the most commonly cited perceived barriers among students nurses to practice pressure ulcer prevention.

Conclusion: This study highlighted that measures should be taken to increase knowledge regarding pressure ulcers to facilitate pressure ulcer prevention in the school of nursing, Kalutara, such as increasing training for student nurses regarding pressure ulcers and the prevention methods.

Keywords: *Pressure ulcer, Prevention, Student nurses, Knowledge*

Knowledge, Attitudes and Practices on the Usage of Contraceptives among Females in Uluvitike, Galle District, Sri Lanka

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Introduction: Contraception, also known as birth control or fertility control is a method or a device used to prevent unwanted pregnancy and in certain cases, to maintain reproductive health or even to resolve some other reproductive-system related matters. All of these factors are very important, especially for females. Hence, it is necessary to assess the level of knowledge, attitudes and practices on the usage of contraceptives to determine if they are at an acceptable level.

Methodology: A quantitative, descriptive, cross-sectional study was done and a total of 250 female members including staff members, minor employees and society members over 18 years from a village society were selected for the study as the study sample using convenience sampling technique. Data were collected using a self-administered questionnaire that had 24 closed-ended questions under four different categories (demographics, knowledge, attitudes and practices), filled out by the participants and were analysed descriptively.

Results and Discussion: The majority of the study sample was 30-40 years old and most of the participants had studied till grade 10 or more. Around 60% of the participants had got married when they were 20-30 years old. A higher number of participants had gained knowledge regarding reproductive health and contraceptives from the MOH. The results from the knowledge section of the questionnaire suggested that the level of knowledge was above the satisfactory level in more than three fourth of the participants. In addition to that, the majority of the participants (65%) mentioned that their partners had a positive attitude regarding the usage of contraceptive methods. It was also found out from the results that over 75% of the population have used at least one contraceptive method.

Conclusion: Knowledge, attitudes and practices on contraceptives and reproductive health were at a satisfactory level among the participants; however, a considerable amount was still unaware of contraceptive methods and need to be guided on that. The healthcare sector would require to arrange programmes to update and upgrade the female society on contraception and women's health.

Keywords: *Knowledge, Attitudes, Practices, Contraceptives, Females*

A Study on the Knowledge, Attitudes and Practices regarding Prevention of Needle Stick Injury among Nursing Students in School of Nursing, Kalutara

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Introduction: Needlestick injuries are wounds caused by needles that accidentally puncture the skin. Those are a common type of hazard for people who work with hypodermic syringes and other sharp equipment. The injuries can occur at any time when people use, disassemble or dispose of sharp equipment. A penetrating wound from a needle or other sharp objects may result in exposure to blood or other body fluids. The bloodborne pathogens of primary concern are HIV and hepatitis B and C viruses. The purpose of this study was to assess the student nurses' knowledge, attitudes and practices regarding needlestick injuries as student nurses pose a greater risk of injuries to needle and sharp objects in the clinical setting.

Methodology: This research was conducted as a descriptive, cross-sectional study with 200 student nurses from nursing school, Kalutara. A self-administered questionnaire was given to collect data and data were analysed using SPSS software.

Results and Discussion: The total number of student nurses was 200. Among them, 79% were first-year students and 21% were third-year students. Second-year students did not participate in this study. From the sample, 95.5% were female and 71% were under 24 years. Out of the total sample, only 3.5% had read literature on needlestick injuries. Most of the students (80.5%) had no prior experience of a needlestick injury, whereas students who had previously experienced a needlestick injury (19.5%) stated that the commonplace of injury was within hospital wards. Similarly, 52% of students were knowledgeable about sharp objects, its handling and disposal, whilst 47% did not have enough knowledge of needlestick injuries. The majority of the participants (79.5%) had good attitudes towards prevention of needlestick injuries. Furthermore, 67.3% had good practices regarding the prevention of needlestick injuries.

Conclusion: This study shows that student nurses have good knowledge, attitude and practices regarding the handling of needles and sharp objects and disposal. By giving proper training and knowledge to the students, further reduction in needlestick injuries could be expected.

Keywords: *Knowledge, Attitudes, Practices, Nursing students, Needlestick injury (NSI)*

A Study on the Knowledge regarding Human Immunodeficiency Virus (HIV) among A/L Students in a Government School in Mathugama, Sri Lanka – 2019

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Introduction: Human Immunodeficiency Virus (HIV) leads to Acquired Immunodeficiency Syndrome (AIDS). It is a sexually-transmitted disease although there are non-sexual transmission modes as well; such as blood contact, needle sharing and from mother to baby. The most pressing current issue is the increase of HIV infections among the young population. This population, as the most productive age group, is under many myths and misconceptions regarding the condition and modes of transmission of HIV. The aim of this study was to assess the knowledge regarding HIV among GCE A/L students in a government school in Mathugama area.

Methodology: This survey was conducted using a quantitative, descriptive, cross-sectional study design, among 200 students from a government school in Mathugama area. The students were selected using convenience sampling technique. The data was collected using a standard self-administered questionnaire, consisting of knowledge-assessing questions on HIV.

Results and Discussion: From the participants, 37.5% were males and 62.5% were females. The findings of the study concluded that only 41% had sufficient knowledge regarding HIV. From the study sample, 47.5% believed that the spreading of HIV occurs through blood transfusion, whereas 47.5% mentioned that transmission occurs only through sexual intercourse. About one third of the students (32%) mentioned open wounds as a mode of transmission and 30% mentioned that needle sharing may aid the spread of HIV. Previous literature shared the same values in other areas of Sri Lanka.

Conclusion: The level of knowledge of the students in the government schools was insufficient regarding HIV. Measures should be taken to improve the knowledge regarding prevention, detection and the treatments of HIV with the support of Health and Education sectors in Sri Lanka.

Keywords: *Knowledge, Human immunodeficiency virus, A/L students, Acquired immunodeficiency syndrome*

Knowledge, Attitudes and Practices on the Usage of Antibiotics among Nursing Students in Nursing Training School, Kalutara, Sri Lanka – 2019

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Introduction: Antibiotic resistance has become a global issue, especially in developing countries. Nurses play a major role in the healthcare setting to help support the effective use of medicine. The education, training and experience of nursing students may have the potential to impact on the patterns of antibiotic use within the hospital settings and even in the community. The aim of this study was to assess the knowledge, attitudes and practices on the usage of antibiotics among nursing students in NTS, Kalutara.

Methodology: A descriptive, cross-sectional survey was conducted among nursing students who have used antibiotics themselves during the last six months. The sample comprised 150 first-year and third-year nursing students of the School of Nursing, Kalutara. Data were analysed using Excel 2010 and IBM SPSS version 20.

Results and Discussion: Out of the total sample, 73.3% (n=110) were first-year students and 26.7% (n=40) were third-year students. A high percentage of 70% had never read any literature on antibiotics. Similarly, 4.7% of the first-year nursing students did not know that Penicillin is an antibiotic and 6% of the first-year students did not know that bacteria can become resistant against antibiotics. However, all students in their third year knew that Penicillin is an antibiotic and that bacteria can become resistant against antibiotics. From the total sample, 42.7% of the first-year students have not taken the full course of antibiotics. Even though the third-year students were knowledgeable regarding antibiotics, still 16% of them have not taken the full course of antibiotics. Third-year students reported significantly better knowledge, attitudes and practices regarding antibiotics than first-year students.

Conclusion: This study shows that student nurses gain better knowledge, attitudes and practices on the usage and resistance of antibiotics during the course of their study in the nursing field. However, there is a need to develop lectures on effective antibiotic usage as part of student nurses' education. In addition to that, the first-year nurses should have some source of information regarding the important facts relevant to their practice as they will be attending their clinical placements.

Keywords: *Antibiotics, Resistance, Nursing students*

**Patient Satisfaction on Haemodialysis Unit of General Hospital, Kalutara, Sri Lanka
– 2019**

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Introduction: Patient satisfaction assessment is becoming an important indicator of healthcare outcomes and is considered as evidence for quality healthcare. This study was undertaken to examine patient satisfaction regarding the service in the haemodialysis unit of General Hospital, Kalutara, focusing the attention on the positive and negative impact of the above care on patients' lives. Hence, this research was conducted to assess patient satisfaction on haemodialysis regarding nursing care and comfort.

Methodology: A descriptive, cross-sectional, quantitative study was carried out and approached a conveniently selected study sample of 48 patients from the haemodialysis unit in the General Hospital, Kalutara. Data were collected through a self-administered questionnaire and analysed using IBM SPSS Statistics v20 software.

Results and Discussion: A majority of the sample consisted of individuals with ages of 40-59 (45.8%) and the majority of the patients were unoccupied (43.8%). All the patients were fully satisfied (100%) regarding the nursing care in the dialysis unit and 97.9% said nurses were helpful during the dialysis therapy. Furthermore, 89.6% of the patients stated that they were fully satisfied with the nurses' advice regarding dialysis. However, there was only 42.5 % of the sample who were satisfied with facilities in the dialysis unit. Moreover, 77.1% of the patients complained they had pain during dialysis therapy, whereas more than half of the patients (52.1%) were not satisfied with the time duration to stay for dialysis. Previous literature shared the same view overall.

Conclusion: Most of the patients have faced some difficulties due to pain during dialysis and also most of the patients were not satisfied with regards to the time duration in the waiting list for dialysis, because of the limited number of dialysis machines.

Keywords: *Satisfaction, Haemodialysis unit, Nursing care, Comfort*

Knowledge among Mothers Regarding Oral Hygiene of Children Under Six Years of Age in MOH Area, Kalutara, Sri Lanka

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Introduction: Oral hygiene is the practice of keeping one's mouth clean and free of disease and other problems by regular brushing of the teeth. It is important that oral hygiene is carried out on a regular basis to enable the prevention of dental diseases. In recent years, there has been an increase in demand for dental treatments and it is currently unclear the level of knowledge that the mothers have in regards to dental management. The aim of this study was to assess the knowledge among mothers regarding oral hygiene of under six-year-old children in the Medical Officer of Health area, Kalutara.

Methodology: The research was a descriptive, cross-sectional study and the sample included mothers of children who were under six years of age. The participants were selected through convenience sampling technique from MOH area, Kalutara. A self-administered questionnaire was given to 100 mothers and responses were included in this study.

Results: The total number of mothers who have children under six years was 100, however, the response rate was 94%. Moreover, 52.2% (n=48) were male children and 47.8% (n=44) were female children. Most of the children (55.4%, n=51) were three years of age or less than that. Children who were four to five years or older were 15.2% males (n=14) and 29.3% females (n=27) respectively. Most mothers (54.3%, n=50) were between 25 and 35 years of age and 48.9% (n=45) were educated up to O/L. Analysis of the results of the study showed that 61.9% of mothers have a good knowledge of dental caries. However, 43.4% of mothers had insufficient knowledge on the protection of dental health, whilst mothers who were unaware of the resulting problems of inadequate dental hygiene concluded to 35.3%. The majority of the mothers faced problems when identifying healthy gums and 80% believed that sugar snacks contribute towards creating dental caries. Out of the sample, 75.6% of mothers changed their children's toothbrushes every three months and the remaining percentage of mothers took longer than three months to change the toothbrushes. Moreover, 65.2% of mothers think gum bleeding is the reason for the dental problems.

Conclusion: Through the results of the research, it was found that the mothers do have a satisfactory knowledge regarding dental caries and other relevant issues. There was a relatively low level of knowledge regarding practices for maintaining proper dental health.

Keywords: *Knowledge, Oral hygiene, Dental caries, Protection, Child health*

Knowledge, Attitudes and Practices Regarding Epilepsy among the General Public Residing in Baduraliya Grama Niladhari Division, Kalutara District, Sri Lanka

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Introduction: Epilepsy is a neurological disorder that has a continuing tendency to have seizures. Although there has been an increase in individual literacy rates among the rural population, it is unclear if this has any effect on knowledge, attitudes and practices regarding the medical condition, epilepsy. Hence, the objective of this study was to examine the knowledge, attitudes and practices regarding epilepsy among the general public in Baduraliya Grama Niladhari Division.

Methodology: The research was a descriptive, cross-sectional study done in four different villages, including 35 villagers from each village. The participants who were above 18 years of age were selected using quota sampling method. Self-administrated questionnaires were used as the data collection tool and SPSS software was used for data analysis.

Results and Discussion: The total sample included 140 individuals. From the sample, 67.1% were females and 32.9% males. From them, the majority had adequate knowledge regarding epilepsy (77.9%), signs and symptoms (85.7%) and also treatment options (86.4%). Even though a majority from the sample (77.1%) had witnessed an epileptic seizure, the practices regarding positioning were generally poor (57.1%). Similarly, 53.6% stated that they would place a spoon in the mouth and 73.6% a metal equipment clenched in the hand of the seizing patient. The majority of the public (73.6%) knew how to make the environment safe. Overall, a negative attitude was perceived in accordance with the condition. The general ideology was that the patients with epilepsy were unable to lead a successful marriage life (54.3%) and unable to undergo a normal vaginal delivery (65%).

Conclusion: There is a decent knowledge regarding epilepsy among the general public; however, there is relatively a low level of practice, especially with regards to the positioning of a seizing patient, which in most cases resulted in malpractices when managing a seizing patient, according to literature. There is a considerable negative attitude towards epileptic patients, especially in relation to marriage and normal vaginal delivery.

Keywords: *Knowledge, Attitudes, Practices, Epilepsy, Seizure*

A Study on Knowledge, Attitudes and Practices Regarding Pap Smear Screening among School Teachers in a Leading National School in Kalutara District

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Introduction: Cervical cancer has been identified as the second most common cancer in women and contributes to the high mortality rate in women. Pap smear screening is the primary screening procedure used to detect abnormal cells that may develop into cancer. It is ideal if the mindset of women regarding the Pap smear screening was developed from the school level. School teachers are one of the main populations that the school students would look up to. The aim of this study is to examine the knowledge, attitudes and practices among school teachers on Pap smear screening.

Methodology: A descriptive, cross-sectional study was done using a self-administered questionnaire to collect quantitative data. The sample consisted of 108 teachers (female) aged 20 years or above in a leading national school of Kalutara District, Sri Lanka. The primary outcome measure for the analysis was to identify those who have been screened for cervical cancer. The secondary outcome measure was to investigate knowledge, attitudes and practices regarding Pap smear screening. Data analysis was conducted using IBM SPSS Statistics 20 software.

Results and Discussion: The percentage of teachers aged 20-29 were 11.1% (n=12), 40.7% were 30-39 (n=44), 32.4% were 40-49 (n=35) and 15.7% were above 50 (n=17). From the sample, 81.4% (n=88) had adequate knowledge regarding cervical cancer and Pap smear screening. Only 61.4% (n=59) of the teachers over the age of 30 had been screened and none of the teachers below 30 had not been screened. The majority of the respondents considered themselves at risk for cervical cancer and 63.9% (n=69) showed a willingness to screen in the future.

Conclusion: Most of the teachers in this study had undergone Pap smear screening (54.6%), while only 45.6% had never undergone Pap smear screening. The result of the study cannot be generalised to the population due to the small sample size. However, there is a need to facilitate comprehensive health education and the implementation of Pap smear screening programmes to target women and school teachers to contribute to the success of the Pap smear screening programme.

Keywords: *Pap smear screening, Teachers*

**Knowledge and Attitudes Regarding HIV/AIDS Patients among Student Nurses in
School of Nursing, Kalutara, Sri Lanka – 2019**

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Introduction: Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome [HIV/AIDS] is a matter of concern due to the dramatic increase in the number of cases over the last ten years. Hence, the nursing students need appropriate knowledge and attitude regarding HIV/AIDS, not only to care for the patients but also to aid in prevention and limit spreading within the community. Therefore, the aim of this research was to assess the knowledge and attitudes regarding HIV/AIDS Patients among student nurses.

Methodology: The research was a descriptive, cross-sectional, quantitative study. A sample of conveniently chosen 100 students from only first-and third-year nursing students in the School of Nursing, Kalutara were recruited for the study. Second-year students were not considered to be in the sample. A self-administered questionnaire was given to collect data and was analysed using IBM SPSS Statistics software v20.

Results and Discussion: The research sample had a majority of female participants (90%). Most of the students were under 26 years of age (97%). The sample consisted of 53% first-year students and 47% third-year students. Many of the students had adequate knowledge regarding HIV/AIDS (64%) and positive attitudes towards HIV/AIDS patients (64%). Moreover, 67% believed that HIV/AIDS patients should not be isolated, whereas 71% were willing to live with them in the same community and 72% had a sense of empathy towards HIV/AIDS patients.

Conclusion: There is adequate knowledge regarding HIV/AIDS among student nurses and a high level of positive considerations. Students do not seem to discriminate HIV/AIDS patients and are willing to rather live with them in the same community.

Keywords: *HIV/AIDS, Knowledge, Attitudes, Nursing students*

The Prevalence of Anaemia and the Level of Knowledge on Haemoglobin Levels among Pregnant Mothers in Kalutara District, Sri Lanka – 2019

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Introduction: Anaemia is a global health problem with many consequences, which may have a notable impact on pregnant mothers. Even though mild anaemia among pregnant mothers is normal, if uncontrolled, this could be detrimental to the mother as well as the babies. Knowledge regarding the condition and prevention plays a major role in controlling anaemia. Hence, this research was done to assess the prevalence of anaemia and to study the level of knowledge regarding anaemia among pregnant mothers in Kalutara District, Sri Lanka.

Methodology: The research was a descriptive, cross-sectional study. The pregnant mothers who attended Kalutara antenatal clinic were considered to be participants in this research. A self-administered questionnaire was given to the participants and data were collected in addition to the data collected by referring to the clinical reports of the pregnant mothers. Mothers with haemoglobin levels over 11.0 g/dl were considered normal, whereas 10.0 to 10.9 g/dl were considered as mildly anaemic, 7.0 to 9.9 g/dl as moderately anaemic and less than 7.0 g/dl as severely anaemic.

Results and Discussion: The total sample included 112 pregnant mothers. Their clinical reports indicated that 50% (n=56) had normal haemoglobin levels, while 48.21% (n=54) had mild anaemia and 1.78% (n=2) had moderate anaemia. The assessment of the level of knowledge regarding the condition anaemia among the participants revealed that over half of the pregnant mothers (52.67%) had an average level of knowledge, whereas 43 (38.39%) mothers had poor knowledge and 9 (8.1%) had adequate knowledge on anaemia.

Conclusion: From the total, most participants had normal haemoglobin levels. However, there were some anaemic pregnant mothers as well. The results suggested that there could be a relationship between knowledge regarding haemoglobin levels and the prevalence of anaemia. However, a correlational study measuring the haemoglobin levels and knowledge regarding the prevention of anaemia is warranted to confirm the relationships.

Keywords: *Anaemia, Pregnant mothers, Haemoglobin levels, Knowledge*

Assessment of Knowledge and Practices on Preventive Measures of Arthritis and Self-Management among Patients in Rheumatology Clinic of General Hospital Kalutara, Sri Lanka

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Introduction: Arthritis is a rapidly growing health problem in Sri Lanka. Healthy eating patterns, regular Physical activities and Pharmacotherapy are key components of prevention of arthritis. The most challenging part is prevention of arthritis. Many individuals with arthritis have insufficient knowledge regarding arthritis preventive measures and self-management. This study was conducted to assess the knowledge on preventive measures regarding Arthritis and self-management among patients in Rheumatology clinic of General Hospital Kalutara.

Methodology: A descriptive cross sectional study was conducted among 100 adult patients from the Rheumatology clinic in the General Hospital Kalutara by using convenience sampling technique. Questionnaire mainly consisted of three categories of questions to assess the knowledge, practice and to identify problems regarding arthritis. Data analysis was conducted using Microsoft Office Excel 2010 software.

Results and Discussion: Among the participants 89% were female and 11% were male participants. According to the findings of the study, 88% of participants knew arthritis is inflammation of joints but 65% of the sample were not aware of the type of their arthritis. Among the study participants, 75% thought arthritis will not past to the next generation. Moreover, 32% patients who strongly agreed and 28% agreed that it was necessary to prevent arthritis. One of the most interesting findings was that a majority of the participants (70%) had not known about the disease before they were diagnosed with it and there were 34% who do not follow the correct treatment plan. It was identified that 14% are not following the correct treatment plan due to lack of awareness, 7% due to negligence, 8% due to older age and 10% due to busy lifestyle.

Conclusion: According to the findings of the study, it was identified that majority of the participants did not have adequate knowledge regarding arthritis and there was a considerable percentage of participants who were not adhering to the correct treatment plan. Therefore, more educational programs should be conducted to increase the awareness.

Keywords: *Arthritis, Prevention, Knowledge*

The Usage of the Library Facility for Study Purposes by the Student Nurses in the School of Nursing, Kalutara

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Introduction: Library facility assists student nurses to be more knowledgeable in their field and it creates an updated nursing generation. This research aims to assess the pattern of usage of the library for the study purpose among student nurses at the National Institute of Health Science, Kalutara.

Methodology: A descriptive, cross-sectional study using a questionnaire to collect quantitative data was utilised. This research was conducted at the school of nursing, Kalutara. Data were collected from 150 student nurses from three batches using convenience sampling method. The questionnaire was administered in the English language as it is the medium of nursing education in Sri Lanka. SPSS software was used for the data analysis.

Results and Discussion: In this study, among the participants, 96.7% were female students and 3.33% were male students. Most of the students (72.7%) were in the age group of 23–25 years, 22.67% were in 20–22 years and 4.66% were in 26–28 years. Most of the students (96.71%) were using the library facility and only 43.35% of students had a membership. Most of the students (84.35%) used the library for studies while 37.35% of the students used it for internet facility. Only 48% of the students were satisfied with the allocated time for library usage during school time, whereas 52% of students were not satisfied.

Conclusion: Although the majority of the students used the library, only a few students had a library membership. Hence, it is essential to grant convenience for all student nurses in the School of Nursing, Kalutara.

Keywords: *Student nurses, Library usage, Knowledge*

Knowledge of Folic Acid Consumption among Pregnant Mothers attending Antenatal Clinic in General Hospital Kalutara – 2019

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Introduction: Adherence to folic acid is crucial for the prevention of birth defects during pregnancy. Supplementation of folic acid is the most commonly used method to prevent international and regional neural tube defects. The aim of this study was to evaluate knowledge regarding folic acid consumption among pregnant mothers of the antenatal clinic of general Hospital, Kalutara.

Methodology: A cross-sectional, descriptive design was used among 100 pregnant mothers in the antenatal clinic in General Hospital, Kalutara was taken as the sample. A self-administered questionnaire was used to collect data. Data were analyzed using excel and Statistical Package of Social Sciences (SPSS) version 20.

Results and Discussion: 34% of the participants were informed that pregnancy was not planned. 78% of the participants had heard about folic acid. A lower percentage of 9% of pregnant mothers had used folic acid before their pregnancy while 13% of the pregnant mothers have not taken folic acid during their present pregnancy. Only 15% had knowledge about the complications of folic acid deficiency in the developing fetus. The overall knowledge on the importance of iron and folic acid supplementation among the participant was 42.75%.

Conclusion: These results indicate that further efforts are needed to inform the newly married women and pregnant mothers and promote optimal use of folic acid consumption. Having good knowledge of anaemia was correlated substantially and positively with the adherence of pregnant women to iron and folic acid supplementation in which adherence among pregnant women who were knowledgeable about anaemia was high.

Keywords: *Pregnant mothers, Folic acid, Knowledge*

Knowledge and Attitudes on Non-Communicable Diseases among Non-Academic Staff in National Institute of Health Science, Kalutara – 2019

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Introduction: Non-communicable diseases (NCDs) are emerging as a major public health challenge for developing countries. According to a WHO report in 2014, 40% of cardiovascular diseases and 10% of other NCDs are the main conditions responsible for the mortality rate in Sri Lanka. The study was aimed at identifying the knowledge and attitude regarding NCDs among non-academic staff in NIHS, Kalutara.

Methodology: A descriptive, cross-sectional study was conducted in which 50 non-academic staff members were assessed using a self-administered questionnaire. Convenience sampling method was used and the Statistical Package of Social Science, version 20.0 (SPSS) was used to analyse data.

Results and Discussion: In the study sample, the majority (78%) of the participants are females, (58%) belonged to the age category of below 40 years, most of them (64%) had a service period of more than 10 years. Nearly half of the participants (46%) were suffering from an NCD, out of which 48% belonged to the age category of below 50 years. Around 20% of the participants were diagnosed with having diabetes mellitus while 44% were diagnosed with having hyperlipidaemia. Based on the results of the knowledge questions, a majority (82%) had answered correctly for the knowledge questions. Out of them, a higher number of participants belonged to the age category of more than 50 years. A majority of the participants (88%) mentioned that breakfast is the most important meal while many participants (68%) stated that they do not have enough time to make a balanced diet even though there were 42% who think that they can avoid fast food.

Conclusion: According to the results of the study, it can be concluded that a majority of the participants had adequate knowledge and positive attitudes towards non-communicable diseases.

Keywords: *Non-communicable disease, Non-academic staff*

Consumption of Fast Food among Nursing Students in School of Nursing, Kalutara, Sri Lanka – 2019

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Introduction: Fast food is a term for food containing high levels of calories and sugar of fat with little nutrients. There has been an increase in fast food consumption among nursing students. Most of the student are having obesity and/or gastritis. This study was aimed to examine the knowledge, usage and causes for using fast food.

Methodology: The research was conducted as a descriptive, cross-sectional study. As the sample, 27 students from each nursing batch (2015 B, 2017 A, 2017 B) and basic midwifery batch were selected. The total sample size was 108. A self-administrated questionnaire was given to collect data.

Result and Discussion: Findings of the consumption of fast foods shows that 96.3% were female students and 3.7% were male students. The majority of the students (89.8%) enjoy fast food. Moreover, 98.1 % of the students stated that the main reason for obesity is consuming fast food, while 63.9 % of the participants believed that through the consumption of fast foods, not enough nutrients can be gained. Furthermore, 88.9% and 90.8% of the respondents stated that the main reason for having fast food is because of its convenience and taste respectively. However, 85.1% of subjects mentioned that the main reason for consuming fast food is due to their busy lifestyle.

Conclusion: It can be concluded that, although subjects have shown sufficient knowledge of the negative consequences of fast food consumption, the majority are consuming fast food. It is recommended to encourage avoidance of fast food and improve knowledge regarding health issues associated with the consumption of fast food.

Keywords: *Consumption, Fast food, Obesity*

A study on Factors Affecting Job Satisfaction among Nurses in District General Hospital, Kalutara, Sri Lanka

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Introduction: Job satisfaction in terms of how people feel about their jobs and different aspects of their jobs and it can be explained as an emotional response to a job situation. It is one of the most vital factors that define the efficiency and productivity of human resources. In Sri Lanka, nurses are the backbone of the healthcare system. The aim of this study is to assess the level of job satisfaction and its associated socio-demographic and work-related factors among nurses in District General Hospital, Kalutara.

Methodology: A descriptive, cross-sectional study was done among 100 nurses in General Hospital, Kalutara. Data collection were done using convenience sampling method and analysed using SPSS software.

Results and Discussion: Results showed that only 10% were male and a majority of the nurses (60%) were in the 30-35 age group and 20% were above 35 age group. The majority of the group (70%) expressed low job satisfaction. Most of the participants (80%) have stated that a lack of psychological support in the institute and lack of supervisor support were the main reasons for low job satisfaction. Around 90% of the total nurses were hoping for a more friendly working environment to improve job satisfaction.

Conclusion and Recommendations: In conclusion, nurses in District General Hospital, Kalutara had low job satisfaction due to lack of supervisor support and psychological support. Achievement of a high level of job satisfaction is recommended to provide a high-quality healthcare system. Further studies are recommended to understand the perspectives of nursing supervisors on ways of improving job satisfaction of nurses.

Keywords: *Job satisfaction, Nurses*

**Interpersonal Relationship among Nursing Students in the School of Nursing,
Kalutara, Sri Lanka – 2019**

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Introduction: Interpersonal relationship (IPR) is a strong, deep or close association or acquaintance between two or more people that may range in duration from brief enduring which has implications in terms of the future of the profession and wellbeing of nursing students and others. It is very important to build and maintain relationships. Hence, this research assesses the interpersonal relationships among the students in the school of nursing (NTS), Kalutara in 2019. The objectives of this study were to assess levels, important factors and barriers for the interpersonal relationships among nursing students in the School of Nursing.

Methodology: The population included 329 nursing and midwifery students in NTS, Kalutara. From which, 111 subjects were selected as the sample through simple random sampling technique. Self-administered questionnaire which included 18 questions under three sections were used to collect data. Moreover, a 5 point Likert scale was also included. Data was analysed using SPSS software.

Results and Discussion: Response rate was 100% (n=111). Out of the sample, 9.9% were male and 90.1% were female. A percentage of 80.2 of the sample followed the nursing diploma and 19.8% followed the basic midwifery course. From the sample, 87.4% (n=97) had a positive response and 1.8% (n=2) had a negative response regarding IPR. The research data stated that 76.6% (n=85) had a positive idea about IPR while 16.2% (n=18) had a negative idea about IPR. A percentage of 40.6% (n=45) had a positive idea about the barriers while 39.2% (n=43) shared the opposite.

Conclusion: According to the results, it can be concluded that the interpersonal relationship rate among the students of the Kalutara NTS is comparatively higher.

Keywords: *Interpersonal relationship, Students, Nursing*

Elderly Patients' Satisfaction on Healthcare Services Provided by a Private Hospital in Gampaha District, Sri Lanka – 2019

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Introduction: Geriatric medicine or elderly-care medicine is the branch of medicine that deals with the healthcare of older people. Older people are unique. Their issues are different. More time and attention is needed to recognise their issues and also to understand their wishes and dreams in their lives. Even, their medical issues take longer to get better. Quality in health is about the care and caring. There is a growing consent that patient satisfaction is an important indicator of healthcare quality and many hospitals are searching for better ways to change the delivery of patient care through quality improvement initiatives. This study was aimed to measure the impact of perceived healthcare services on elderly patients' satisfaction at a major private hospital in Gampaha District.

Methodology: A survey was conducted to collect data from a total of 60 elderly outpatient participants. Data collection of the study was done using a researcher-developed instrument based on modified 'SERVQUAL', using five service value dimensions, namely: empathy, tangibility, reliability, responsiveness and assurance. Data were analysed using SPSS, version 20.

Results and Discussion: The sample included 10% of patients and 90% of caregivers (spoke on behalf of the patients), the majority (62%) were female respondents. Based on the data collected, the majority represented in the survey belonged to the age group of 70-79 years (34%). The second highest age group was 60-69 years (30%). Age groups between 50-59 years (18%) and above 80 years (18%) had the least number of participants. A majority of the patients was given individualised attention to their hospital stay and they were highly satisfied with it; however, some participants stated that they have not got enough attention which could be due to overburden of work or due to lack of training in the specified area.

Conclusion: Patients receiving each hospital service are responsible for conveying the good image of the hospital; therefore, securing high satisfaction of patients attending the hospital is equally important for a hospital management team. In the current study, it was found that the majority of the respondents were highly satisfied with the services offered. Patients were satisfied with the logistic arrangement, nursing care and physicians' communication skills. This study also reveals that there is a gap between experienced service quality and expected service quality. This gap can be rectified by using quality diagnosis measurement instruments such as importance-performance analysis which will help hospital managers with the planning of service quality improvement and achieve long-term goals.

Keywords: Service demand, perception, SERVQUAL, Patient satisfaction

**A Study on Knowledge and Practices on Oral Hygiene among Parents of Children
Between 3-5 Years in Uhana MOH Area, Ampara District, Sri Lanka**

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Introduction: According to World Health Organisation (WHO), ‘oral health is a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity.’ Level of knowledge and attitude regarding oral hygiene among the parents of pre-school children plays an important role in maintaining the good oral hygiene of their children. In Sri Lanka, sufficient research has not been carried out on this area. The study is aimed to assess the knowledge practice about oral hygiene among parents of children between 3-5 years.

Methodology: A descriptive study was conducted among 50 parents visiting pre-schools in Uhana MOH area in Ampara District. A paper-based, structured questionnaire was used for collecting data. Questions related to demographic information and knowledge were asked. Twenty-one questions were used for assessing knowledge and attitude level. Analysed data were presented in terms of numbers and percentages.

Results and Discussion: It was found that 66% of parents perceive that children’s oral hygiene is important; however, 52% did not have a satisfactory level of information sourcing related to their children’s oral hygiene. A higher percentage of 65% had no idea about what type of toothpaste is suited for their kids, while only 12% of parents motivate their children to brush teeth twice daily. Further, the study revealed that mouth sores and dental caries were the two major oral infections happened to kids. A 72% of parents perceived that limiting sugary and acid foods is the best preventive method they should follow.

Conclusion: In conclusion, knowledge and attitudes regarding oral hygiene was found not in a satisfactory level among the parents of preschool children visiting preschools in Uhana MOH area. Hence, study suggests implementing relevant programmes and procedures will be more effective for the knowledge improvement among the parents.

Keywords: *Knowledge practice, Oral health, Parents, Pre-school children*

Assessment of Knowledge, Attitudes and Practices of Parents on the Mental Health of Their Teenage Children in Gampaha District, Sri Lanka

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Introduction: The parent-child relationship is one of the most important relationships formed over the course of one's life span and good mental health plays a vital role in one's total health. Therefore, the lack of knowledge of parents regarding the mental health of their teenage children and the different parenting styles could result in various mental health disorders among teenagers. These disorders first emerge in late childhood and teenage years and often go undiagnosed and untreated, particularly in developing countries like Sri Lanka and result in serious negative consequences. Therefore, this study is aimed at assessing the knowledge, attitudes and practices of Parents on the mental health of their teenage children.

Methodology: This research study used a quantitative, descriptive, cross-sectional design. Convenience sampling was used to select the research sample of parents of children aged 13-19 in the District of Gampaha, Sri Lanka. There was a total of 250 responses recorded from the parents of teenagers in the district of Gampaha. Data were subjected to analyse using the Microsoft Excel version 2013 and SPSS software and charts, descriptive statistics and ANOVA were used to analysed according to the gathered data.

Results and Discussion: The research results indicated that 77.1% of the parents lack knowledge while 68.7% do not follow positive attitudes and practice on mental health disorders which are prevalent among teenage children. The main barriers that exist are the ways that parents punish and interact with their teenage children, the parenting styles and their lack of knowledge on the signs and symptoms of most common mental disorders. According to ANOVAs, it could be observed that openly criticising ($p=0.031$), spontaneously pointing out past mistakes ($p=0.012$) and using threats ($p=0.02$) are forms of punishments that affect the mental wellbeing of teenage children.

Conclusion: It can be concluded that gaining knowledge on mental health disorders among the parents of the teenagers requires personal commitment and the forms of punishments used to punish teenage children, their methods of interaction and the parents' attitudes has to be changed.

Keywords: *Knowledge, Attitudes, Practices, Mental health, Disorders, Parenting styles*

A Study on Prevalence of Lower Back Pain among Housewives in Gampaha District, Sri Lanka

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Introduction: Low back pain (LBP) is one of the most common symptoms experienced by people throughout the world and according to WHO (2003), LBP is responsible for a major portion of people staying away from work or visiting a medical practitioner. It is estimated that 70-80% of the world's population has at least one episode of back pain in their lifetime. The aim of this study was to identify the main causes of lower back pain and also to allocate which areas are mostly affected due to increment of lower back pain among housewives in Gampaha District. Meanwhile, this research study also helped to identify the availability of physical therapy treatment for lower back pain along with a standing out objective which is identifying the commonly used pain-relieving treatments for lower back pain.

Methodology: This research study used a quantitative, descriptive, cross-sectional design on lower back pain among housewives in Gampaha District. The study included a sample size of 100 housewives in the age category of 25-55 and the questionnaire was distributed as a google form to the participants selected using a convenience sampling method.

Results and Discussion: According to the outcomes, the most number of participants (36.6%) were housewives between the ages of 25 and 31, suffering from lower back pain. In concern of any history in spinal surgery or fractures within a duration of six months, 48.5% had indicated a positive response. The amount of pain experienced within the recent past was measured in a scale of 0-10 and 17.6% indicated a moderate pain (4-7 according to the pain scale) while 18.6% rated their pain as severe (7-10 according to the pain scale). As mentioned in the responses, based on the treatments received on lower back pain, a greater percentage of 65% delivered a positive response whereas, on the other hand, 35% delivered a negative response. According to the results, the most prominent cause for lower back pain was sitting and bending (39.6%). This is also evident due to the connection raised from the other responses, such as a majority of 47% indicated a negative response for being able to sit for more than 10 minutes in the same posture and that a higher percentage participants (51.5%) indicated a response of spinal fusion or was diagnosed with spinal instability by a physician. Meanwhile, the reason for a high percentage of lower back pain (59.5%) could be due to a fall in the past which could also connect to the cause of many housewives who suffer from a great amount of pain during sitting or bending.

Conclusion: Many housewives have lower back pains where even for some the pain is severe. There need to be further studies done regarding the home remedies and treatments they are getting for the back pain.

Keywords: *Lower back pain, Housewives, Gampaha District.*

A Study on the Impact of Shift Work and Long Working Hours on Nurses' Health in Government Hospitals of Sri Lanka

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Introduction: Nurses are the heart of the health sector. Each and every client seeks effective and efficient care from nurses; however, they do not know how much the nurses sacrifice from their personal lives. This study was conducted to assess the impact of shift work and long working hours on Sri Lankan government nurses' health.

Methodology: A quantitative, descriptive, cross-sectional study design was done using convenience sampling method. Nurses who were working in the government clinical settings (n=200) were approached for the research and data were collected via a questionnaire of 27 questions. Nurses who were absent for work during the time period of data collection and the special-grade nursing officers were excluded from the study. Data were analysed using Excel and SPSS.

Results and Discussion: The findings of the study revealed that nurses ignored world-accepted good health tips related to sleep, water intake, food habits, recreational activities and sex habits. Data were analysed using ANOVA test and the results proved that there was a significant relationship between long working hours and stress levels related to working at 5% level of significance. Moreover, the body mass index was significantly associated with overtime at 5% level of significance. According to the findings, the workplace stress level of individuals has varied with the working experience, personal problems and also with the individual ability of coping. Health status has also varied with individual factors; therefore, it could be argued that health-related problems could be due to long working hours and unreasonable shift duties. Most of the participants were from the age group of 25-30 years and consequently, the received data regarding health status were positive to a certain extent as the above-mentioned age group is deemed to be much healthier and much tolerable.

Conclusion: There is a health impact on nurses due to current shift duties and long working hours. Management and the nurses all should be aware and concerned on nurses' health if comprehensive nursing care is expected.

Keywords: *Shift work, Working hours, Nurses, Health*

A Study on Factors Associated with Lack of Telemedicine Usage in the Western Province, Sri Lanka

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Introduction: Telemedicine is a service that provides remote diagnosis and treatment to patients by means of telecommunications technology. Recently, many foreign countries use this as a mean of non-expensive way to receive healthcare instructions, health assessments, and consultation over the telecommunication infrastructure. Using it saves valuable time and money in comparison to visiting a consultant for an assessment. The aims of this study were to analyse the percentage of the usage of Telemedicine in Western Province, to examine the reasons for the non-usage and to find if there are any factors affecting the usage of telemedicine.

Methodology: This quantitative research analysed the target population, which was the general public of the Western Province of Sri Lanka, using convenience sampling as the sampling method. A sample size of 200 was approached. Moreover, the data collecting method covering the areas mentioned above was via questionnaires which were distributed online to people residing in the Western Province. Subsequently, the data were analysed using the Statistical Package of Social Sciences (SPSS).

Results and Discussion: Looking into the demographic data, from 200 samples that were collected, 20.5% were males. Most participants have studied up to Advanced Level (40.5%) and 31.5% had a diploma. The highest number of individuals were from the area of Negombo and from the age group of 18-25. A majority of the respondents (61.5%) have heard about telemedicine, even though only 12.9% of them have experienced telemedicine. However, regardless of the level of awareness, most of the respondents (82.5%) stated they wanted to use the service of telemedicine. Almost half of the individuals strongly agreed on not using the service if the provided information was not accurate (48%) and if overall quality is low (50%). A considerable percentage of respondents (63.5%) were neutral towards the idea of trusting the service. Moreover, the majority of the respondents, which was 54%, agreed that they were not informed by doctors about telemedicine. Also, it could be seen that 38% of the respondents were neutral on the fact that telemedicine is similar to travelling to a hospital. Furthermore, the results of ANOVA and t-test revealed that no significant relationship between the demographic data such as age, gender, and educational level with the factors that affect telemedicine. Yet, there could be a significant relationship between the area and the opinion of training given to employees ($p=0.028$).

Conclusion: It can be said that regardless of the service quality or training, knowledge and attitudes towards telemedicine, the most important factor to consider is awareness as it can be seen that most people are unaware of such services and are less exposed to promotion and advertisements on telemedicine.

Keywords: *Telemedicine, Lack of utilisation, Western Province, Sri Lanka*

Level of Knowledge and Attitudes on Sexual Education among Teenagers in Matale District, Sri Lanka

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Introduction: Sexual education aims to strengthen the ability of young adults into making the correct choices regarding relationships, sexuality and health. Meanwhile, it does not encourage them to engage in sexual activities. It gradually equips and empowers children and young people with information, skills and positive values to understand and enjoy their sexuality, have safe and fulfilling relationships and take responsibility for their own and other people's sexual health and wellbeing. Regardless of the largely recognised importance of sexual health, education which is required to promote that remains a sensitive and at times, a controversial issue.

Methodology: This study used a quantitative, descriptive, cross-sectional research design to study the level of knowledge and attitudes on sexual education among teenagers in Matale District, Sri Lanka. Convenience sampling used to select the research sample of school students in Matale District, Sri Lanka. This research survey was carried out by administering a questionnaire to the children and the data analysed using SPSS software. Mixed schools in Matale District used as the population for this research.

Results and Discussion: There were a total of 100 responses from students of three mixed schools in Matale District; however, there were 37 partial responses which were also included in the data. The majority of the students (53.1%) have received knowledge of sexual education from their parents. The respondents were asked to identify whether the sexual education was useful for their life and the majority have found it useful (86.8%). According to the scale (1 to 10), the respondents were asked to rate the comfortableness of the lesson that taught by the teacher and the majority of the sample 33.7% have stated 5 which indicates that they had not felt comfortable or uncomfortable either. A 26.5% of the sample had felt very comfortable while the least amount of the sample 2% had felt very uncomfortable during the lesson. Attitudes to sexual education were examined through some questions and nearly half of the participants were negatively responded on the acceptability for boys and girls of their age to have the opposite gender partner during the lesson on sexual education. Reproductive health knowledge of the respondents was assessed through questions which were explored basic biological knowledge and 80% of students indicated that they knew contraception methods and few respondents had mentioned family planning methods, and 20% of the sample indicated that they did not know any contraception methods.

Conclusion: It can be concluded that the parents support on sexual education is at an average level. The schools have eventually completed their role well, however, some of the students had failed to acquire the lesson well. Considering their attitudes, it can be seen that students had not identified the importance of sexual education through their level of knowledge states at a good level. Most of the teenagers share their knowledge with each other and friends play a vital role as a source of sexual education.

Keywords: *Sexual education, Teenagers, Students*

Awareness on Risk of Mobile Phone Usage for Healthcare-Associated Infections (HAIs) and Practices of Mobile Phone Usage

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Introduction: Healthcare-Associated Infections (HAIs) are a major challenge to the healthcare system and are associated with significant mortality, morbidity, and high economic burden. Sharing mobile devices can lead to the spread of HAIs if they are not properly disinfected. This study is to describe the awareness on the risk of mobile phone usage in HAIs and the practices of mobile phone usage among nursing officers.

Methodology: A descriptive, cross-sectional study was carried out using a self-administered questionnaire and data were collected from 330 nurses who were selected using convenience sampling technique. A questionnaire was submitted to all participants to collect information on the extent of the usage of mobile phones, the location of use, the use of headsets, the awareness of disinfection practices of mobile phones and the frequency of handwashing after using their phones. Data were analysed using Microsoft Excel and Statistical Package of Social Sciences (SPSS) version 20.

Results and Discussion: Majority of the nurses (71.8%) were aware that the usage of the mobile phone is a mode of transmission for infections. Most of the nurses (54.6%) keep their phones with them on vibration mode while on duty and among them, a majority of the nurses (82.6%) use them for less than five times to make a call during their duty hours. Most of the nurses used the mobile phone only to call somebody (34%) while few used it for social media (12%) as well as for internet browsing (8%). Among internet users, nearly half of them (50.5%) used it to search for information relevant to patient care.

Conclusion: Most of the nurses use mobile phones for various purposes while on duty although the majority of the nurses were aware that usage of mobile phones while working is a risk for HAIs.

Keywords: *Risk of mobile phone usage, Hospital-acquired infections, HAI, Awareness, Practices*

Examination of Patient Expectations and Nursing Care Received at Private Hospitals in Colombo District; Patient Satisfaction

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Introduction: Healthcare is an industry that plays a major role in a country's economy and the wellbeing of its' citizens, which aims to provide the best of care to all their clients ranging from all different social classes. This industry is ultimately driven by patient satisfaction received via health care workers, especially that of the private sector hospitals in which patients are expected to pay for care. The purpose of this study is to investigate if prior patients expectations affect patient satisfaction in terms of nursing care in Colombo and how many of these expectations influence patient's satisfaction.

Methodology: To gather the data needed quantitative descriptive cross-sectional design was used and the snowball sampling technique was utilized for data collection. Questionnaires generated according to the SERQUAL tool provided to the general public via google forms and printed questionnaires. All the samples collected were then analysed using the SPSS analysis tool, version 22.

Results and Discussion: A total of 502 participants responded to the questionnaire, out of which 397 were selected after screening as per the inclusion and exclusion criteria. 233 females, 156 males and 8 others participated in this study. 66% of the participants identified Sinhala as their primary language of communication, where 34% identified English as their primary language. Almost half of the participants did not have any type of health insurance. 86% of the total sample does not think hospital procedure prices are fair, out of which 57.9% are aware of hospital costs. Moreover, 46% of which are aware through general knowledge. On average 61.1% of the participants were not fully satisfied with the quality of nursing care service offered in Colombo private hospitals as per their expectations. However, 98% of the participants think nurses are qualified. On average 52.4% were not fully satisfied with the quality of care attending Colombo private hospitals (Hygiene, Crowd, Sufficient staff).

Conclusion: A significant percentage of participants do not think procedure prices are fair even though they are aware of hospital costs. Although the majority (61.1%) of the participants were not fully satisfied with the quality of nursing care provided. More than half the participants were not fully satisfied with the quality of care attending Colombo private hospitals (Hygiene, Crowd, Sufficient staff).

Keywords: *Patient expectation, Private hospitals, Nursing care, SERQUAL, Nursing students, Patient satisfaction, Cost awareness.*

Assessment of Maternal Request in Choosing the Mode of Delivery among Pregnant and Lactating Mothers in Ragama, Sri Lanka

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Introduction: Pregnancy is a physiological circumstance, and ultimately associated with fear, pain, anxiety or even fear of death for the mother. Delivery of a child has many viewpoints, such that it can affect physically, emotionally, culturally and psychologically. There are two modes of childbirth, they are vaginal delivery and cesarean section delivery. There can be many factors that influence the choice of mothers, as it may be due to a doctor's recommendation, social influence, or due to fear of pain. Hence this study aids to identify the reasons in choosing the mode of delivery.

Methodology: A descriptive, cross-sectional study was carried out using a self-administered questionnaire to collect quantitative data of a sample size of 120, among pregnant mothers and lactating mothers who visited the clinics at Ragama. The data was analysed using SPSS.

Results and Discussion: The sample size of the study population is 120, out of that 82 pregnant mothers and 38 lactating mothers. It was found that 21.6% of the study population has elected in choosing a cesarean section, while 56.76% has elected for vaginal delivery. The attitudes of mothers in facing cesarean section surgery, 57.7% were not afraid, while 42.3% were afraid. Out of 21.6% of mothers who have chosen cesarean section delivery, 63% stated that the reason for this choice was because it is more beneficial for the baby as the baby is not harmed during the delivery, 25% reasoning was due to less labour pain and 7% said the time spend on the delivery is less when compared to vaginal delivery. When assessed the knowledge of mothers in choosing a cesarean section, 74% was due to a doctor's recommendation. Out of 57.7% of mothers who have chosen vaginal delivery, 48.7% reasoning was because vaginal delivery preserves women's health, 18.4% stated that recovery of vaginal delivery is shorter when compared to cesarean section delivery, whereas 10.5% believe that anaesthetic drug used during cesarean surgery can be harmful to the foetus. When assessed the knowledge of mothers in choosing vaginal delivery, 30% was due to information provided by the doctor, 30% was due to encouragement by the family members and relatives, while 50% was by their own wish.

Conclusion: The most popular mode of delivery among the pregnant mothers is vaginal delivery and the majority was decided by their own wish. Among the mothers who have faced cesarean section delivery, the majority was due to birth complications and doctor's recommendation, whereas only a few opted to get rid of labour pain. Many women believe that undergoing vaginal delivery aids in preserving health.

Keywords: *Vaginal delivery, Cesarean section delivery, Pregnant mothers, Lactating mothers*

Prevalence of Lung Diseases and Knowledge Regarding Symptom Identification among Construction Site Workers in Colombo District, Sri Lanka

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Introduction: Air pollution has turned into an intense and entirely obvious weight on mankind due to the formation of many construction sites present in Sri Lanka. On an average basis, among the other districts, Colombo district appears to be the highly polluted district in Sri Lanka. As a result, the current health status of a majority of the construction site workers show a vast increase in lung diseases due to various pollutant types and its concentration presence in the environment. Therefore, the aim of this study is to identify the prevalence of lung diseases and knowledge regarding symptoms identification among the construction site workers in Colombo district, Sri Lanka.

Methodology: The research was conducted as a descriptive cross-sectional study using a self-administered questionnaire to collect quantitative data. The study sample consisted of 121 construction site workers from an area in Colombo district, Sri Lanka. Convenient sampling method was used, and the collected data were analyzed after inserting into a google form.

Results and Discussion: The research was centered at people who were working in an ongoing construction site at Kollupitiya. In this study, a total number of 121 construction site workers were surveyed. Majority were males (91.9%) and 78 were in age between 31-35 years old. 64.5% believed that they were more prone to have lung or airway diseases due to the environmental factors of the construction site. Only 59 workers had diagnosed for lung disease and majority suffered from Asthma. 46.2% used medications for lung diseases but majority were not aware of the long-term effects on the medications that they used. 85 site workers had a longstanding cough and among them only few were having it less than a year. Majority had been exposed to the dust, gases or fumes at the construction site and 65.8% had noticed an increase of the symptoms when exposed to the dust/fumes or chemicals. 59.5% workers of the site had same symptoms as other workers but only 31.3% had allocated to the same task. 61 workers used personal protective equipment for inhalation, but majority had not followed.

Conclusion: Overall, it can be seen that construction site workers were not aware of the symptoms and did not have a good knowledge regarding lung diseases. Although they were aware about most complications and majority of them did not have followed protective measures to avoid their exposure.

Keywords: *Prevalence, Lung diseases, Symptoms, Construction Sites*

The Perception and Practice of Warmup Exercise Regime Prior to Weight Training among Young Adults in Enderamulla Area, Sri Lanka

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Introduction: Currently the whole society is moving towards a healthy life from all the aspects possible. As a result, weight training and attending gymnasiums have become a trend of the youth. Along with the weight training, body warming up is being practiced because it prepares the body for a proper training session and will prevent injuries to a significant level. This research is aimed to examine the perception and practices of body warmups before weight training among the youth.

Methodology: The research was conducted as a descriptive cross-sectional study using a self-administered questionnaire to collect quantitative data. The study sample consisted of 122 young adults at the age range of 18 to 35 were selected using convenient sampling technique from weight training centers in Enderamulla area. Data were analyzed using charts and descriptive statistics according to the gathered data.

Results and Discussion: The total number of participants who engaged in weight training, 90.9% did engage in warmup exercises prior to the weight training. Among those who were engaged in warmup sessions (n = 110) before weight training, 68.9 % did follow full body workouts while 30.3 % did follow split warmup workouts. The commonest warmup exercise type among the young adult weight trainers was stretching, where 53.3% participants had followed. Meanwhile, 24.2% participants did follow cardio exercises during the warmup session. With regards to the self-perception among young adult weight trainers, 90.9% of participants believed that they need to do warmup exercises prior to their workouts. 48.3% of participants had an attitude, that warmup is important to minimize the risk of getting injuries during the workout while 22.5% of the participants believed that it is important to maintain a high-quality training. 28.3% of participants believed that the warmup was important as it helps to increase the flexibility of muscles while strengthening the muscles.

Conclusion: Overall, the perception towards warmup exercise regime is positive since most of the participants believed that a warmup is really important to minimize the risk of getting musculoskeletal injuries.

Keywords: *Weight training, warmup exercise, Stretching exercises, Cardio/aerobic exercises*

A Study on Evaluation of Balance Among Under-19 School Level Rugby Players in Colombo District, Sri Lanka

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Introduction: Rugby as a sport continues to grow in popularity within Sri Lanka, increases in interest towards the sport put forth more players on the field. Globally, the evaluation of the nature of the sport and the aspect like balance required by players to remain efficient on-field is on the rise although, the literature of this same nature remains undocumented in Sri Lanka. The aim of the current study was to assess the balance status amongst under-19 rugby players.

Methodology: A detailed contextual analysis was performed on the data collected. A case study design was used on the all the players in a team (n=35) in the under-19 players' division of a school rugby team. The data was measured using standardised tests known as the Balance Error Scoring System (BESS) Test and tandem walking.

Results: The sample consisted of players with ages below 19 years that played in varied positions on-field. The tests used focused on balance in the single-leg stance (Non- Dominant Leg) and tandem walking. Ultimately, the results were categorized into three main areas namely, completed with no difficulties, completed with minor difficulties and completed with major difficulties. Accordingly, the results obtained for the single-leg stance stated that 21% completed the task with no difficulties, 24 % completed the task with minor difficulties and 56% completed the task with major difficulties. Moreover, majority of the players performed tandem walking with minor difficulties concluding to 68% whilst, 6% and 27% completed the task with no difficulties and major difficulties respectively.

Conclusion and Recommendations: Players had low-to-moderate level of balance which reflects that they are more prone to injuries and further studies should be performed in order to find the causative factors.

Keywords: *Balance, Proprioception, Rugby, Rugby Players, Injury, Muscle deactivation*

Action research on Teaching ESL in a grade 10 public school classroom in Mathugama Education Zone

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Introduction: This paper offers an example of applying action research to identify challenges and areas of improvement in teaching English-as-a-Second-Language (ESL) instruction in a public school for grade 10 students whose first language is Sinhala in Mathugama Education Zone.

Methodology: This qualitative research was conducted over a three-month period while the researcher taught 28 lessons with 40 teaching hours over a three-month period in the year 2019. The underlying goal of the study was to understand ESL content delivery methods with student response to the teaching methods. Data sources were curriculum and lesson plans, supervisor observations, teacher's portfolio, students' work samples and feedback, and reflective journal entries of the teaching.

Results and Discussion: Themes covered in teaching ESL were teaching writing (letters, notices and banner content), grammar (Imperatives, punctuation marks, adverbs and prepositions) as well as reading on modes of information and the internet. The mixed-ability group of students had various levels of difficulties in reading, writing and grammar. The teacher observations were that some students did not show interest to do the activities in reading, writing and grammar as well as lethargic behavior, less ability of constructing sentences and the impression that writing was a really difficult task, and less ability to think and imagine situations.

Conclusion: The identified challenges need to be addressed through group activities with assigning group leaders to assign duties to each and every member according to their level to get the maximum participation, to get each and every student to engage in activities and present their answers to the class and helping them to overcome difficulties. Students should be given activities to expose them to pay more attention to the surrounding environment.

Keywords: *Action research, English as a Second-Language, Teaching methods*

Awareness of Bronchial Asthma among Parents of Asthmatic Children

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Introduction: Asthma is one of the most common chronic conditions in childhood and affected an estimated 300 million individuals worldwide. International and national guidelines have, therefore, produced recommendations for effective asthma management based on the best scientific information available. The Global Initiative for Asthma states that an important part of effective asthma management is to give adults and children with asthma the ability to control their own condition with guidance from healthcare professionals. Guided self-management reduces asthma morbidity and anxiety in children. Adult education significantly reduced future hospital admissions and improved symptom control. Increased awareness regarding asthma was associated with improved lung function and self-efficacy, a reduction in days of restricted activity, low-levels of school absenteeism, infrequent visits to clinics and fewer nights disturbed by asthma. Education for caregivers of children with asthma resulted in a significant increase in asthma awareness, management behaviour and quality of life. The aim of this study was to assess the awareness on asthma among parents of asthmatic children (0-18 years) at the outpatient clinic.

Methodology: Data were collected using an interviewer-administered questionnaire and they were analysed using descriptive statistics. As the participants of the research, 50 parents of children with asthma were selected using convenience sampling. Association between knowledge scores and demographic and psychosocial variables were assessed. Most questionnaires to evaluate awareness were limited, outdated or specific for adults. Hence, an adapted and evaluated new questionnaire for the caregivers of asthmatic children was used for this study. This 10-item questionnaire proved to be reliable and could be used to establish the awareness regarding asthma among parents within a short period of time.

Results and Discussion: Among 50 participants, 44% were female and 56% were male participants. A significant number of parents with higher educational level had better asthma awareness. A majority of parents (98%) with a good level of education had a good awareness of asthma signs and symptoms, triggering factors and asthma medications. However, most of the parents who have not got good education had no clear idea about asthma signs and symptoms, triggering factors or Asthma medications. Parents showed more awareness of the traditional methods of medication. Asthma awareness of the parents had no correlation between the severity of asthma and the duration of the child's airway problems or time since diagnosis.

Conclusion: Education of parents concerning the working mechanism, indications and use of asthma medications were essential parts of asthma education. Education regarding asthma control would need to be repeated frequently to parents of children with long-term airway problems or diagnosed asthma. Special attention should be paid to parents with low levels of education. Awareness regarding asthma is important for both patients and caregivers. This showed the importance to adjust asthma education to the educational level of the parents and to pay extra attention to the use of medication.

Keywords: *Bronchial asthma, Triggering factors*

A Study on the Level of Depression among Senior Citizens in Aged Care Centers in Gampaha District, Sri Lanka

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Introduction: Depression is more than a sad or blue sensation. It is a prevalent but severe mood disorder that requires therapy. It creates serious symptoms that influence how you feel, think, and manage everyday tasks like sleeping, eating, and working. Sri Lanka is one of the world's fastest-age nations. It is anticipated that this fast demographic transition will lead to an elderly population of one quarter by 2041. As a consequence, the nation is faced with profound difficulties, particularly in the planning of appropriate elderly-oriented facilities in the social care and healthcare industries. In reaction to this need, many initiatives have been put in place to support and safeguard elderly people's welfare. The aim of this study is to assess the prevalence and associated factors of the level of depression among senior citizens in aged care centres in Gampaha District.

Methodology: Institution-based, descriptive, cross-sectional study was conducted among 210 senior citizens aged between 60-80 years in six aged care centres in Gampaha District from October to November 2019. Convenience sampling method was used for the selection procedure to select respondents. Aged care centres were selected using simple randomisation. Fifty participants were included as a cluster which was available at the time of data collection. Informed consent was obtained prior to the study. A self-administered questionnaire was used. Depression was assessed using a modified and culturally-adapted Geriatric Depression Scale (GDS) – short form. Data were analysed using Excel and Statistical Package for Social Sciences (SPSS) version 20.

Results and Discussion: It was shown that the score of 5 was observed in 40 participants and 18.9% of the study population, which indicated depression as mentioned in the GDS. Ages of 60-69 years had the most common number of participants with a frequency of 81 (38.2%). The study consisted of 157 females (74.1%) and 55 males (25.9%). The majority of the participants were only educated from year 6-11. The study consisted of 89 non-married participants mainly with a percentage of 42%. Depression was observed in 146 participants from the whole 212 study sample (68.8%). Correlation between age and score showed that males of over 80 years old had a high mean depression score. Overall, it has shown that females from any educational background had the highest mean depression score.

Conclusion: More attention should be paid on reducing the stress levels among senior citizens, which will reduce the prevalence of depression among them. Further studies are warranted to identify the reasons why they get depressed and ways to minimise the stress levels among them.

Keywords: *Depression, Senior, Old, Citizens, Aged Care, Sri Lanka*

An Evaluation of a Life Skills Promotion Programme Conducted for School Children in Galle, Sri Lanka

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Introduction: Deliberate violent behaviour, substance abuse and risky sexual behaviours have emerged in the recent past as significant public health issues in adolescence. Life skills play a vital role in controlling such behaviours. Curriculum-centred life skills teaching has not achieved the desired outcome. An evidence-based programme was designed and piloted in Galle schools in 2017-2018 as a collaborative effort by Health and Education authorities. The programme consisted of lecture-discussion sessions for Grade 10 students and for their parents, delivered by a panel of resource persons. The aim of this study was to assess the effects of life skills promotion programme designed for school children in Galle.

Methodology: A school-based qualitative study was conducted using focused group discussions (FGDs) with students and in-depth interviews (IDIs) with teachers. Three FGDs were conducted in three schools with 10 students in each FGD and two teachers were randomly selected for the IDIs from each school. A semi-structured interviewer guide was used in data collection. Informed consent was obtained from all the participants prior to data collection.

Results and Discussion: The majority of the students had positively changed as they have created targets in their lives and many have focused their attention on them. Students were motivated to seek help from different sources to quit substance use and had developed skills to seek help from teachers for their psychosocial issues. Improvement in help-seeking behaviour was reaffirmed by teachers. Most of the students and teachers highly praised the opportunities given to parents to participate in the programme.

Conclusions and Recommendations: It was highlighted by many participants that repetition of similar programmes will make a sustaining impact. Positive outcomes, as desired, had been achieved to a certain extent. The involvement of parents in the programme had made it a valuable activity. A quantitative, prospective study is warranted to see the long-term impact of the programme.

Keywords: *Life skills programme, Adolescents, Substance use, Violent behaviour, Sexual behaviour*

**Assessing the Awareness about Dietary Supplements and Related Adverse Effects
among Male Gym Goers in Gampaha District, Sri Lanka**

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Introduction: - Dietary supplements can be beneficial to health but can be harmful also. Utilization of over the counter dietary supplements is well known among gym goers nowadays. Although most dietary supplements might be considered as protected when taking at the recommended portions, gym goers ought to know about the potential dangers connected to the utilization of dietary supplements. Many of them contains active ingredients that can have strong effects to the body. Coincidental or intentional use of various supplements like stimulants, estrogenic mixes and anabolic agents causes unfavorable impacts to the body. The aim of the study was to describe the knowledge on dietary supplement awareness among Male gym goers. It was carried out in Gampaha district Sri Lanka in 2019. In the study male gym goers are selected as the population. Among them 18-35 male gym goers were chosen and 100 of them are the sample size. The objective of this study was to investigate on the knowledge about the dietary supplements and related adverse effects of dietary supplements among the male gym goers.

Methodology: A descriptive quantitative study was conducted in which 100 male gym goers in Gampaha district who belonged to the age category 18-35 year were assessed by using a self-administered questionnaire.

Results and Discussion: Majority (51%) of the participants take amino acids as dietary supplements while majority of the participants (45%) were taking dietary supplements based on the instructions given by gym instructor and 17% of participants mentioned that they take dietary supplements with a prescription of a doctor. Majority (85%) of participants were aware that some chemicals in dietary supplements cause adverse effects. There were 24% who had experienced supplement related adverse effects but non-of them had to face severe adverse effects.

Conclusion: - There are no any significant and severe adverse effects caused to the gym goers by dietary supplement usage. Gym goers had satisfying knowledge about dietary supplements.

Keywords- *Dietary supplements, Adverse effects*

The Image of Nursing Profession as Perceived by the Advanced-Level Students in Kalutara District, Sri Lanka

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Introduction: The nursing profession is a valuable, globally-accepted profession. However, in Sri Lanka, the image of the nursing profession is somewhat different from other countries. Not many are willing to enter into nursing profession in Sri Lanka, as most of the students who are studying in the science stream are trying to be a doctor or move into other professions when they cannot become one. This could be because of a negative image the profession has in people's minds. This reduces the number of people entering the profession which, in turn, affects the development of the profession. Hence, the aim of this study was to evaluate the image of the nursing profession among school students (A/L) in Kalutara District, Sri Lanka.

Methodology: The research was a descriptive, cross-sectional study, conducted among 120 students selected equally from two different government schools. A self-administrated questionnaire was used to collect data and data were analysed using Excel.

Results and Discussion: From the total sample, 54.2% (n=65) were male and 45.8% (n=55) were female students. According to the results, it was found out that 69.2% were not interested in accepting nursing as their future profession and from them, giving the reasons as 'it is a stressful job' (32.5%), it would limit their free time (26.5%) and not interested in doing night duties (34.3%). Though 42.5% of the students have their family members working as nurses, 21.67% of them did not like selecting nursing as their future profession.

Conclusion and Recommendations: The image of the nursing profession among the Advanced Level students in Kalutara District was not satisfactory. There is a need to take measures to improve the image of the nursing profession and further research are required to understand ways of developing the profession.

Keywords: *Image, Nursing profession, A/L students*

**Factors Affecting Stress among First-Year Student Nurses in College of Nursing
Ampara, Sri Lanka**

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Introduction: Students are subjected to different types of stressors such as academic-related pressure with an obligation to succeed, an uncertain future and difficulties of integrating into the system. Stress among student nurses may affect their academic performances and that in turn, may affect negatively to the patient care and the profession when they become working nurses. The objective of this study was to find the factors affecting stress among first-year student nurses.

Methodology: A quantitative, descriptive study was done among 100 first-year student nurses using a self-administered questionnaire. The sample was selected using convenience sampling technique. Data were analysed using Microsoft Excel software.

Results and Discussion: Among 100 participants, 43.5% of the students were suffering from poor clinical adjustments, while 44% of the students were with fear and diffidence regarding academic performances and to face the first-year exam. Nearly half of the participants (41%) stated that they are having stress when it came to adjusting to the new lifestyle as a nursing student.

Conclusion: It can be concluded that the first-year student nurses in the college of nursing, Ampara were afraid thinking about the unknown clinical environment, adjustment to the new lifestyle and were afraid of failing the first-year examination. It is important to take actions and introduce lifestyle modifications to reduce stress among them and it may facilitate them to follow the course successfully.

Keywords: *Stress, Student nurses*

Knowledge and Attitudes Regarding Palliative Care for Cancer Patients among Nursing Students in College of Nursing –Ampara, Sri Lanka

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Introduction: Palliative care is an approach for nurse to improve quality of life of the patient and their families who are facing a life threatening illness. A patient deserve to be care for in a human nature one is approaching death. The objectives of this study is to assess the knowledge and attitudes regarding palliative care for cancer patients among nursing students College of Nursing, Ampara.

Methodology: A quantitative cross sectional study was done among 100 student nurses from 2015 - B and 2016 - A batches using a self-administered questionnaire. Sample was selected using convenience sampling technique. Data was analyzed using Microsoft Excel Software.

Results and Discussion: Among 100 participants, 55% Participants know the meaning of palliative care and 67.3% know about the importance of palliative care while only 58% participants know the principle of palliative care. 83.6% respondents have the knowledge about consist of palliative care while 81.6% nursing students recognized pain management in palliative care. 58.3% participants have the idea about consequences of palliative care while 61.3% of students know drugs of use in palliative care. 75.53% students know that cancer patients cannot recover from palliative care. Finally, 69.17% of students have knowledge and positive attitudes regarding palliative care for cancer patients while 30.83% of respondents does not understand about palliative care.

Conclusion: Overall, majority of students have good knowledge and positive attitude regarding palliative care for cancer patients. However, it is necessary to educate all nursing students regarding palliative care, thereby fulfilling the goal of achieving holistic care.

Keywords: Student Nurse, Palliative Care, Cancer

Perception of Using Facebook for Nursing Education among Students of College of Nursing, Ampara, Sri Lanka

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Introduction: The rise of social media has provoked both optimism about potential societal benefits and concern about harms such as addiction, depression, and political polarisation. As a social media Facebook plays a major role in teenager's behaviour and lifestyle. It becomes an important source of obtaining new knowledge. Nursing students also use Facebook to study as other field workers. Hence the objective of this study was to assess the perceptions of using Facebook among nursing students.

Methodology: A quantitative, cross-sectional study was conducted among 150 student nurses selected using convenience sampling. A self-administered questionnaire was administered to the participants and obtained data were analysed using Microsoft Excel's software.

Results and Discussion: From all participants, 66.6% of the student nurses use Facebook one-to-two hours a day, 60% are using Facebook at hostel or home and a majority of them use 'Medical Information & MCQs by NM Noori' Facebook page and 'Drug Bank' Facebook page for education purposes. A higher percentage of 82% do share and upload nursing related posts and 36.6% share more than 10 posts a day. A majority of the student nurses (88%) stated that Facebook is helpful for their education whereas 12% stated Facebook is a disturbance to their studies.

Conclusion: A majority of the nursing students used Facebook, even though it was regarded as a disturbance to the education by some of the students. However, some students use Facebook for educational purposes. Further studies on how to effectively and efficiently manage the usage of Facebook is warranted.

Keywords: Facebook, Nursing education