RuFARS– 2019

"Bridging the Knowledge and Current Needs Through Research"

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Foreword

The 2nd Research Symposium (RuFARS-2019) was organized by the Faculty of Allied Health Sciences, University of Ruhuna, Sri Lanka. The abstracts arisen from diverse disciplines of Allied Health Sciences have been peer reviewed prior to acceptance. The abstracts have been edited to maintain language accuracy and page limits. Responsibilities of the content text of the abstracts included in this publication remain with the respective authors. No part of this serial publication will be reported in any form.

When citing the abstracts published, the serial publication is to be referred to as 'Proceedings of the 02nd Research Symposium, Faculty of Allied Health Sciences, 2019, University of Ruhuna'.

Editors
RuFARS-2019

Message from the Guest of Honour

It is with great pleasure I send this congratulatory message for the proceedings of the "2nd Ruhuna Faculty of Allied Health Sciences Research Symposium (RuFARS-2019)", organized by our newest Faculty; the Faculty of Allied Health Sciences, University of Ruhuna. I am happy to hear that Faculty of Allied Health Sciences is going to have their second research symposium and they have made this as an annual event. The objective of this move is to promote research culture among academics, scientists and students by providing a prestigious platform to share their knowledge and findings.
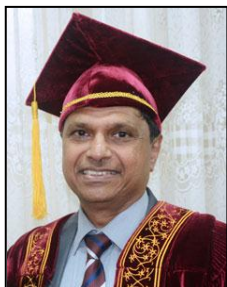
Over the past few years, the field of allied health sciences has shown rapid and remarkable transformations from basics to advanced technologies and approaches. The key factor behind most of these developments and expansions is the evidence generated through research in the various aspects of the health system. I strongly believe that RuFARS-2019 will be an excellent forum to bring healthcare professionals, academics, researchers and policy makers together to share the latest research findings and expertise.

I would like to extend my congratulations and thanks to the Dean and the organizing committee of the RuFARS-2019 for their commitments to make this event a success.

I wish the symposium all the success.

Senior Professor S.G.J.N. Senanayake
Former Vice Chancellor
University of Ruhuna

Message from the Vice Chancellor and the Chief Guest

It gives me an immense pleasure to convey my greetings and good wishes to the Second Research Symposium of the Faculty of Allied Health Sciences (RuFARS-2019) under the theme "Bridging the knowledge and current needs through research". It is a pride for all of us to be successful in organizing this symposium as an annual event of the Faculty of Allied Health Sciences.

Inculcating and promoting research culture by sharing evidence and information among academics, researchers, healthcare professionals and students is one of the key objectives of this research symposium. Conducting RuFARS for the second time is important as it provides opportunity for local researchers to present their research findings to a wider audience that is comprised of academics, clinicians, researchers, policy makers, administrators and other interested parties. It is more so because Faculty of Allied Health Sciences is the youngest Faculty of the University of Ruhuna still struggling to meet day to day needs of academic responsibilities due to limitations in staff, infrastructure and funding while the students demands go up every day. Further, the opportunities available for the allied health sciences field to move forward in research are also limited.

Therefore, all credit to the Dean and academic staff for the successful organization of the event and wish to congratulate the Dean, Faculty of Allied Health Sciences and the organizing committee of RuFARS-2019 for making this event a success.

I wish all the best for all presenters, authors and participants of RuFARS-2019.

Senior Professor T.S.D. Amarasena
Vice Chancellor
University of Ruhuna

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Message from the Dean, Faculty of Allied Health Sciences

It is a great pleasure and honour to send this message to the proceedings of the 2nd Research Symposium of the Faculty of Allied Health Sciences as the Dean. The theme chosen for this year is "*Bridging the knowledge and current needs through research*". I believe that the theme selected well suits to our young Faculty and its objectives. It was in the last year, we undertook the challenge of organizing the 1st Research Symposium of the FAHS successfully to mark the 1st anniversary of the Faculty along with the 40th anniversary of the University.

We in Faculty of Allied Health Sciences strive hard to improve quality of health care in Sri Lanka by producing quality well trained graduates. Steps have already been taken to upgrade the current degree programmes and also initiatives are also being taken to commence several the hitherto unavailable degree programmes. The Faculty can remain as productive only when its staff can claim a place in the frontiers of knowledge and take a share in moving it forward by their scholarly pursuits. Otherwise, it will degenerate to a mere factory for producing graduates whose degree neither be recognized nor marketable. I am happy that the Faculty has taken initiative to conduct its symposium annually, contributing towards establishing a research culture and promoting the intellectual atmosphere of the university. The main objective of organizing the symposium is to provide a boost for all academics to drive towards a highly research oriented academic career. In addition, this symposium will provide opportunities for the development of collaborative interdisciplinary research programs and directions towards innovations. Further, presentations and proceedings of the symposium would provide a guidance for undergraduates to focus on their research projects in future. I am certain that the symposium initiated last year will grow from strength to strength and be held annually without interruption in the future as well.

The whole credit for the success of this symposium must go to the members of the Organizing committee chaired by Dr. Thushari Bandara. Many scientists from Nursing, Pharmacy, Medical Laboratory Science and other fields are presenting their findings in the symposium. I wish to congratulate all them for

submitting their abstracts for the symposium. Finally, I greatly appreciate the financial contributions made by the sponsors and well-wishers.

Dr. Imendra Kotapola
Dean
Faculty of Allied Health Sciences
University of Ruhuna

Message from the Chairperson RuFARS-2019

It is a matter of pride for me to pen down this message to the proceedings of the 2nd Ruhuna Faculty of Allied Health Sciences Research Symposium (RuFARS-2019), as the chairperson of the organizing committee.

Faculty of Allied Health Sciences is the youngest Faculty of the University of Ruhuna which has been established to produce highly qualified and well trained Allied Healthcare professionals to meet with the burgeoning demand of the world. Allied Health Science Degree courses offered by the Faculty of Allied Health Sciences have been compiled to generate graduates who have the competency in their related disciplines. In addition, all of our degrees curricula have put great emphasis for inculcating advanced and ethically sound researches in all disciplines of health sciences. One of the best steps that the faculty put forward to promote research is the inauguration of a research symposium in 2018. We have become fortunate to conduct the Faculty of Allied Health Sciences research symposium this year as well making this event as a calendar event of our Faculty.

On behalf of the organizing committee, I wish to offer my sincere gratitude and thanks to Senior Professor Sujeewa Amarasena, the Founder Principal Coordinator of the Allied Health Sciences Degree Program of the Faculty of Medicine, Founder Dean of the Faculty of Allied Health Sciences and the Vice Chancellor of the University of Ruhuna, Professor E.P.S. Chandana, Deputy Vice Chancellor, University of Ruhuna and Dr. Imendra Kotapola, Dean, Faculty of Allied Health Sciences for their valuable guidance, advice and support to make this event a success. I extend my sincere respect and thanks to Senior Professor Gamini Senanayaka, Former Vice Chancellor, University of Ruhuna for gracing our symposium, accepting our invitation to be the Guest of Honor.

I would like to greatly acknowledge the extensive support extended by the three Heads of the Departments, academic and non-academic staff members, Senior Assistant Librarian, Assistant Registrar, Assistant Bursar, Joint secretaries, members of the advisory and editorial boards, reviewers, judges and chairpersons of the technical sessions, in-charge persons and members of all RuFARS-2019 sub committees, for making this a reality.

I am grateful to all the sponsors of RuFARS-2019 for their financial assistance and to the Dean and the staff of the Faculty of Medicine for providing facilities to host this symposium. I wish RuFARS-2019 a great success.

Dr. Thushari Bandara
Chairperson, RuFARS-2019

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Factors affecting maternal initiated medication practices among Sinhala speaking mothers for preschool children in Godakanda (East) and Uluvitike areas, Galle, Sri Lanka

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Abstract

Introduction: Maternal initiated medication practices for children frequently involve over-the-counter, traditional and herbal medicines that may be inappropriate and not evidence-based.

Objectives: To identify factors affecting self-medication practices among Sinhala speaking mothers of preschool children in Godakanda (East) and Uluvitike areas, Galle, Sri Lanka.

Methodology: The study consisted of a survey questionnaire, a qualitative study, and a contrived observational study. Two public health midwifery (PHM) areas were selected to conduct the study. Stratified random sampling was used to select 400 mothers from two PHM areas for both questionnaire survey and contrived observational study. Purposive sampling was used to select mothers for the qualitative study.

Results: The prevalence of maternal initiated medication of the children aged between 1 to 5 years of age in the study area was 77.4%. The age of the index child is significantly higher in the group of mothers who have not done maternal initiated medication than the group of mothers who have medicated the index child by themselves (p=0.01). The frequency of maternal initiated medication was significantly higher for younger children than older children (p=0.01). Types of medicine used for maternal initiated medication were independent of socio-demographic factors. Most of the mothers obtained medicines from a pharmacy without prescriptions (68.6%). Mothers with a higher level of education (p=0.008) and higher income (p<0.001) were significantly more likely to follow professional information sources than autonomous sources when they practice maternal initiated medication.

The qualitative study reported that factors affecting mothers' perceptions and attitudes towards mother initiated medication included: previous experiences, perceived idea of formal health care services, perceived impact of illness on the child and family, external influences, understanding of benefits and risks of maternal initiated medication, perceived impact of illness on the child and family. Perceptions assessed include adverse events of pharmaceuticals, toxicity of

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pharmaceuticals to child's body which contributed to noncompliance with the drug therapy and influenced the mother to use traditional or herbal medicines widely for their children.

The contrived observational study suggested, only 26.9% of mothers could correctly decide and measure doses of paracetamol within the acceptable range. The rest of the mothers made at least one error in either dose determining or measurement. Only 35.4% of mothers made actual measured doses in acceptable dose range and 55.8% of mothers made small errors. Of all 353 mothers, significantly higher percentage of mothers measured acceptable doses by using 10 ml syringe (88.4%) with compared to measuring cup (60 .6%) ($p<0.0001$, CI=21.5 - 33.7) and calibrated spoon (26.1%) ($p<0.0001$, CI=56.1 - 67.5).

Conclusions: The prevalence of mother initiated medication for children aged 1 to 5 years of age was higher among the study area. Mothers require healthcare professionals' guidance when recognizing illnesses, selecting treatment options and correctly determine and measuring doses of over the counter medicines for young children.

Introduction

Young children are commonly afflicted by respiratory tract infections, diarrhoea and other self-limiting illnesses. Usually parents administer drugs for these diseases without seeking professional advice (Nazir et al., 2015, Tsifiregna et al., 2016, Kariyawasam et al., 2005). It was found that children and adolescents around the world are vulnerable to receiving over-the-counter medicines (OTC), traditional and herbal medicines that are generally not evidence-based and inappropriate (WHO, 2007).

Self-medication is one of the major areas which require attention since parents are the decision-makers for the treatment for their child. Inadequate knowledge and insufficient information on the use of medicines may lead to masking of symptoms, aggravating the disease or cause adverse drug events among self-medicating children (Choonara et al., 1996, Macdonald, 2002, De Silva et al., 2017). Hence it is important to identify possible medicine-related problems affecting children when they are receiving self-medication.

Thus, the aim of this study was to find the associations between the use of maternal initiated medication and socioeconomic status of mothers who have children aged between one to five years, to explore mothers' attitudes and perceptions of maternal initiated medication use for children and to assess the accuracy of dosing practices of child medications among mothers.

Methodology

A cross-sectional descriptive study was conducted in two PHM areas; Godakanda (East) and Uluvitike, Galle, Sri Lanka by using three different study components including interviewer-administered questionnaire, focus group discussions and contrived observational study. Ethical approval was obtained from the Ethical Review Committee, Faculty of Medicine, University of Peradeniya (2016/EC/08).

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Questionnaire survey

The interviewer administered questionnaire was used to collect basic demographic data from the participants and to find the associations between the use of maternal initiated medication and the socio-economic status of mothers. For the questionnaire survey, the sample size was calculated based on proportion in a single cross-sectional survey and resulted in 400 participants including 10% of non-respondent rate (Gorstein et al., 2007). Participants were randomly selected based on the proportion allocation in which the distribution of the mothers who have aged between 1 to 5 years children in each PHM area. Study participants were individually visited and data collection was done by the researcher.

Qualitative study

Purposive sampling was used to select participants and they were divided into 2 groups based on their socioeconomic background including professional mothers and non-employed or non-professional workers. Focus group discussions (FGDs) were conducted. The completion of the data collection and the resulting sample size was determined by the concept of data saturation. Group discussions were audio-recorded and transcribed after conducting FGDs for future analysis

Contrived observational study

This contrived observational study was conducted parallel to the questionnaire survey. Hence the same sample size and sampling method described in questionnaire survey was used. The researcher observed how mothers determine and measure one of the common over the counter medicine, paracetamol for the index child and how mothers used the commonly available liquid measuring devices by introducing two scenarios.

Scenario 1: This was used to explore the accuracy of dose measurement of over the counter medication for children. Mothers were asked to decide and measure the appropriate dose of paracetamol to index child if the child has fever (body temperature at 38^0C or 100.4^0F). Participant's preferable dosage forms were provided and mothers were allowed to use any measuring device they normally use for measuring liquid paracetamol for their index child.

Scenario 2: This was used to assess the accuracy of oral liquid measuring devices and thus identifying the best liquid measuring device for household usage. In this scenario, mothers were asked to measure 5ml paracetamol (acetaminophen) liquid formulation (Panadol® 120 mg/5 mL) by using the three different liquid measuring devices including measuring cup (included with children's' Panadol® liquid formulation; GlaxoWellcome Ceylon Limited, Sri Lanka; 10 mL), calibrated spoon filled to edge (included with Amoxicillin oral suspension BP 125mg/5mL, Belcopharma, Bahadurgarh, India; 5 mL) and 10 cc syringe (10 mL syringe manufactured by Changzhou Medical appliances, General factory CO, LTD, Changzhou City, Jiangsu Province, China). The volume of acetaminophen contained within measuring cup, calibrated spoon was measured by using a 10 mL syringe. The volume of acetaminophen contained within the 10 mL syringe was assessed by using the calibration on the syringe itself after eliminating visible air bubbles.

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The actual dose measured by the caregiver was then evaluated by the researcher for accuracy. The researcher collected measured solid (tablet) doses to polyethylene bags followed by labeled and sealed. Those were weighted by using Sartorius analytical balance (Germany) and weights were recorded.

Deviations of the measured dose of paracetamol from the respective correct dose was calculated as follows for the tablet and liquid dosage forms of paracetamol. For tablet dosage form, it was done by comparing the weight of the paracetamol contained in measured tablet sample with correct paracetamol weight according to the child's weight. For liquid dosage form, measured liquid doses were compared with the reference dose table accompanied by children's' Panadol® 120mg/5ml liquid formulation; GlaxoWellcome Ceylon Limited, Sri Lanka. For the analysis, all the measurements presented as milligrams.

Decision error: Deviation of decided dose more than ±10% from the correct dose was considered as "decision error".

Measuring error: The deviation of measured dose more than ±10% of the decided dose was considered as "measuring error".

Actual dose measured: Final outcome of dose measurements made by mothers.

Data analysis

SPSS 16.0 software and MedCalc version 18.2.1 was used to analyze quantitative data and thematic analysis was used to analyze qualitative data.

Results

Questionnaire survey

The responding rate of the study was 88.3% (n=353). The prevalence of maternal initiated medication among mothers of young children of age between one to five years in Godakanda (East) and Uluvitike PHM areas was 77.4% (68.4to 87.1% for 95% CI).

It was observed that the age of the index child was significantly higher in the group of mothers who haven't done maternal initiated medication compared to the group of mothers who have initiated treatment by themselves (U=2547.5, p=0.01) (Table 1). Results revealed that the frequency of maternal initiated medication was significantly associated with the age of the index child (χ^2=9.9, p=0.01). The age of the index child of mothers who went for a physician was significantly higher than the age of the index child who received maternal initiated medication only one time (χ^2=9.9, p=0.01) (Table 1).

Table 1: Association between the use of maternal initiated medication and socio-demographic factors

Socio-demographic factors	Components of maternal initiated medication			
	Prevalence of maternal initiated medication (p value)	Frequency of maternal initiated medication (p value)	Types of maternal initiated medication (p value)	Most frequently used source of information (p value)
Level of education	0. 2[*]	0. 3[*]	0. 6[*]	**0. 008[*]**
Number of children in the family	0. 2[*]	0. 2[*]	0. 3[*]	0. 7[*]
Total monthly income of the family	0. 1[‡]	0. 1[**]	0. 3[**]	**0. 03[‡]**
Age of the index child	**0. 01[‡]**	**0. 01[**]**	0. 1[**]	0. 8[‡]

Results were based on 273 mothers who self-medicated the index child proceeding last three months.
* Based on the results of x^2 test, ** Based on the results of Kruskal–Wallis test, ‡ Based on the results of Mann-Whitney test, p<0.05 is considered as statistically significant.

Paracetamol (n=199, 72.8%) and chlorpheniramine (n=104, 38.0%) was the most common non-prescription medicine used for the index child. Salbutamol (n=11, 4.0%) was the predominant prescription-only medicine and coriander (*Coriandrumsativum*) (n=74, 27.1%) was the most common traditional medicine used by mothers. None of the socio-demographic factors significantly associated the types of maternal initiated medication used for their index child (Table 1).

The majority of mothers who frequently sought information from professional sources before medicate the index child had higher level of education (42.3%) and only 20.5% of mothers who had lower level of education sought information from professional sources before medicate the index child. The results showed that the level of education was significantly associated with frequently sought information source by the respondents (χ^2=0.4, p=0.008) (Table 1).

Several reasons were influenced for maternal initiated medication in the study area and those were summarized in the Table 2.

Table 2: Reasons for maternal initiated medication

Reason	Number of mothers (%)
Symptoms were mild	137 (50.2)
It is not good to use medicines given by doctors frequently for children since they are more toxic	55 (20.1)
Previous experience with similar symptoms	24 (8.8)
To control the symptoms until meet physician	25 (9.2)
Financial or time constrain for consulting a physician	20 (7.3)
Doctor recommended to repeat the medication if similar symptoms arise	7 (2.6)
Child do not like to take medicines and physician prescribe number of medicines	5 (1.8)
Total	273 (100)

Qualitative study

Three focus group discussions with twenty eight mothers were required to reach the data saturation point. Eight mothers were educated on or below the ordinary level while eleven participants were educated up to advanced level. Nine mothers had degree or diploma qualifications. The participants have consisted of twelve professional working mothers, one non-professional worker and fifteen non-working mothers. Five themes were identified during the analysis. Three themes were emerged related to mothers' attitudes and perceptions of maternal initiated medication for children.

Maternal initiated medication was perceived as a first step in the attempt to solve child illnesses
Results suggested that mothers sought medical advice for their children only after maternal initiated medication fails or symptoms persist. Mothers used symptoms based evaluation of child's diseases. Mothers may select maternal initiated medication or medical advice depending on the type of health problem, the familiarity of the health problem, disease severity and child's susceptibility to diseases.

Role of traditional and herbal medicines in maternal initiated medication
Among the different kinds of medicines used for maternal initiated medication, mothers prominently discussed traditional and herbal medicines. During the discussion, for the term of maternal initiated medication, most mothers referred traditional and herbal medicines than the over the counter medicines. The majority of mothers had positive attitudes towards traditional and herbal medicines and it led them to use traditional and herbal medicines for child's illnesses before seeking medical advice.

Factors affecting mothers' attitudes and perceptions of maternal initiated medication
Those were including; the role of past experiences, perceived idea of formal healthcare services, perceived impact of illness on the child and family, external influences, understanding of benefits and risks of self-medication, perceived impact of illness on the child and family.

There were two new themes that emerged from the discussions and those were not directly related to the mothers' attitudes and perceptions of maternal initiated medication.

Mothers' awareness, experiences and behavior with respect to adverse events.
The theme was divided into three subthemes including;

- Experiences and awareness about adverse events
- Mothers' behavior with respect to adverse events of the child's medication
- Mothers' awareness of drug interactions

Medicines information seeking behavior of mothers
Results revealed that the use of maternal initiated medication was not blindly done and most of the mothers actually sought information of medicines when they self-medicate the child. The theme reveals that medication information seeking behavior was varying among individuals and sought different types of information on the child's medications from different sources.

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Contrived observational study

Mothers' ability to decide and measure doses

All the participants (n=353) of the study were included in this study. Among them, 78.5% (n=277) of mothers used paracetamol 120 mg/5 mL liquid dosage form for the index child while the rest of the participants used paracetamol tablet 500 mg.

Among all 353 participants, mothers who made both deciding and measuring doses of paracetamol within the acceptable range was only 26.9% (n=95). The majority of participants made both types of errors together (32.0%). Only decision errors were made by 26.6% mothers and most of the errors were sub-therapeutic dose (22.9%). Among the participants who made only measuring errors (14.4%), a slightly higher percentage of those errors were sub-therapeutic doses (7.9%).

The median of the decision error made by mothers was -18.0 mg (IQR, -36.3 to 0.75) while the median decision error was 0mg (IQR, -14.4 to 15.4). Since both decision and measuring accuracy were contributed to the final outcome of dose measurements taken by mothers, the actual dose measured in scenario one was also assessed and the median error of actual measured dose was -18 mg. Results suggested that the accuracy of actual measured dose was not significantly associated with the level of education. Only 35.4% of mothers actually measured the acceptable dose while the majority of mothers made small errors (deviations from ±11% - ±40% from the correct dose) (55.8%). However, there were twenty five mothers (8.8%) who made large errors (>±40% of the correct dose) during the scenario one.

Of 353 mothers, there was no significant association was observed between them and accuracy of actual measured dose and level of education (χ^2=7.2, p=0.1), the total number of children in the family (χ^2=1.0, p=0.6), total monthly income (χ^2=4.0, p=0.1) and age of the index child (χ^2=2.6, p=0.2).

Accuracy of the oral liquid medicine device

The mean of the measurements taken by the mothers using measuring cup, calibrated spoon and 10 mL syringe was 4.9 ± 0.68 mL, 4.0 ± 0.58 mL, and 4.9 ± 0.33 mL respectively. The median of the measurements taken by mothers using measuring cup, calibrated spoon and 10 mL syringe was 5 mL (IQR, 4.4 to 5.2), 4 mL (IQR, 3.8 to 4.6) and 5 mL (IQR, 4.8 to 5.0) respectively. Of all 353 mothers, significantly higher percentage of mothers measured acceptable doses by using 10 mL syringe (88.4%) with compared to measuring cup (60.6%) (p < 0.0001, CI=21.5 - 33.7 and calibrated spoon (26.1%) (p < 0.0001, CI= 56.1 - 67.5) (Table 3).

Table 3: Accuracy of oral liquid medicine devices among the respondents

Accuracy of oral liquid medicine devices	Measuring cup	Calibrated spoon	10 mL Syringe
Number of mothers who made acceptable dose (%)	**214 (60.6)**	**92 (26.1)**	**312 (88.4)**
Small error (%)	**136 (38.5)**	**258 (73.0)**	**41 (11.6)**
Number of mothers who made sub-therapeutic dose (-11% to -40% of correct dose) **(%)**	93 (26.3)	255 (72.2)	37 (10.5)
Number of mothers who made supra-therapeutic dose (11% to 40% of the correct dose) **(%)**	43 (12.2)	3 (0.8)	4 (1.1)
Number of mothers who made large error (%)	**3 (0.8)**	**3 (0.8)**	**0 (0.0)**
Number of mothers who made sub-therapeutic dose (< -40% of correct dose) (%)	0 (0.0)	3 (0.8)	0 (0.0)
Number of mothers who made supra-therapeutic dose (> 40% of the correct dose) (%)	3 (0.8)	0 (0.0)	0 (0.0)
Total (%)	**353 (100)**	**353 (100)**	**353 (100)**

Discussion

The result represents a high prevalence of maternal initiated medication in the study area with compared to previous studies conducted in different communities in Sri Lanka as well as lower and middle-income countries (Kariyawasam et al., 2005, Wijesinghe et al., 2012, Salami and Adesanwo, 2015, Alele, 2013). The study showed that young children were more prone to receive maternal initiated medication than older children and independent with other socio-demographic factors. Previous studies reported that level of education, monthly income, maternal employment status, private health insurance, and more than one child in the family is significantly associated with self-medication (Alele, 2013, Nazir et al., 2015, Tsifiregna et al., 2016, Trajanovska et al., 2010). The results indicated that frequency of maternal initiated medication proceeding three months of the period was significantly associated with age of the index child (p=0.01). It is difficult to estimate reasons for these findings, however, it might be due to children factor including child's health, susceptibility to illness, the severity of disease or disease type (Siponen, 2014, Maiman et al., 1982, Nazir et al., 2015, Ecklund and Ross, 2001). Both pharmaceuticals and traditional or herbal medicines were used by mothers for maternal initiated medication their children. Despite the age, use of pharmaceuticals and traditional or herbal medicines for self-medication is a common practice among Sri Lankans (Kariyawasam et al., 2005, Wijesinghe et al., 2012). Use of antibiotics and other prescription only medicines were rare among the study participants. In contrast international studies reported high prevalence of antibiotic use for children without consulting a physician (Nazir et al., 2015, Tsifiregna et al., 2016).

The qualitative findings suggested most of the mothers used maternal initiated medication as the first line of treatment, and the mothers sought medical advice for their children only after fail their treatment or symptoms persist. Despite the age, a similar finding was reported from a study

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conducted in Iran regarding on self-medication among older adults (Ahmadi et al., 2017). Further, the results suggested that mothers may select maternal initiated medication or medical advice depending the type of health problem, the familiarity of the health problem, disease severity and child's susceptibility of diseases. This particular finding can be discussed in Anderson & Newman's framework of healthcare utilization (Mortazavi et al., 2017).

Further, this study indicated very favourable perceptions of traditional and herbal medicines. Mothers perceived those are safer than pharmaceuticals with no side effects. Similar findings have also been reported in earlier studies (Loyola Filho et al., 2004, Hassan and Siam, 2014, Frazier et al., 2011, Sinusas, 2012, McIntyre et al., 2015).

The role of past experiences, perceived idea of formal healthcare services, perceived impact of illness on the child and family, external influences, understanding of benefits and risks of maternal initiated medication, perceived impact of illness on the child and family were reported as factors affecting mothers' attitudes and perceptions of maternal initiated medication. Similar findings were reported previous literature (Mainous et al., 2008, Loyola Filho et al., 2004, Robert et al., 2001, Hassan and Siam, 2014, Salami and Adesanwo, 2015, Prasadi et al., 2017, Hansen et al., 2009).

The results of the study indicate that mothers were capable of identifying adverse events of child medications. In the occurrence of an adverse event, many of the respondents discontinued the child's medication and informed their doctors about the event. Similarly, spontaneous reports to a healthcare professional about adverse events observed in previous studies, however those studies were focused on the adult population (De Silva et al., 2017, Pagan et al., 2006, Jose et al., 2015). Our study also showed experience and perception of adverse events impacted to non-adherence of the child's drug therapy including stop the therapy before intended duration and alter the dose. This malpractice may lead to disease complications or antibiotic resistance when using antibiotics (Fernandes et al., 2014). Despite the age, similar findings related to non-adherence were reported from other studies (Hassan and Siam, 2014, Choonara et al., 1996, Macdonald, 2002).

The study results showed that respondents did not use over the counter medicines with prescription-only medicines as well as pharmaceuticals and herbals together for their children. Even if participants didn't have a detailed understanding of what drug interaction is, they had a general idea that drug interactions may cause harm. Avoiding the use of OTC medicines along with medicines prescribed by physicians is a good practice since it prevents the use of two or more medicines that contain the same ingredient.

In the present study, most of mothers more concern about dose, frequency, expiry date, and storage conditions. Mothers rarely seek information about drug safety including side effects, overdoses, drug interactions and contraindications. Despite the age, the literature presented similar findings that information regarding drug safety was often deficient among people (Jose et al., 2015, Hughes et al., 2002, Modig et al., 2012).

The findings of the observational study emphasized that mothers made errors during deciding and measuring medicines for their children and there is a marked potential for providing sub-

therapeutic amounts of medication for children during maternal initiated medication. This is similar to previous studies done in other countries (LI et al., 2000, Simon and Weinkle, 1997, Frush et al., 2004).

Further, the results showed that socio-demographic factors were not affected for the accuracy of the actual measured dose of paracetamol by mothers. Similarly, Li et al, (2000) reported that there were no differences in demographics between the groups receiving correct and incorrect doses (LI et al., 2000). In contrast to this result, another study found that limited health literacy was associated with making dosing errors by parents (Yin et al., 2010).

In the current study of all 353 mothers, participants were significantly more likely to measure an acceptable dose with the syringe with compared to measuring cup (p< 0.0001) and calibrated spoon (p< 0.0001). Similarly, previous studies found that caregivers measured accurate doses with syringe more often than with measuring cup and dropper (Yin et al., 2010, Almazrou et al., 2015, Sobhani et al., 2008). Although the current study evaluated acetaminophen, this study has greater implications for other drugs available in liquid formulations for children including antibiotics and narrow therapeutic window drugs like theophylline.

Conclusions

Results suggested that in a maternal initiated medication concept for children, there is a requirement of guidance for mothers in assisting to identify the best intervention for treating child illness and proving medicine information to ensure safety and efficacy. Educating mothers about common side effects of child medication is essential to minimize medicine non-compliance and therapeutic failure. Community pharmacists can play a major role during dispensing over the counter medicines to parents by analyzing childs' disease history, determining appropriate intervention and counselling the parents regarding dose regiments, proper use of measuring devices, dose calculations and commonly encountered problems of drug administration.

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FP 2

Psychosocial Factors Associated with Quality of Life of Patients with Cancer in Southern Sri Lanka

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Abstract

Background: Cancer is the second leading cause of death worldwide following heart disease; it is a stressful event that may profoundly affect the physical, psychological, social, emotional and spiritual health of the patients and such health issues can change the quality of life (QoL). It is observed that psychosocial factors impair cancer patients' QoL, comfort level and treatment compliance, which can affect survival.

Objective: The main objective of this study was to examine psychosocial factors associated with QoL of patients with cancer treated at the Teaching Hospital Karapitiya, Galle.

Methodology: A descriptive cross-sectional study was conducted with a sample of 400 cancer patients treated in the Oncology ward. Data were collected after ethical clearance using an interviewer-administered questionnaire. Scales were used to assess psychological distress (PD), depressive symptoms (DS), family support (FS), religious support (RS), coping strategies and QoL of the cancer patients.

Results: The mean age was 56 years (range 25-88). The most common cancer type was Brest cancer (24%). The higher prevalence of PD (66%) and a lower prevalence of DS (9%) were reported. FS was the most prominent support system and the majority was used adaptive coping methods. The social QoL was considerably low. FS and PD were the most significant associated factors of QoL.

Conclusions: The psychosocial status of cancer patients had impacted their QoL. Psychological distress seems to be major issue rather than their depressive symptoms. Although they had obtained satisfied family support; social QoL was at a lower level. Formal and low-cost psychosocial support services should be provided for needy patients to improve their QoL.

Keywords: Q*uality of life, Cancer, Distress, Depression, Support, Sri Lanka*

Introduction
Cancer is a trending disease that can be seen among all community groups in both developing and developed countries (International Agency for Research on Cancer-World Health

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Organization-IARC, 2010). It has become the second leading cause of mortality in both developed and developing countries, only second to the mortality rates of cardiovascular diseases (IARC, 2010). The patterns of cancer prevalence in Sri Lanka are similar to those in the developed countries, and cancers are considered as the second leading cause of death in Sri Lanka (Cancer Registry, 2009; Medical Statistical Unit, 2012).

As the chronic disease, the majority of the cancer patients have to live with it till they die. Thus, enhancement of the quality in the remaining life while on treatment is the main focus in the extended management of patients with cancer. Also, cancer is a stressful event that may profoundly affect the physical, psychological, social, emotional and spiritual health of the patients and such health issues can change the patients' quality of life (Kim, 2007). Imbalances of psychological well-being will result in mental illnesses that would ultimately end up with physical morbidities later as well. Also, patients diagnosed with chronic physical morbidities (e.g. Heart diseases, Diabetes, Cancer, etc.) are at increased risk for different psychological problems such as psychological distress, depression, anxiety and etc. (Kim, 2007). Cancer patients should adapt to a certain degree of stress, but the continuation of stress would affect negatively to their lives (Taylor, 2006); also depression is a disabling syndrome that affects 15% to 25% of cancer patients (National Institute of Health-NIH, 2012).

The overall quality of life (QoL) is a fundamental need of a cancer patient as seen in other human beings (Bottomley, 2002); have the same needs which should be prioritized as others (Waldron, 1999). Thus, physical, psychological, social, emotional and spiritual aspects of the life of the patients should be maintained to have a better quality of life for cancer patients.

As stated in above, cancer diagnosis or living with cancer is a combination of challenges including distress, disabilities, inability to do activities of daily living (ADL), inadequate income, poor social interactions, symptoms relapses and tolerance (Fobair, *et al*., 2002). Under such circumstances, social support (SS) has given an enormous contribution to improve the mental and physical well-being of human beings. SS is a multi-dimensional construct, comprised of different aspects like family/social network, occupation, emotional/religious support and instrumental support (Guan, *et al*., 2013). Support from family/friends/relatives and assistance from other personnel or community programme facilitates the patient's ability to cope with disease-related stress (Nazik, *et al*., 2014; Weeratunga, *et al*., 2018a; Weeratunga*, et al*., 2018b).

Cancers have become a vital public health issue in Sri Lanka as seen in many other countries. Cancer-related health care facilities are not adequate and not accessible to all. Disparities in health care provision, unavailability of resources, delayed diagnosis are some of the factors which negatively affect the quality of life of cancer patients in the country. Also, limited information is available on the psychosocial needs of cancer patients (Mudduwa & Punchihewa, 2011) and what measures are taken to fulfill such needs up-to-date. Considering the current situation in Sri Lanka, gaps exist in most aspects of management in patients with cancer including fulfilling different needs and providing support.

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Available facilities are not adequate to fulfill all requirements of patients with cancer in Sri Lanka due to increasing demand. Although cancer patients are treated physically most of the time, their psychological and other aspects may not be deliberated and highlighted. These consequences lead to a plan for this study; thus, examine the psychosocial factors associated with the quality of life of patients with cancer was the main focus of this study. It was expected that the outcomes would be useful for the health care professionals, policymakers/managers, and related government authorities to improve services for cancer patients in Sri Lanka.

Methodology

The descriptive cross-sectional design was applied at the cancer unit, Teaching Hospital Karapitiya, Galle, Sri Lanka. The 400 heterogeneous cancer patients who received treatment from the cancer unit were included after obtaining informed written consent.

Having confirmed primary diagnoses more than six (06) months as any type of cancer; aged 25 years or older; undergoing treatment such as chemotherapy or radiotherapy; able to understand Sinhala language and able to provide informed consent with sufficient physical and mental stability were the inclusion criteria. Patients with any surgical problems other than cancer related and in a critical state or end-stage of cancer or medical condition were excluded to prevent data collection burden. Cancer subjects were categorized into 10 groups according to their primary cancer site (e.g.

breast, lung, oral, colon and etc.), but 7 patients who did not fall into those 10 primary cancer groups were excluded from the final analysis according to the International Classification of Diseases -10 (ICD-10) (WHO-ICD, 2015).

Data were obtained over a period of nine-month (May 2013- January 2014) using interviewer-administered questionnaires (IAQs), bed head tickets (BHT) and the diagnosis cards of the patients. IAQ comprised eight scales that were used to assess different areas including family-social support (FS), religious support (RS), hospital in-patient environment satisfaction- support, depressive symptomatology, perceived stress, short-term psychological distress, quality of life and coping skills. Some of these scales have already been validated for Sri Lankan populations. Details of the 08 scales are provided below (Table 1).

For validation of the other scales, short-version of IAQ was administered to another set of cancer patients who planned for Radiotherapy (n=40) in two phases (phase 1 and 2) before initiating the main study using cross- cultural adaptation guidelines. All the scales which were to be validated [Multidimensional Scale of Perceived Social Support –MSPSS (Zimet, *et al*., 1988), Religious support questions –RS (Balboni, *et al*., 2007), and Brief COPE (Carver, 1997)] were given to 40 cancer patients. Additionally, data were collected for three scales [Center for Epidemiological Studies- Depression Scale -CES-D (Radloff, 1977), General Health Questionnaire –GHQ (Goldberg, 1985), and the World Health Organization- Quality Of Life-Brief -WHOQOL-BREF (WHO, 1998)] simultaneously for the validation process (to check convergent and divergent validity).

Data were analyzed using SPSS (Version 16.0). The reliability and validity of different scales were tested using Cronbach's alpha, test-retest reliability, and convergent and divergent validity techniques prior to the main study.

Cronbach's alpha of the MSPSS scale was 0.754 and the test-retest reliability was 0.866 (p<0.01). The expected correlation between MSPSS and CES-D scale were -0.459 (p<0.01). Also, MSPSS was positively associated with WHOQOL-BREF as expected (Weeratunga, *et al.,* 2018c). The reliability of the Brief COPE scale was 0.819 and the test-retest reliability was 0.664 (p<0.01). Brief COPE was inversely associated with CES-D scores (r =-0.234; p<0.01); and positively associated with WHOQOL-BREF as expected (Weeratunga, *et al*., 2018c). Cronbach's alpha of the RS scale was 0.874 and test-retest reliability was 0.981 (p<0.01); RS negatively correlated with CES-D (r=-0.338; p<0.05) and positively correlated with WHOQOL-BREF as expected. Therefore, the three scales were found to be valid tools to measure family-social support, coping strategies and religious support in patients with cancer; the internal consistency, reliability, and validity of MSPSS, Brief COPE, and RS scales were at a satisfactory level to apply for the current study.

Therefore, the MSPSS was a reliable and valid instrument to measure family-social support (Weeratunga, *et al*., 2018c). Several studies had shown that good psychometric properties of MSPSS in a different population (Guan, *et al*., 2013; Talwar & Mohd Fadzil, 2013). Also, Brief COPE scale had good validity and reliability; used to measure coping strategies among cancer patients as similar to the previously measured psychometric studies (Carver, 1997).

Self- reported disabilities/impairment experienced by the subjects was assessed using 07 questions on walking, attending self-care, feeding, talking, hearing, vision, and involvement in household work due to the diagnosis and/or relevant cancer treatment-chemotherapy, radiotherapy, etc. The related questions and the scoring system were prepared by the author reviewing past literature; higher scores indicated greater impairments.

Table 1: Description of the scales

Scales	Items	Scoring method
MSPSS	12	Higher scores = higher FS
RS	9	Higher scores = higher RS
Cancer in-patient satisfaction with care questionnaire (EORTC IN-PATSAT 32) (Bredart, *et al*., 2005).	32	Higher scores = higher satisfaction
CES-D	20	Higher DS = 16 or above
The Perceived Stress Scale (PSS) (Cohen, *et al*., 1983)	10	Higher scores = higher PS
GHQ	12	Higher PD = more than 15 and 20
WHOQOL- BREF	26	Higher scores = higher QoL
The Brief-COPE scale	28	Higher scores = higher coping

Basic descriptive statistics were performed to describe the sample using SPSS. Chi-square test, independent t-test, and one-way analysis of variance (ANOVA) were used. Linear regression was used to identify relationships between dependent variables and independent variables. A probability value of 0.05 was considered as the level of significance.

Ethics approval for the study was obtained from the Ethics Review Committee, Faculty of Medicine, and the University of Ruhuna.

Results

The mean age of the sample was 56 years (SD =11.92) (Table 2). More than half of the sample (59%) had an income of < SLR. 10000. The majority of the sample was from Galle district (45%), Sinhala and Buddhist.

The commonest cancer type was breast cancer (24%); the least common cancer type was lung cancer (6%). Nearly half of the patients with cancer had disabilities/impairments due to their disease (n=221, 56%) itself or interventions/treatments. Body changes/disfigurements were reported by 75% of the participants.

Severe PD was reported by 66% (n=266) of the study participants and elevated DS was found in 9 % (n=35). Overall mean psychological distress (±SD) was 22.72 ±4.02 and mean CES-D score was 6.94 (SD=6.37). There were no significant differences in the levels of PD (p=0.06) and the presence of DS (p=0.95) among cancer groups.

Table 2: Socio-demographics of the sample (n =400)

Variables	Categories	n (%)
Age	< 55 Years	186(46)
	> 55 Years	214(54)
Sex	Male	164(41)
	Female	236(59)
Marital status	Married	327(82)
	Unmarried/ Single	73(18)
Educational status	No schooling	37 (9)
	Primary education (Grade 1-5)	101(25)
	Secondary education (Grade 6-10)	90(23)
	GCE O/L (up to O/L or pass)	105(26)
	GCE A/L- Graduate/diploma	67(17)
Household income level	Lower income (≤ SLR. 10000)	234(59)
	Higher income (> SLR. 10000)	166(41)

According to the scoring system and descriptive of different scales, participants reported receiving a high level of family support (FS) (71.47±11.16) and higher support from the significant others/special person (26.51± 4.35). Total religious support (RS) was at a higher level. An overall score of hospital support (HS) was 60.22± 6.13. The mean score of doctors' support (DSS) was 71.10±10 and higher compared to that of other subscales.

Overall QoL was at a moderate level (241.51±35.97); the majority of studied participants had reported moderate level scores for physical, psychological and environmental QoL domains whereas social QoL of the participants was at a lower level (48.06±14.67). The overall coping score was at a moderate level (63.50±7.22). Most of the participants (91%) had used adaptive coping methods (44.19±5.66) than maladaptive coping (19.31±2.42).

Table 3: Association between different psychosocial factors and domains of QoL

Factors	Physical QoL	Psychological QoL	Social QoL	Environmental QoL
PD	-.660**	-.651**	-.480**	-.442**
DS	-.516**	-.456**	-.455**	-.473**
Total FS	.057	.234**	.542**	.316**
Total RS	.065	.242*	.180*	.021
Total HS	-.034	.266**	.050	-.116*
Coping methods	.057	.290**	.283**	.088

p<0 .05*, p<0.01**

Further association of all socio-demographic factors, PD, DS, support systems, coping strategies, and QoL were investigated; some variables are shown in above (Table 3). PD and DS were inversely associated with all domains of QoL. Among three supports, family-social support had a more significant impact on QoL domains of study participants rather than the religious support and hospital environment. Coping had a positive impact on QoL; coping affected to increase psychological and social QoL.

Age has shown a negative association with three QoL domains (p<0.01) except the environmental domain. Gender was related to the psychological (r=-0.110, p<0.05) and environmental QoL (r=0.106, p<0.05). Marital status was only related with social QoL (r=-0.150, p<0.01). Education and income were positively associated with four domains of QoL.

Disability levels were inversely related to all QoL domains. Cancer pain and body changes were positively associated with QoL domains significantly. Patients with cancer who had no disabilities, no body changes, and no pain scored higher QoL for all domains than the participants with disabilities, body changes and pain (p<0.01). Disabilities, body changes and cancer pain lowered the QoL of patients with cancer.

Regression analysis was done to find out associated factors of QoL (Table 4); family support and PD were found to be significantly associated factors of QoL. Religious support and hospital support showed a weak significant association with QoL.

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Table 4: Associated factors of QoL of patients with cancer

Depended variable : Total QoL		
Variables	**F**	**p value**
Family- social support (FS)	35.939	.000
Religious support (RS)	3.362	.067
Hospital support (HS)	3.452	.064
Psychological distress	383.293	.000
Coping strategies	2.165	.142
Age	0.431	.512
Gender	1.027	.312
Time since diagnosis	0.377	.686

Discussion

Psychosocial factors affecting cancer patients have been widely studied in other countries, but in Sri Lanka, there is a shortage of such information. Breast cancer was the most prevalent cancer type in this population and this observation was similar to the situation observed in other countries (IARC, 2010). In this study, the psychological burden was high among lung cancer (LC) patients as some studies reported (Zabora, *et al*., 2001; Weeratunga, *et al*., 2016); a study in Germany reported, distress prevalence in the sample in a range of 24% −59%. It also reported that the type of cancer was the main predictor of psychological distress (Herschbach, *et al*., 2004). The previous study expressed that patients with lung cancer had reported a higher level of DS (57%) (Weeratunga, *et al*., 2015; Yan *et al*., 2019). Most demographics and clinical characteristics affected PD among study participants as elsewhere (Zabora, *et al*., 2001; Herschbach, *et al*., 2004). Moreover, PD and DS were associated with each other, indicated that having distress or depressive symptoms would impact the occurrence of DS or PD among patients with cancer.

Self-reported disabilities/impairments were common among the majority of patients in the current study; these lead to an increase in both PD and DS among cancer patients. Present findings revealed that physical limitations or disabilities which occurred due to the illness or side effects of treatment may have impacted the physical well-being of study subjects as found in the past (Valenti, et al., 2008).

After the cross- cultural validation, three scales were used to measure important supportive services and coping methods in cancer patients in Sri Lanka. In the current study, family-social support was found to be higher in cancer patients than that of other supports; religious and hospital support they received was comparatively low. A study of disabled/wounded veterans in Sri Lanka had shown that family support and religious practices were higher among them (Zoysa & Wickrama, 2011); also, many supportive evidence reported in the study of 'Tsunami affected in Sri Lanka' (Hollifield, *et al*., 2008); but more have explored in elsewhere (Naseri & Taleghani, 2012).

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As one of the coping mechanisms, religion/spiritual support is very useful for individuals as well as family caregivers to tolerate cancer effects (Weaver & Flannelly, 2004). However, in the present study, religious support received by the affected cancer subjects was fairly low. It could be different due to the cultures and practices in different countries (Williams & Sternthal, 2007). In a study of Brazil, approximately, 99.6% of the patients reported that they need religious support during cancer treatment (Camargos, *et al*., 2015). After gaining spiritual support, it would increase QoL and spiritual support was considered as the important aspect of end-of-life care (McClain, *et al*., 2003; Balboni, *et al*., 2007).

Satisfaction-with-care among patients regarding hospital environment or support from the hospital is not much focused in Sri Lanka. In the current study, hospital environment support seems to be relatively low compared to such support received by cancer patients in other countries, but the support given by doctors was higher than the support given by nurses (Weeratunga, *et al*., 2019). Gynecological cancer patients had reported higher satisfaction with care and support from the health care professionals (e.g. - doctors, nurses, other services) (Philp, *et al*., 2014). Similar to us, the satisfaction of patients may increase due to hospital support; affect early recovery (Zhang, *et al*., 2014). Cultural differences may also have an impact on the satisfaction of patients who were from a different country or region (Zhang, *et al*., 2014).

Among coping methods, adaptive coping strategies were highly used by patients with cancer than maladaptive coping methods. It was confirmed by previous studies and similar to our findings. According to the biochemical changes in the human body, adaptive methods were healthier to body mechanism than maladaptive methods such as avoidance coping and substance use (Taylor, 2006); instrumental support and emotional support were commonest coping strategies here it is similar to published studies (Yusoff, *et al.*, 2010). Moreover, religion had better impact on coping among our patients in line with other findings (Balboni, *et al*., 2007; Balboni, *et al.,* 2010). Aging caused to reduce coping, higher education increased coping, increased disabilities lowered coping among patients with cancer. Furthermore, three support systems had an impact on higher coping scores (e.g.-family- religion, and hospital support). Due to the psychological impairments of most patients with cancer, stress would appear and use as negative coping methods. Therefore coping ability of the study participants could be influenced by negative psychological health status like PD and DS (Zabora, *et al*., 2001).

The moderate level of overall QoL was perceived by current study participants; social QoL of them was lower. 'QoL' is a crucial aspect of cancer management in most countries, but the situation is different in Sri Lanka. Most socio-demographic and clinical characteristics correlated with QoL among patients with cancer (WHOQOL, 1998; Ahlberg, *et al*., 2004). In a study conducted in Brazil, patients with Ostomized cancer had scored higher physical QoL (64.33±22.92), psychological (68.69±18.98), and social QoL (61.94±23.49) (Pereira, *et al*., 2012). Younger patients had reported the highest QoL (e.g.-physical, psychological, and social) in this study indicated that young age consisted of more positive aspects in life (e.g.-best ADL, energy, positive feelings, personal relationships, sexual performances) (WHOQOL, 1998; Ahlberg, *et al*., 2004). Elder patients were unable to maintain these aspects and could be reduced QoL like in the findings of this study. Moreover, psychological distress and depressive

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symptoms lower the QoL, but social support and coping caused to increase the QoL (Weeratunga, *et al*., 2018a). Finally, PD and family-social support were found to be significant predictors of QoL among current study participants.

The results of this study may not be generalizable to all hospitals/settings in Sri Lanka, since data were only gathered from one tertiary care hospital setting, but the higher number sample size would be increased the generalizability. Limited time frame, inadequate facilities, and uncomfortable environment, higher numbers of patients and busy ward routine may have affected the smooth process of data collection. Patients who were in age below 25 years were excluded, assuming these groups of patients were having problems in expressing their coping and support information properly. Also to reduce data collection burden, critically ill and mental instability patients were excluded though they present with different psychological imbalances due to another cause. There are a limited number of research studies on cancer available in Sri Lanka. Therefore comparisons of results of the current study were limited.

Conclusions

Breast cancer was the most common cancer. The majority reported psychological distress, but a lower percentage of elevated depressive symptomatology. Psychological support services that available in the hospital setting were grossly inadequate. This study revealed that a moderate level of QoL was perceived by study participants, but received social QoL was lower among them. Moreover, psychological distress and depressive symptoms lower the QoL, but social support and coping caused to increase the QoL.

Acknowledgment

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Oral Presentations

OP 1

An Exploration of Experiences of Elderly People Living in Sahana Elderly Care Home in Sri Jayawardenepura Kotte, Sri Lanka

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Background: The demand for the elderly care homes in Sri Lanka is rising because the elderly population is seeking an alternative care arrangement in the absence of home-based care. Moving to an elderly care home can give different experiences for an elderly person.

Objectives: The main objective of this study was to explore the experiences of elderly people living in elderly care home in Sri Jayewardenepura, Kotte. The specific objectives were to explore the physical, psychosocial and environmental experiences of elderly people living in elderly care homes.

Methodology: A qualitative phenominological design was utilized for the study. Data were collected from an elderly care home located in Sri Jayewardenepura Kotte by using semi structured interviews and a topic guide. By the completion of 15th elderly person, data saturation was achieved. Thematic analysis was used for data analysis. The ethical approval was granted from the Ethical Review Committee of National Hospital Sri Lanka.

Results: Perception in everyday life as a matter, being separated from the family and being concerned with poor consideration for personal care are the three main themes emerged from this study. Monotonous life style, accepting the situation, maintaining independence, and struggling with aging body were the main physical experiences of elderly people. Moreover, the study identified psychosocial experiences including feeling of abandon, maintaining harmony in relationships, and living with a hope. Finally, coping with available facilities, maintaining a clean environment and concerning on safety of elderly people were identified as environmental experiences.

Conclusions: Findings could contribute elderly people to improve their living conditions by considering their choices when planning menus and activities, implement activities which will promote independence. It is further recommended to provide standard training program to care givers who are working in elderly care homes and it is needed to make policies to improve home setting and life experiences of elderly people.

Keywords: Elderly care home, Elderly people, Experiences

OP 2

Antibacterial Activity of Crude Hexane Extract of *Epaltes divaricata* (Heen mudamahana) against Methicillin Resistant *Staphylococcus aureus* Clinical Isolates

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Background: Development of methicillin resistant *Staphylococcus aureus* (MRSA) bacterial strains with reduced susceptibility to antibiotics and increased number of multidrug resistant microbial strains is observed worldwide due to irrational use of broad spectrum antibiotics. Since there is need to search for new infection-fighting strategies, medicinal plants have become potential sources in the development of novel antimicrobial agents to overcome this problem.

Objectives: To determine the antibacterial activity of hexane extract of *Epaltes divaricata* (Heen mudamahana) against MRSA isolates.

Methodology: Hexane extract of Sri Lankan medicinal plant *Epaltes divaricata* (whole plant) was analysed against twenty MRSA clinical isolates obtained from stock cultures of Department of Microbiology, Faculty of Medicine, University of Ruhuna. Antibacterial activity of plant extract was initially examined using agar disc diffusion method. Minimum inhibitory concentration (MIC) was determined by broth dilution method using a microtitre plate. Serial five-fold dilution of the plant extract was prepared to yield seven dilutions of the original extract. Vancomycin was used as positive control.

Results: Hexane extract of *E. divaricata* showed zones of inhibition for all twenty MRSA isolates in the initial screening. Maximum zone of inhibition of MRSA isolates ranged between 6.7-13.1 mm. Minimum inhibitory concentration for MRSA isolates ranged between 0.012-0.32 mg/mL.

Conclusions: It is concluded that hexane extract of *Epaltes divaricata* showed significant antibacterial activity against the clinical isolates of MRSA tested. Further scientific investigations will warrant identification of active compounds responsible for the antibacterial activity in this plant extract.

Keywords: *Antibacterial activity, Epaltes divaricata, Hexane extract, Medicinal plant*

OP 3

Assessment of Effectiveness of Quality Failure Recall Procedure in Government Medical Supplies Using Western Province in Sri Lanka

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Background: Government has a free medical supply system but frequent quality failures are reported. Though there is a recall procedure, the general impression is that, when the quality failure circulars are received by the hospitals most of the drugs have been used. There could be major consequences as health risk and financial lost due to that. The health risk could be of two ways. One risk is the disease will not control or cure as they will not get the therapeutic effects with the poor quality drugs. Secondly it will produce unwanted side effects due to bad quality. Earlier, government policy of claiming for quality failed drugs needed to produce the amount of quality failed items physically in order to reimburse for that quantity from the manufacturer.

Objectives: To assess the quantity of consumed quality failed drugs in last 2 years (2017-2018) in Western Province health institutions and to analyze the primary consequences using ABC and Vital, Essential and Non-essential (VEN) system as indirect methods.

Methodology: Study setting is above the Base Hospital level health institutions in Western Province (10 institutes). All the quality failure recall circulars (n=56) were considered. Hospital data and a format were used to analyze the quantity of quality failed drugs used at the time recall circular received.

Results: Out of 56 circulars to recall a particular batch/product of drug, the relevant drug has been used 100% for 24 circulars (nearly 50% circulars). On average 54% drugs have been used when the notification reach the institution. Some vital drugs (life-saving drugs) have been used 83%. Averagely it was more than 25% for all vital drug circulars. The category A drugs (the unit cost if high the overall purchased quantity is comparatively low) have been used more than 53%.

Conclusions: A greater percentage of quality failed drugs have been used when the health institution received the circular to recall/withdraw the product. Vital drugs have been used more than 50%, could have resulted major health risks. Category A drugs have been used more than 50% showing a significant lost as their unit cost is very high. Therefore a proper quality failure recall procedure should be established as soon as possible. Further studies should be also carried out to find out the issues and the best options.

Keywords: *Drug finance, Drug use, Medical supply, Quality failure, Recall*

OP 4

Assessment of Trabecular Bone Score and its Relationship with Body Composition in Pre and Postmenopausal Women

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Background: Trabecular bone score (TBS) reflects the bone quality, independent of bone mineral density (BMD). TBS is related to bone microarchitecture and it is strongly correlated with the number of trabeculae and their connectivity. Data on TBS are deficient in Sri Lankan population.

Objectives: To investigate the association between body composition and TBS in a group of community living pre and postmenopausal women.

Methodology: Adult women >20 years of age, living in Bope-Poddala MOH area were recruited by stratified random sampling method and divided in to pre (n=203) and postmenopausal (n=181) age groups. Body composition (total body BMD, regional BMDs, total body fat mass and total body lean mass) was analyzed by DXA and TBS was estimated using TBS iNsight® software. Partial correlation (age adjusted) and multiple regression were used to analyze the data.

Results: Mean (SD) age of pre and postmenopausal women were 35(10) and 60(6) years respectively, whereas mean (SD) TBS were 1.352(0.077) and 1.221(0.085) respectively. In premenopausal women TBS positively correlated with total body BMD (r=0.43, p=0.001), spine BMD (r=0.48, p=0.001), hip BMD (r=0.35, p=0.001) and femoral neck BMD (r=0.38, p=0.001). In postmenopausal women also TBS positively correlated with total body BMD (r=0.35, p=0.001), spine BMD (r=0.32, p=0.001), hip BMD (r=0.21, p=0.005) and femoral neck BMD (r=0.22, p=0.003). No association was seen between TBS and body fat or lean mass in both groups. In premenopausal women spine BMD emerged as the best predictor of TBS which explained 18% of variance in regression analysis. In postmenopausal women total body BMD was the best predictor of TBS and it explained 21% of variance.

Conclusions: BMD is positively associated with TBS in both groups of the selected sample. TBS was best explained by spine BMD in premenopausal women and by total body BMD in postmenopausal women in this study sample. Further, TBS was not associated with fat or lean mass in both groups of women.

Keywords: Trabecular bone score, Body composition

OP 5

Association between Dysglycemia, Body Mass Index and Body Compositions in a Group of Community Dwellers

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Background: Obesity is a leading cause of diabetes mellitus. There are no studies examining the relationship between Glycated haemoglobin (HbA1c) and components of body fat among Sri Lankans.

Objectives: The objective of this study was to determine how HbA1c associates with body mass index (BMI), total body fat mass (TBF), body fat percentage (BFP) and truncal fat mass (TRF) in a group of community dwellers, not detected to have diabetes previously.

Methodology: A group of 72 subjects (men=65) were included in the analysis after obtaining informed written consent. TBF, BFP, and TRF were measured using Dual Energy X-ray Absorptiometry (DEXA) scan. HbA1c level was measured using high performance liquid chromatography. BFP was calculated by dividing body fat content by body weight and expressing it as a percentage.

Results: Mean (SD) age of the group was 49(9) years. Mean (SD) height was 1.63(0.07) m while mean (SD) weight was 63.3(11.5) kg. Mean (SD) HbA1c concentration was 6 (1.1) %. HbA1c showed significant positive correlations with BMI (r=0.30, p=0.010) and TRF (r=0.28, p=0.015), after adjusting for age. However, correlations between HbA1c and TBF (r=0.223, p=0.056) and BFP (r=0.11, p=0.33) were not significant.

Conclusions: HbA1c correlates more with BMI and TRF than TBF indicating that the truncal fat is more connected with dysglycaemia.

***Keywords*:** *Dysglycemia, Glycated haemoglobin level, Total body fat mass, Truncal fat mass, Body mass index*

OP 6

Association of the Enzymatic Activity of Human Cathepsin K with the Metastasis of Breast and Prostate Cancers to Bones in Human – A Review

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Background: The effect of proteolytic enzymes including Cathepsin K (CatK), a cysteine cathepsin, in onset and progression of cancers including apoptosis, proliferation, cancer immunology, inflammatory cell recruitment to tumors and aiding in the mobilization of normal healthy cells from their tissue compartments assisting in cancers and their metastasis in human has been research intensive. CatK involves in various aspects and stages of cancer and metastasis.

Objective: To collect together and summarize biochemical and physiological pathways of how CatK is involved in metastasis of breast and prostate cancers and CatK regulated mechanisms underlying metastasis of such cancers to bones.

Methodology: Information for the review was gathered through published literature from global databases including Google Scholar and PUBMED through nearly 50 different studies done on investigating physiological and biochemical interactions between enzymatic activity of CatK with breast and prostate cancers and their metastasis to bones. Keywords used were prostate and breast cancers, CatK, enzymatic activity, physiology and biochemistry.

Results: Analysis of published studies revealed that immunohistochemical studies of breast cancer cells indicate that they over express CatK resulting in induction of wrong mechanisms of cell signaling in breast cancers, creating a higher tendency for their metastasis to bones. Immunohistochemical, immunoprecipitation and fluorgenic assays of prostste cancers indicated elevated levels of CatK. Lesions derived from prostate cancer cell masses were observed to undergo increased bone formation and resorption levels. Such resorption levels causes secretion of biological factors promoting tumor expansion. CatK was observed to be a key component promoting higher resorption levels.

Conclusions: It is concluded that CatK is over expressed in breast and prostate cancers and this over expression triggers cancer inducing biomolecules to cause metastais of them to bones. Authors suggest that, to completely understand the association of CatK on cancerous cells and their mechanism in metastasis, distributory patterns of CatK in human tissues needs to be extensively studied.

*Keywords***:** *Prostate cancer, Breast cancer, Cathepsin K, Human, Metastasis*

OP 7

Effect of Changing Pharmaceutical Legislations on Combating Importation and Developing Domestic Drug Manufacturing in Sri Lanka

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Background: Given the complexity of the pharmaceutical industry, how far the Sri Lankan government has achieved its objectives through legislations is questionable.

Objectives: To investigate the correlation between objectives of various legislations introduced and the impact seen in terms of pharmaceutical importation and developing domestic drug manufacturing in Sri Lanka.

Methodology: This is a descriptive cross-sectional study which investigates registration data obtained from Sri Lankan Drug Index 2009/2010 and National Medicines Regulatory Authority (NMRA) public database. In addition, published documents were analyzed as sources of data and statements of policy. Analysis was done over 28 years (1991-2019) in three divided periods; up to June 1991, 1991 to 2009 and 2009 to April 2019. Data was analyzed to see patterns correlated with the legislative changes during the relevant period.

Results: The average ratio between a single drug molecule to product registrations was 1:4 in 1991 and 1:7 thereafter for 28 years. Annual growth of registrations from 1991 to 2010 was 2.8% and in 2010 - 2019 was negative 0.66%. This can be related with the introduction of NMRA act in 2015 and price ceiling in 2016. Domestic drug manufacturing was 9% (305), 3% (207) and 3.5% (227) respectively for the three periods. Domestic Parenteral product manufacturing has improved, but no sign of biological product manufacturing. Indian product dominance has been 26% (886), 40% (2778) and 59% (3836) respectively. Drugs imported from countries with strict high regulatory standards have been reduced from 34% (1172) to 4% (252). Importation from Asian countries has been increased from 33% (1126) to 81% (5210).

Conclusions: Importation of pharmaceuticals has been controlled through policies in an unfettered manner. However, government should introduce strategic policies and regulations to maintain appropriate quality of the low cost pharmaceuticals which are being increasingly imported to the country. Changing Pharmaceutical Legislations has no significant effect on domestic manufacturing.

Keywords: *Sri Lankan pharmaceutical legislations, Drug importation, Drug manufacturing, Pharmaceutical registration, Policy development*

OP 8

Explorative Factor Extraction of Psychosocial Determinants Associated With Suicidal Ideation among Adults in Batticaloa District, Sri Lanka

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Background: Suicidal ideation is a significant public health issue since it leads to preventable death eventually. It is a complex problem and therefore it has to be investigated in multi-level.

Objective: Present study was directed to identify the psychosocial determinants of suicidal ideation among adults in Batticaloa District of Sri Lanka (BDSL).

Methodology: A cross-sectional study was carried out with the participation of 237 (majority-age category 50-<60 years) adult patients (55.5% female) admitted to medical wards of Base Hospital, Kaluwanchikudy (BHK) during the period of 1st January to 31st May 2019. Two stage cluster sampling method was applied. Possible psychosocial factors for suicidal ideation were included in the questionnaire. Statistical software (SPSS 25.0) was used to analyze the data and p-value<0.05 was considered significant for all analyses. Explorative Factor Analysis (EFA) was performed. Ethical approval was obtained from Ethical Review Committee, Faculty of Health Care Sciences, Eastern University, Sri Lanka.

Results: Sampling adequacy for EFA was full filed (KMO=0.785).Independent variables were correlated among them (Bartlett's test of Sphericity was significant (chi-square=5196.99, p=0.00). In EFA, 28 independent variables were grouped into SIX factors that are associated with suicidal ideation. These six factors were altogether contributed to the 66.9% of the total variance partitioned into 24.0% by factor-01(F1), 15.9% by factor-02(F2), 7.9% by factor-03(F3), 7.0% by factor-04(F4), 6.1% by factor-05(F5) and 5.7% by factor-06(F6). The SIX factors extracted were named as; F1-personal life and mental health status, F2-health status and married life, F3-sexual life of married people, F4-occupational status, F5-attempted suicide and F6-ethnicity.

Conclusions: Twenty eight independent variables were identified as associated psychosocial factors with suicidal ideation among adult community grouped into SIX factors as;personal life and mental health status, health status and married life, sexual life of married people, occupational status, attempted suicide and ethnicity.

Keywords: Adults, Batticaloa, Factor analysis, Psychosocial determinants, Suicidal ideation

OP 9

Expression of urinary Beta-2-microglobulin (β2M) in selected fishing and farming communities: A CKDu perspective

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Background: Chronic Kidney Disease of unknown etiology (CKDu) is an epidemic among dry zone farming communities in Sri Lanka (SL). Histopathological studies revealed tubular damage is most prominent in CKDu. Traditional biochemical parameters are still being used to detect tubular damage, although new biomarkers are being investigated. Urinary beta-2-microglobulin (β2M) is a novel biomarker that detects tubular damage. However, standardization of urinary β2M to reveal CKDu prevalence in SL is not fully evaluated.

Objectives: To determine the association between urinary β2M with traditional biochemical parameters such as Serum Creatinine (SCr), Albumin to Creatinine ratio (ACR), Uric acid (UA) and Blood Urea Nitrogen (BUN) in selected fishing and farming communities. It was also aimed to evaluate the utilization of urinary β2M to reveal CKDu prevalence in selected occupational cohorts in SL.

Methodology: Forty two (n=42) voluntary individuals from a farming community in Medabedda, Moneragala District in Uva Province (Site I) in comparison to a fishing community in Kottegoda, Matara District in the Southern Province (Site II) were selected. Early morning urine samples and blood samples were collected. SCr, ACR, UA and BUN were determined using the standard protocols by Human Biochemical Analyzer using standard calibrators and quality controls for each set of samples. Urinary β2M were analyzed by commercial Enzyme Linked Immuno Sorbent Assay kits (CrusiaBio) according to the manufactures instructions.

Results: CKDu prevalence (2%) was higher in the farming community compared to the fishing community where no CKDu cases were reported. Urinary β2M (0.054 µg/mL) and creatinine adjusted β2M (84.857 ng/mg/Cr) were significantly higher in the farming community compared to the fishing community (0.053 µg/mL and 55.639 ng/mg/Cr). Urinary β2M was correlated with urine uric acid (UUA) in site I ($p < 0.0001$) and site II ($p = 0.0083$) while creatinine adjusted β2M was correlated with UUA and ACR in site I ($p = 0.0012$ and $p < 0.0001$) and site II ($p = 0.0437$ and $p = 0.0005$).

Conclusion: This preliminary study indicated that Urinary β2M can also be useful as a detecting tool for CKDu diagnosis with traditional biochemical parameters. Due to small sample size it is recommended to do further studies with larger cohorts to evaluate the validation and standardization of urinary β2M together with traditional biochemical parameters.

Keywords: CKDu, Farming community, Fishing community, Urinary β2M

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OP 10

Factors Affecting Father's Involvement in Infants' Care: A Qualitative Study in Matara District, Sri Lanka

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Background: Father's involvement in infants' care is associated with positive physical and psychological development in a child. In order to improve father's role in infants' care, the factors that influence his involvement are important to be known.

Objective: To explore the factors influencing father's involvement in infant care in a capital city of Southern Sri Lanka.

Methodology: As a part of a series of phenomenological studies exploring parental competencies, five Focus Group Discussions (FGDs) were conducted including six fathers of infants at early infancy aged up to six months in each FGD. Participants were recruited through purposive sampling at the five Maternal and Child Health Clinics (MCH) in Matara District. Fathers' experience and perceptions on infant caring were explored using a pre-tested FGD guide. Data were analyzed using the framework approach for qualitative data analysis.

Results: Five major themes emerged from the analysis as influencing the father's involvement in infant care, i.e. fathers' involvement in infant care appeared to be the strongest while, cultural factors and economic status also resulted in poor fathers' involvement. Sparse consideration on father involvement in infant caring by the family health services also emerged as an influencing factor.

Conclusions: Healthy relationship between mother and father emerged as a primary factor facilitating father's involvement in infant care while grandparents' involvement negatively influenced his role. Antenatal and postnatal services must focus on building up a healthy relationship between father and the mother by emphasizing the importance of shared responsibility on the infants.

Keywords: Father Involvement, Infant caring, Qualitative

OP 11

Factors Associated with Exacerbations among Patients with Chronic Obstructive Pulmonary Diseases, who attend Central Chest Clinic Borella, Sri Lanka

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Background: Chronic Obstructive Pulmonary Disease (COPD) is a progressive chronic lung disease characterized by air flow limitation and destruction of lung parenchyma which is not fully reversible. Estimated global prevalence of COPD was 11.7% which is nearly similar to the Sri Lankan COPD prevalence of 10.5%. "COPD exacerbations" define as an acute worsening of respiratory symptoms of COPD patients. Exacerbations are the most common cause of hospital admissions and deaths among COPD patients.

Objectives: To evaluate the factors associated with exacerbations among COPD patients who attend Central Chest Clinic Borella.

Methodology: Descriptive cross-sectional study was conducted among randomly selected sample of 150 patients using pre-tested interviewer administered questionnaire. Data was analysed using descriptive statistics and chi square test.

Results: Out of 150 COPD patients, 66.7% were males and most were 50-69 years of age. Majority (84%) of the participants were married and (66%) currently engaged in paid occupation. Seventy four percent (n=111) of the participants had experienced episodes of exacerbations and of them 109 patients received inward treatments. Presence of any other respiratory disease (p=0.019), poor compliance to medication (p=0.009), presence of paddy fields near the residence (p=0.04), use of biomass fuel for cooking (p=0.001) were associated with exacerbation of COPD. Sociodemographic factors such as age, gender, civil status, BMI, smoking, alcohol consumption, exposure to occupational hazards, burning waste, outdoor air pollution, co morbidities were not significantly associated with exacerbation of COPD.

Conclusions: Majority of the COPD patients had experienced episodes of exacerbations and received the inward treatments. Other respiratory conditions, poor drug compliance, residence nearby paddy fields and use of biomass fuel at home were associated with the exacerbations.

Keywords: Factors, Exacerbations, COPD, Patients

OP 12

Formulation and Evaluation of Alcohol Based Poly-herbal Hand Sanitizer with Potential Antibacterial Activity

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Background: *Azadirachta indica* (neem), *Curcuma longa* (turmeric) and *Citrus aurantium* (bitter orange) plants are known to have well known antimicrobial activity due to the presence of various phytochemicals. Poly-herbal hand sanitizers consist of natural plant extracts are vital in controlling the spread of microbes and in preventing the development of infectious diseases.

Objectives: To evaluate the phytochemical constitutes of plant extracts and formulate the alcohol based poly herbal hand sanitizers with potential antimicrobial activity using neem leaves, rhizomes of turmeric and bitter orange peels.

Methodology: Aqueous ethanolic (80%) extracts of the plants were obtained by steeping method and subjected to phytochemical screening test and total phenolic content (TPC) and total flavonoid content (TFC) were determined by Folin-Ciocalteu assay and by Aluminium Chloride Colorimetric method respectively. The alcohol based poly herbal hand sanitizers (F_1, F_2, F_3, F_4 and F_5) were formulated by incorporating freeze dried powders of 80% aqueous ethanolic extracts to the base of the hand sanitizers. F_1-F_5 formulations were tested for stability parameters and in vitro antibacterial activity by using agar well diffusion method against *Staphylococcus aureus*, *Escherichia coli* and *Pseudomonas aeruginosa* compared to positive control (commercial product) and the negative control (base).

Results: The phytochemical screening of all three extracts revealed the presence of carbohydrates, phenolics, saponins and flavonoids TPC and TFC values of turmeric is significantly higher than other plant extracts (3928.497 ± 343.0241mg GAE/100g DWand1657.711 ± 138.281 mg CAE/100g of DW of the rhizomes.F_5herbal hand sanitizer is stable (colour, phase separation, odour, pH) for 1 month of period. Prominent zone of inhibition (mm) was observed in F_5 formulation (*S. aureus* 23.6 ± 0.6, *E.coli* 15.6 ± 0.6, *P. aeruginosa* 10.3 ± 0.6) compared to the commercial product (*S. aureus* 0 ± 0, *E.coli* 0 ± 0, *P. aeruginosa* 0 ± 0).

Conclusions: Selected plants are rich in polyphenols and flavonoids and formulated hand sanitizers have significant antibacterial activity compared to commercial product tested against all the tested microorganisms.

Keywords: Hand sanitizer, Antibacterial activity, Azadirachta indica, Curcuma longa, Citrus aurantium

OP 13

Identification of Active Anti-nociceptive and Anti-inflammatory Fraction from Crude Aqueous Extract of *Psychotria sarmentosa (Gonica)* Leaves

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Background: *Psychotria sarmentosa* ("Gonica" in Sinhala; family: Rubiaceae) has wide popularity in the Sri Lankan community as a leafy vegetable used in traditional porridge. In folk medicine an aqueous extract of leaves is prescribed for individuals who have been physically assaulted. Our previous studies have shown that aqueous extract of this plant leaves have significant anti-inflammatory and anti-nociceptive activities.

Objectives: To identify the active anti-inflammatory and anti-nociceptive fractions of the aqueous crude extract.

Methodology: The acute anti-inflammatory and anti-nociceptive effects were evaluated by the determination of inhibition of hind paw oedema induced by carrageenan (0.1%, subcutaneous) and inhibition of abdominal writhes induced by 0.6 % acetic acids (intraperitonial) in Wistar rats (n=6/ group) respectively. The negative and positive control groups were orally administered with 1.0 mL of distilled water and standard drugs respectively. The test groups received aqueous crude extarct (AEPL) or ethanol insoluble macromolecular fraction (EIPL).

Results: Acute anti-inflammatory activity of AEPL was dose-dependent and 100 mg/kg body weight (b.w.) dose of AEPL was found as the minimum effective dose with maximum inhibition (66%) of oedema at 3rd hour compared to the negative control (p<0.05). Among the tested fractions EIPL exhibited enhancement of activity over the crude extract. Hence, it was identified as an active fraction of *P. sarmentosa* leaves. The results showed that both AEPL (28% inhibition) and EIPL (48% inhibition) treated groups had significantly (p<0.001) reduced of writhes when compared to the negative control and this confirms the anti- nociceptive activity of both extracts. As EIPL showed enhancement of activity and it was also identified as an active fraction for analgesic activity.

Conclusions: The findings of the current study rationalize the usage of leaves of *P. sarmentosa* in Sri Lankan folk medicine as an nociceptive and anti-inflammatory agent. Further investigations are needed to isolate active compounds which contribute towards its ethnomedically reputed anti-inflammatory and analgesic effects.

Keywords: Anti-inflammatory, Anti-nociceptive, P. sarmentosa

OP 14

Knowledge, Attitudes and Practices of Oral Hygiene among School Children in Modara - Mattakkuliya Zonal Educational Area

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Background: Proper oral hygiene is not only about clean teeth, it is the best way to maintain good oral health and well-being of an individual. People who do not maintain proper oral hygiene practices are at risk of having oral diseases such as dental caries, periodontal diseases, oral infections and oral cancers.

Objectives: To investigate the knowledge, attitudes and practices of oral hygiene among school children aged 16-18 years.

Methodology: The quantitative approach and descriptive design were utilized. Data were collected from randomly selected 400 school children in the age between 16-18 years from ten schools in the Modara, Mattakkuliya Zonal Educational area by using a self-administered questionnaire. Data were analyzed using Statistical Package for the Social Sciences. The ethical clearance was obtained from the Ethics Review Committee of the National Hospital of Sri Lanka.

Results: Nearly half (56%) of students had satisfactory knowledge, while 29% had moderate knowledge regarding oral hygiene. Of the total, the majority of the students knew the purpose of maintaining oral hygiene (83.3%), causes of cavities on teeth (80.3%) and symptoms of gum bleeding (64.8%). When considering the attitudes of oral hygiene, 54.5% of students worry about their teeth colour while the majority (84.4%) of students believed that upper teeth extraction cause blindness. Only 20% of students agreed that missing teeth replacement is necessary. Regarding practices, 96.3% of students used toothbrushes and 96.8% used fluoride toothpaste. But only 20.8% changed their toothbrushes when the bristle damage or discolourations occur. Majorities (90%) of students have not visited their dentist regularly every six to twelve month and students visit the dentist only when they have pain (48%).

Conclusions: Even though students had satisfactory knowledge on oral hygiene, they have some negative attitudes and poor practices regarding oral hygiene. Therefore, to fill the existing gap between student's knowledge and practices, arranging awareness programs and incorporating oral health education into the school curriculum is a timely need.

Keywords: Attitudes, Knowledge, Oral hygiene, Practices

OP 15

Optimal Cut-off Values for Anthropometric Adiposity Measures of Sri Lankan Adult Women

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Background: Anthropometric adiposity measures (AAMs); body-mass-index (BMI), waist-circumference (WC) and waist-to-hip-ratio (WHR) are used to evaluate the obesity status. Defining country specific cut-off values for obesity surrogates are imperative since cut-off values developed elsewhere would provide wrong estimation of prevalence of obesity.

Objectives: This cross-sectional study was designed to determine the optimal cutoff values for AAMs for Sri Lankan adult women and to compare the prevalence of obesity determined with the World Health Organization (WHO) cutoff values for Asians and newly defined Sri Lankan cutoff values.

Methodology: The study was conducted in Galle, Sri Lanka with 350 healthy, randomly selected community-dwelling middle-aged women aged 30-60 years. They were divided into two groups (Group A, n=175 and Group B, n=175) based on their primary health care division. Total-body-fat-percentage (TBFP, kg) was measured with DXA. Body weight (kg), height (m), WC and hip-circumference (HC) (cm) were measured. BMI (kg/m^2) and WHR were calculated. Optimal cutoff values were determined by Area Under Curve (AUC) in ROC curve analysis with Youden Index using TBFP as the criterion (presence of generalized or central obesity was considered if TBFP>30%). Cutoff values were developed using Group A and prevalence of obesity was determined with Group B.

Results: Significant positive correlations were observed between TBFP and AAMs; BMI (r; 0.76), WC (r; 0.64) (p<0.001) and WHR (r; 0.14) (p=0.04). ROC curves indicated the following cutoff values [AUC (95% CI), sensitivity, and specificity] BMI = 22.5 kg/m^2 [0.92 (0.87-0.96), 0.82, 0.86] WC = 78 cm [0.87 (0.81-0.93), 0.77, 0.86] WHR = 0.84 [0.69 (0.58-0.80), 0.60, 0.73] Prevalence of obesity (number, %) according to the WHO (Asian) and newly defined cutoff values for Sri Lankans were significantly different (p<0.001). BMI = 120 (68.6%), 129 (73.7%) WC = 106 (60.6%), 123 (70.3%) WHR = 140 (80.0%), 94 (53.7%)

Conclusions: The observed cutoff values of AAMs in this study were somewhat different from those described by the WHO for Asian populations. The BMI and WC cutoff values of WHO (Asians) underestimated the prevalence of obesity while WHR overestimated.

Keywords: Anthropometry, Cut-off values, Obesity, Sri Lanka, Women

OP 16

Optimization of a Protocol for the Extraction of DNA from Human Blood and Isolation of the Human Gene *CtsK* Using Polymerase Chain Reaction (PCR) Amplification Techniques

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Background: Cathepsin K, encoded by *CtsK* gene involves in bone remodeling through ossification. Besides this orthopaedic importance, it demonstrates other physiological importances including metastasis of prostate, ovarian, breast cancers and human growth regulation. Therefore, it is a timely concern that further molecular characterization be done on *CtsK* gene to facilitate further biomedical research and other aspects such as recombinant production of Cathespin K.

Objectives: To develop an optimized protocol for isolation of DNA from human blood and PCR amplification of a catalytic domain of *CtsK* gene.

Methodology: Genomic DNA was extracted from four human blood samples using FlexiGene®-QIAGen®, by subjecting blood to action of cell lysis, denaturation and resuspension buffers. Incubation time and number of 70% ethanol washings, volumes of isopropanol added were increased and absorbance of eluted DNA was measured spectrophotometricaly. PCR amplification of a catalytic domain of *CtsK* gene using forward primer 5'ACGCGTCGACGTGTACCATCAGTACCTCGCAC3' and reverse primer 5'ACGCAAGCTTCTTCCAAAGTGCATCGTTACAC3' was done. PCR conditions were optimized as; 94 ℃ initial denaturation, 94 ℃ denaturation, 55 ℃ annealing, 72 ℃ elongation, 72 ℃ final elongation and 4 ℃ final hold for 3 minutes, 30 seconds, 30 seconds, 40 seconds, 5 minutes and infinite, respectively.

Results: Extracted DNA showed a concentration of nearly 500 ng/µL which increased drastically upon addition of more isopropanol to better pellet out DNA. İn terms of purity, A_{260}/A_{280} ratio for DNA revealed to be between 1.7 and 1.8 while A_{260}/A_{230} revealed to be between 1.7 and 2.2, reflecting optimum purity. As a result of optimization of PCR conditions, expected band size, as a clearband of size 265bp (between 200bp-300bp) was generated in 1.5% TAE-agarose gel, which was verified to be a catalytic domain of Cathepsin K by previous literature.

Conclusions: An optimized protocol for extraction of quality DNA with high concentration was developed successfully and a catalytic domain of *CtsK* gene was successfully amplified.

Keywords: Cathepsin K, CtsK, DNA Extraction, Human, PCR

OP 17

Perception of Healthcare Professionals on Interdisciplinary Teamwork at Teaching Hospital Karapitiya

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Background: Interdisciplinary team work is a key requirement to provide better patient care. Different professional and non-professional health care staff gets together and work in this team to achieve desirable health outcomes from the patients.

Objectives: This qualitative study was conducted to explore perceptions of healthcare professionals towards interdisciplinary team work and how human errors could occur due to poor team work.

Methodology: In-depth interviews were conduct to collect data from 24 health care professionals (medical officers, pharmacists, medical laboratory technologists, radiographers, physiotherapists and nurses) at the Teaching Hospital Karapitiya. Interviews were audio recorded and transcribed. Data were analyzed using thematic analysis method.

Results: Four themes were emerged during the study. First one was 'interdisciplinary teamwork assist better patient care'. Under this theme three sub themes were identified. Those are 'value of individual contribution, barriers to collaborate, role of a pharmacist in interdisciplinary team work'. The second theme was "good communication for better collaboration". Under this theme three sub themes were observed; 'communication among health care professionals, communication between health care professionals and 'patients and barriers to communicate'. The third theme was 'proper management of physical and human resources enhance team work'. The final one was 'attitude transformation towards professional cooperation'. Poor professional mentality, authoritarianism, insufficient carder, heavy workload, insufficient working area, insufficient instruments (like beds and operation machines) personnel problems and personal attitudes were the main perceptional barriers exist in the system that would prevent good team work.

Conclusions: The study results showed that interdisciplinary approach is more practical and effective. Services of pharmacists and physiotherapists in a ward have a great potential to enhance team work. Communication barriers between professions, lack of inter-professional respect were identified as barriers for interdisciplinary teamwork. In- service programmes and monthly ward meetings in proper manner would create good relationships and team work among professionals.

Keywords: *Inter- disciplinary team work, professionals, communication, patient care, authoritarianism*

OP 18

Physical Burden of Informal Caregivers of Patients with Dementia

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Background: Dementia is one of the leading chronic diseases among older people and it contributes to disability and particularly dependence. Therefore, patients with dementia need caregivers to assist in their activities of daily living. Most caregivers are family members and they are informal. These informal caregivers have to face various types of physical burdens when caring older people.

Objectives: To explore the perceived physical burden of informal caregivers of patients with dementia at the Neuropsychiatric clinic in the National Hospital of Sri Lanka (NHSL).

Methodology: Twenty informal caregivers who were engaged in caring for dementia patients for more than six months, purposively recruited for this phenomenological study at the Neuropsychiatric clinic in the NHSL. Ethical approval was obtained from the National Institute of Mental Health. Data were collected using semi-structured interviews and data analysis was done using Colalizzi's analysis method.

Results: The three themes emerged from the analysis were discomforts and ailments, excessive daily activities and body weakness due to nutritional imbalances. Sleep disturbances, back pain with aches and pain of the body and lack of time to take medicines were perceived as reasons for discomforts and ailments. Getting fed up with a continuous caring process, inadequate time to rest, having to engage in other household activities were perceived as reasons for the excessive daily activities. Skipping meals, not having time to consume adequate amount of meals and imbalance diet caused nutritional imbalances.

Conclusions: These adverse experiences and drawbacks help to understand several hidden burdens of informal caregivers of patients with dementia. It is needed to ensure the importance of arranging social support services for informal caregivers which are a neglected area in the local health system.

Keywords: Physical burdens, Informal caregivers, Patients, Dementia

OP 19

Prevalence of Depression among Patients with Chronic Kidney Disease Admitted to National Hospital of Sri Lanka

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Background: Chronic Kidney Disease (CKD) has become a major health burden in all over the world, especially in Sri Lanka. It affects the psychological health of the person. Depression is a common consequence for the patients who are suffering with Chronic Kidney Disease which affects the quality of life.

Objectives: To assess prevalence of depression among patients with CKD stage 3 and above, who admitted to Medical wards of National Hospital of Sri Lanka (NHSL).

Methodology: A descriptive cross-sectional study was conducted with the participation of 220 patients with CKD stage three and above, who are admitted to Medical wards of National Hospital of Sri Lanka, by using an interviewer administered validated Patient Health Questionnaire 9 (PHQ 9) for depression and self-developed, pre tested questionnaire regarding socio demographic, personal factors. Simple random sampling method was used. Ethical approval for the study was obtained from Ethics Review Committee, KAATSU International University and NHSL.

Results: Of the participants, majority (76.8%, n=169) was males. There were 40% (n=88) in the age range of 18-50 years. Regarding their educational level, 43.6% (n=96) of the participants had only primary education or less. Under their living status, 58.2% (n=128) participants lived with children and spouse while 5.5% (n=12) lived alone. Majority of the participants (92.7%, n=204) were using regular medications for CKD. Majority (75.5%, n=166) was having co-morbidities. According to self-rated health status, 48.6% (n=107) rated their health status as moderate. According to PHQ 9 categorization, prevalence of severe depression, moderately severe depression, moderate depression and mild depression was 9.5% (n=21), 24.1% (n=53), 44.1% (n=97) and 19.5% (n=43), respectively. Only 2.7% (n=6) had no depression.

Conclusions: Around three fourths of the participants had moderate depression or above. This study emphasizes the high prevalence of depression among patients with CKD stage 3and above which may need a psychological intervention.

Keywords: Chronic Kidney Disease, Prevalence, Depression

OP 20

Prevalence of Postpartum Musculoskeletal Morbidity among Women who delivered their Babies in Teaching Hospital Peradeniya

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Background: The true burden of maternal morbidity is still not known, because of the difficulty in accurately measuring maternal morbidity in the absence of a generalized definition and a standard identification criterion. Also because of the inaccuracy of vital records due to inadequate health information systems in developing countries.

Objectives: This study aimed to find out the prevalence of postpartum musculoskeletal morbidity among women who delivered their babies in Teaching Hospital Peradeniya, to investigate the demographic characteristics association with the musculoskeletal morbidity, to assess the antenatal care visit and supplementation relation to the musculoskeletal morbidity and to find out the association between the postpartum complications and musculoskeletal morbidity.

Methodology: In this descriptive cross-sectional study, convenient sampling method was applied to select 230 mothers as study participants. Percentages of different musculoskeletal morbidities were calculated using standardized musculoskeletal questionnaire tool. Body Mass Index (BMI) was calculated using height and the last recorded weight.

Results: Most of the mothers (84.0%) were between 25 to 29 years old. More than half of the mothers (62.6%) were having parity of 2 to 4. About 80.4% of mothers had musculoskeletal morbidity. About 79.4% mothers had muscle pain and 70.4% of mothers reported joint pain. Most of the mothers had lower back pain (70.3%). Mothers had difficulties in daily activities (11.7%), trouble in walking (12.2%), difficulty in breast feeding (5.2%) and trouble with sleep due to these musculoskeletal morbidities. There was no statistically significant relationship (p=0.087) between BMI and musculoskeletal morbidity, between demographic characteristics and musculoskeletal morbidity. There was no association between antenatal care visit, supplements and morbidity (p=0.320). There was an association (p=0.021) between postpartum complications and musculoskeletal morbidity.

Conclusions: The incidence of postpartum musculoskeletal morbidity was high, with lower back and upper back pain, and joint pain in knee, ankle, hip, wrist, elbow pain, and shoulder. There is no statistical association between demographic variables and morbidity. There is no association between antenatal care visit, supplements and morbidity. There is significant association between complications and morbidity.

Keywords: prevalence, incidence, antenatal care visit, supplementation, musculoskeletal morbidity

OP 21

Quality of Life of Patients on Hemodialysis

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Background: Quality of life (QoL) is one of the major issues and challenges in health care. Hemodialysis is a life sustaining treatment for patients with end stage renal disease. Hemodialysis can bring about significant impairment in health related QoL and outcomes.

Objectives: To examine the physical, psychosocial and cultural factors associated with the QoL of patients on hemodialysis admitted to National Institute of Nephrology, Dialysis and Transplant (NINDT) in Maligawatta.

Methodology: Quantitative approach and descriptive design was used. All registered patients (n=233) in NINDT were taken. KDQOL-SF[36] questionnaire was used for data collection. SPSS version 23 was used for data analysis.

Results: In this study, overall general health was fair in 52.2%. Limited physical functioning was present in 95.7% while role limitations with work were present in 92.7%. Body pain was present in 86.7% of patients while pain interfered with daily activities in 95.7%. Effects of kidney disease affected daily living in 71.3%. Sixty four percent (64.1%) did not have sound sleep while 63.4% had interference with social activities. Emotional wellbeing was affected in 94%. Cognitive functions were affected in 93.7%. Response rate was 18.7% regarding sexual activity.

Conclusions: Many aspects of health of the participants' lives have been adversely affected by hemodialysis. Patients on hemodialysis experience various problems that may adversely influence their QoL. It is recommended that multidisciplinary intervention that includes medical, dietetic and psychosocial strategies that address factors associated with mental and physical QoL are warranted to reduce further health complications and to improve QoL. Educational interventions should be focused to improve their knowledge aiming to reduce physical health problems, to modify the attitudes and believes aiming to reduce the intensity of psychological and social health problems relating to the condition.

Keywords: *End-stage renal disease, Hemodialysis, Health-related Quality of Life*

OP 22

Short-term effect of Home based Vestibular Rehabilitation to Improve Dizziness Severity and Handicap

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Background: Improving the quality of life in patients with vestibular related dizziness is a challenge. However, there are growing evidence to support the use of vestibular rehabilitation (VR) to improve dizziness severity and handicap.

Objectives: To evaluate the effectiveness of a home based VR in physical, emotional and functional disability in patients with chronic dizziness.

Methodology: A pretest-posttest study was conducted at the ENT unit of the National Hospital of Sri Lanka. Patients (n=22) with chronic vestibular dysfunction were allocated into either a VR group (n=12) or a control group (n=10). Patients in the VR group were treated with a home-based VR program with additional telephone support for six weeks, while the patients in the control group received simple eye and head exercises. Dizziness Handicap Inventory-Sinhala (DHI-S) was used to assess the symptom and disability of patients before and after the VR program. The intergroup comparison was done by Wilcoxon signed-rank test and the intragroup comparison by Mann-Whitney U test. The McNemar-Bowker test and the chi-square test were used to assess the intra-group and inter-group pre and post DHI severity respectively.

Results: There were no significant differences in demographic or clinical features and any pre-test outcome measures between the two groups (p>.05). The VR group presented significant improvements in all sub scales of DHI-S (functional, emotional, physical and total) and DHI severity at the end of the program compared with the control group (p<.05). The control group did not show a significant improvement in any post-test outcome measures (p>.05).

Conclusions: This home-based VR program is beneficial in treatment of chronic dizziness due to peripheral vestibular dysfunctions while overcoming the limitations of time, resources and facilities available in the hospitals in Sri Lanka.

Keywords: Chronic dizziness, Home-based, Vestibular rehabilitation

OP 23

Surgical Site Infections in Adult Patients Undergoing Surgeries in General Surgical Units of Teaching Hospital, Karapitiya

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Background: Surgical Site Infection (SSI) is one of the major complications in patients undergoing surgeries. SSI leads to increased hospital stays, readmissions and additional health care cost.

Objectives: To determine the incidence of SSI and associated risk factors in adult patients undergoing surgeries in general surgical units of Teaching Hospital, Karapitiya (THK). Further this study was aimed to study the pattern of development of SSI following surgeries and identify causative pathogens where possible.

Methodology: A prospective cohort study was conducted between September to December 2018. A total of 332 enrolled subjects were followed-up for 30 days post-surgery. Chi-square test was used to assess the associations of each variable with SSI and bivariate logistic regression to assess the predictors of developing SSI.

Results: Out of the 332 patients, 33 (9.94%) developed SSI. It was found that incidence of SSI was influenced by comorbid conditions such as diabetes mellitus (OR=3.02) and anaemia (OR=3.83). Length of preoperative hospital stay (OR=0.33), transfusion of blood (OR=4.89), use of drain (OR=4.73) and duration of surgery (OR=0.27) were found as the influencing procedure related risk factors. Majority (87.9%) of all SSIs developed within two weeks following the procedure. In 5 cases out of 33, SSI was diagnosed without microbiological evidence. The predominant pathogen responsible for the development of SSI in the study was *Coliform* spp. (36%). This was followed by *Escherichia coli* (25%).

Conclusions: Both patient-related and procedure-related factors play a role in the development of SSI at general surgical units of THK. In contrast to other studies *Coliform* spp. was the predominant causative pathogen for the development of SSI in the study.

Keywords: General Surgical Units, Incidence, Predominant Pathogen, Risk Factors, Surgical Site Infection

Poster Presentations

PP 1

A comparison of the film density using a new computerized tool and dual energy x-ray absorptiometry

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Background: Radiographic density is a parameter that is used to determine the bone mineral density (BMD) in medical imaging; here mean pixel intensity level of radiograph is directly proportional to the BMD. BMD is an important parameter to assess metabolic diseases like osteoarthritis. Although Dual-energy X-ray Absorptiometry (DEXA) is the standard diagnostic method for BMD assessment; it is an expensive method with some diagnostic limitations.

Objectives: To determine the BMD by using Antero-Posterior (AP) lumbar spine radiographs performed at standard peak kilo Voltage (kVp) range used in plain radiography. A Computer-Aided system (CAD) was developed to calculate the BMD and the results were compared against the standard values.

Methodology: Bone density is calculated as a 2D measurement. X-ray images (n=40) of the AP lumbar spine of the phantom were taken in the standard kVp range using conventional X-ray machine with computed radiography image processor and DEXA results of the same phantom were obtained by considering it as an average size Asian woman. Pre-processing techniques were applied before the calculation of mean pixel intensity with the aid of image processing techniques. The mean pixel intensity was used to assess BMD of a relevant vertebra. The relationship between mean T scores and Z scores of conventional image and DEXA scan was calculated using the hypothesis test and graphical representation.

Results: The new CAD method showed appropriate T scores and Z scores for conventional radiographs. There was no statistically significant difference between T scores and Z scores of conventional radiographs with DEXA scan values as $p<0.05$. Graphically both T score and Z score coincide at the 93kVp.

Conclusions: This new CAD system can be used to calculate BMD successfully using plain radiographs. It may need to be further developed with larger sample size with wide range of kVp.

Keywords: Plain radiography, CAD, DEXA, Image processing, Mean pixel intensity

PP 2

Assessment of Primi Mothers' Knowledge of Discomforts and Coping Strategies in their Third Trimester

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Background: Primi mothers confront various discomforts especially in their third trimester of pregnancy. They need a good understanding of these discomforts to cope with the pregnancy and the delivery.

Objectives: To assess knowledge of discomforts and coping strategies of primi mothers during the third trimester in Teaching Hospital, Kandy and General Hospital, Badulla.

Methodology: In this cross-sectional study, a convenient sample of 150 primi mothers in the third trimester was recruited from Teaching Hospital, Kandy and General Hospital, Badulla. A pre-tested, self-administered questionnaire was used to collect the data. Ethical clearance was obtained from the ethical review committees of the two hospitals. Data were analyzed using descriptive statistics with SPSS (version 22).

Results: Most of primi mothers (79%) were in the age group of 18-32years. Results revealed that 46% (n=69) of the mothers were aware of pregnancy and labor such as physiological changes, pregnancy symptoms, labor pain, and the labor process. Most mothers (87%) had knowledge of minor discomforts such as nausea, vomiting, and faintishness, and emotional discomforts. Majority (66%) of mothers were aware of fetal wellbeing such as quickening, and weight gain. Mothers' knowledge of comfort measures such as massaging, positioning, breathing exercise and pain killers were 78%. Most mothers (69%) used non-pharmacological coping strategies such as posturing, massages, muscle relaxation techniques and breathing exercises. Further, this study found 56% of mothers had good social support, acceptance, and social assurance that were used as coping strategies.

Conclusions: Primi mothers have an overall knowledge of various discomforts in the third trimester but have relatively fewer coping skills to face them. Hence further health education is recommended to promote social support and non-pharmacological strategies among primi mothers in the third trimester.

Keywords: Coping skills, discomforts, knowledge, primi mothers, third trimester

PP 3

A Review on Molecular Structural Characterization of Human Cysteine Cathepsins in *Escherichia coli* Expression Systems

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Background: Eleven cysteine cathepsins have been identified in human, Cathepsin B, C, F, H, K, L, O, S, V, X and W. Studies related to their specific functions, regulation and distribution patterns in tissues have not been fully studied to understand their biochemical implications in human physiology. Molecular characterization including expression and recombinant production of them in bacterial expression systems is an effective way of understanding them.

Objectives: To identify research gaps present in molecular structural characterization studies of human cysteine cathepsins highlighting the importance of investigating them to promote health.

Methodology: This review focused on molecular structural characterization studies that have been done so far based on *in vitro* expression of genes encoding for human cysteine cathepsins in *Escherichia coli* expression systems. Nearly 50 related papers were found as published literature using keywords cysteine cathepsins, expression and *E. coli* in global databases such as the Google Scholar, PUBMED and NCBI and were analysed.

Results: It was seen that all cathepsins except for K, C, H, X and W have been expressed in bacterial expression systems, the majority in *E. coli BL21(DE3) pLysS* host via *pET3* expression vector to understand cellular behaviour. In most cases, the substrate used to validate the enzymatic activity of the recombinant enzyme was a cysteine residue along with a *benzyloxy-carbonyl* salt such as *benzyloxycarbonyl-L-phenylalanyl-L-arginine-7-amido-4-rnethylcoumarln.* No literature indicated that cathepsins K, C, H, X and W to have been characterized on any molecular basis.

Conclusions: It is concluded that certain important research gaps such as precise validation of the recombinant cysteine cathepsin produced needs to be attended to by investigating into specific substrates utilized by each enzyme. In addition, mass production of these enzymes have to be facilitated by optimizing their recombinant production efficiency, in order for them to be incorporated into biopharmaceuticals productively.

Keywords: Cathepsins, Escherichia coli, Expression, Molecular, Characterization

PP 4

Evaluation of total phenolic content, total flavonoid content and in vitro sun screening activity of *Tephrosia purpurea* (Kathurupila) leaves grown in Sri Lanka

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Background: Application of sunscreen on the body is highly recommended as one of the best ways to minimize the harmful effects of over exposure to sunlight. Nowadays, there is a high demand for efficient plant based natural and herbal sunscreens due to lack of side effects which are reported to be present in the commercial synthetic sunscreen products. *Tephrosia purpurea* leaves is known to contain a high level of flavanods which are natural photoprotectants for plants.

Objectives: To determine total phenolic content (TPC), total flavonoid content (TFC) and in vitro sunscreening activity of leaf extract of *Tephrosia purpurea* leaves.

Methodology: Aqueous methanol (80%) defatted crude extract of *T. purpurea* leaves was prepared by steeping method and was subjected to preliminary phytochemical tests. The TPC, and TFC were determined by using Folin Ciocalteu and aluminium chloride methods respectively. Sun protective factor (SPF) value was calculated by using the Mansur equation according to the UV absorbance of the extract in methanol obtained in the range of 290-320 nm.

Results: The phytochemical screening revealed the presence of phenolics, flavonoids, carbohydrates and absence of alkaloids in the extract. The TPC and TFC of the extract were 1725.858±35.985 mg Gallic acid equivalent (GAE)/100 g and 262.934±36.241 mg Catechin equivalents (CAE)/100 g dry weight (DW) of the leaves. The plant extract and the reference Dermatone® in methanol have shown concentration dependent sun protective activity. The extract has a promising sunscreening ability (SPF=40) compared to the reference Dermatone (SPF=35) at the concentration of 1 mg/mL.

Conclusions: *T. purpurea* leaves are rich with phenolic and flavanoid compounds and have promising sunscreening activity and it could be used to formulate herbal sunscreen products.

***Keywords*:** *T. purpurea*, *sunscreening activity, Flavonoids, Phenolics*

PP 5

Factors Associated with Adjustment to the New Learning Environment among First Year Nursing Students at Government Nursing Schools in Northern and Eastern Provinces, Sri Lanka

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Background: Adjustment to the nursing school environment as a freshman is crucial for the future academic progress and a successful career and life of an individual. To be an effective nurse in the future, the new students should enjoy optimal level of psychological and physical well-being, spiritual sense of serving the society and best practice of study and work.

Objectives: To assess the factors associated with adjustment to the new learning environment by first year nursing students at Government nursing schools in Northern and Eastern provinces, Sri Lanka.

Methodology: A descriptive cross sectional study among randomly selected sample of 420 first year nursing students from Schools of Nursing, Ampara, Batticaloa, Jaffna and Vavuniya, was conducted using a pre-tested self-administered questionnaire consisting academic, social, personal and institutional factors that affect adjustment to the new environment. Data were analyzed using descriptive statistics and associations were assessed using the Mann Whitney U test with non-parametric data. Significance was set at p<0.05. Ethical clearance was obtained from the ERC in International Institute of Health Sciences, Walisara, Sri Lanka.

Results: Response rate was 99.5%. The majority (53.1%) was 21-22 years old. The mean age was 22.5 (SD 1.07). Majority of nursing students were female (75.7%), Sinhalese and Buddhist (55%). Of the sample 53.8% had never received psychological support and academic assistance (48.1%) in the school. Adjusting with heavy workload (62.5%), applying clinical skills (62.5%), socializing (60.61%), regular attendance to the clinical training (70.2%) and receiving learning support (60.2%) were perceived as the most difficult in their adjustment. Overall personal, emotional factors (67%) reported as the most difficult in adjustment during the first academic year. There was no statistical significance between adjustment factors and socio demographic variables (p> 0.05).

Conclusions: The personal emotional factors were found to affect greatly to the adjustment in the first academic year. Continuous learning support, supervision and socialization programs need to be strengthened in nursing school environment and in the clinical learning environment for the beginners.

Keywords: Academic factors, Clinical learning, Learning environment, Personal factors, Socializing

PP 6

Factors Affecting Preterm Delivery among Mothers Admitted to Sri Jayewardenepura Hospital, Sri Lanka

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Background: Premature or preterm baby is defined as the birth of an infant, born prior to 37 completed weeks of gestation. There is a high prevalence of premature births globally and around 24000 births annually in Sri Lanka. PreTerm Births (PTB) occurs due to many reasons and usually this accounts for higher mortality and long-term morbidity of infants compared to full term babies.

Objectives: To determine physical factors among mothers with PTB babies born in Sri Jayewardenepura General Hospital.

Methodology: Fifty postnatal mothers aged between 25-45 years who gave birth to PTB were purposively recruited for this quantitative descriptive study. Data were collected using self-administered questionnaires and descriptive technique was performed for data analysis.

Results: Majority of participants (66%) were aged above 30 years. When considering Body Mass Index (BMI) of mothers, 82% were overweight and obese, and 6% extremely obese. About 48% of mothers conceived following assisted reproductive techniques such as Intra Uterine Insemination (IUI) 40% and In-vitro fertilization (IVF) 8%. When considering history of current pregnancy, 54% were on their first pregnancy. Seventy-four (74%) were singleton mothers and 26% were having twins. Fifty-six percent (56%) mothers had previous history of abortion. Forty-four present (44%) mothers had previous preterm birth. As a complication during pregnancy 16% had per vaginal bleeding, 2% had vaginal infections and 42% had Premature Rupture of Membrane (PROM). When considering medical diseases during pregnancy, 30% were having diabetes and 90% were having pregnancy induced hypertension (PIH).

Conclusions: Some factors related to preterm delivery including related factors were identified in this study. Further analysis on complications related to pregnancy is necessary in order to prevent complications related to prematurity.

Keywords: *Body Mass Index, Pregnancy Induced Hypertension, Premature rupture of membrane, Pre term birth, Factors*

PP 7

Identification and Comparison of Prophylactic Antibiotic Usage Patterns in a Surgical Unit as the Initial Step to Establish a Guideline for the Antibiotic Prophylaxis

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Background: Use of prophylactic antibiotics is the most common intervention to avoid surgical site infections (SSI). Indiscriminate use of antibiotics may lead problems including, increasing cost and the emergence of resistance of microorganisms. Current guideline recommends intravenous (IV) cefuroxime 1500 mg, metronidazole 500 mg and co-amoxiclav 1200 mg for surgical prophylaxis.

Objectives: To identify prophylactic antibiotic usage pattern in surgical unit of Teaching Hospital Peradeniya. Further, the study focused to find out surgical site infection rate, risk factors for post-operative surgical site infections and common causative microorganisms for those infections.

Methodology: Prophylactic antibiotic usage pattern for vascular, upper and lower gastro-intestinal, urological and general surgeries were observed in patients who underwent surgery, within three months and were followed up for three months period to observe surgical site infections. Wound swabs were collected from infected patients and causative microorganisms were identified. Information on risk factors was identified using bed head tickets. All the results were subjected to statistical evaluation using Statistical Package for Social Sciences 20.

Results: Out of 350 surgeries, only 38% were given antibiotic prophylaxis. IV cefuroxime 750 mg was the most frequently used antibiotic for prophylaxis (58.1%). Others are IV metronidazole 500 mg (26.82%) and co-amoxiclav 1200 mg (11.72%). SSI rate was reported as 8%. Lower GI surgeries were reported to have highest number of infections (28.75%). Most prevalent organism was *Pseudomonas* spp. (45.5%). Only the duration of the surgery ($p<0.05$) was observed as the risk factor for reported SSIs.

Conclusions: Although the standard regime of IV cefuroxime is 1500 mg, the current usage is 750 mg. Other than that the usage pattern of antibiotic prophylaxis is much similar to current national guidelines.

Keywords: Antibiotic prophylaxis, Surgical site infections, Microorganism, Risk factors

PP 8

Impact of Brief Educational Intervention and Telephone Reminders on Appropriate Use of Warfarin; a Pilot Study

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Background: Warfarin is a commonly used oral anticoagulant in clinical practice. Optimal treatment with warfarin is challenging since it has a narrow therapeutic index. İt is associated with high frequency of food and drug interactions. Appropriate patient education regarding warfarin therapy may increase adherence to drug and reduce complications.

Objectives: To assess patient compliance on use of warfarin and the impact of pharmacist-initiated educational counseling in improving medication adherence in patients receiving warfarin.

Methodology: This prospective study enrolled 100 patients who are on warfarin attending different clinics in a Teaching Hospital. Patients were interviewed using pre-tested ıntervıewer administered questionnaire at baseline. Patients were randomly allocated to two groups as intervention and control. The intervention group received educational intervention on appropriate use of warfarin as per published guidelines using information leaflets and telephone reminders twice a month. At the end of three months, patients' knowledge in both groups was assessed using the same questionnaire used at the baseline.

Results: The control group maintained the constant dose level and International Normalized Ratio (INR) within 2-3 as 14.29% and 26.53%, respectively. In contrast, after education intervention, 17.39% (17.39-intervention vs 14.29-control, p=0.67, X_2=0.18) and 36.96% (36.96%-intervention vs 26.53-control, p=0.26, X_2=1.24) patients in the intervention group could maintain the constant dose level and INR within 2-3, respectively suggesting slight but statistically non-significant increase in adherence. All patients preferred information leaflets and majority (93.47%) to telephone reminders as an effective educational tool to increase the compliance. Telephone reminders, offering information leaflets and counseling are effective in enhancing the knowledge regarding dosage regimen, side effects and type of foods to consume, compliance of patients compared to the control group. Education intervention may also help to reduce secondary complications such as bleeding, dark purplish mottled fingers and toes, and allergic reactions from 26.09% to 4.35% in the intervention group (p=0.0023, X_2=9.32).

Conclusions: Education intervention in the form of information leaflets and telephone reminders help to improve compliance of patients and therapeutic outcome of warfarin. Larger studies are warranted to generalize these findings.

Keywords: *Warfarin, Oral anticoagulant therapy, Educational intervention, Telephone reminders, Pharmacist*

PP 9

Investigation of *in-vitro* Antibacterial Properties of Human Cerumen of Healthy Individuals Attending the National Hospital of Sri Lanka

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Background: Prevalence of bacterial ear infections is moderately high in developing countries like Sri Lanka. Absence of human cerumen is known to predispose to ear infections.

Objectives: To investigate *in-vitro* antibacterial properties of human cerumen.

Methodology: A cross sectional study involving individuals of all age groups attending the ear, nose and throat clinic at National Hospital of Sri Lanka was conducted. Patients with middle or external ear pathology were excluded. Hundred cerumen specimens were collected to study the antibacterial activity using spread plate count method. Cerumen suspensions of 3.5% were prepared aseptically and inoculated on nutrient agar and incubated at 37 ^{0}C for 24 hours. Any microbial growth was noted. The cultures which did not show any growth on nutrient agar were considered as sterile and they were subjected to further examination. Freshly isolated control bacterial strains; *Staphylococcus aureus* ATCC 25923, *Eschereria coli* ATCC 25922 and *Pseudomonas aeruginosa* ATCC 27853 were used to make inoculums in nutrient broths. One in ten dilutions of 3.5% cerumen preparations were inoculated in blood agar plates and incubated at 37 ^{0}C for 24 hours. Sterile cerumen samples were further examined with *E. coli*, *P. aeruginosa* and *S. aureus.* Antibacterial properties of human cerumen were qualitatively assessed by comparing the growth of bacteria in the cerumen suspension against control samples. All data were analyzed using descriptive statistics using SPSS.

Results: Of 100 cerumen specimens tested 44 (44.0%) specimens were sterile. Sterile cerumen samples showed antibacterial activity against *E. coli*, *P. aeruginosa* and *S. aureus;* 93%, 89% and 66%, respectively.

Conclusions: Human cerumen possesses antibacterial activity against *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Escherichia coli*.

Keywords: *Human cerumen, Antibacterial properties*

PP 10

Knowledge and Attitudes towards Thalassemia and Pre-Marital Screening Tests among Undergraduates of Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka

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Background: Thalassemia is considered as the commonest single gene disorder in Sri Lanka. Nevertheless, poor awareness regarding the screening tests is one of the major combative factors that could lead to Thalassemia by Thalassemia carriers who have unsafe marriages. In order to establish effective preventive strategies, it is essential to identify the existing knowledge gap at community level. As future health care professionals, Allied Health Science undergraduates should have significant role and responsibility to contribute for preventing recognized health burden diseases among community.

Objective: To assess the knowledge and attitudes on Thalassemia and Premarital Screening (PMS) tests among the students of Faculty of Allied Health Sciences, University of Peradeniya.

Methodology: This descriptive cross-sectional study was conducted in the Faculty of Allied Health Sciences. This study included 213 students selected using the stratified random sampling technique. A pre-tested self-administered questionnaire was used for data collection. The questionnaire included demographic data, knowledge towards thalassemia and PMS.

Results: The findings revealed that majority of participants (n= 184, 86.38%) have heard about the aetiology of Thalassemia, with a mean knowledge score of one out of 15 questions (n= 121, 56.76%). Out of total participants, 55.4% had never heard about PMS tests. When consider about the attitude level, 72.3% had positive attitudes towards prevention of Thalassemia while 98.1% had positive attitudes towards facing to PMS. Based on the findings, overall knowledge towards Thalassemia and PMS is at good level and attitudes regarding the above r areas are at positive or favourable level.

Conclusions: To confirm the observations, large scale studies need to be conducted comprising of different study populations. Increasing emphasis on thalassemia in the undergraduate curriculum might improve budding student's knowledge and attitudes about Thalassemia.

Keywords: *Attitudes, Awareness, Knowledge, Premarital screening tests, Thalassemia*

PP 11

Knowledge Regarding Palliative Care among Undergraduate Nurses in KAATSU International University

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Background: Palliative care is a health care specialty that is delivering care to persons with life-threatening or debilitating illness from diagnosis till death and then into bereavement care for the family. Nurses play a major role all over the world in providing palliative care.

Objectives: To assess the knowledge regarding palliative care among undergraduate nurses in KAATSU International University (KIU), Sri Lanka.

Methodology: A descriptive cross- sectional study was conducted with the participation of 332 undergraduate nurses in KIU (employed as nursing officers in government hospitals), by using an investigator developed, pre- tested, self- administered questionnaire. Based on the total maximum marks, for the questionnaire, knowledge level score was divided into two categories as having good knowledge and poor knowledge. Ethical approval for the study was obtained from Ethics Review Committee, KIU.

Results: Of the participants, majority (94.9%) was female nurses. Majority (79.2%) was aged between 20-36 years. Among the undergraduates, 61.8% was in their final academic year. About 69.3% was working in Teaching Hospitals as nursing officers More than one third (35.2%) reported that they have a professional experience as a nurse for 2-5 years, while 30.1% reported a professional experience of 6-10 years. However, out of 332 participants, only 8.1% had received a training regarding palliative care. Majority (60.2%) of the participants had poor knowledge regarding palliative care, while only 39.8% had a good knowledge. There were statistically significant associations of knowledge regarding palliative care with gender (p= 0.015), professional experience (p= 0.011) and academic year (p= 0.000).

Conclusions: Most of the undergraduate nurses had poor knowledge regarding palliative care. Therefore the findings of this study emphasize the importance of conducting palliative care training programs and including palliative care as a subject for diploma and undergraduate nursing curriculum to enhance palliative care knowledge among nurses to ensure the provision of the proper end of life care for the client and family members who are suffering from life-threatening conditions.

Keywords: Knowledge, Palliative care, Undergraduate, Nurses

PP 12

Knowledge, Attitude and Practice Regarding Management of Childhood Asthma among the Parents who seek Treatment for their Asthmatic Child from Lady Ridgeway Hospital, Sri Lanka

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Background: Asthma is one of the most common chronic respiratory diseases in childhood in the world and it was estimated that 14% of the children experienced symptoms of asthma. The prevalence of asthma among 5 to 11 years old children in Sri Lanka varies between 13% to 25% and it is a major cause of school absence. Good knowledge, attitudes and practice is vital to manage childhood asthma and to achieve better treatment outcomes.

Objectives: To assess knowledge, attitudes and practices regarding the management of childhood asthma among parents who seek treatment for their asthmatic child from Lady Ridgeway Hospital, Sri Lanka.

Methodology: A descriptive cross-sectional study was conducted among randomly selected 181 parents who seek treatment for their asthmatic child from medical clinic at Lady Ridgeway Hospital, Sri Lanka. Interviewer administrated questionnaire was used as a data collection tool. Data were analyzed using descriptive and inferential statistics. SPSS version 23 was used as a data analytical tool.

Results: Most of the asthmatic children were Sinhalese (74%), males (59.1%) with the age of 5 to 16 years (51.9%). Only 13% of them had birth defects and 22% of them had past medical history other than asthma. Most of the mothers (53.6%) belong to 18 to 35 years of age and most of the fathers (66.3%) belong to 36 to 55 years of age. More than half of the mothers (55.2%) and 47.5% of the fathers were educated up to G.C.E O/L. Nearly, half (48.6%) of the parents had poor knowledge regarding management of childhood asthma. Only 6.6% of parents had poor attitudes towards their asthmatic child. The majority of the parents (86.7%) had good practices regarding the asthma management.

Conclusions: The study revealed that nearly half of the parents had poor knowledge regarding the management of childhood asthma. But majority of the parents had good attitudes towards their asthmatic child and good practices regarding the child hood asthma management.

Keywords: Childhood asthma, Parents, Knowledge, Attitude, Practice

PP 13

Knowledge, Attitudes and Practices in Management of Febrile Illnesses in Children and Patients' Satisfaction about Doctors' Communication among Parents who admitted their Children Age between 2 -12 Years Old in Teaching Hospital Peradeniya

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Background: Fever is a very common febrile illness among children in Sri Lanka. There are no clear guidelines in practice for hospital admission and home management of febrile patients. Doctor-patient communication has a major impact on health care seeking behavior.

Objectives: To assess parents' knowledge, attitudes, practices and satisfaction about doctors' communication in fever management.

Methodology: It has two parts. Part-01 is a descriptive cross-sectional study and part–02 is a qualitative study which was carried out among group of parents who have admitted their children (aged 2-12 years) to the Teaching Hospital Peradeniya, Sri Lanka. Minimum sample size for part-01 is 400 and for part-02 is a convenient sampling method (20 interviews). Part-01 is a self-administered questionnaire. Part-02 is an interview guide about doctors' communication. For part-01, collected data was tabulated in Microsoft Excel and analyzed by SPSS 25. Descriptive statistics and prevalence were calculated using SPSS 25. For part–02, qualitative data were analyzed by thematic analysis. Interviews with parents were tape recorded. Then transcribed the data and identified the primary codes and secondary codes and the final themes were developed.

Results: Among the population 6.3% mothers had good knowledge, 68.8% mothers had average knowledge and 25% of mothers had poor knowledge regarding febrile illnesses. There was an association between mothers' educational status and knowledge level (p=0.001). Final themes about doctors' communication were: 1. Satisfaction of doctors' communication depends on service provider; 2. Doctors' communication depends on doctors' individual qualities; 3. Doctors' communication depends on doctors' experience; 4. Sequences of consultation important in doctors' communication; 5. Communication depends on level of delivery in information; 6. Communication depends on patients' qualities.

Conclusions: The levels of knowledge of mothers' were satisfactory. Most of the mothers' satisfy with doctors' communication.

Keywords: Communication, Fever, Final themes, Thematic analysis

PP 14

Knowledge and Attitudes regarding Oral Cancer and Self-examination of the Mouth and Risk Assessment for Oral Cancer in Individuals above 30 years of Age in Divisional Secretariat Kesbewa

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Background: Oral cancer has been emerged as a significant global public health concern. Compared to other South Asian countries the incidence of oral cancers in Sri Lanka is high. In Sri Lanka out of all cancers registered, 12.4% were reported to be oral cancers. It has the highest rate of mortality among cancers while oral cancers are found to be the leading cancers among males in Sri Lanka.

Objectives: To assess the knowledge and attitude regarding oral cancer and self-examination of the individuals above 30 years of age in Divisional Secretariat Kesbewa (DSK).

Methodology: This was a community based, descriptive cross-sectional study conducted among 170 individuals above 30 years age of both genders in DSK Colombo district, Sri Lanka. Data were collected using a content validated, a pre-tested interviewer- administered questionnaire. Written consent was obtained from each participant prior to the study while assuring their voluntary participation. Data were analyzed using descriptive statistics, Pearson correlation and SPSS 23.

Results: The response rate was 96.47%. The majority of participants were males (60.4%, n=99) and were between 30-54 age category (67.1%, n=110). Overall knowledge of the participants were poor (37.8%, n=62).There was a significant association between participants overall knowledge and their age (p=0.022). Overall attitude of the participants were positive regarding oral cancer and self-examination (66.5%, n=109). There was a significant association between participants attitude and gender (p=0.022). Further, a significant positive correlation between participants knowledge and attitude on oral cancer and mouth self-examination (Pearson correlation 0.472, p=0.000) was observed.

Conclusions: Participants knowledge on oral cancer and self-examination of the mouth was poor while their attitude was positive since there was a positive relationship between knowledge and the attitude, it shows the requirement of proper health education and health promotion interventions to improve participants' awareness and attitude regarding oral cancer and mouth self-examination.

Keywords: *Oral cancer, Mouth, Self-examination, Individuals, Attitude, Knowledge*

PP 15

Patient Related Factors of Poor Drug Compliance among Type 2 Diabetes Patients Attending to the Endocrinology Clinic at the Teaching Hospital, Karapitiya

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Background: Type 2 diabetes mellitus (T2D) is a complex and common non communicable disease which is associated with macro and micro vascular complications involving increased morbidity and mortality among all age groups worldwide. The poor compliance of medication leads to management failure and there are many factors which influence patient's compliance. Numbers of patient related factors have been described in the literature in different geographical, ethnic and regional populations.

Objectives: To identify the patient related factors associated with poor compliance of antidiabetic medication among T2D patients attending the Endocrinology clinic, Teaching Hospital Karapitiya.

Methodology: A descriptive cross-sectional study was conducted among T2D patients attending the Endocrinology clinic in Teaching Hospital Karapitiya. Data were collected using an interviewer based questionnaire. Morisky Medication Adherence Scale (MMAS) scores were used to determine the compliance associated with antidiabetic medication.

Results: The cohort of 364 T2D patients were interviewed for the study of which majority was females (65.9%). The level of poor compliance to medication was found in 79.9% of subjects. Among study subjects, 80.2% were employed in public and private sectors, 141(38.7%) had monthly income of less than Rs. 25,000 and 231 subjects (63.4%) were living in urban environments. Among study sample, age, gender, ethnicity, religion and monthly income did not associate with poor drug compliance while the civil state (p=0.010), educational level (p=0.037), type of employment (p=0.0001) were significantly associated.

Conclusions: Majority of the patients had poor compliance level to anti-diabetic medication. Therefore, the results of this study provided important evidence-based information to improve knowledge regarding patient related factors for poor drug compliance among T2D patients.

Keywords: *Patient related factors, Poor compliance of medication, Sri Lanka, Type 2 diabetus mellitus*

PP 16

Preparation of Wine from *Garcinia xanthochymus* fruit and Determination of Potential Antioxidant Activity

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Background: *Garcinia xanthochymus* (yellow mangosteen) is a fruit with good nutritional attributes and medicinal values. However, it is a seasonal fruit which has a short shelf-life under the prevailing weather conditions in tropical country such as Sri Lanka. Therefore, production of wine from this fruit can help to increase wine variety in the country and reduce post-harvest losses. Also, wine from this fruit can be used as a medicinal drink.

Objectives: To prepare a wine using *Garcinia xanthochymus* fruit and to conduct sensory evaluation and to determine antioxidant activity.

Methodology: *Garcinia* wine was prepared by fermentation of fruit pulp of *G. xanthochymus* using *Saccharomyces cerevisiae*. Initially three wine samples of *G. xanthochymus* were prepared only by changing the sugar percentage, as 0%, 25% and 50%. Primary (21 days) and secondary fermentation (30 days) were carried out for each sample. To select consumer preferred sample sensory evaluation was conducted using 30 untrained panelists for six-point hedonic scale on appearance, color, aroma, texture, taste and overall likeness. Biochemical parameters (titratable acidity, pH and alcohol content) were measured for the selected samples. The prepared wine sample was subjected to preliminary qualitative phytochemical screening and antioxidant activity was determined using 2, 2 - diphenyl, 1- picrylhydrazyl (DPPH) radical scavenging activity, where ascorbic acid was used as the standard.

Results: Sensory analysis indicated that, the wine sample with 0% sugar added had the highest acceptable score (94.7 %) for overall quality. The titratable acidity of the selected wine was 4.65 g/L, the pH value of the wine was 3.4 and it was higher than the natural fruit pH (3.0). *G. xanthochymus* wine had 6.65 % alcohol content. *G. xanthochymus* wine was positive for most of tested phytochemicals; alkaloids, flavonoids, phenols and tannin, terpenoids coumarin, and cardiac glycosides. The antioxidant assay revealed 74.9% of DPPH scavenging activity.

Conclusions: The present study showed that the *G. xanthochymus* fruit can be used to produce acceptable wine associated with rich antioxidant activity.

Keywords: Antioxidant, Garcinia xanthochymus, Phytochemicals, Wine

PP 17

Prevalence of Upper Gastrointestinal Symptoms in Chronic Kidney Disease Patients and Variation of Symptoms with Proton Pump Inhibitors Usage

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Background: Gastrointestinal (GI) complications are more frequent and vary among different stages of Chronic Kidney Disease (CKD) patients who receive various treatment plans. Proton Pump Inhibitors (PPIs) are prescribed to prevent GI complications of CKD patients worldwide. It is identified as a plausible risk factor for CKD where there is an obvious relationship with a renal disease development. A higher prevalence of bowel symptoms with mainly abnormal bowel habits, bloating and abdominal pain are manifested in patients treated with PPIs. The current study was designed to evaluate whether there is a relationship between PPI usage and the upper GI complications in pre-dialysis CKD patients.

Objectives: The major objective of the study was to investigate the prevalence of upper GI symptoms in pre-dialysis CKD patients and to compare the variation of GI symptoms with PPI usage.

Methodology: This was an observational cross-sectional study conducted in the renal and dialysis unit, Teaching Hospital Kandy through a researcher administered questionnaire. The sample consisted of 300 pre-dialysis CKD patients; 243 patients with upper GI symptoms and 57 without upper GI symptoms. The symptoms were identified using 9 items in the Gastrointestinal Symptom Rating Scale (GSRS) tool.

Results: The overall prevalence of 81% upper GI symptoms was manifested by CKD patients and bloated stomach was more common. Further, patients on PPI showed 86.7% occurrence of upper GI symptoms compared to patients were not on PPI (80%). Bloated stomach, rumbling and burping were more frequent in patients who were on PPI (59%, 43.6% and 43.6%, respectively). Upper GI symptom scale of CKD patients who were on PPI prevailed a significant difference compared to patients who were not on PPI (p= 0.0073).

Conclusions: A higher prevalence of upper GI symptoms and variance in upper GI symptoms were experienced by pre-dialysis CKD patients who were on PPI. Therefore, prescribing PPI for CKD patients should be concerned and studied in the future.

Keywords: CKD, Upper GI symptoms, Proton Pump Inhibitors (PPI), Gastrointestinal Symptom Rating Scale (GSRS), Bloated stomach

PP 18

The Effect of Ion Concentration on the Linearity of 25% Sulfosalicylic Acid Standard Curve

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Background: Sulfosalicylic acid (SSA) test is a well-established semi-quantitative method used for the determination of the total protein content of urine. Previously 25% SSA method was optimized for quantitative determination of total protein of urine in the lower range using a manual spectrophotometric analysis based on a linear standard curve, having distilled water diluent in a dependent dilution series. However, the effect of ion concentration of the diluent on the linearity of the standard curve was not assessed. İt is important to find this relationship, since the analytical sensitivity of the method is dependent on the linearity of the curve.

Objectives: To evaluate the effect of ion concentration of the diluent on the linearity of the standard curve in modified 25% SSA method.

Methodology: A 200 mg/dL stock solution of bovine serum albumin factor V was prepared in 0.9% sodium chloride and 0.1% sodium azide solvent. The following diluents were used to prepare dependent and independent dilution series of albumin using the above stock solution. I) 0.9% sodium chloride in 0.1% sodium azide. II) 0.45 % sodium chloride in 0.1% sodium azide III) Distilled water. The protein concentrations were measured using modified 25% SSA test. The standard curves were generated for each diluent using Minitab16 statistical software. The best curve was selected considering the linearity range and R^2 value of each standard curve. The Intra and inter assay precisions of the selected curve were assessed using two QC levels for method validation.

Results: It was observed that the degree of non-linearity of the standard curves increased with increasing ion concentration of the diluent. Highest linearity was observed with distilled water diluent which yielded a linerity range of 0-50 mg/dL, where $R^2 = 100\%$ for dependent dilution series.

Conclusions: The linearity of the standard curve is affected by the ion concentration and the best linearity was observed with distilled water diluent.

Keywords: Linearity, Sulfosalycilic acid, Ion concentration

PP 19

A Study of Phenolic Contents and *in vitro* Antioxidant Activity of Different Solvent Leaf Extracts Obtained from Heen Kekiri/Len Kekiri (*Mukia maderaspatana* L.) Grown in Sri Lanka

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Background: Hyperphysiological burden of free radicals causes the imbalance between free radicals and antioxidants and results in the oxidation of biomolecules. Hence, there is a need to supply exogenous supply of antioxidants of natural origin, where synthetic antioxidant were reported to be carcinogenic.

Objectives: To perform qualitative analysis to test the phytochemicals present in different solvent extracts namely, 80% ethanol and water obtained from *Mukia maderaspatana* leaves. The quantitative tests were performed to determine the total phenolic content (TPC), total flavonoid content (TFC) and antioxidant activity of two solvent extracts obtained from plant *Mukia maderaspatana* leaves.

Methodology: The defatted crude extracts were prepared into 80% aqueous ethanol and water by steeping method and subjected to preliminary phytochemical screening tests. TPC and TFC were evaluated by using Folin-Ciocalteu assay and aluminium chloride colorimetric method respectively. The antioxidant activity was evaluated by using 2, 2-diphenyl-1-picrylhydrazyl (DPPH) assay.

Results: The leaf extracts of ethanolic and water obtained from *M. maderaspatana* revealed the presence of phenolic compounds, flavonoids, saponins, alkaloids and carbohydrates in both extracts. The TPC values for two extraction solvents were 455.608±64.743 mg GAE/100 g DW of leaves (for water extract) and 269.608±34.050 mg GAE/100 g DW of leaves (for 80% ethanol) respectively. The TFC of the solvent extracts tested were 445.663±101.215 (for water extract) and 100.516±745 mg CAE/100 g DW of the leaves (for 80% ethanol extract). Antioxidant capacity performed by DPPH assay for the different extraction solvents were 0.574±0.062 (for water extract) and 0.286±0.020 (for 80% ethanol extraction) mmol Trolox equivalents/100 g DW of the leaves.

Conclusions: Both extracts of *M. maderaspatana* leaves showed less antioxidant activity and need further investigation.

Keywords: Antioxidants, Free radicals, Total Phenolic Content, Total Flavonoid Content, Mukia maderaspatana

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