

CONFERENCE PROCEEDINGS



**Healthcare and Biological Sciences Research Association
(HBSRA)**

**ICHLSR Sri Lanka - International Conference on
Healthcare & Life-Science Research, 27 Oct - 28 Oct, 2018**

27 – 28 October, 2018

Conference Venue
Galle Face Hotel, Colombo, Sri Lanka

KEYNOTE SPEAKER



Dr Anoja Attanayake
Senior Lecturer in Biochemistry, Faculty of Medicine, University of Ruhuna, Sri Lanka
Biography

Dr Anoja Attanayake, Senior Lecturer in Biochemistry, Faculty of medicine, University of Ruhuna, Sri Lanka

Research Focus

Bioactivity studies of medicinal plant extracts of Sri Lankan origin, isolation and characterization of antidiabetic, antihyperlipidaemic and antioxidant compounds, antidiabetic and nephroprotective mechanisms of natural products; beta cell regenerative effects in animal models and in cell cultures, discovery of acetylcholine esterase inhibitors towards the management of Alzheimer's disease.

Achievements

The recipient of gold medal for the excellent performance during the post graduate study 2013, University of Ruhuna, Sri Lanka , post graduate research award of SLAAS, Sri Lanka in 2015, award for the most outstanding young researcher -2016, University of Ruhuna, Sri Lanka etc. Grant recipient, principal investigator, co- investigator of collaborative research projects, supervisor for post graduate research work, editorial member of refereed journals etc.

**Emmanuel Anyachukwu
Ironi
GICICHLSR1812051**

Anti-Oxidative and Modulatory Properties of Kernel Flours Extracts of Three Nigerian Local Mango Varieties on Enzymes Relevant to Metabolic Syndrome, In Vitro

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Abstract

Metabolic syndrome (MS) is still a major global health challenge with increasing prevalence, notwithstanding the advances in modern medicine. However, dietary therapy, using functional foods and nutraceuticals, provides an affordable and effective approach for managing the various components of MS, including obesity, hyperuricemia, type-2 diabetes (T2D) and hypertension. Recent studies have shown that mango kernel flour is a rich natural source of some phytochemicals with important health benefits. Hence, this in vitro study evaluated the anti-oxidative and modulatory properties of the kernel flours extracts of three Nigerian local mango varieties (Sherri, Ogbomoso and Elemi) on some enzymes [pancreatic lipase (PL), xanthine oxidase (XO), α -amylase, α -glucosidase and angiotensin 1-converting enzyme (ACE)] relevant to the development of MS. Flours were prepared using fresh ripe mango fruits of each local mango variety. Methanol extracts, prepared from the flours, were used for all the assays by Spectrophotometric methods. All the three mango varieties strongly inhibited the activities of PL, XO, α -amylase, α -glucosidase and ACE. However, Elemi significantly ($p < 0.05$) had the strongest inhibitory effects on all the enzymes, followed by Sheri and Ogbomoso. Consistently, Elemi had the highest antioxidant phytochemicals (total phenols, total flavonoids, tannins and total saponins) contents, and displayed the strongest (significant at $p < 0.05$) free radicals (2,2'-azino-bis-3-ethylbenzthiazoline-6-sulphonic radical cation, [ABTS*+] and 2,2-diphenylpicrylhydrazyl radical, [DPPH*] scavenging activities, followed by Sheri and Ogbomoso. Through the inhibition of PL, XO, α -amylase, α -glucosidase and ACE, extracts of the kernel flours of the three mango varieties may be beneficial for retarding the rate of production of fatty acids, uric acid, angiotensin II and glucose, representing an important approach for managing obesity, hyperuricemia, T2D and hypertension, respectively. The mango kernel flours, especially Sheri, may therefore be harnessed to develop low-cost nutraceuticals for managing MS.

Keywords: Mango kernel flours; Antioxidants; Hyperuricemia; Obesity; Hypertension; Type 2 diabetes; Enzymes inhibition



Balaji Hari
GICICHLSR1812052

Evaluation Of Anti-Obesity And Insulin Sensitizing Activity Of Bioactive Factors Isolated From Cucumis Pubescens And Cucumis Sativus In High Calorie Diet Induced Obese Mice Model.

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ABSTRACT

Obesity cannot be considered as a cosmetic issue anymore because it has turned out to be a potential risk factor to develop, hypertension, type-2diabetes and CVDs. Obesity levels have reached epidemic proportions due to changed work cultures, reduced physical activity due to advanced machinery/implements, food habits and life styles. In the market a few FDA-approved synthetic drugs are available, but they have considerable side effects and therefore research efforts are directed to develop novel and effective therapeutics with no or minimum side effects. Considering the rich and varied biodiversity of plant kingdom, natural product based medications have gained research focus to develop therapeutics for various diseases. In our Ayurvedic literature and traditional systems of medicine many plant species have been cited to possess antidiabetic and antiobesity effects, but they lack systematic and scientific validation to a level that they can be used/prescribed for human usage. With this backdrop, the main aim of this study is to develop effective molecules from dietary components to treat obesity and diabetes. Based on literature and preliminary work done in our laboratory, Cucumis pubescens and Cucumis sativus will be selected to isolate fractions and bioactive factors and evaluate their antihyperglycemic and antiobesity activity in mice model. The experiments include preparation of major extracts, fractions and bioactive factors from these plants based on bioactivity guided fractionation using column chromatography, HPLC and NMR spectrometry.

For In-vivo studies, mice will be obtained from National Institute of Nutrition, NCLAS, Hyderabad, or National Animal Resource Facility (NARF), Hyderabad, put in animal house and well maintained cages with hygienic conditions. They will be randomly divided in to groups and fed with high fat diet for 20 weeks to induce obesity. The isolated cucumis extracts/ fractions will be orally administered from 15th to 20 weeks, using an intragastric tube. Body weight, body composition, blood glucose, insulin, insulin resistance, OGTT and plasma levels of leptin, adiponectin, amylase and lipase activities will be measured. Plasma and tissue lipid profiles, histopathological examination of adipose and liver tissues will be done in experimental mice. Expression of key markers of carbohydrate, lipid metabolism and adipogenesis will be studied by western blot analysis. Outcome: At the end of the present study we will be able to demonstrate the antiobesity and antidiabetic activity of Cucumis fractions/bioactive factors.



Safiya Aliyu Tijjani
GICICHLR1812053

Investigation On The Prevalance Of Nutrition On The Onset Of Menopause Among Women Working At Kaduna Polytechnic

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Abstract

Every human has the drives of aging healthfully or living with sickness and poor quality of life. Nutrition has a major role in protecting health and slowing disease progression. Good nutrition is essential during any part of life, but particularly during the menopausal transition. A survey was conducted on the: “Prevalence of Nutrition on the Onset of Menopause (Case Study Women Working at College of Science And Technology Kaduna Polytechnic)”. Questionnaire was designed to generate information on the respondent’s demographic, anthropometry, and dietary intake. The instrument was validated and a pilot study conducted. The questionnaire was then adjusted to accommodate observations arising from the pilot study before definitive study was carried out. One hundred and forty respondents (140) were used for this study. The respondents are women working in the College of Science and Technology Kaduna Polytechnic. Data on respondent’s dietary habit, food frequency questionnaire was used to assess their eating habit, also body mass index was compared with WHO reference standard. Research revealed that majority of the respondents dietary habit is more of carbohydrates and protein with low consumption of fruits and vegetable and little or no soy food products. Nearly half (42.1%) of the respondents were overweight (pre-obese) while 33.6% are obese. Almost all of the respondents experienced various kinds of menopausal symptoms; most common are hot flashes 42.1% and body pains 30.7% and vaginal dryness 29.1%. Respondents used different kinds of supplements notably calcium 28.5%, vitamins 21.4% and herbs 14.3% to cushion the severe effect of the symptoms.. Research findings conclude that there is lack of awareness on the importance of nutrition in relation to the onset of menopause among some of the women. Women were recommended to consume food from natural food sources rather than supplements in order to obtain recommended dietary intake (RDA).Regular exercise and routine BMI monitoring should be encouraged and the establishment of community menopause clinic for the betterment of the menopausal women in order to promote longevity.

Keywords: Diet, Menopause, Nutrition, Symptoms.

**Sammer Marzouk
GICICHLR1812054**

The Molecular Evolution Of Amylase Duplicate Genes In D. Melanogaster Group

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	<p style="text-align: center;">Abstract</p> <p>Within <i>D. melanogaster</i>, the Amylase gene designation is made up of duplicate genes that can be designated as proximal or distal genes. Studies have divided up <i>Drosophila</i> coding regions by these classifications. And within these subgroups, there are significant evolutionary similarities and differences. These overlaps have caused for there to be an ambiguity when it comes to the relationship between these two subgroups. Do proximal and distal genes evolve independently (if distal genes cluster with their orthologs) or not (if the paralogs cluster)? By looking at the DNA material of nine species from the <i>D. melanogaster</i> Group, this paper conducts advanced genetic and statistical analyses using specialized software. By creating dependent and independent phylogenies for the nine species and conducting advanced bootstrap parameters on them, the paper demonstrates that it is more likely that the relationship between the proximal and distal genes is one of dependent evolution. This supports the notion that there exists a form of positive selection acting upon a coding region. For future research, The same analysis could be done using the amylase regulatory region. This analysis could provide insight into the relationship of upstream sequences of proximal and distal genes, multiple alignments and putative regulatory elements. And in future follow-ups, it could focus on the nucleotide divergence that appears to be taking place.</p>
<p>Leia Erica Serrano GICICSSH1812067</p>	<p style="text-align: center;">Teenage Mothers: Ensuring Health and Well-being Through Equal Access to Services Through Online Platform</p> <p style="text-align: center;">Leia Erica Serrano Basic Education Department, Lorma Colleges Senior High School, San Juan, La Union, Philippines</p> <p style="text-align: center;">Amira Zoe T. De La Cuesta Student Researchers, Lorma Colleges Senior High School</p> <p style="text-align: center;">Katrina Zen Alviar Student Researchers, Lorma Colleges Senior High School</p> <p style="text-align: center;">Venus Mae P. Medina Student Researchers, Lorma Colleges Senior High School</p> <p style="text-align: center;">Fernando Oringo Research Advisers, Lorma Colleges Senior High School</p> <p style="text-align: center;">Abstract</p> <p>The third Sustainable Development Goal (SDG) which is to “ Ensure healthy lives and promote well-being for all at all ages. “ states that by the year 2030 every human on the planet has an access to healthy lives not only in good mental and physical health but also maternal health for it also proposes to end preventable maternal mortality. The target for universal maternal health access has been elevated. Although suggested targets may change as a result of the consultation process, they give us a good sense of the specific areas in which public and private investment will need to be channeled. According to Philippine Statistics Authority, while under-five mortality has declined slightly in recent years from 54 deaths per 1,000 births in 1988-92 to 48 deaths for the period 1993-1997, infant mortality rates have remained unchanged at about 35 deaths per 1,000 births. This study aimed to solve the problems: a) What are the existing programs and services that caters the health and well-being of teenage moms?, b) How do teenage moms acquire information and services from their locale?, and c)How can an online platform help teenage moms in ensuring good health and well-being? This action research made use of interview to the teenage moms of San Juan, La Union. As a result,</p>

	<p>the researchers came up with an action plan on addressing the third SDG that focuses on the health and well-being of teenage moms. With the said program, the teenage moms will be able acquire the necessary information and support with the aid of technology. Teenage moms requires a huge amount of support from the society in order to stay away from the stigma and allow them to explore further opportunities and raise their own children.</p>
<p>Hemantha Bandara GICICHLR1812057</p>	<p style="text-align: center;">Psychological Morbidity in Adult Survivors of the 2016 Landslide in Aranayaka, Sri Lanka</p> <p style="text-align: center;">Hemantha Bandara Aneasthesia, Base Hospital Nikaweratiya, Sri Lanka</p> <p style="text-align: center;">Abstract</p> <p>Introduction and Objectives</p> <p>A large landslide affected Aranayaka in the Kegalle District in Sri Lanka in May 2016 leaving many residents dead or injured and the survivors displaced in temporary camps. This study assessed the prevalence of psychological morbidity one year after this incident.</p> <p>Methods</p> <p>A descriptive cross-sectional study was carried out in the relief camps among adult survivors. The number of individuals selected from each site was determined applying probability proportionate to the size technique to achieve a sample size of 405. A self-administered questionnaire, consisting of socio demographic details, the extent of the trauma and the psychological support received and a Sinhala version of the K-10 and PSSR-17 questionnaires were administered after informed consent.</p> <p>Results</p> <p>The prevalence of depression and moderate or severe PTSD were 22.5% and 19% respectively. Both depression and moderate or severe PTSD were present in 11.6% and 29.9% had either depression or moderate/severe PTSD. Lower educational level(P=0.03), single status(P=0.007), lower economic status(P<0.001) and past history of physical(P=0.044) and psychological(P=0.004) illnesses were associated with depression. Female gender(P=0.026), single status(P=0.028), lower economic status(P=0.000), Tamil ethnicity(P=0.007) and chronic physical illness(P=0.002) were associated with PTSD. Depression and PTSD were also related to exposure to traumatic events(P<0.001).</p> <p>Conclusion</p> <p>Nearly a third of those affected by the disaster had depression or PTSD a year after the event. Those of a lower income and education, females, single, widowed or divorced and those with a history of physical illness or past history of psychological issues were at higher risk.</p>
<p>Pius A L Berek GICICHLR1812058</p>	<p style="text-align: center;">Pius A L Berek Nursing Program at University of Timor, University of Timor, Atambua Campus, Atambua, Indonesia</p> <p style="text-align: center;">Florida Be Nursing Program at University of Timor, Atambua Campus, Jl. Wehor Kabuna Haliwen Atambua, East Nusa Tenggara</p> <p style="text-align: center;">Yusfina Modesta Rua Nursing Program at University of Timor, Atambua Campus, Jl. Wehor Kabuna Haliwen Atambua, East Nusa Tenggara</p>

	<p style="text-align: center;">Christina Anugrahini Nursing Program at University of Timor, Atambua Campus, Jl. Wehor Kabuna Haliwen Atambua, East Nusa Tenggara</p> <p style="text-align: center;">Abstract</p> <p>Adolescence is a time when individuals are at the highest social mobility . This high social mobility will open up opportunities for him to be exposed to various social, cultural, cultural, as well as physical and psychological changes . As a result, these adolescents have a high susceptibility to the transmission of various types of diseases, especially HIV / AIDS. Lately there is a tendency to increase cases of HIV / AIDS, especially in teenagers who are still very productive age. This study aims to analyze the relationship between sex and age with the level of adolescent knowledge about HIV / AIDS in SMAN 3 Atambua. The method of analysis is based on the type of data that is gender characteristics and age as independent variable and level of knowledge as dependent variable . Furthermore, the analysis test using two stages of univariate analysis and bivariate analysis. The results of the bivariate analysis using chi square note there is no relationship between age and level of knowledge of adolescents with HIV / AIDS (p = 0.591 at 0.05 alpha) but there is a significant relationship between sex with adolescent knowledge level about HIV / AIDS with p = 0.010 at alpha 0.05. Increasing counseling in adolescents, especially adolescent boys through peer groups involving the school becomes an important thing to be prioritized considering the age of adolescents is the most valuable asset of the nation.</p> <p>Keywords : HIV / AIDS, gender, age, youth knowledge</p>
<p style="text-align: center;">Yuqi Wang GICICHLR1812059</p>	<p style="text-align: center;">Predicting Diagnosis of Cancer in National Health and Nutrition Examination Survey</p> <p style="text-align: center;">Yuqi Wang The Gilbert School, Winsted, CT, USA</p> <p style="text-align: center;">Abstract</p> <p>Objective: This study aims to 1) examine the predictors of cancer diagnosis 2) build a predictive model for diagnosis of cancer using artificial neural network and compare its performance to logistic regression model.</p> <p>Data and Methods: National Health and Nutrition Examination Survey (NHANES) 2013-2014 data was used in this study. NHANES is a program of studies designed to assess the health and nutritional status of adults and children in the United States.</p> <p>All the participants who were eligible were randomly assigned into 2 groups: training sample and testing sample. Two models were built using training sample: artificial neural network and logistic regression. We used these two models to predict the risk of cancer diagnosis in the testing sample. Receiver operating characteristic (ROC) were calculated and compared for these two models for their discrimination capability and a curve using predicted probability versus observed probability were plotted to demonstrate the calibration measure for these two models.</p> <p>Results: About 9.5% (n=545) of 5741 participants experienced Cancer, about 10.3% among the female and 8.5% among the male. According to the logistic regression, the likelihood of being a victim of cancer increased when the participants aged. The risk of cancer decreased among Non-Hispanic Asian. Cancer diagnosis risk trended up as people had more years of education. According to this neural network, the top 5 most important predictors</p>

	<p>were whd020 (current self-report weight), other Hispanic, other race and whq030 (how do you consider your weight) and Mexican American. Race and weight were significantly associated with cancer diagnosis. For training sample, the ROC was 0.80 for the Logistic regression and 0.84 for the artificial neural network. Artificial neural network performed better clearly. Meanwhile in testing sample, the ROC was 0.79 for the Logistic regression and 0.78 for the artificial neural network. Artificial neural network and Logistic regression had similar performance. Conclusions: In this study, we identified several important predictors for being a victim of cancer e.g., race and weight. This provided important information for patients and physicians. We built a predictive model using artificial neural network as well as logistic regression to provide a tool to identify high risk patients for cancer based on basic demographic information and weight. As to performance of these two models, logistic regression and artificial neural network had a similar discriminating capability.</p>
<p>Parimalakrishnan Sundararajan GICICHLSR1812060</p>	<p>Impact of Statin Guidelines on Utilization and Socioeconomic Status in the Hypertensive Patients: Lesson from Indian Community Pharmacy Practice</p> <p>Parimalakrishnan Sundararajan Department of Pharmacy, Annamalai University, Annamalai Nagar, Tamilnadu, India</p> <p>Madheswaran. M JKK Sampoorani Ammala College of Pharmacy, Komarapalayam, India</p> <p>Anton Smith A Department of Pharmacy, Annamalai University, Annamalai Nagar, India</p> <p>Manivanan. M JKK Sampoorani Ammala College of Pharmacy, Komarapalayam, India</p> <p>Abstract</p> <p>Aim: To assess drug utilization patterns and impact of statin guidelines on utilization pattern among hypertensive patients. Method: This was a prospective quasi-experimental study.</p> <p>Methods: Prescriptions of 470 patients were collected at pharmacy attached with two private hospitals in an ambulatory setup. The data were collected from selected patients at two points, prior and after issuing statin guidelines to the physicians. Changes in statin utilization pattern and prescribing pattern of statin and after the issuing of guidelines were compared using segmented regression analysis. The negative binomial model was used to analyse the time series to estimate the impact of guidelines rate ratio (IRR) following the intervention.</p> <p>Result: The statins were prescribed commonly and majority in hyperlipidemia, diabetes mellitus, myocardial infarctions, ESRD patients other than hypertensive patients. 25.5% of statins were prescribed in generic name. Among them 57.7%, 40.8% and 1.5% were atorvastatin, rosvastatin and simvastatin respectively. The intervention was associated with a significant reduction in the use of statins by 80 defined daily doses (DDDs)/1000 occupied bed-days (OBDs) per month [95% confidence interval (CI) 34.18-176.48, P<0.001]. There was a significant change in prescribing to statin to socioeconomically low patients [IRR 0.34 (0.20-0.58), P<0.0001].</p> <p>Conclusions and Recommendation: Though awareness has improved the statin utilization but not within acceptable limits while prescribing to socioeconomically low patients. The study showed that more serious awareness may be needed to achieve it which would reduce not only the</p>

	<p>cost but also complications and reduce frequent visit to health facilities or doctors.</p>
<p style="text-align: center;">Han Cui GICICHLSR1812061</p>	<p style="text-align: center;">Predicative Models to Detect Undiagnosed Diabetes Using Big Health Data in US: Logistic Regression versus Artificial Neural Network</p> <p style="text-align: center;">Han Cui Sage Ridge School, Reno, Nevada</p> <p style="text-align: center;">Abstract</p> <p>Backgrounds: Artificial neural networks (ANN) are new methodological tools based on nonlinear models. They appear to be better at prediction and classification than traditional strategies such as logistic regression. This paper compared both approaches to predict undiagnosed diabetes in US.</p> <p>Methods: The study population comprised patients in National Health and Nutrition Examination Survey (NHANES), which is a series of stratified, multistage probability surveys designed to obtain information on the health and nutritional status of the civilian, US population. We used NHANES 2013-2014, NHANES 2011-2012, NHANES 2009-2010, NHANES 2007-2008, NHANES 2005-2006 data. The network had three layers: 8 neurones in the input layer, 3 in the hidden layer and 1 in the output layer. Discrimination was determined using receiver operating characteristic curves.</p> <p>Results: A total of 11474 patients were recruited and 4.27% had undiagnosed diabetes. A random sample of 5500 was chosen as the testing sample and the rest was used as the training sample. The significant factors in the logistic regression were as follows: age, gender, education level, and with pre-diabetes diagnosis. The network included all variables, namely, age, gender, education level, with diabetes risk factors, and with pre-diabetes diagnosis, race, marital status, and under poverty line or not. After logistic regression and network analysis were conducted in the training sample, we used the outputs from both models to predict the likelihood in the testing sample (N=5500). The areas under the receiver operating characteristic curves were 0.742 and 0.744 for the logistic model and the neural network, respectively. There were no significant differences in predictive ability between the approaches.</p> <p>Conclusions: Our proposed model and the specific development method – either logistic regression or neural networks – represent a good opportunity for clinicians to better detect undiagnosed diabetes patients.</p>
<p style="text-align: center;">Subhojit Shaw GICICHLSR1812063</p>	<p style="text-align: center;">Measuring Spatial Accessibility of Primary Health Center Using 2sfca Method in the Tribal District of Gujarat, India</p> <p style="text-align: center;">Subhojit Shaw M.Phil in Population Studies, International Institute for Population Sciences, Mumbai, India</p> <p style="text-align: center;">Abstract</p> <p>Accessibility to health centre is poorly understood in most of the developing countries. Regardless of development, it is a challenge to provide healthcare services to the entire population. To measure the accessibility of primary health centre (PHC), Two Step Floating Catchment Area model has been used in a tribal district (Dahod) of Gujarat, India. This model catches service area twice considering the healthcare facility demand for population as healthcare facility to population ratio followed by measuring accessibility by summing up the initial values within acceptable service area from villages. The study has identified the dark zones of the tribal district where accessibility is less</p>

	<p>due to a shortfall of PHCs and/or insufficient road network. Thus, villagers had to travel a long distance for seeking healthcare facility. This study helps to make appropriate measure in terms of improvement of road network along with construction of more PHCs to serve the population.</p> <p>Keywords: 2SFCA, Accessibility, PHC, Road Network, Service Area</p>
<p>Daham D. Liyanage GICICHL SR1812064</p>	<p style="text-align: center;">Strategic Plan for Healthcare Service Quality Development in Southern Province of Sri Lanka</p> <p style="text-align: center;">Daham D. Liyanage Department of Mechanical and Manufacturing Engineering, Faculty of Engineering, University of Ruhuna, Sri Lanka</p> <p style="text-align: center;">Abstract</p> <p>The purpose of this paper is to address the key issues in healthcare sector in southern province of Sri Lanka and, presenting a strategic plan for the development of the healthcare operations. Also, this paper reviews the current role of healthcare personals and their significance to the health sector.</p> <p>To identify the key issues and problems related to health sector, statistical data and information are gathered from the resource personals. Statistical data related to no. of indoor/outdoor patients, resource availability, disease spreading frequency and birth rates are collected. These data then analyzed to find what parameters greatly influenced to the health of southern province inhabitants and the co-relations. A polynomial regression model is developed to predict future trends of selected health issues which would result in healthcare sector in southern province of Sri Lanka. Cause analysis is conducted in finding the root causes for the health-related issues and problems. Lastly, a strategic plan is introduced to eliminate these current and future challengers to improve the quality of healthcare sector.</p> <p>The analysis found that the southern province has reached a relatively high health status in some of the selected parameters. It is predicted to have a higher value in some of the diseases and improper service distribution by the resource personals which will become health challenges in the future.</p> <p>The strategic plan introduced is based on the root causes analysis for the existing health issues and problems. This includes initial assessment, planning and methods of implementation. Finally, the strategic plan should follow the do, check and act procedure in order to validate the results. The development in the quality of healthcare sector is possible with proper planning, training and education. The contribution provided by the government also an essential factor for the development. The results and analyzed data from this paper would assist for the development and decision making in the healthcare sector.</p> <p>Keywords—Health issues in Southern-province Sri Lanka, polynomial regression model, Root cause analysis, Strategic Plan.</p>
<p>Nirman Charundya GICICHL SR1812066</p>	<p style="text-align: center;">Developing A Screening Tool To Identify Reading Difficulties of Children Age Between 6-7: Pilot Study</p> <p style="text-align: center;">Nirman Charundya Department of Disability Studies, Faculty of Medicine, University of Kelaniya, Colombo, Sri Lanka</p> <p style="text-align: center;">Abstract</p> <p>Title – Developing a screening tool to identify reading difficulties of children age between 6-7 : Pilot study</p>

	<p>Purpose : The purpose of this study, is to develop a screening tool to identify reading difficulties, in children aged 6-7 years (grade 1 completers), and to check the practicability of administration of the screener.</p> <p>Methodology : A descriptive cross-sectional study was carried out in three phases, including development of the tool; Beginner’s Reading Screener – Sinhala (BRS-SI), first pilot session to note the practical and administering issues and the pilot session with the whole sample. BRS-SI was administered with 60 primary education receivers, from 12 schools in three districts in the western province in Sri Lanka. Purposive sampling was used to select students, who have grade level adequate literacy skills with no physical, psychological or sensory concerns, which would influence in literacy skills, to check the practicability of the tool and its administration. BRS-SI included four components to be assessed, which was based on the ERSI; a screening tool developed in the late 1990’s to identify reading difficulties, in early stages. Content analysis was conducted to check the Safety, feasibility, acceptability and sustainability of the screening, when checking the practicability of the screening administration.</p> <p>Results : Participants scored excellent levels in three components; Concept of word, Phonemic awareness and Word recognition. 95% of the participants scored at excellent level while the remaining 5% scored at fairly completed level in the Alphabet knowledge component. The pilot study ensured that the assessment was appropriate to the intended outcomes of the participants. The screening tool was validated by Speech and Language therapists and primary education teachers, which was subjectively viewed, to cover the concept it purports to measure.</p> <p>Conclusions : According to the findings which assist practicability and validity of the screener, it was confirmed as appropriate to be used with the subjects of respective age, to identify the presence of reading difficulties. Transparency and equity were observed to be practiced in the screener.</p> <p>Key Words: BRS-SI, Dyslexia, Early identification of reading difficulties, ERSI, Practicability, Screening of reading difficulties</p>
<p style="text-align: center;">Aroshi Wijesekara GICICHLR1812067</p>	<p style="text-align: center;">Adaptation and Pilot-Testing of The Nair Hospital Bedside Swallowing Assessment Protocol For Post- Stroke Adults In Sri Lanka</p> <p style="text-align: center;">Aroshi Wijesekara Department of Disability Studies, University of Kelaniya, Colombo, Sri Lanka</p> <p style="text-align: center;">Abstract</p> <p>Background: As with most neurologic conditions, stroke involves impairment of the swallowing mechanism. Dysphagia leads to significant life-threatening complications and can lead to an impaired quality of life. Speech and Language therapists have a unique role in the assessment, diagnosis and management of oropharyngeal dysphagia. To diagnose dysphagia, due to limited access to instrumental assessments, Speech and Language Therapists conduct clinical bedside swallowing assessments. Furthermore Speech and Language therapy is a new profession to Sri Lanka and currently there is no agreed– upon comprehensive diagnostic protocol for use by Speech and Language Therapists that is relevant to the local context. Therefore, there is a need to develop a comprehensive local swallowing diagnostic assessment protocol to detect dysphagia. The present study aimed to adapt and pilot- test the Nair Hospital Bedside swallowing assessment for post - stroke adults for use in the Sri Lankan context.</p>

<p>Madhusa Piyumali GICICHLR1812065</p>	<p>Translation and Adaptation of The EAT-10 Screening Tool Into Sinhala to Detect Dysphagia Among Adults In Sri Lanka</p> <p>Madhusa Piyumali Department of Disability Studies, Faculty of Medicine, University of Kelaniya, Colombo, Sri Lanka</p> <p>Abstract</p> <p>Background: Dysphagia is “a swallowing disorder, as a subjective sensation of difficulty or abnormality of swallowing of fluids and/or food.” It leads to life-threatening complications; even death. Swallowing screening tools are pass/fail procedures to identify individuals who require a comprehensive assessment of swallowing function or a referral to other professionals and/or medical services. As speech and language therapy is a relatively new field and Sri Lanka is a resource poor country, there is lack of screening tools to be used by speech and language therapists. However, assessments done in well-resourced Global North countries may not be applicable to our context due to differences in culture, economy, healthcare and technology. The EAT-10 is a validated, self-administered, symptom specific outcome tool that is commonly used in clinical practice to detect patients with dysphagia. This screening tool is quick to administer and has high sensitivity (98.5%) and specificity (94.1%) which could support local speech and language therapists. It is a non-invasive tool to measure patients’ perception of their swallowing problems. The purpose of the current study was to translate and adapt the Sinhala version of the EAT-10 self- administered questionnaire to be culturally appropriate and aphasia friendly.</p>
 <p>Larissa Nonis GICICHLR1812068</p>	<p>Clinical practices related to augmentative and alternative communication among Speech and Language Therapists in Sri Lanka</p> <p>Larissa Nonis Department of Disability Studies, University of Kelaniya, Sri Lanka</p> <p>Abstract</p> <p>Purpose: Offering quality augmentative and alternative communication (AAC) services to clients with Complex Communication Needs (CCN) is a multiplex process. Selecting the most appropriate assessments, to suitable devices is key to the ultimate success and abandonment of such devices. Added to that fact is the particular scarcity of information regarding developing country contexts pertaining to SLT clinical practices and encapsulates the wider implications of this study.</p> <p>Method: Focus group discussion were conducted among nine professionals to construct the interview questions and semi structured interviews were conducted on ten SLT’s working around Sri Lanka in different provinces to identify their current clinical practices with regard to assessment, intervention, benefits and challenges. A priori approach as well as an inductive approach to analyzing the corpus of collected data was incorporated.</p> <p>Results: Through thematic analysis seven major themes were identified; definition of AAC; assessment areas; effectiveness of the device; intervention; benefits of AAC; challenges of AAC; and future recommendations.</p> <p>Conclusion: The study highlighted the main clinical practices of speech therapists from around nine provinces with regard to assessment, intervention, the benefits and challenges that accompany with the use of AAC. It is further important to take into consideration the speech therapists recommendations to improve AAC in a developing country context so as to make this approach more accessible to the client s with</p>

	<p>complex communication needs. Keywords: Augmentative and Alternative Communication (AAC), Complex Communication Needs (CCN), clinical practices, developing country.</p>
<p>Mohamed Riswan Mohamed Rafeek GICICHLR1812069</p>	<p style="text-align: center;">Controllability of Predator Prey Model</p> <p style="text-align: center;">Mohamed Riswan Mohamed Rafeek Department of Mathematics, University of Kelaniya, Colombo, Srilanka</p> <p style="text-align: center;">Abstract</p> <p>Controlling biologically important model is a very impressive field of study. It has been widely used in pest management, chemical controlling, etc. In general, it is worthwhile to understand and control the dynamics of an existing system whose output behaves somewhat closer to the desired output rather than developing a new system which tracks the desired output. Since, it is beneficial for industries in many aspects; low cost, less time, etc. In this study we focus on stability and controllability of predator-prey model. Controllability is obtained by adding source terms as well as initial conditions to governing equations while the stability is obtained by determining the eigenvalues of the Jacobian matrix around equilibrium points. We validate the results using numerical simulations in MATLAB. These numerical results will help to track the population's curves for desired outputs.</p> <p>Consider the governing equations: $\frac{dx}{dt} = ax - bxy \text{ and } \frac{dy}{dt} = -cy + dxy \dots\dots\dots(1)$ $x(0) = \alpha, y(0) = \beta$ where α and β are parameters</p> <p>(i). Controlling by the source term: Let the desired output be generated by $alny - by = 5dx - clnx^3 + v$. Then controlled system for the source term is $\frac{dx}{dt} = ax - bxy + \tau(x, y), \frac{dy}{dt} = -cy + dxy + \varphi(x, y)$; where $\tau(x, y) = 0$ and $\varphi(x, y) = -2cy + 4dxy$ and v is a constant</p> <p>(ii) Controlling by the initial condition: Let the desired outputs be $\bar{x}_1(t) = e(at - byt + \ln(\mu))$ and $\bar{x}_2(t) = e(-ct + dxt + \ln(\Omega))$</p> <p>This desired output can be tracked by changing the initial condition in system (1) $x(0) = \mu - \alpha, y(0) = \Omega - \beta$.</p> <p>These additional values are needed to be added to the previous initial conditions</p> <p style="text-align: center;">Keywords: Lotka_volterra, Asymptotically stable</p>