Abstract Book

Fifth National Summit
of
Health and Population Scientists in Nepal

‘Research for Equity and Development in the Federal Context’
10-12 April 2019
Kathmandu, Nepal
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Welcome Letter

Dear Summit Delegates

Nepal Health Research Council (NHRC) together with the Advisory Committee, the Steering Committee, the Scientific Committee and the Organizing Committee extend our warm welcome to the Fifth National Summit of Health and Population Scientist in Nepal. The Fifth National Summit is a continuum of previous summits as a part of our initiatives to promote research culture in the country. The primary purpose of the summit is to provide a platform for researchers and academicians to share recent and relevant health evidences; and policymakers to interact with researchers and academia to identify recent evidences. The Summit is themed with “Research for Equity and Development in the Federal Context”.

After the promulgation of Constitution of Nepal 2015 (2072 B.S), the health system has entered into a Federal Structure. Furthermore, as a signatory member state of the Sustainable Development Goals (SDGs), there is an immediate need to embark on SDGs implementation at federal, provincial and local levels. Implementing SDGs means that living no one behind in terms of health services and its benefits. Health research therefore, should uncover health system related evidence from equity perspective at all levels. The evidence will then need to be accessible to policymakers for better policy choices. The summit will hold pre-summit conference, symposium, plenary and parallel sessions to discourse on available evidence on national health priorities through oral and poster presentation of selected abstracts as well as the invited presentations.

We believe that the summit will have a significant contribution to generate evidences, which in turn provides an insight into the need for quality research in the country within the context of changing health systems. The initial tracking of the available evidences become immense in developing and promoting further actions for successfully organizing a sustainable health system at the federal, provincial and the local governments. Given the rich diversity of participants from academia, research institutes, government, NGO/INGOs and external developmental partners, we also believe that the summit will also foster enduring partnership for innovation in all research and policy making in Nepal. We would like to express our sincere gratitude to researchers, policymakers, external development partners and related stakeholders for supporting us in organizing this session. We look forward to your active engagement in the summit.

Thank You.

Prof. Dr. Anjani Kumar Jha
Executive Chairperson
Nepal Health Research Council
# Advisory Committee

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<td>Dr. Deepak Paudel</td>
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10. Goma Khadka
11. Renu Sedhain
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  - Abstract 2: Community-based management of non-communicable diseases in Nepal (COBIN)
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ORAL PAPERS
Equity in Health and Healthcare in Germany

Ronald Panea, Lead of Component – Social Health Protection, Support to the Health Sector Programme (S2HSP), Deutsche Gesellschaft für, Internationale Zusammenarbeit (GIZ) GmbH

In the recent years policy-makers as well as academia in various country contexts have focused their attention on matters affecting inequity in their population's health and unequal access to healthcare. In the federal republic of Germany, responsibilities in healthcare shared between the federal and state level. Whereas these differing roles affect the matters in healthcare, several other factors such as socio-economic status play an important role in understanding the varying health status in Germany.

The presentation seeks to shed some light on inequities in health and healthcare within the different states and regions in Germany. An overview will be given by the role of the federal vis-à-vis the state government in the healthcare system and implications for equity matters will be deducted. The presentation will explore the relevance of the urban-rural divide and describe the different contexts of accessing healthcare services in light of various social determinants of health. The session will concur with highlighting some core implications for the case of Nepal.

Trends of Health Research and Publications in Nepal

Meghnath Dhimal, Ganesh Dangal and Namita Ghimire, Nepal Health Research Council

Research is an integral component of development. Nepal Health Research Council (NHRC) holds the responsibilities to promote and coordinate health research for improvement of the health status of Nepalese people. It has broadly four mandates: capacity building on health research, evidence generation for health, health research regulation and promoting use of evidence in policy and planning. This presentation will cover on achievements made over the years on capacity building, evidence generation, research ethics, scientific publications and use of evidence in policy and planning in Nepal. Furthermore, this presentation will cover way forward for enhancing research capacity in the federal context of Nepal

Environment and Health: A Mounting Multi-Dimensional Threat to Public Health

K. Srinath Reddy, President, Public Health Foundation of India

Environmental degradation, mostly anthropogenic, is posing multiple threats to human health. These arise from accelerating climate change, unremitting pollution of air, water and soil as well as a rapid loss of biodiversity. Infectious diseases, which are declining as a group with socio-economic development and medical advances, may see resurgence in the form of water, vector borne and zoonotic infections. Non-communicable diseases (NCDs) will rise faster, with cardiovascular, renal and respiratory disorders being aggravated by heat and water stress and heightened air pollution due to the carbon dome. Extreme weather events, such as floods, cyclones and droughts will devastate human habitat and cause deaths and disability falling under the category of ‘injuries’; apart from resulting in climate refugees who carry infectious risks to other populations. Mental health will be eroded due to such devastation and displacement as well as heat related risk of intra-group and inter-group conflicts. Agriculture and food systems will be impacted with fall in crop production and quality, disturbing nutrition security. Health systems will be challenged not only by the multiple threats to public health
but also by the breakdown of health services during extreme weather events.

Air pollution has emerged as a global threat, with ambient and indoor pollution contributing to infections and NCDs. Apart from cardiovascular, respiratory and neoplastic disorders; evidence now also links air pollution to an increased risk of diabetes. The common determinant of climate change, air pollution and NCDs makes a concerted public health response essential and possible.

Public health has to play a major role in both mitigation and adaptation to both climate change and air pollution. Health services have to gear up to deal effectively with the health effects, even as health and agricultural systems have to become climate smart and climate resilient. The public health community should also lead the effort to inform and influence policies through evidence-based advocacy.

Policy Implications of Nationwide Mental Health Surveys for Developing Countries
David V. Sheehan, University of South Florida College of Medicine, Tampa, FL, USA

When nations seek to improve the provision of mental health services, the first step is to do a need assessment. This is typically done in the form of a national mental health epidemiology study. The next issue is how to use this data to guide policy decisions and align solutions towards achievable and meaningful goals. There are several publications, particularly from World Health Organization (WHO), that provide guidance in the process of setting up national mental health policies. Publications describe models for mental health policy from both developing and developed countries. However, for those new to this process, the consequences of trying to follow these guidelines and models can be overwhelming. They may feel “lost in the detail” and “unable to see the forest for the trees”. How can we keep the process simple, clear, easy to follow, and most important, designed in such a way that it is effective in delivering tangible results? Unfortunately, the result is sometimes a wordy policy document that checks off the usual check boxes, and while aspiring to lofty aims has “no teeth” in achieving practical, meaningful, operational results.

Policy needs to be aligned to goals. There are 2 principal goals. One is economic, the other is humanitarian. First, to improve the status of Mental Health for all people living in the country and to thereby reduce both the economic burden on the national economy and the suffering caused by mental health disorders. Second, to improve the compassion shown to people with mental illness, reduce the associated stigma, and ensure that all receive humane health care that has parity with the healthcare provided for other medical illnesses. The challenge is how to allocate finite and often limited resources to meet these goals. We need to tackle problems which have evidenced based solutions and do so in incremental steps. We must provide annual reports that document the measurable and transparent results. The main purpose of such annual reports is to document the return on the national investment in each health sector towards reducing the economic burden and improving the productivity and well-being of affected individuals. There need to be small early successes and celebration of these accomplishments.

For example, if depressive disorders, for which there are effective treatments, are a leading burden on the economy, these disorders should initially receive high priority as diagnostic and treatment targets. If psychotic disorders are a leading cause of “revolving door” hospitalizations because of non-adherence, and if hospital care is a leading cost driver in mental health sector, then reducing hospitalization readmission rates by increasing depot neuroleptics may reduce hospitalization cost while also reducing relapses and improving outcomes. If superstition and stigma are significant barriers for families to seek treatment, then it is necessary to invest in substantial educational efforts involving TV, radio, news media, social media and popular, charismatic figures to reduce the stigma, improve the compassion and to lead people to understand that psychiatric disorders are similar to other medical illnesses in having biological, physical causes.

Universal Health Coverage in the SDG era: a Quality Imperative
Dong (Roman) Xu, Professor, School of Public Health, Sun Yat-sen University, China

The 2030 agenda for sustainable development is an opportunity to achieve universal health coverage
(UHC). The sustainable development goals (SDGs) emphasize not only the expansion of “coverage” of health services but also the quality of care. Expanding services of suboptimal quality is the waste of resources and can even be harmful. This presentation will review the key differences of SDGs and MDGs, the heightened importance of quality, and the current status and challenges of quality of care in the developing countries. We will introduce our major research efforts to measure and improve quality in primary health care in China, using unannounced standardized patient and smartphone based virtual patients, and its implications for Nepal’s health development. We will also discuss implementation research on achieving UHC in Nepal and possible collaboration opportunities between the researchers in Nepal and China.
Assessing the health effects of extreme temperatures and development of adaptation strategies to climate change in the Asia-Pacific region

Cunrui Huang, Department Chair of Health Policy & Management, School of Public Health, Sun Yat-sen University, China

Climate change is expected to be one of the biggest global health threats in the 21st century. Countries within the Asia-Pacific region is home to more than half of the world’s population, and changes in the Earth’s climate are clearly impacting human health and survival. Temperature-related health effects are the most direct and well-understood impact of climate change on human health. Most previous studies have focused on assessing mortality/morbidity in relation to extreme temperatures in high-income countries, with few studies investigating low- and middle-income countries. The adverse health effects of hot weather are largely preventable, which can be achieved by appropriate and effective public health response, including strategies for short-term measures, medium-term preparedness and long-term plans. In this study, we aim to reflect our collaborative work on epidemiological evidence about temperature-related health effects in the Asia-Pacific region, draw attention to population susceptibility to temperature extremes, as well as the development of public health adaptation strategies to cope with problems associated with current and future heat waves.

A Symposium on Community-based management of non-communicable diseases in Nepal

Abstract 1: Serum Testosterone level and Erectile Dysfunction among Type 2 Diabetes Mellitus (Invited Talk)

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Background
Erectile dysfunction (ED) or impotence is defined as inability of individuals to have and maintain a penile erection enough for satisfactory sexual intercourse. ED is one of the major complications in diabetes mellitus which affects the quality of life for both patients and partners. Lower Serum Testosterone (LST) level is significantly associated with the Erectile dysfunction. However, the exact pathophysiology of ED in Dm is not clearly known yet. The objective of this study is to provide an epidemiological update of LST and ED among Type 2 Diabetes Mellitus (T2DM).
Methodology

A systemic literature review in PubMed database by using the search term erectile dysfunction and low serum testosterone was conducted.

Results

The cause of ED is multifactorial and this might be the reason of variation in prevalence of ED among T2DM patients that ranges from 58.51% - 97.2% with most studies showing lower level of serum testosterone. Poor glycemic control (higher Glycated Hemoglobin), duration of T2DM, advancing age, sedentary lifestyle, smoking and obesity have been associated with increased prevalence of Diabetic ED in cross-sectional studies.

Conclusion

The aetiology of ED in DM is multifactorial however the higher prevalence of LST among ED in DM might suggests newer approach in improving diabetic management especially ED among developing countries where sexual health problems are barely reported to physicians.

Keywords

Erectile dysfunction, type 2 diabetes mellitus, serum testosterone

Abstract 2: Community-based management of non-communicable diseases in Nepal (COBIN)

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Background

Non-communicable diseases constitute a major public health problem in Nepal. It is estimated that 66% of total deaths and 59% of disability in Nepal are from non-communicable diseases. However, we lack high-quality evidence on the burden and appropriate strategies to address these problems. Nepal has been a pioneer in the successful implementation of community-based public health initiatives through mobilizing facility-based community health workers and Female Community Health Volunteers particularly related to maternal and child health over the past 25 years. However, little efforts have been made on what type and which level of services they can provide particularly related to non-communicable diseases. Thus, the general objective of this project is to test whether existing community-based frontline health workers and volunteers of the Ministry of Health and Population can perform a set of activities that will result in prevention and control and non-communicable diseases.

Methodology

A cohort of randomly selected 3000 households from then Lekhnath Municipality is established in 2014. Each year we do a yearly survey to assess the NCD disease risk factors through the home to home visit. We use these data to study the epidemiology of NCDs and their major risk factors over the period of time. After assessing the burden of the problem, we design and implement a community-based intervention for prevention and control of such diseases and their risk factors using a cluster-randomized controlled trial.

Results

We successfully completed hypertension and diabetes trial. Both trials showed that community-based intervention for reduction of blood pressure and blood glucose are effective. Currently, we
are running community-based cervical cancer screening and community-based COPD management project within the same cohort of the participants.

**Conclusion**

COBIN is promoting evidence-based decision making through epidemiological and interventional studies for prevention and control of non-communicable diseases.

**Abstract 3: Prevalence and treatment practice of diabetes in a semi-urban area of Pokhara Metropolitan, Nepal**

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**Background**

Diabetes is one of the major non-communicable diseases affecting millions of people in the world. Nepal is not an exception and very little effort was made to prevent and manage diabetes in Nepal. Community-based diabetes control by mobilization of female community health volunteer is initiated in selected wards of the Pokhara Metropolitan. The study was conducted to establish a baseline regarding the prevalence of diabetes and understand care seeking practice among diabetic patients and it is a part of larger COBIN study.

**Methodology**

Cross-sectional quantitative survey was done among people of age 25-65 residing in ward no 28-33 of Pokhara Municipality. The sample size of the study was 300. Systematic random sampling method was used to get the samples. WHO STEPS survey questionnaire was used with some modifications. Written informed consent was obtained from respondents before the data collection.

**Results**

One in seven respondents reported that they had diabetes and one in five had a family history of diabetes. About half of the respondents ever checked their blood glucose level. Among respondents who reported themselves as diabetic, one in ten is taking insulin and six in ten are in oral medicine. All most all reported that they received diet instruction. Respondents, who are currently smoking, all informed they were instructed to quit smoking. Similarly, six in ten were instructed for weight reduction, and three in four were advised for physical exercise.

**Conclusion**

Prevalence of diabetes is high in the semi-urban area of Pokhara Metropolitan and half of the respondents were unaware of their diabetic status. Community-based screening of blood glucose level may improve awareness about their diabetic status. Many diabetic patients were receiving comprehensive care from the service providers.

**Abstract 4: Community-Based Management of Chronic Obstructive Pulmonary Disease in Nepal: Study Protocol for A Cluster Randomized Control Trial**

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Background

Chronic Obstructive Pulmonary Disease (COPD) is the second leading cause of death worldwide and is one of the commonest non-communicable diseases (NCDs) in Nepal. The presence of risk factors like indoor and outdoor air pollution, a high prevalence of smoking and the lack of general awareness of COPD makes it a serious public health concern. However, no attempt has been made in Nepal to estimate its burden and address the disease at the community level.

Methodology

Study aims to measure the burden of COPD, assess the magnitude of modifiable risk factors of COPD including tobacco smoking and indoor air pollution, and spreading awareness on the modifiable risk factors led by Female Community Health Volunteers (FCHVs) trained on COPD. An open-label, two-group, community-based, cluster-randomized controlled trial will be implemented in the semi-urban area of Pokhara Metropolitan city (former Lekhnath Municipality) of Nepal. The estimated sample size of the prevalence and intervention study will be 1,508 and 1,144, respectively.

Outcome

Prevalence of COPD and its risk factors will be estimated using a population-based survey. Change in lung function (FEV1 and FEV1/FVC) will be measured as the primary outcome, and the difference in the proportion of modifiable risk factors will be measured as secondary outcomes.

Perspective

This study will estimate the burden of COPD, magnitude of its risk factors and generate evidence to mobilise community health workers for COPD prevention and management at the community level in Nepal.

Abstract 5: Community-based intervention for cervical cancer screening uptake in a semi-urban area of Pokhara Metropolitan, Nepal

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Background

Cervical cancer is the major cause of cancer death among women in Nepal. Screening is one of the most effective tools for early diagnosis and prevention. A single-visit approach with VIA and cryotherapy is safe, acceptable, feasible and is a potentially efficient method of cervical-cancer prevention in low resource settings. Current studies reveal Nepalese women participation for cervical cancer screening is low. There is a need of appropriate, cost-effective and sustainable interventions increasing VIA screening uptake in Nepal.

Methodology

The aim of the study is to evaluate the effect of a community based educational intervention delivered by the Female Community Health Volunteers (FCHVs) to increase cervical cancer screening through home visits. The study is a community-based cluster randomized controlled trial, open-label with two-groups to be implemented in a semi-urban area of Pokhara Metropolitan city (former Lekhnath Municipality) of Nepal. The estimated sample size of the prevalence and intervention study will be 844 and 690, respectively.
Outcome
Prevalence, knowledge, attitude and cervical cancer screening practices will be measured in the baseline survey. The primary outcome is the increase of women participation in the cervical cancer screening program and the difference in knowledge and awareness level will be measured as secondary outcomes.

Perspective
This community-based, culturally tailored education intervention delivered by non-clinicians such as FCHVs will play a key role in increasing the cervical cancer-screening uptake in the study area. It can contribute to the implementation of the National Cervical Cancer Screening and Prevention policy and help reduce cervical cancer mortality in the long term in Nepal as well as in similar settings elsewhere.

Abstract 6: May Measurement Month- Nepal
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Background
High blood pressure is the biggest contributor to the global burden of diseases and mortality. May Measurement Month was initiated in Nepal to raise awareness of the importance of blood pressure measurement and to support the hypertension screening program at the National level.

Methodology
This cross-sectional survey included volunteer adults (>=18 years) who ideally had not had their blood pressure measured in the past year. Each participant had their blood pressure measured three times and received a questionnaire about demographics, lifestyle and environmental factors.

Results
During MMM17 and MMM18, we screened 5,972 and 15,950 people from Nepal by engaging peripheral health workers, medical, nursing and public health students and female community health volunteers. 1456 (24.4%) participants had hypertension; 908 (16.8%) of those not receiving treatment were hypertensive; and 248 (45.2%) of those being treated had uncontrolled BP. We are currently analyzing MMM18 data and planning for MMM19.

Conclusion
MMM is the first nationwide BP screening campaign undertaken in Nepal. Given the suboptimal treatment and control rates identified in the study, there is a strong imperative to scale up hypertension prevention, screening and management program. The result suggests that opportunistic screening can identify significant numbers with hypertension.

Abstract 7: Cardiovascular Risk Factors among high altitude inhabitants of Nepal
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Background

Prevalence of non-communicable diseases (NCDs) such as Diabetes Mellitus (DM), hypertension (HTN) and obesity are influenced by various factors. The purpose of the study was to assess the prevalence and risk factors for DM, HTN and obesity among some residents of Tibetan ancestry in a Tsarang village, Mustang, Nepal.

Methodology

A cross-sectional survey was conducted in Tsarang village situated at 3,500 meters above the sea level in Mustang, Nepal. WHO STEPS questionnaire was answered by each 188 randomly selected participants of age ≥ 18 years old and also took physical measurement for height, weight, blood pressure (BP), hemoglobin (hb) and glycated hemoglobin (HbA1c). Systolic blood pressure (SBP) ≥ 140 mm Hg and/or diastolic blood pressure (DBP) ≥ 90 mm Hg and/or taking current antihypertensive medicine defined as HTN. Intermediate hyperglycemia when HbA1c value was ≥ 6 to <6.5%, and DM when ≥6.5%. SpO₂ <90% was defined as hypoxaemia. Overweight defined as Body mass index (BMI) >25 kg/m².

Results

The prevalence of HTN, IHG and DM was 20.7%, 31.6% and 4.6% respectively. The prevalence of hypoxemia (SpO₂ <90%) was 27.1%. A multiple logistic regression analysis for factors for the prevalence of glucose intolerance (HbA1c ≥ 6%) revealed older age (odds ratio [OR]: 1.11, 95% confidence interval [CI]: 1.06-1.16, for every one year increase) and SpO₂ (OR for hypoxemia: 3.58, 95% CI: 1.20-10.68, vs SpO₂ ≥90%).

Conclusion

Tibetan highlanders in remote mountainous Tsarang village, Mustang valley of Nepal have a high prevalence of common NCDs like HTN, obesity and impaired glucose metabolism. It could be related to hypoxemia imposed by the hypoxic condition of high altitude living.

Abstract 8: Effectiveness of a female community health volunteer-delivered lifestyle intervention in reducing blood glucose among adults with type 2 diabetes: an open-label, cluster-randomized controlled trial

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Background

Community health worker (CHW) intervention has been suggested as a viable strategy for improving diabetes outcomes in low-income countries. However, evidence from rigorous intervention studies is limited. We aimed to assess the effectiveness of an existing CHW-delivered lifestyle intervention in reducing the burden of type 2 diabetes in a low-income population.

Methodology

We carried out a community-based, open-label, two-armed, cluster-randomized trial with a 12-month delayed control group design in a semi-urban Nepal. Two hundred and twenty-four adults aged 25–65 years with type 2 diabetes were randomly assigned (in a ratio of 1:1) to 14 clusters to a lifestyle intervention delivered by trained female community health volunteers (FCHVs), or to a wait-list control group which received usual care. Eligible participants had a fasting blood glucose level of 7.0 or greater. In the intervention group, 20 FCHVs provided home visits every 4 months for lifestyle counseling and blood glucose monitoring. The primary outcome was the difference in mean change in fasting blood glucose level between the intervention and wait-list control groups at baseline and follow-up. The trial was registered with ClinicalTrials.gov, number NCT03304158.

Results

The reduction in fasting blood glucose from baseline to 12-month follow-up was significantly greater in the intervention group than in the wait-list control group (mean –1.2 mmol/l ± standard deviation 2.1 v 0.4 mmol/l ± 2.0, adjusted mean difference –1.6 (95% confidence interval –2.1 to –1.0), p<0.001). Intervention participants also had significantly greater improvements in systolic blood pressure compared with the wait-list control group.

Interpretation

A simple, FCHV-delivered lifestyle intervention and monitoring of blood glucose is effective for the reduction of blood glucose in adults with type 2 diabetes in Nepal. This low-cost intervention approach could be scaled up in Nepal and tested in other low-income countries.
1.1.1 Prevalence, Awareness, Treatment and Control of Hypertension in Nepal: Data from Nationally Representative Population-Based Cross-Sectional Study

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\textbf{Background}

Previous studies in Nepal noted an alarming increase in prevalence of hypertension. However, these studies were geographically sparse and coverage of population, mostly limited to single site. The current study fills this gap by examining the current status of prevalence, awareness, treatment and control of hypertension, using recently collected population-based data.

\textbf{Methodology}

We used the Nepal Demographic Health Survey 2016 data. Sample selection was based on stratified two stage cluster sampling in rural areas and three stages in urban areas. Blood pressure was measured in all women and men aged 15 and above.

\textbf{Results}

A total of 13 598 participants: 5593 men and 8005 women aged 15–69 had their blood pressures measured. Overall, 18\% (95\% CI 16.7–19.2) of the participants aged 15–69 years were hypertensive. Prevalence of hypertension was more among men (22\%; 95\% CI 21.1–23.5), aged 45–69 years (34\%), with no formal education (22\%), richest quintile (25\%), formerly/ever married (32\%), urban dwellers (19\%), residents of Province 4 (24\%), residents of hills (21\%), and obese (41.6\%). Among the total hypertensive individuals, only 38\% were aware of their hypertensive status and 18\% were taking antihypertensive medication. Only half of the hypertensive participants on treatment (52\%) had their blood pressure under control.

\textbf{Conclusion}

This nationally representative survey data showed that the prevalence of hypertension is high in
Nepal, whereas its awareness, treatment and control rates are low at entire population level.

**Keywords**
Hypertension, Nepal, prevalence, survey

### 1.1.2 Nationally Representative Study on Socio-Demographic, Geographic Correlates and Trends in Tobacco Use in Nepal

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**Background**
Tobacco control poses an immense challenge for Nepal. Updated knowledge on current pattern of tobacco use and its associated factors will be helpful for policy makers to curb the tobacco epidemic.

**Methodology**
Secondary data analysis of Nepal Demographic and Health Survey (DHS) 2011 was performed. A representative sample of 11040 households was selected by two-stage stratified, probability proportional to size (PPS) technique. We constructed three outcome variables ‘tobacco smoker’, ‘smokeless tobacco user’ and ‘any tobacco user’ based on questions about tobacco use asked in DHS. Socio-economic, demographic and geographic predictor variables were used. For tobacco use correlates, we used multivariate analysis to calculate adjusted odds ratios and their 95% CIs. A p-value < 0.05 was considered as significant. We plotted graphs using past three DHS surveys data to visualize trend of tobacco use among males and females. The socio-economic inequality in tobacco consumption was assessed by concentration curve.

**Results**
Among males, the prevalence of smokeless tobacco use was higher than that of smoking (40.1% and 27.4% respectively), whereas among females smoking was more common than smokeless tobacco use (prevalence of 5.5% and 3.8% respectively). Both smoking and smokeless tobacco use were associated with older age and lower level of education. The concentration curves showed tobacco use to be highest among the lowest socio-economic groups in both males and females in all three survey years. We found a decreasing trend of tobacco smoking and an increasing trend of smokeless tobacco use over the 10-year period. However, consumption of both forms of tobacco increased in young males during the same period.

**Conclusion**
Proper monitoring of adherence to anti-tobacco law should be ensured to curb the increasing burden of tobacco use among young males, and similar effort is needed to sustain the decline in tobacco uses among other population groups in Nepal.
1.1.3 Responding to Non-Communicable Diseases: Is Nepal Prepared? An Analysis of Policies on Salt, Sugar and Trans-fat

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Background
Globally, NCDs have outplaced communicable disease and has become top contributor of death and disability where Nepal is not an exception. In 1990s NCDs accounted for 25% of disease burden which rose to 55% in 2016. NCDs now account for 64.4% of deaths in the country. Though, Nepal has developed multi sectoral action plan for prevention and control of NCD, its implementation on the ground and effectiveness is not known. Review and analysis of current NCD policy environment, with particular focus on policy content, is needed to evaluate the effectiveness of existing approaches and to help build the way forward. This study analyzed policy environment and options of governance of NCDs with focus on commercial determinants – salt, sugar and trans-fat in Nepal.

Methodology
Relevant policies in Nepal were analyzed based on Walt and Gilson's policy triangle. Altogether 24 government policy documents from health as well as non-health sector dating from 1966-2018 were reviewed.

Results
Among them, 15 policy documents had directly or indirectly mentioned about NCDs that included healthy lifestyle promotion and/or awareness rising about NCD risk factors. Multi sectoral action plan for control and prevention of NCDs is the only policy which mentions control actions against sugar, salt and trans-fat in particular. Majority of the policy actions mentioning NCDs were found to be vague and ineffectual broad statements on monitoring and evaluation were mentioned. No clear indication of accountability mentioned in most of the policy documents which poses problem for implementation.

Conclusion
Diet related determinants salt, sugar and trans-fat have been largely neglected with only mention of few actions. With increasing burden of disease due to NCDs its high time country reviews and evaluates the existing policy actions to introduce and scale up innovative and appropriate policy actions in order to combat rapidly growing NCD burden.

Keywords
Non communicable disease, policy, salt, sugar, trans fat
1.1.4 Prevalence of Diabetes Mellitus among Tuberculosis Patients and their Quality of Life in Western Region of Nepal

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Background
Currently, both Tuberculosis and Diabetes Mellitus are of great public health importance globally especially in developing countries due to the converging epidemics of both communicable and non-communicable diseases. Quality of life is important for people with diabetes and TB and their health care providers for several reasons.

Methodology
This research was health facility based cross sectional study and carried out among TB patients registered under directly observed treatment short course (DOTS) therapy and receiving treatment from health facilities of Western Region of Nepal. A total required number of participants were 390, which was obtained from cluster sampling. Interview schedule was used to collect the data. Quality of life was assessed by using Nepali version of EuroQol: EQ-5D-3L questionnaires. Other study instruments were Glucometer, Bathroom Scale and Stadio meter. Data was entered in Epi Data software and analysis was performed with the help of the statistical package for social science (SPSS) version 20. Ethical approval was obtained from the Institutional Review Committee of Pokhara University.

Results
The overall prevalence of diabetes mellitus among TB patient was 10.8%. These conditions are significant effect by gender and increasing age to have been reported in this study. Males, advancing age and hypertension are important risk factor for TBDM co-morbidity in our study. In the present study revealed that average EQ-5D-3L index score was 0.768 and mean visual analytical scale (VAS) score was 56.969. Men, younger people, people with a higher level of education, single people, people who practice physical activity and people from rural residence scored higher both EQ-5D-3L and EQ-VAS. HRQoL is affected by age and sex.

Conclusion
Establish screening program for DM detection to all TB case cases at every DOTS Centre. Screening can detect hidden cases of DM among newly diagnosed TB Patients. Health literacy and exercise are promoted to achieve optimum levels of QOL.

Keywords
Prevalence, diabetes mellitus, tuberculosis, quality of life, western Nepal

1.1.5 Managing Type 2 Diabetes in Nepal- an Exploratory Study with Healthcare Professionals

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Background
Perspectives of healthcare professionals (HCPs) involved in diabetes care and their perceptions of healthcare challenges to effective diabetes management can shed valuable insights to understanding and addressing gaps in diabetes care. This study explored the views of HCPs on diabetes care, and the factors influencing their daily diabetes care practices in Nepal.

Methodology
In-depth (qualitative) interviews were conducted with thirty healthcare professionals providing healthcare or medication related services to patients with type 2 diabetes. Interviews were audio-recorded, transcribed verbatim and thematically analyzed.

Results
Participants were physicians, dieticians, nurses and pharmacy staff providing diabetes care to patients, and their level of engagement with patients was variable. The interviews revealed that diabetes care in Nepal mostly constituted information and treatment delivery through doctor-patient consultations. Diabetes specific services, such as diabetes education classes and consultations with dieticians and nurses, were available only in a few hospitals and clinics. Pharmacy staff was not members of the team but provided independent services to patients. Lack of diabetes educators was emphasized as a major challenge in effective education dissemination and the overall care process. Similarly, lack of collaborative teamwork between the HCPs of different disciplines was recognized as a significant healthcare system barrier to effective diabetes treatment and treatment outcomes. Participants reported that a driving force at the regulatory level was required to bring about a multidisciplinary collaborative approach to diabetes care in Nepal.

Conclusion
Diabetes care in Nepal is mostly delivered through physician-patient consultations. Lack of a multidisciplinary collaborative approach to diabetes management and limited specialized healthcare workforce for effective patient education and management are the key health system barriers to effective diabetes care. Diabetes management in Nepal must shift from its current situation which focuses on episodic care to a comprehensive model of integrative medical care to achieve effective diabetes outcomes.

Keywords
Type 2 diabetes, diabetes care, healthcare professionals, qualitative study, Nepal

1.1.6 Work-site Intervention Study to Prevent Diabetes in Nepal: Initial Assessment
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Background

The prevention of type 2 diabetes through lifestyle intervention has been established by several clinical trials. However, the translation of the knowledge to the real-world setting is a challenge. Worksite could be an effective platform to translate this knowledge into action as employed adults spend most of their workday waking hours at workplaces. The study aims to measure the effectiveness of an environmental-level cafeteria intervention and individual-level lifestyle education on diabetes risk.

Methodology

We will conduct a pre-post implementation trial with a control period to assess the effectiveness of environmental and individual level interventions at Hulas and Pragati textile industry in eastern Nepal. The changes in a diabetes biomarker (HbA1c %) during the intervention period will be compared to the changes in HbA1c during the control period. Inclusion criteria are the full-time employees of the worksites who are 18 years or above of age and have HbA1c of 5.7% to 6.4% at baseline. Those who are pregnant, under diabetes and hypertension medication were excluded from the study.

Results

About 579 were screened for eligibility. The mean age of the participants was 39±10 years. The mean working hours was 10±2 hours. Around 9% percent of participants reported that their mother and father siblings had diabetes. Among those screened 110 were found to be pre-diabetic (HbA1c 5.7% to 6.4%). Among pre-diabetic majority belongs to Terai Janjati ethnicity, 24% were current smokers, 62% had alcohol with 60% drinking > 3 drinks/day. Around 2/3rd had high MET (≥600METmin/week). Around 14% had high cholesterol (≥240mg/dl), 39% had low HDL (<40mg/dl) and only 5% had high triglycerides (≥500mg/dl).

Conclusion

The screening shows high level of cardiovascular risk factors. Further blood sampling has to be conducted after interventions to make comparisons to see the change in HbA1c level.

Keywords

Diabetes, work-site, occupational health
1.2.1 Status of Implementing Community Based Maternal Death Surveillance in Nepal (Invited talk)
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Background
Despite substantial reduction of Maternal Mortality Ratio (MMR) due to improvement in availability and accessibility of maternal health services, maternal mortality continuous to be a public health problem in Nepal. With the aim of reducing further maternal deaths, community-level maternal death surveillance and response (MDSR) activity was initiated from 6 districts in Nepal in 2016. Objective of this study was to provide brief overview of current status of MDSR implementation, identify issues and challenges, and explore causes of deaths and avoidable factors contributing to the deaths.

Methodology
Desk review was conducted to explore process, issues and challenges of implementation. Quantitative analysis of 66 pregnancy related deaths notified during 2016 to 2018 in 11 MDSR implementing districts was conducted to explore causes of deaths (using ICD10 MM) and socio-demographic and health related contributing factors. Qualitative information based on narrative part of verbal autopsy was explored to identify avoidable factors. Informed consent with principal respondent was taken and no name, no blam approach was applied throughout the surveillance process.

Results
About 77% of the deaths were among women age between 20 and 35 year. Most of deaths (49%) occurred during postpartum period and 6% of the deaths were due to abortion complication. Majority of maternal deaths were among women who are less educated and involved in domestic household activities. More than half (53%) deaths occurred in health facility and about 6 in 10 (60%) deaths were due to direct obstetric causes (hemorrhage, eclampsia and sepsis). Types of delays, avoidable factors and response activities implemented as well as challenges of implementation are discussed.

Conclusion
It was concluded that MDSR has great potentiality to attain sustainable development goal of reducing maternal mortality by notification, quantification, determination of causes and avoidable factors and taking responses to prevent similar deaths in the future.

Keywords
Maternal Death, surveillance and response, community, Nepal
1.2.2 Assessment of reliability of verbal autopsy to assign cause of maternal death in Nepalese context (Invited talk)

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Background
Verbal Autopsy (VA) has been widely used to assign cause of deaths in low income countries. Nepal has been implementing community-level maternal death surveillance using VA to assign cause of deaths. However, reliability of VA has not well understood. This assessment examines efficiency of VA to assign clinical cause of maternal death by comparing its findings with facility based maternal death review.

Methodology
Rupandehi and Surkhet were purposively selected for the assessment. Maternal deaths reported through web-based system were identified and maternal death review forms and clinical record of the deaths were collected from Medical Record Officers. An obstetrician was used to assign primary and final causes of maternal deaths. The study team members visited the household of deceased women and administered the VA questionnaires. Another obstetrician reviewed VA questionnaire and assigned primary and final causes of death. A Medical recorder was used to assign appropriate ICD codes for both the findings. Data obtained from these two sources were entered into the computer using Cspro and the databases were analyzed using Stata10. Considering the hospital diagnosis as the gold standard, the causes of deaths assigned by two different obstetricians were compared through contingency tables and degree of agreement was estimated using Kappa statistics.

Results
Out of nine reported maternal deaths (six from Rupandehi and three from Surkhet during one-year period between 2013 and 2014), 8 deaths meeting selection criteria were included in the analysis. Out of 8 deaths, causes of 6 maternal deaths assigned from VA and MDR forms were same. There was a good agreement between causes of deaths assigned from VA ad MDR (Kappa Index: 0.65). Causes of deaths and characteristics of deceased are discussed.

Conclusion
It was concluded that the VA adopted in Nepal for community-level maternal death surveillance and response can be used to reliably assign clinical causes of maternal deaths.

Keywords
Reliability, verbal autopsy, causes of maternal death, Nepal

1.2.3 Self-Applied Technique of Quality Health (SATH) tool: Advocacy for Improved Maternal Health Services in Nepal (Invited talk)

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Background
Poor maternal and newborn health outcomes remain a public health challenge in Nepal. Despite progress, the maternal mortality ratio is 239 per 100,000 live births and the neonatal mortality rate is 21 per 1,000 live births. Recognizing low service utilization as the major contributing factor to poor maternal health in Nepal and the importance of women's participation in health outcomes, CARE developed the SATH tool as a participatory technique that enables community members to identify and assess community health challenges, seek resources and advocate for improvement.

Methodology
CARE Nepal has been implementing SATH for over four years, reaching 2,358 mothers’ groups, predominantly in marginalized communities. SATH not only seeks to address health service utilization but serves as a vehicle for women's empowerment, encouraging leadership from women, especially socially disadvantaged and vulnerable mothers, to advocate for quality health services. Community members and health workers participate in the joint mapping of pregnant women, new mothers and newborns, track their use of health services and discuss their needs through mothers' groups.

Results
The use of SATH has resulted in improved critical maternal health indicators; four antenatal care visits has increased to 74.6%, institutional delivery to 89.8%, and at least one postnatal visit to 84.9%. Most significant, this tool has enabled the inclusion of mothers from marginalized groups to regularly participate in group meetings, which they previously did not attend regularly.

Conclusion
SATH has been recognized as a proven tool to be scaled which has been adopted by the Nepal Government as part of “Equity and Access Guidelines” for improving maternal and newborn health services among marginalized communities. The tool’s inclusion in national guidelines signals the prioritization of women's voice and participation in decisions affecting their health and the health of their communities.

Keywords
Maternal, SATH, maternal health

1.2.4 Status and Determinants of Maternal and Neonatal Deaths in Nuwakot, Ramechhap and Solukhumbu Districts of Nepal
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Background
Incomplete vital registration and HMIS data poses challenge in measuring maternal and neonatal deaths; however, these are important indicators to know the maternal and neonatal health status of the district. The objective of this study was to measure the number of maternal and neonatal deaths in three districts for FY 2015/16 to 2017/18 and to identify the underlying causes of deaths.

Methodology
Study design was descriptive. All maternal and neonatal deaths for FY 2015/16 to 2017/18 were counted for Nuwakot, Ramechhap and Solukhumbu. In each health facility, death listing was done through meeting involving all health workers, FCHVs and HFOMC members. Then, the household of deceased was visited to verify deaths and identify its causes using verbal autopsy questionnaire through face to face interview. Causes of death were assigned based on ICD-10 classification.
Results
For FY 2072/73 to 2074/75, number of maternal deaths in Nuwakot were 6, 1, 5, in Ramechhap were 5, 2, 2 and in Solukhumbu were 4, 6, 7. Similarly, number of neonatal deaths in Nuwakot was 26, 39, and 60; in Ramechhap were 15, 24, and 43 and in Solukhumbu were 17, 26, and 38. The major causes of maternal death in all three districts were postpartum hemorrhage (32%) followed by retained placenta (26%) whereas bacterial sepsis (36%), birth asphyxia (26%) and preterm births (9%) were leading causes of neonatal deaths. Majority of neonatal deaths occurred at home (55%) whereas majority of maternal deaths occur on the way (55%) and majority of neonatal and maternal deaths occurred within 24 hours after delivery.

Conclusion
Majority of neonatal death occur at home and maternal deaths on the way, showing need to strengthen referral mechanism along with increasing focus on PPH and infection prevention and management which are major contributors of maternal and neonatal deaths respectively.

Keywords
Maternal mortality, neonatal mortality, causes of death, place of death, Nepal

1.2.5 Determinants of Institutional Delivery in Nepal: Evidence from Nepal Demographic and Health Survey 2016
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Background
The recent Nepal Demographic and Health Survey (NDHS) 2016 observed high maternal and neonatal mortalities despite remarkable progress in maternal and child health services. Ensuring safe childbirth for Nepalese women is critical to improving the health of mothers and children. We aimed to find out the determinants of institutional delivery using 2016 Nepal DHS data.

Methodology
We analyzed 2016 NDHS data on place of delivery for the most recent live birth in the last 5 years from a sub-sample of 4006 women with at least one live birth in the last 5 years. We used variables around socio-demography, wealth index, context, access to healthcare and pregnancy in our analysis. We report proportion of institutional delivery by all independent variables, as well as the odds of institutional delivery from multivariable analysis at a 95% confidence interval.

Results
Overall, three-fifth (61%) of women delivered their last child in a health facility. Most of the women were between 15 and 19 years (67%), from upper caste groups (73%), with higher education (86%), from the richest group (92%), residing in urban area (71%) and from Province 3 (73%). Women with higher education, from the richer wealth quintile, those residing in urban area, from Province 7, living closer (within 60 mins) to the health facility, with the last birth being first or second, those completing 4 recommended ANCs visits, those with blood pressure measured or had blood or urine test during ANC, independently had higher odds of delivering their last child in a health facility.
**Conclusion**

Women's socioeconomic status and the place of residence limit their access to essential maternal health services such as delivery at a health facility. Achieving the 2030 targets of 90% institutional delivery and delivery by a skilled-birth attendant necessitates that the Nepalese health care system focuses interventions for the underserved two-fifth of women.

**Keywords**
Demographic and health survey, determinants, institutional delivery, Nepal

**1.2.6 Can satisfied client testimonials influence a woman's FP choice? Measuring the effect of a video library on LARC uptake.**

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**Background**

Peer perceptions and attitudes towards contraception significantly influences a woman’s acceptance and choice of family planning (FP) (Glanz et. Al., 2015). Rumours from friends and neighbors have been shown to propagate myths and misconceptions (Bista KDB et al., 2013) and discourage women from choosing certain methods. Marie Stopes (MS) Nepal examined whether a video library of satisfied FP clients’ testimonials addressing the benefits, side effects and misconceptions could influence FP choices.

**Methodology**

The study was conducted among women taking FP services at nine MS Centres, selected randomly based on client flow. Clinics were divided into 3 groups - one showed the video in mass, other showed individually on a tablet, and a control group. We enrolled 4201 participants and used z-tests to compare LARC (Long acting reversible contraceptives) proportion in method mix across the three groups and performed regression analyses to examine the effect of video library viewing on LARC uptake, controlling key socio-demographic variables.

**Results**

LARC’s use was significantly higher in the individual exposure group (62%) compared to control (40%) (p<0.001), however there was no significant difference in the mass exposure group (41%) vs controls (p=0.675). In adjusted analysis, individual exposure group had 2.2 times higher odds of choosing LARCs compared to the control group (aOR 2.18, 95% CI 1.82-2.60). Other factors associated with higher LARC uptake were having no formal education, and having a spouse living at home.

**Conclusion**

The video library effectively increased uptake of LARCs among women who watched the video individually, but not in those who watched in a mass group. This suggests that playing videos passively in waiting rooms is likely to be ineffective, but if women can watch videos individually it could influence their FP choices. Going forward MS Nepal plans to scale up the video library using the evidence from the pilot.

**Keywords**
Video library, family planning, long-acting reversible contraceptives uptake
1.2.7 Prevalence and determinants of contraceptive use and unmet need among poor, hard to reach and marginalized populations in nine districts in Nepal (Invited talk)

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Background
Nepal’s Contraceptive Prevalence Rate (CPR) has been stagnant, around 43%, for the last 10 years (2006, 2011, and 2016). In addition, significant differences in contraceptive use and unmet need has persisted across the demographic and socio-economic characteristics and the factors determining the contraceptive use are multifaceted. The current study thus aimed to determine the prevalence and determinants of the contraceptive use and unmet need among poor, hard to reach and marginalized women of reproductive age (15-49) years.

Methodology
The study was undertaken in nine selected districts of Nepal. Sample weight was used to produce representative estimates. A total of 2,280 un-weighted women from 2010 householdswere sampled. Bivariate and multivariate logistic regressions analysis were performed to examine determinants of contraceptive use and unmet need.

Results
The modern contraceptive use among the married women of reproductive age (15-49 years) was 49% and unmet need was 32%. In the regression model, compared to Brahmin/Chettris, lower use (aOR: 0.41; p<0.05) and higher unmet need (aOR: 2.04; p<0.05) for modern contraceptive was observed among Muslims. Likewise, compared to married women aged below 20 years, the use of contraceptive was observed higher (aOR: 2.91; p<0.05) and unmet need for modern contraceptive was observed lower (aOR: 0.43; p<0.05) among those aged 30 or higher. The study revealed higher the contraceptive self-efficacy, greater the likelihood of contraceptive use (OR: 1.29; p<0.05) and lower the contraceptive unmet need (OR: 0.75; p<0.05). Contraceptive self-efficacy was significantly associated with age (aOR: 1.39; p<0.05).

Conclusion
Overall, ethnicity, age and contraceptive self-efficacy were found as the significant determinants of contraceptive use and unmet need in the nine intervention districts. Our study therefore underscores the need for tailored intervention and concerted effort to reduce disparities in contraceptive use and increase the access and use among the underserved community.
1.3.1 Challenges for Managing Emerging Viral Diseases and Eliminating Vector-borne Diseases in Nepal (Invited talk)

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Background

Dengue virus (DENV) and Chikungunya virus (CHIKV) are emerging viral diseases in Nepal. Because of the similarity in signs and symptoms, misdiagnosis and underreporting of CHIKV infection in dengue-endemic areas of Nepal is very common. In 2013, we first time reported the presence of CHIKV in Nepalese patients and further confirmed expansion of Chikungunya in 2015. On the other hand India has reported cases of ZIKV infection in 2017 and China also documented case in 2016 possess a serious challenges to Nepal. The aim of the present study is to know the causes of fever among the febrile patients to manage the emerging viral diseases in Nepal.

Methodology

During 2017-2018 outbreaks after a flooding, a total of 141 serum samples were collected from 2 districts (Sarlahai and Mahottary) of Terai region of Nepal. The samples were initially screened for routine laboratory test including Typhoid, Malaria and Dengue with Rapid Diagnostic test. Further investigations were carried for DENV and ZIKV by using enzyme linked immunosorbent assay (ELISA) to detect Immunoglobulin M (IgM) and Immunoglobulin G (IgG) antibody and confirmed by 50% focal reduction neutralization test (FRNT<sub>50</sub>). Virus isolation, sequencing and phylogenetic analysis were also carried out.

Results

Thirty one (30%) samples found to be positive for P/N (positive control or sample optical density [OD] / negative control OD) ratios ≥ 2. ELISA results showed that 16.3% and 12% were positive for Dengue IgG and Zika IgM. Further, FRNT<sub>50</sub> results confirmed that 10% of dengue IgG ELISA positive samples possessed neutralizing anti-dengue antibodies. The DENV-2 serotypes been isolated during the outbreak. All the samples were negative for Zika virus by FRNT<sub>50</sub>. The samples were also investigated for CHIK virus and also compared previous results indicating that the virus are expanded in new area with emerging new viral strains.

Conclusion

All four DENV serotypes were found to be co-circulating initially in low-land Terai region and now moved to the hilly region now. CHIK virus is also transmitted from Aedes mosquitoes is now detected in several location of the country. At the same time other vector borne diseases including Malaria and leshmaniasis is also reported in the new hilly region of Nepal. The results indicate that there is severe challenges in the elimination of the targeted diseases and control of emerging viral diseases in Nepal. It is recommended to strengthen the surveillance system for vector borne diseases and response mechanism in order to prevent possible future outbreaks and to run on the track of elimination.
1.3.2 Can Nepal reach 90-90-90 target in Children with HIV/AIDS (Invited talk)

Prof. Laxman Shrestha, Pediatric HIV specialist

In order to achieve an AIDS-free generation, the UNAIDS has set an ambitious target code named 90-90-90, which aims to ensure that 90% of all people living with HIV will know their status, 90% of all people diagnosed will receive sustained antiretroviral therapy (ART), and 90% of all people receiving ART will have viral suppression, all by 2020.

HIV is characterized as a concentrated epidemic in Nepal with an adult (ages 15-49) HIV prevalence of 0.15 percent in 2017. According to recent estimates, Nepal is home to approximately 31,020 people living with HIV (PLHV).

Of the estimated 31,020 PLHV, there are 21,148 people having been detected to be living with HIV in Nepal and 3.8% of them are children. According to the NCASC, percentage of HIV positive pregnant women who received antiretroviral to reduce the risk of MTCT is only 63%. Early infant diagnosis services have been rolled out in all 74 antiretroviral centres but the coverage of testing within two months is around 50%. Only 53% of adults and children are receiving antiretroviral therapy among all estimated adults and children living with HIV and viral load suppression is estimated at 52% far below the UNAIDS targets.

Nepal faces a myriad of bottlenecks but there are opportunities that can be optimized to increase access to pediatric and adolescent’s HIV services to reach the UNAIDS target.

1.3.3 Human Immunodeficiency Virus (HIV) and Hepatitis B Virus Co-Infection among Visited Patients at Anti Retro Virus Treatment (ART) Centre of Seti Zonal Hospital in Province-7, Nepal

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Background
Globally, as of 2015, 240 million people are living with chronic HBV infection and an estimated 36.9 million people are infected with HIV. Among HIV infected individuals, HBV infection prevalence (7.4%) is approximately ten times higher than in the general population. The Liver diseases are a major cause of morbidity and mortality among those living with HIV and co-infected with viral hepatitis. HIV and HBV share epidemiological characteristics such as routes of transmission.

Methodology
This was a cross-sectional type of study based on primary and secondary data conducted between Junes to September 2018. Altogether 200 numbers of HIV positive individuals were respondents who had given supportive consent and had visited Seti Zonal Hospital, ART Centre selected through the purposive sampling method. The data were entered and analyzed using SPSS version 20.

Results
In this study, among the total 200 individuals, 56.5% were females. The highest percentage (41%) belongs to the age group of 31-40 years. The prevalence of HIV Hepatitis B co-infection was found to be 5 per cent. Mean CD4 count in HIV HBV co-infected (394.8) population was lower than HIV monoinfected (520.9), statistically non-significant (p-value 0.114 ;> 0.05). The HIV viral load was
significantly higher in HIV HBV co-infected than in HIV mono infected (p-value 0.000 ;< 0.05).

Conclusion

The study showed a 5% prevalence of HIV HBV co-infection among HIV positive individuals. The mean CD4 count among HIV HBV co-infected and HIV monoinfected is comparable that is mean CD4 count in HIV HBV co-infected population was lower than HIV monoinfected. However, there is no statistically significant difference in the mean CD4 counts. The HIV viral load was significantly higher in HIV HBV co-infected than in HIV monoinfected.

Keywords

HIV, HIV HBV co-infection, CD4 count, viral load

1.3.4 Molecular Evidence Supporting Expansion of Kala-Azar towards Non-Program Districts of Nepal

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Background

Visceral Leishmaniasis commonly known as kala-azar (KA) is caused by a protozoan parasite Leishmania donovani that are transmitted to humans by an infected female sandfly, Phlebotomus argentipes. Kala-azar is common in the Indian sub-continent including Nepal and efforts for its elimination are ongoing. However, the expansion of disease towards the higher altitude areas, which were previously considered to be KA free, is of serious concern to achieve for elimination.

Methodology

In the present study, KA patients residing exclusively from non-program districts of Nepal are included. The patient blood samples were collected, and DNA was extracted. Extracted DNA was used for PCR and subsequent sequencing.

Results

Out of 14 patients included in the study, four patients from Chitwan, Dang, Dolpa, and Sindhuli districts were found to be positive for Leishmania species by PCR. All four patients were male with age ranges from 10 years to 68 years. GenBank Blast of obtained DNA sequences confirmed etiology of all patients as L. donovani. This study marks additional case reports from non-program districts of Nepal, apart from our prior study in 2018, indicating that the infection could be an emerging threat for the non-program areas of Nepal.

Conclusion

Our result confirmed that the cases of KA are increasing from non-program districts including the hilly and mountainous region of Nepal. Thus, the government should urgently revise its disease control programs to achieve the kala-azar elimination goal set for 2020 by the country.
1.3.5 Risk Factors of Seasonal Hyperacute Panuveitis (SHAPU)

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**Background**

Seasonal Hyperacute Panuveitis (SHAPU) is an eye disease of unknown etiology reported only from Nepal since 1975, causing blindness within a week. SHAPU cases occur cyclically during the autumn season (August–November). Hence, we aim to establish the risk factors of SHAPU in Nepal.

**Methodology**

A retrospective Case-Control Study done during 2017 SHAPU outbreak.

**Results**

The findings are based on study of 35 cases reported all over Nepal and 105 controls (1:3 ratio) during 2017 attack; 71.42% of cases were children ≤ 15 years; youngest being 38 day-infant. Male were affected more than female (57.1%vs 42.9%). Most cases occurred on Kaski district (65.7%). Over 54.2% of the cases of SHAPU had disease during morning hours. And 82.6% cases of SHAPU have occurred during the period of end of monsoon (August-September). Significant association was found between case and control with respect to physical contact with insects and butterfly with P-value<0.001. Where references value was case, there was 0.14 times less chances of having SHAPU diseases with no physical contact with insects and butterflies. The chance of having SHAPU disease was 7 times higher for those coming in contact with insects and butterflies. Hence, the association with moth was found statistically significant (p<0.001) in our study on multivariate analysis.

**Conclusion**

Link with moth remains the strongest risk factor.

**Keywords**

Intravitreal injection, leukocoria, moth, SHAPU, vitrectomy
1.4.1 Hypoxic Ischemic Encephalopathy – Incidence and associated Risk Factors from a multicentric study in Nepal (Invited talk)

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Background

Every year, globally, 2 million babies are born with Hypoxic Ischemic Encephalopathy (HIE). HIE is a leading cause of neonatal mortality and long-term impairment. However, there is low level of epidemiology on the incidence and risk factors with HIE in Nepal. Hence, this study is aimed to determine the incidence and risk for babies with HIE in Nepal.

Methodology

This was a nested observational study conducted as a part of evaluating scaling up of Helping Babies Breathe (HBB) Quality Improvement package in 12 public hospitals of Nepal from July 1, 2017 – August 29, 2018. All mothers delivering within the study period and their babies until time of discharge were included in this study. Ethical approval was taken from Nepal Health Research Council. Analysis on the obstetric risk factor was done using Pearson’s chi-square test and multi-variate analysis was conducted using binary logistic regression.

Results

There were 60,062 live births over the study period. The incidence of HIE was 7 per 1000 live births. The overall pre-discharge mortality was 919 (1.5%) and those mortality due to HIE were 106 (11.5%). Significant predictors for HIE were nulliparity (aOR-1.43, 95% CI, 1.14-1.81), induction with amniotomy (aOR-1.75, 95% CI, 1.11-2.77), instrumental vaginal delivery (aOR-4.33, 95% CI, 3.15-5.96), caesarean section (aOR-1.56, 95% CI, 1.24-1.97), severe anemia during pregnancy (aOR-3.99, 95% CI, 1.61-9.89), fetal distress in labor (aOR-1.83, 95% CI, 1.06-3.17), malposition (aOR-1.86, 95% CI, 1.21-2.84), birth weight less than 2000 grams (aOR-3.32, 95% CI, 2.03-5.42) and birth weight of 2000-2499 grams (aOR-1.73, 95% CI, 1.18-2.51) and gestational age ≥42 weeks (aOR-2.19, 95% CI, 1.39-3.47).

Conclusion

In Nepal the incidence of HIE was high in comparison with other countries in South Asia. There were several obstetric risk factors to HIE. Developing strategies to either prevent or manage those risk factor will reduce the incidence of HIE.

Keywords

Newborn, neonatal encephalopathy, hypoxic ischemic encephalopathy, Nepal
1.4.2 Effect of skill drills on neonatal ventilation performance in a simulated setting – a hospital-based observation study in Nepal

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Background

Despite the description of the quality improvement (QI) interventions in HBB program, there are evidence gaps on QI interventions that improves and maintains neonatal resuscitation performance in simulated settings. One of the most recommended QI interventions in resuscitation is daily skill drills. Barriers exist in implementation of daily skill drills in clinics for the health workers. We evaluated the effect of skill drills and feedback on neonatal resuscitation performance and optimal skill drills required to maintain the ventilation skills in a simulated setting.

Methodology

This was an observational study conducted in Pokhara Academy of Health Sciences, Pokhara, Nepal from 15 July – 30 September, 2018. A total of 60 nurses working in different perinatal units among which 54 participated in the study. They were given training on HBB 2.0 and orientated about the new high-fidelity manikin (NeoNatalie Live) and a new upright with PEEP resuscitator, allowing all participants to practice ventilation sessions in all four levels. A tablet-based app was used to register the participants and record their sessions.

Results

A total of 358 skill drills were conducted during the study period of which 86% of them were accurately done. Participants who had conducted 6-10 drills had three-fold more chance of accurately performing better than those who did less skill drills. A total of 79.6% of ventilation attempt had a “Well Done” feedback. There was a strong association between the “Well Done” feedback and effective ventilation. Of the total drills conducted, 27.1% were easy clinical scenario and 43.3% of them had difficult clinical scenario. In multi-variate analysis, we found that there was a positive association between skill drills and effective ventilation performance.

Conclusion

We demonstrated the optimal dose of simulated drills and feedback required to maintain the neonatal resuscitation skills in simulated settings.

Key words
Simulation, skill drill, ventilation

1.4.3 Nutritional Assessment of School going Adolescents and its Determinants in Eastern Development Region of Nepal

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Background
Good nutrition is fundamental for optimal health and growth. Its effect on health and cognitive development is vital for both academic performance and productivity. Therefore, present study was designed having objective to estimate the nutritional status of adolescents and its associated factors using anthropometric and biochemical methods.

Methodology
A cross-sectional study was conducted among 810 school going children ages 11 to 17 years in Eastern Development Region of Nepal during January to December 2016. Multistage probability sampling technique was used to draw the sample. Ethical approval was taken from ERB of Nepal Health Research Council. Data entry was done in EPI Data version 3.1 and analyzed by using SPSS software version 16.

Results
Among total, 52.5 % were female and 47.5 % were male participants. The average age of participants was 14.5 years and mean hemoglobin and BMI were measured 11.13 mg/dl with SD 1.57 and 18.87 with SD 2.79 respectively. Adolescents above age 14 years, females, Adibasi/Janajati ethnic group, from nuclear family type and from Hill and Terai ecological belts had better BMI than their counterparts (p<.05). Adolescents with higher secondary and above educated parents and having service occupation of parents also had better BMI than others (p<.05). Adolescents of young age, male sex, Muslims and Adibasi/Janajati ethnic group, high Property Index of family, having educated and service holder parents had better hemoglobin (p<.05).

Conclusion
Poor BMI as well as iron deficiency anemia were found high among adolescents in overall. And the females were much more vulnerable than males.

Keywords
Nutritional deficiency, anemia, iron deficiency

1.4.4 Acute Gastroenteritis Associated with Rotavirus A among Children Less Than 5 Years of Age in tertiary care hospitals

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Background

Rotavirus gastroenteritis is a major public health problem in Nepal. This study was conducted to obtain information associated with Rotavirus gastroenteritis and to perform genotyping of Rotavirus A.

Methodology

Hospital based cross sectional study was conducted from January to December 2017 among children less than 5 years of age attending Kanti Children’s Hospital and Tribhuvan University Teaching Hospital. Rotavirus A antigen detection was performed by Enzyme Linked Immunosorbent Assay (ELISA) using ProSpecT® Rotavirus Microplate Assay. Rotavirus A positive strains were further confirmed by genotyping using Reverse-Transcription Polymerase Chain Reaction (RT-PCR).

Results

A total of 1074 stool samples were collected, of them 770 were hospitalized and 304 were non-hospitalized cases. Rotavirus A infection was found in 28% of children with infection rate higher in hospitalized (34%) than in non-hospitalized (14%) children. Rotavirus A detection was higher in male (31%) than in female (24%) \( (p>0.05) \). Rotavirus A positivity was higher in children of age group 0-23 months \( (p>0.05) \) with higher frequency found in the month of November, December, January, February and March \( (p<0.05) \). On the basis of molecular analysis of Rotavirus A genotyping G12P [6] (46.39\%) was found to be the most common followed by G1P [8] (35.05\%), G3P [8] (7.21\%) and G1P [6] (5.15\%) while 4.12\% was mixed infection and 1.03\% was partially typed.

Conclusion

Rotavirus A infection occurred throughout the year, but the infection was significantly higher during the month of March. The children of age group 0-23 months were the most affected. In the country G12P [6] is predominant genotype which is found to be primarily unusual. The result of genotyping is essential for the introduction of Rotavirus vaccine in Nepal.

Keywords
Rotavirus, genotyping, gastroenteritis, Nepal

1.4.5 Age Appropriate Vaccination and its Contributing Factors among Under Five Years Children in Nepal

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Background

National immunization program is priority program (P1) of the government of Nepal. Vaccination coverage is one of the indicators of the program. Age appropriate vaccination coverage is one of the major indicators for pitfalls of the programs. Therefore, the study aims to achieve the current status of timeliness of each vaccine and contributing factors for timeliness.
Methodology
The present study was carried out using the secondary data of NDHS 2016. The data children of age under five years of age whose information were complete were used for the present study. A month of age of recommended age was considered as age appropriate measles vaccination. Descriptive analysis was done at first. With the bivariate analysis which had come to be significant was taken to multiple logistic regressions.

Results
The study shows that BCG vaccination was provided for age birth to one month to 73.2% of children. Bivariate analysis of measles vaccination showed a difference in ecological zones, place of residence, provinces. The relationship was statistically significant (P<0.05). Multivariate analysis showed with reference to province 2, the children from province 3 were 2.691(1.063-6.811) and province 5 children 3.596(1.679-7.703) times likely to have age appropriate measles vaccination. Children from urban areas were 1.79(1.113-2.893) times; children from the mountain with reference to Terai were 7.0242(1.258-29.425) times likely to have timely measles vaccination.

Conclusion
The present study concludes BCG vaccine is least given on time whereas DPT1 and Poilo2 are the mostly timely vaccination in Nepal. The differences in ecological zones, places of residence, provinces are observed. Children from province 3 are nearly double and province 5 nearly four times likely to have timely measles vaccination as compared to province 2.

Keywords
Age appropriate vaccination, immunization, Nepal, measles
1.5.1 Effectiveness of mental health services provided by trained primary health care workers in Nepal: Outcomes at community, facility and individual levels (Invited talk)

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Background

In low-income countries, care for people with mental, neurological, and substance use (MNS) disorders is largely absent, especially in rural settings. To increase treatment coverage, integration of mental health services into community and primary healthcare settings is recommended. While this strategy is being rolled out globally, rigorous evaluation of outcomes at each stage of the service delivery pathway from detection to treatment initiation to individual outcomes of care has been missing.

Methodology

A combination of methods was employed to evaluate the impact of the services provided by the trained PHC health workers for depression, psychosis, alcohol use disorder (AUD), and epilepsy. We evaluated 4 components of the service delivery pathway: (1) contact coverage of primary care mental health services, evaluated through a community study (N = 3,482) and through service utilisation data (N = 727); (2) detection of mental illness among participants presenting in primary care facilities, evaluated through a facility study (N = 3,627); (3) initiation of minimally adequate treatment after diagnosis, evaluated through the same facility study; and (4) treatment outcomes of patients receiving primary-care-based mental health services, evaluated through cohort studies (total N = 449 depression, N = 137; AUD, N = 175; psychosis, N = 95; epilepsy, N = 42).

Results

Contact coverage increased 7.5% for AUD (from 0% at baseline), 12.2% for depression (from 0%), 11.7% for epilepsy (from 1.3%), and 50.2% for psychosis (from 3.2%) when using service utilisation data over 12 months. Health worker detection of depression increased by 15.7% (from 8.9% to 24.6%) 6 months after training, and 10.3% (from 8.9% to 19.2%) 24 months after training; for AUD the increase was 58.9% (from 1.1% to 60.0%) and 11.0% (from 1.1% to 12.1%) for 6 months and 24 months, respectively. Provision of minimally adequate treatment subsequent to diagnosis for depression was 93.9% at 6 months and 66.7% at 24 months; for AUD these values were 95.1% and 75.0%, respectively. Changes in treatment outcomes demonstrated small to moderate effect sizes (9.7-point reduction [d = 0.34] in AUD symptoms, 6.4-point reduction [d = 0.43] in psychosis symptoms, 7.2-point reduction [d = 0.58] in depression symptoms) at 12 months post-treatment.

Conclusion

These combined results make a promising case for the feasibility and impact of community- and
primary-care-based services delivered through an integrated district mental healthcare plan in reducing the treatment gap and increasing effective coverage for MNS disorders.

1.5.2 Prevalence of Self-stigma and its Effect on Self-esteem among Psychiatric Patients in a Teaching Hospital
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Background
Self-stigma occurs when people internalize the public attitudes and suffer numerous negative consequences as a result. The severe negative consequences of self-stigma are low self-esteem, increase in severity of symptoms, low treatment adherence, increase rate of suicidality and decrease in quality of life. Thus, this study aims to find the prevalence of self-stigma and its effect on self-esteem of patients with mental illness.

Methodology
This was a cross-sectional study conducted among 180 patients with mental illness attending psychiatric OPD of Patan Hospital, Lalitpur. Non probability purposive sampling technique was used for the study. The data was collected by face to face interview technique using structured interview schedule. Descriptive statistics, inferential statistics and correlation analysis were used for data analysis.

Results
Overall prevalence rate of self-stigma was 54.44%. The findings showed that 45.56% had minimal to no self-stigma, 26.11% had mild self-stigma, 18.89% had moderate self-stigma and 9.44% had severe self-stigma. However, no significant association between demographic variables and self-stigma was found. Hospital admission and diagnostic category of respondents were significantly associated with self-stigma (p =0.01). Also, strong negative relationship was found between self-stigma and self-esteem (r=-0.74).

Conclusion
Based on the finding of this study, it can be concluded that self-stigma is prevalent in more than half of patients. Also, higher self-stigma is significantly associated with poor self-esteem. Thus, this result is the baseline for further research and planning interventional study to reduce self-stigma.

Keywords
Mental illness, self-esteem, self-stigma

1.5.3 Reliability and Validity of the translated Nepali version of the Geriatric Depression Scale (GDS-15)
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Background
Geriatric depression is a significant problem in primary care in both the developing and the developed world. Geriatric Depression Scale (GDS) is a reliable and valid screening instrument for late-life depression, used in different language and cultural settings, but the Nepali version is not yet fully validated.

Methodology
Nepali translated 15-item version of the GDS (GDS-15) was administered among the purposefully selected participants >=60 years of age presenting to the general medicine OPD of Dhulikhel Hospital (n=106) by the trained health workers. The participants were then blindly interviewed by the consultant psychiatrist to diagnose geriatric depression as per the ICD-10 criteria. Cronbach’s alpha was measured for reliability. Validity was assessed at three different cut-off points (non-case/case: 4/5, 5/6, 6/7); the following measures of diagnostic accuracy were assessed: Sensitivity (Se), Specificity (Sp), Positive predictive value (PPV), and Negative predictive value (NPV).

Results
The mean age of the participants was 68.1 (+/- 7.2); males and females being 50.9% and 49.1% respectively. Cronbach’s alpha of the Nepali version GDS-15 was 0.79. When cut-off point 4/5 was used, GDS-15 had high Se in comparison to Sp (98.1 vs. 65.5). Similarly, at cut-off point 5/6, Se and Sp were respectively 86.3% and 74.5%. However, Sp was higher than Se at cut-off point 6/7 (83.6 vs. 76.5).

Conclusion
Using a standard statistical protocol, a reliable and valid Nepali version GDS-15 was developed. The Nepali version GDS-15 had an adequate internal consistency and a balanced Se and Sp at a cut-off point 5/6. The Nepali version GDS-15 can thus be used as a screening instrument for assessing geriatric depression among the Nepali elderly population, in both the population based epidemiological studies and in the primary care settings.

Keywords
Geriatric depression, Nepal, reliability, sensitivity, specificity
1.5.4 Depression in Patients with Epilepsy: A Hospital Based Cross-sectional Study.

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Background
Depressive disorders are the most frequent psychiatric co-morbidity in epilepsy but very often remain unrecognized and untreated, especially in resource limiting country like Nepal.

Methodology
This cross-sectional study was conducted at Nepal Epilepsy Center, Kathmandu, Lazimpat in 120 epileptic patients. Patients age 18 or above diagnosed with epilepsy and receiving anti-epileptic drugs for more than 2 months were enrolled by simple random sampling technique. Relevant demographic and clinical data were assessed with the assistance of physicians. Depressive symptoms were screened with the standardized Hamilton Depression Rating Scale (HAMD-17). Significance of association for categorical analysis was performed by Chi-square test, and bivariate logistic regression was modeled to determine the factors associated with depression. A P value < 0.05 was considered to be statistically significant.

Results
The estimated Prevalence of depression was 30%, with mild 63.90%, moderate 16.70%, severe 8.33%, and very Severe 11.10%. Age, sex, types of epilepsy, geographical distribution, duration of drugs taking were not significantly associated with depression in epileptic patients (p>0.05). However, drugs pattern (defined by monotherapy and Combination therapy) was significantly associated (p<0.05). Drug pattern was independently linked to depression (p=0.003) and the odd of being depression was higher in the patients receiving monotherapy (OR: 4.8, CI: 1.72-13.78)

Conclusion
Our study unveiled a high prevalence of depression in a substantial number of epileptic patients, leaving an unresolved issue to be resolved. And that epileptic patient, especially receiving monotherapy, are more prone to develop depression, there is dire need to early and timely assessment of these population so as to improve quality of life.

Keywords
Drug pattern, depression, epilepsy, prevalence
1.6.1 Prevalence of the Metabolic Syndrome and its determinants among Nepalese adults: Findings from a nationally representative cross-sectional study

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Background
The inter-related cluster of cardio-metabolic risk factors comprising of elevated fasting glucose, elevated blood pressure, elevated triglycerides (TG), reduced high-density lipoprotein (HDL) and central obesity has been termed Metabolic syndrome (MetS). Metabolic syndrome (MetS) increases the risk of cardiovascular diseases and diabetes mellitus. This study is designed to assess the prevalence and determinants of MetS among Nepalese adults from a nationally representative study.

Methodology
This study is based on Stepwise Approach to Surveillance (STEPS) Survey from Nepal. This survey was done among 4200 adults aged 15-69 years from 210 clusters selected proportionately across Nepal’s three ecological zones (Mountain, Hill and Terai). Subsequently, using systematic sampling, twenty households per cluster and one participant per household were selected.

Results
The overall prevalence of MetS is 15% and 16% according to Adult Treatment Panel III (ATP III) and International Diabetes Federation (IDF) criteria respectively. A triad of low HDL-C, abdominal obesity and high BP was the most prevalent (8.18%), followed by abdominal obesity, low HDL-C cholesterol and high triglycerides (8%). Less than two percent of participants had all the five components of the syndrome and 19% of participants had none. The prevalence steadily rose across the age group with adults aged 45-69 years having the highest prevalence (28-30%) and comparable prevalence across two definitions of MetS. A notably high burden for females, urban, hill or Terai resident were seen among other factors.

Conclusion
Our study demonstrates a high burden of MetS in Nepalese adults with ten percentage increment in prevalence across each age group fifteen years apart.

Keywords
Biomedical and Health Information technology
1.6.2 Screening of albendazole quality in Nepal using a paper analytical device

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Background
The quality of medicines is a global issue. The World Health Organization defines low-quality medicines as substandard, unregulated/unlicensed, and falsified. Such low-quality medicines are responsible for a loss of public confidence and economic hardship to prolonged illness and death.

Methodology
Current methods for determining the quality of most of the drugs involve the use of expensive equipment and laboratory facility and skilled technician which may not be readily available in resource-limited settings. We have developed a paper analytical device to address above limitations. The newly developed paper device is comparable to a business card in size and is easy to use, portable, and low cost that can be used at point-of-need. It consists of thirteen cellulosic paper lanes impregnated with reagents for colorimetric reactions. In this work, we collected commonly used anthelmintic drug samples of albendazole from pharmacies across Nepal and analyzed those samples using the paper device.

Results
Parasitic worm infections are common to children in developing countries including Nepal, and are considered to be a roadblock to social and economic development. The results showed that albendazole was present in all samples and no contamination was detected. As the paper device was qualitative, it did not quantitative information. Therefore, we tested the same samples using HPLC. The HPLC results verified the presence of albendazole and validated the paper device results. The albendazole content ranged from 233.9 to 690.1 mg/tablet (mean = 409.9, n=180). Out of 180 samples, 166 were shown to be within 7.5% (+/- 30-mg) of labelled amount and thus met industry standards, but 14 samples were low in quality.

Conclusion
Our newly developed paper device was successful in reliably, quickly, and easily screening the quality of albendazole in the field.

Keywords
Antihelmintics, counterfeit medicines, drug quality, paper device

1.6.3 Evaluation of oral potentially malignant disorders with autoflorescence, reflectance spectroscopy and vital staining and their correlation with histopathology – a hospital-based prospective study

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Metabolic syndrome, STEPS survey, Nepal
Background
Oral squamous cell carcinoma is frequently preceded by clinically Oral Potentially Malignant Disorders (OPMDs) that correspond with an increased risk of cancer. Early recognition and diagnosis of OPMDs by means of screening can help in early diagnosis hence, improve patient survival, reduce treatment-related morbidity and improve quality of life. The purpose of this study is to evaluate OPMDs with autofluorescence, reflectance spectroscopy and vital staining and correlate histopathologically.

Methodology
Patients with OPMDs visiting Department of Oral Medicine and Radiology, BPKIHS were included in the study. After oral examination, screening was done by Identafi® followed by toluidine blue staining then again by Identafi®. Then incisional biopsy under local anesthesia was performed from the site showing positive change. Lesions that display Loss of autofluorescence (LOA) was considered positive and lesions that display no LOA was considered negative. Lesions with diffuse vasculature were considered to be positive.

Results
Out of 49 patients (63 lesions), Identafi’s violet light’s overall sensitivity and specificity of Identafi’s violet light was 73. and 46.2 and the positive predictive value and negative predictive value were 57.6 and 63.1. The diagnostic accuracy of Identafi’s violet light was 61.90 %. Identafi’s green-amber light’s overall sensitivity and specificity of Identafi’s green-amber light was 78.4 and 15.4. The diagnostic accuracy of green-amber light was 52.38 %. Toluidine blue’s overall sensitivity and specificity toluidine blue was 51.4 and 84.6. The accuracy was 65.08%. A statistically-significant association was observed between the toluidine blue and histopathology results, (P=0.04), p value set at ≤0.05.

Conclusion
Screening of OPMDs will help in early diagnosis and further help in selecting biopsy site followed by proper early intervention and hence increasing the prognosis, outcome and decrease complication associated with it.

Keywords
OPMDs, autofluorescence, reflectance spectroscopy, toluidine blue, sensitivity and specificity
Background

Scrub typhus is an acute febrile illness caused by the gram negative obligate intracellular bacteria Orientia tsutsugamushi. Antibody based diagnostic assays are important for the diagnosis of scrub typhus in the resource limited countries like Nepal. The gold standard test for the diagnosis of acute scrub typhus is IgM immunofluorescence assay (IFA). Immunochromatography (ICT) and IgM ELISA are routinely employed in our country Nepal. This study evaluated the InBios Scrub typhus detect™ Immunoglobulin M (IgM) ELISA and IgM Immunofluorescence assay in single serum sample collected at the time of admission.

Methodology

This study was based on acute febrile illness patients with suspected scrub typhus cases in central Nepal from April 2017-March 2018. Blood samples were collected from the suspected patients and detection of IgM ELISA and IgM IFA was done. Written inform consent was obtained for each patient prior to their enrollment. This study was approved from the Institutional Review Board of Institutute of Medicine,

Results

Statistical analysis of IgM ELISA with compare to IgM IFA demonstrated the following characteristics, Sensitivity 84.0% (95% CI:79.73-87.68), Specificity 94.82% (95% CI: 93.43%-95.99%), Positive likelihood ratio 16.21% (95% CI: 12.71%-20.67%), Negative likelihood ratio 0.17% (95% CI: 0.13%-0.21%), Disease prevalence 22.08% (95% CI: 20.06%-24.21%), Positive predictive value 82.12% (95% CI: 78.28%-85.42%) and Negative predictive value 95.44% (95% CI: 94.27%-96.38%) respectively.

Conclusion

This study indicated that IgM ELISA has 84.0% sensitivity and 94.82% specificity. Although IgM IFA is considered gold standard test for the diagnosis of scrub typhus cases, it is expensive, requires trained personal and fluorescent microscope. Scrub typhus IgM ELISA with appropriate OD cut-off values may be the best alternative test and only viable option available in Nepal.

Keywords

Scrub Typhus, ELISA, IFA, orientia tsutsugamushi, Nepal
1.7.1 Translating evidence into decisions for complex health interventions in complex setting (Invited talk)

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**Background**

Government and development partners develop national guidelines and protocols to address complex health problems, through complex health interventions, in complex settings. We would like to discuss about a recently developed “Evidence-to-decision (EtD) framework” and applicability of such framework in national context to develop and evaluate national guidelines.

**Methodology**

WHO, based on its norms and values and considering changing global health landscape developed a framework known as “WHO-INTEGRATE evidence-to-decision framework. We would like to discuss about the criteria used in the framework, process followed to develop the framework and what can we learn to develop and/or use and/or apply the framework at national level to guide evidence-based program.

**Results**

The INTEGRATE framework consist of —i) balance of health benefits and harms, ii) human rights and sociocultural acceptability, iii) health equity, equality and non-discrimination, iv) societal implications, v) financial and economic considerations, and vi) feasibility and health system considerations—and the meta-criterion vii) quality of evidence.

It is useful for national health stakeholders to consider applicability of such framework at the time of development of national guidelines, strategy or a policy to identify evidence-based and appropriate health interventions. Though the applicability of such framework varies by intervention type, context and appetite for evidence-based programming, a systematic approach of checking applicability of such framework helps to objectively and comprehensively assess its potential use.

**Conclusion**

Through this presentation, we would like to discuss about current practices and tools for using evidence to inform decisions while developing health policies, protocols, guidelines and other decision-making processes. We would also like to further discuss applicability of such frameworks at national and sub-national level.

1.7.2 Enrollment in Government Health Insurance in the First Piloted District of Nepal

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**THEME 7**

Health System, Health Economics and Financing
Background

Financial burden on households due to health care is high in Nepal and financial protection is one of the core components of universal health coverage. High household health care expenditure is a major hurdle in achieving universal health coverage, an explicit target under the recently announced sustainable development goals. Access to health insurance is expected to reduce high health care expenditures of households. However, only small segments of the population are covered by health insurance in Nepal. This study investigated the factors affecting enrolment in government health insurance in the first piloted district of Nepal.

Methodology

A cross-sectional survey was conducted among 1048 households located in 26 wards of Kailali district after 21 months of the implementation of health insurance program in Nepal. The sample was selected in two stages, first stage being the selection of wards and second being the households.

Results

The logistic regression analysis reveals that higher household economic status, head’s education, and prevalence of illness in the household positively influenced health insurance enrolment. The results confirm that poorer and lower educated groups are less benefited by the health insurance program.

Conclusion

Thus, the policymakers need to implement health insurance premium based on income levels to ensure equal access to health care. Further, high prevalence of illness in the household leads to high odds of household being enrolled, so a compulsory health insurance scheme will make the program financially sustainable.

Keywords

Health insurance, enrollment, inequality, health expenditure, healthcare financing, Nepal

1.7.3 Knowledge, attitude and practice on eye health services in Nepal

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Background

The present survey was designed to identify KAP of the public in relation to eye health, to assess their knowledge of eye health status and eye health seeking behavior, to plan awareness raising activities toward achieving the goal of Vision 2020: The Right to Sight.

Methodology

A three-stage cluster survey was conducted to assess the KAP regarding eye health services in 15 selected districts of five development regions of Nepal from May to December 2017. Five thousand households from 100 clusters and 50 households from each cluster were selected randomly afterward. A semi-structured questionnaire was developed in English first and then translated into Nepali and, back translated by experts. The enumerators visited all the sampled households in the selected clusters and interviewed the household heads. Data were entered in CSPro 5.0.3 software and imported to R 3.4.1 software for analysis.

Results

More than three fourth of respondents were between the age of 20-59 years (84 %) and one third were female (37.4%). Despite three decades of national eye care program and two decades of national eye health education program, only 78% of respondents were having basic knowledge about ocular diseases (ranging from 68 to 95%). No single method was found to be more appropriate than the other to provide eye health education to the people living in different geographical locations. Radio would be more appropriate to provide health education in Doti and television in Saptari districts. Around 2% of the people were still dependent on drug retailers, 0.6% on self-medication and 0.1% on traditional healers for treatment.

Conclusion

Information, education and communication materials should not focus only on common diseases like cataract and trachoma but also on emerging problems like diabetes and hypertension to create awareness about their potential to cause blindness and to sensitize people regarding prevention.

Keywords
Knowledge, attitude, practice, eye-care, services, Nepal

1.7.4 Is active case finding a cost-effective strategy to reduce catastrophic costs for tuberculosis treatment in Nepal? A cross-sectional analytical study

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Background

The Nepal tuberculosis (TB) program is identifying people with TB (PWTB) through active and passive case finding (ACF and PCF) strategies. The program has set a goal that by 2020 no TB affected families will suffer catastrophic costs (CC). However, robust evidence is lacking that ACF will substantially reduce CC in TB.

Methodology

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A cross-sectional study was conducted in Pyuthan and Bardiya districts from July to August 2018 to compare costs incurred among PWTB from ACF and PCF strategies and measure the prevalence of CC in each group. PWTB diagnosed via ACF (n=50) were identified through social contacts of registered PWTB in health facilities (HF) in 2017, PCF cases (n=50) were identified registered in HF. Consecutive individuals were invited to participate with informed consent within three months of their treatment. Data was analyzed using Stata/IC 14. Chi-square test was applied in dichotomous characteristics and Wilcoxon-Mann-Whitney tests for costs. Logistic regression assessed association was found between CC and case finding strategy.

Results

There were no differences in the socioeconomic characteristics between ACF and PCF patients. Most of the PWTB were male (71%), in line with the predominance of men among TB cases in Nepal and elsewhere. TB resulted in an average decrease in, household income of 37% and 38% respectively for ACF and PCF patients. ACF patients presented significantly lower direct medical (USD22 vs. USD93; p=0.001), non-medical (USD11 vs USD28; p=0.004) during pre-diagnosis period and till intensive phase (USD30 vs. USD110;p=0.002) and non-medical cost (USD47 vs. USD96;p=0.033). The prevalence of CC (20% threshold) was 44% (ACF) and 61% (PCF).

Conclusion

ACF had a substantial impact on direct costs, both medical and non-medical. However, achieving the goal of zero catastrophic costs will require additional strategies such as socioeconomic support in synergy with intensified case finding.

Keywords

Active case Finding (ACF), catastrophic cost, cost effectiveness, Nepal, tuberculosis

1.7.5 Health policies and legislations in Nepal – what we already have and what is the need for new formulation and amendments in federal context?

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Background

Nepal is going through a transition from unitary to federal system of governance. Health policies and legislations developed at national/federal context need to be adapted and/or to be formulated for the provincial and local level. Systematic appraisal of existing health system related policies and legislations during the transition period will guide provincial and local governments to identify the need and appropriate processes to develop and/or adapt those policies.

Methodology

USAID’s Strengthening Systems for Better Health Activity collected major health sector related policies (n=24), acts (n=31), regulations (n=13), strategies (n=22) and guidelines (n=33) developed at national/federal level through online search and collecting hard copy. These documents were desk-reviewed and analyzed to identify key priority areas indicated in these documents, need for adaptation and/or contextualization in context of federal system.

Results

Of the total documents collected (n=123), 116 (94%) were available online, either in the website of
the Ministry of Health and Population (n=50) or elsewhere (n=66). One-fourth of these documents are either developed or updated to reflect the changed federal context of Nepal. Among these, 39% were developed or updated in last five years, 21% in 5-10 years, and 40% older than 10 years. It was found that most of the policies, acts, regulations, strategies and guidelines are developed on the basis of 2014 National Health Policy. Most of these policies lacks implementation plan, monitoring and evaluation approaches resulting unclear implementation approaches in changing federal context.

**Conclusion**

There is a need to revisit most of the health-related policies, acts, regulations and to adapt them in federal context in formulation of policies following appropriate processes based on the evidence.

**Keywords**
Health policies, acts, regulations, federalism

### 1.7.6 Community Health Worker National Pilot in Achham and Dolakha: an interim analysis of a type 2 hybrid effectiveness-implementation study

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Background

Community health workers (CHWs) have been recognized as an important cadre in achieving universal healthcare in low-income rural settings; however, evidence for CHW programs that include full-time pay, continuous training, and strong management in the context of Nepal does not exist. In collaboration with Nepal MOH, we designed a study to evaluate Possible’s professionalized CHW system delivering an evidence-based integrated reproductive, maternal, newborn, and child health (RMNCH) intervention in Achham and Dolakha.

Methodology

In this type-2 hybrid effectiveness-implementation study, we evaluate both the effectiveness and the implementation process, assessing its reach, efficacy, adoption, implementation, and maintenance (NHRC ethics approval #461/2016). The intervention consists of five components: 1) continuous surveillance of reproductive-age women; 2) home-based antenatal and postnatal care; 3) active case detection and referral for under-two children; 4) group antenatal care; and 5) structured contraceptive counseling. Through stepped implementation, we will reach ~260,000 population this year. We examine the following outcomes using a pre-post quasi-experimental design: institutional birth rate (IBR), under-two mortality rate (U2MR), and postpartum contraception prevalence rate (PPCPR).

Results

We present here the outcomes at baseline and at one and two-year follow-up for Sanfebagar, Achham, covering a population of 36,766. IBR was 76% at baseline (2015), 89% at one year, (2016), and 96% at two years (2017) post-intervention. U2MR was 36.9 per 1000 live births at baseline, 32.5 per 1000 live births at one year, and 18.5 per 1000 live births at two years’ post-intervention. PPCPR was 17% at baseline, 42% at one year, and 30% at two years’ post-intervention.

Conclusion

Initial follow-up data from Sanfebagar suggest a promising CHW National Pilot for integrated RMNCH care. With ongoing expansion, we hope to understand implementation challenges and demonstrate impact at scale.

Keyword

Community health workers (CHWs), Reproductive, Maternal, Newborn, and Child health (RMNCH), rural areas, evidence-based integrated intervention
1.8.1 Anxiety and depression in lesbian, gay, bisexual and transgender people of Kathmandu valley

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Background
LGBT people are frequently the targets of stigma, discrimination, and violence because of their sexual-and gender-minority status and thus they appear to experience more depression and anxiety. The main objective of research was to assess the depression and anxiety among Lesbian, Gay, Bisexual and Transgender people of Kathmandu Valley.

Methodology
Quantitative research was done with descriptive cross-sectional study. Snowball Non-Probability Sampling method was used and Self-administered questionnaire was used. Structured Questionnaire was used where Center for epidemiological depression scale and Beck Inventory Anxiety scale were used as depression and anxiety standard tool respectively.

Results
LGBT populations were significantly depressed with high people in sub threshold depression symptoms. Depression was significantly associated with experience of abuse and discrimination, use of illicit drugs, age of sexual identification, use of alcohol and suicide attempt. The prevalence of anxiety was found lower in comparison to depression. Anxiety was significantly associated with employment status, suicide attempt, community tolerance, self-rated health and ethnicity. Depression and anxiety were significantly associated.

Conclusion
LGBT people are sexually minor and vulnerable populations who are at greater risk to mental health problems like depression and anxiety. Experience of Abuse and discrimination, suicidal attempts, community tolerance, employment status and drinking alcohol were found factors predicting depression and anxiety. Thus, mental health programs focusing these factors must be developed.

Keywords
Anxiety, depression, LGBT and prevalence
1.8.2 Effectiveness of a Training to Government Health Workers and FCHVs on the Detection and Referral to Rehabilitation Care of Selected Impairments in Children Under 5 in Jajarkot, Nepal

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Background
In Nepal children with impairments living in remote areas have very limited access to rehabilitation services. Health Workers (HWs) and Female Community Health Volunteers (FCHVs) are not formally trained to detect impairments, and there is no supporting system of referral to rehabilitation services. This study trained HWs and FCHVs in the detection and referral of under 5 children with impairments.

Methodology
A quasi-experimental longitudinal study was used to measure training effectiveness by comparing an intervention site (Jajarkot-training) to a control site (Rukum-no training). Effectiveness of the training was determined by the trainees’ knowledge, number of cases detected, the referral utilization rate, the accuracy of impairment detection and experiences of trainees and caregivers.

Results
The training effectively transferred long-term knowledge of impairments (HW, 51.1% pre-test, 83% post-test, 65.8%12 months retention test; FCHVs, 33.1% pre-test, 60.6% post-test, 46.9% 12-month retention test). 54 cases were detected by trainees in intervention site, and 3 in control site. From the intervention site, 61.1% of cases attended at hospital and/or rehabilitation centers and 16 cases received rehabilitation services. There was good accuracy of case detection by trainees (81.5%). Trainees counselling positively influenced many caregivers to use referral services. Caregivers who didn't use referral services cited poor finances or home situation as reasons for delaying treatment.

Conclusion
A number of cases were detected in the intervention site after the training that led to greater use of referral services including rehabilitation centers. The effectiveness of the training was further strengthened by trainee capacity to accurately detect cases and the quality of counseling to families, which convinced them to seek treatment for their children although financial barrier to reach rehabilitation centers remains an issue. This concludes that training intervention to HWs and FCHVs is an effective approach to increase case detection and referral of children with impairments.

Keywords
Case detection, impairment, referral, rehabilitation

1.8.3 Evaluation of dispensing practices of antibiotics at community pharmacies in Kathmandu and Lalitpur districts, Nepal

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Background
Antibiotics are one of the most commonly used medicines but are often used irrationally. The present study was conducted to evaluate the antibiotic dispensing practices of community pharmacies and the association, if any, between the educational qualification, experience, professional license and the location of the pharmacy with the antibiotic dispensing practices.

Methodology
A cross sectional prospective study was conducted in Kathmandu and Lalitpur districts from October 2018 to November 2018 among the community pharmacies listed in different directories. The sample size was 78 with a 5% margin of error, 95% confidence level, and 50% response distribution and random sampling method was used. Data was collected using a questionnaire. Written informed consent was obtained. The data was analyzed using SPSS for Windows.

Results
Out of 78 pharmacies, 12 (15.4%) were unregistered and 54 (69.2%) were located in Kathmandu district. Antibiotics dispensed without a prescription were 67 (85.9%). Fifty-two (66.7%) pharmacists did not ask for prescription before dispensing antibiotics. The practice of brand substitution was seen in 43 cases (55.1%). Antibiotics per prescription was three in 51 cases (65.4), followed by two antibiotics in 27 (34.6%) and this was significant in the pharmacies near hospital and periphery. Advice regarding completing the course of antibiotics were given by 59 (75.6%) pharmacies and insufficient number of antibiotics dispensed were 23 (29.5%). Nine pharmacists (11.5%) replaced prescribed antibiotics with cheaper brands. Azithromycin 69 (88.5%) was the most commonly dispensed antibiotic followed by amoxycillin 68 (87.2%).

Conclusion
Dispensing antibiotics without a prescription is seen in majority of pharmacies which can be a big threat towards using antibiotics rationally. The findings of this study may necessitate re-evaluation of the guidelines framed for improving safe and rational use of antibiotics.

Keywords
Antibiotics, community pharmacy, dispensing, Kathmandu, Lalitpur, pharmacists

1.8.4 A study on non-auditory health effects of noise exposure among urban residents of Eastern Nepal
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Background
People are likely to be exposed to unwanted noise because of increased traffic along with urbanization. Negative health outcomes like hypertension, annoyance, stress, sleep disturbances, and mental health effects are associated with noise pollution. This study was designed to investigate the association between road traffic noise and non-auditory health effects among urban residents of Eastern Nepal.

Methodology
A comparative cross-sectional study enrolled 660 adults (330 residents residing within 100m from the main trunk road and other 330 residents in the side streets) in cities Biratnagar and Itahari. Purposive sampling was used to select the participants. Time-weighted equivalent noise level was estimated using a standard procedure. Pretested semi-structured questionnaire was administered by face-face interview. Height, weight, pulse and blood pressure were also measured.

Results
Significant association was seen with depression (p=0.001), anxiety (p=0.007) and stress (p=0.034) between residents of main trunk road and side streets. Noise exposure, type of house, physical activity, and presence of health problems were strong predictor of anxiety while age, gender, religion, ethnicity, BMI, physical activity and family history of hypertension were the predictors for hypertension. Educational status, exposure to noise at work, presence of health problems and physical activity were predictors of stress. Age, educational status, type of house, ever consumed alcohol, health problems, family history of hypertension were strong predictors of insomnia.

Conclusion
High environmental noise levels due to traffic of vehicles were observed. The results of the present study suggest that exposure to road traffic noise is associated with depression, anxiety and stress, although, it was not significantly associated with hypertension and insomnia. This brings us to a conclusion that noise pollution has become a major issue contributing to adverse health effects and needs to be addressed conclusively by the Government of Nepal and protect its citizens.

Keywords
Common non-auditory health effects, traffic noise exposure, urban residents

1.8.5 Are we ready to respond: Disaster preparedness of primary health care system in Nepal?

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Background

Nepal’s primary health care (PHC) system is based on the declaration of Alma-Atta, the main strategy for achieving universal health coverage even at times of disasters, otherwise known as “Health for All”. Nepal due to its geo-climatic situations and socio-economic vulnerability has very high exposure and ranks 28th in relation to risk assessment for humanitarian crises and disasters in the world. Disasters adversely affect the health outcomes. World Health Organization asserts health system's resilience and its capacity for emergency management are crucial for effective disaster management. Various studies suggest that PHC with sound disaster preparedness is the foundation of every health system and no country can achieve “Health for All” without it. A research was carried out to understand, how prepared the PHC health facilities (Public Health Posts -HPs and Primary health care centers-PHCCs) in Nepal to respond to disasters.

Methodology

Stratified random sampling method with questionnaire-based survey was used to collect responses from 469 sampled PHC health facilities (406 HPs and 63 PHCCs) across the three eco-development zones – Mountains, Hills and Terrai to assess their disaster preparedness.

Results

The analysis shows of the total surveyed only 45 (9.59%) have disaster management plans, of which 4 facilities (8.89 %) have updated them over last 1-3 years. Further the study finds, of the total 1,298 available health workforce (Doctor’s Nurses, Paramedics, Support staffs) only 68 (5.24%) to have received disaster management trainings of different durations.

Conclusion

There is an urgent need to have disaster management plans and practice for the PHC health facilities, using evidences from the literature and experience from the field. Disaster preparedness of PHC facilities, trainings, practice, involvement in health surveillance for emerging disease and deterioration of existing health conditions are crucial to strengthen and optimize community health outcomes following disasters and “Health for All”.

Keywords

Primary health care, disaster preparedness and response, health system strengthening

1.8.6 Effect of ABCA1-R219K variant polymorphism in serum lipid parameter in patients under statin therapy visiting Manmohan Cardiothoracic Vascular and Transplant Center, Nepal.

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Background

Dyslipidemia is one of the major risk factors of coronary artery diseases. To treat dyslipidemia, physicians prescribe various anti-lipidemic drugs, major being statin like atorvastatin, rosuvastatin, etc. The response of statins has individual variations which may be due to different genetic polymorphisms. Among these, the R219K polymorphism of ATP Binding Cassette Transport proteinA1 (ABCA1) gene is found to have a role in the response of statin. Hence, the aim of this study was to evaluate the effect of R219K polymorphism in the lipid-lowering effect of statins in patients with dyslipidemia.

Methodology

A prospective study was conducted in the OPD of Manmohan Cardiothoracic Vascular and Transplant Center. A total of 88 blood samples were taken from patients with dyslipidemia who were taking atorvastatin for the past 3 months. Lipid profile test was carried out on the separated serum samples and the results were compared with the values before medication. Alongside, whole blood was analyzed for R219K Single Nucleotide Polymorphism using PCR-RFLP to evaluate its effect on lipid improvement following treatment. Data were then entered into an excel sheet and analyzed in SPSS v20.0.

Results: R219K polymorphism caused a significantly higher degree of reduction in values of serum TG/HDL ratio (p<0.05), and TC/HDL ratio (p<0.05) in atorvastatin users. TG and VLDL were found to decrease with a p-value of 0.05. However, there was no statistically significant association of R219K polymorphism with change in serum TC (p=0.83), HDL-C (0.39) and LDL-C levels (p=0.89). Treatment of dyslipidemia was found to be comparatively better in patients with polymorphism than without polymorphism.

Conclusion: The R219K polymorphism of ABCA1 gene was associated with significantly greater degree of reduction of serum TG/HDL ratio, TC/HDL ratio, TG, and VLDL, following atorvastatin treatment in Nepalese patients with dyslipidemia.

Keywords
ABCA1-R219K polymorphism, lipid profile, statin, pcr-rflp, Nepal
POSTER PAPERS
2.1.1 Menstrual Hygiene Practice among Adolescent Girls in the Selected Public Schools, Lalitpur

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Background
Sustainable maintenance of good menstruation hygiene practice is crucial for sound reproductive health, education, dignity, and empowerment of adolescent girls. Menstrual hygiene is still shrouded by many taboos and socio-cultural restriction in many communities in Nepal and still considered not the area of discussion. The objective of this study was to find out the menstrual hygiene practices among adolescent girls in the selected public schools at Mahalaxmi Municipality in Lalitpur District.

Methodology
A cross-sectional descriptive study was carried out since 2/09/2018 to 30/09/2018 at public schools of Mahalaxmi Municipality of Lalitpur District. The study was done among 196 students of grade 8, 9 and 10 of three public schools. Data were collected with a pre-tested self-administered semi-structured questionnaire in Nepali version by researcher after assent along with parental consent. Data were analyzed in SPSS version 16 using descriptive and inferential statistics.

Results
62.1% of the respondents had a good level of menstrual hygiene practice. Less than half of respondents 43.7% used sanitary pads and 41.1% took bath daily during menstruation. 51.6% responded that school was not comfortable during menstruation. 54.2% received information about menstrual hygiene from their mother. Majority of respondents (87.5%) had a restriction on religious activities. There was a statistically significant association between level of menstruation practice and variables such as age (p-value .011), grade (p-value .000), number of times regular menstruation (p-value .000), type of family (p-value .044), presence of lock system and availability of water inside the toilet (p-value .042 and .019) respectively.

Conclusion
Though two-thirds of respondents had good the level of menstrual hygiene practice, findings indicate the need for the public awareness and provision of basic sustainable sanitation at school is necessary to promote menstrual hygiene practices among adolescents.

Keywords
Adolescent girls, good menstruation hygiene practice
2.1.2 Anthropometric measures, physical activity and eating habits among school going adolescents aged 12-19 years in Inaruwa municipality: A Cross-sectional study

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Background
Adolescence is one of the most dynamic stages of human development. Nearly two third of premature death and one third of disease burden are associated with conditions or behaviors that start in adolescence. Obesity is one of the most prevalent nutritional disorders associated with significant health problem. This study aims to assess the anthropometric measures, physical activity and eating habits among school going adolescents aged 12-19 years in Inaruwa municipality along with associated socio-demographic and behavioral risk factors.

Methodology
A cross sectional study was conducted among 693 students from 6 schools both private and public schools of Inaruwa municipality. Semi-structured questionnaire was used to collect information on socio demographic characters, food habits, physical activities along with the blood pressure measurement and the anthropometric measurements (weight, height, waist and hip circumferences)

Results
The prevalence of overweight (BMI 85th to 95th percentile) was 5.2% and obesity (BMI >95th percentile) was 1.6% among the participants. 7.8% of male and 5.5% of female were overweight and obese. Obesity was found to be associated significantly with father’s occupation (p<0.001), type of family (p<0.04) and type of school (p<0.001).

Conclusion
Obesity was seen among a significant proportion (about 1/5th) of the adolescents. This might later lead to other health hazards if not intervened timely; which warrants for need to emphasize on school-based programs of primordial intervention including awareness programs.

Keywords
Adolescents, overweight, obese

2.1.3 Neonatal care practices among infant’s mothers in Shuklagandaki municipality of Tanahun, Nepal

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Background

A neonate is also called a newborn. The neonatal period is the first 4 weeks of a child's life. It is a time when changes are very rapid. Many critical events can occur in that period. Neonatal mortality is a major public health problem because approximately 38% of deaths among children younger than five years occur in neonatal period. Therefore, to reduce the neonatal mortality WHO recommends Essential Newborn Care Practices. This study aims to assess the neonatal care practices among the infant’s mothers of Shuklagandaki Municipality.

Methodology

Quantitative methods and cross-sectional study design were used to assess practice among 270 infant's mothers in Shuklagandaki Municipality, Tanahun District from June to December 2018. Purposive sampling strategy was done for the selection of participants. Face to face interview was done for the collection of data with the help of semi-structure questionnaire. Research ethics were maintained. Reliability and validity were maintained by applying different strategy including pretest 10% i.e. 27 of estimated sample in ward 3 of Shuklagandaki Municipality which was not included in sampling. Epidata was used for data entry; SPSS was used for data management and analysis.

Results

The mean age of the participants was 25 (5.1) years with majority 32.2% between 25-30 years. Majority 53.7% (145) of participants had higher secondary education. On four fifth of the participants, neonatal care practice was found good. Age of participants (P value < 0.05) and place of delivery (P value <0.05) had significant influence on neonatal care practice.

Conclusion

On one fifth of the participants, neonatal care practice was found poor. All the three composite variables were practiced as per the WHO recommendation. Cultural and traditional belief had no influence on neonatal care practices in this study area. Large scale study should be conducted on this topic.

Keywords

Neonatal care practice, dry cord care, optimal thermal protection, early initiation of breastfeeding

2.1.4 Awareness and practices of mothers towards childhood immunization in Gaur Municipality, Rautahat

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Background

Mother’s knowledge and information about vaccination have shown good achievement of immunization. Many mothers are unaware about doses of vaccines and time limit for the particular vaccine that should be administered to the child as well as mother’s fear of vaccination was considered as major barriers to childhood vaccination. The aim of the study was to assess the awareness and practices of mothers towards childhood immunization.

Methodology

Quantitative methods and cross-sectional study design were used for this study. Study population
was 177 mothers of the children aged between 16-24 months in Gaur Municipality, Rautahat District. Semi structure questionnaire was used for data collection and pretesting was done among 10% i.e. 18 of estimated sample in homogenous area. EPIDATA were used for data entry and SPSS 20 was used for management and analysis. Study period was conducted through June to November 2018. Research ethics was maintained.

Results
The present study found that 71.8% of mothers had poor knowledge, 28.2% of mothers had good knowledge and 63.3% of mothers had poor practices, 36.7% of mothers had good practices on the immunization. Religion of mothers ($\chi^2=14.284$ and $p = 0.001$) was significantly associated with immunization practices of mothers. Education of mothers ($\chi^2=24.567$ and $p = 0.001$) was significantly associated with immunization awareness of mothers. Coverage of immunization was 85.9%.

Conclusion
More than two third of mothers had poor awareness towards childhood immunization. More than two third mothers had poor practices. In this study most mothers were illiterate which has been the major reason for incomplete immunization and religion of mothers and lack in proper available of vaccines in health facilities were the other associated factors.

Keywords
Awareness, knowledge, practice, mothers, childhood, illness, immunization, behaviors

2.1.5 Epidemiology of insomnia and health behaviors among internet user adolescents of Kirtipur
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Background
Excessive internet use among adolescents has often led to later bedtimes and symptoms of insomnia and unhealthy behavior practices among adolescents. This study aimed to determine the prevalence of insomnia, internet addiction and health behaviors in adolescents of Kirtipur.

Methodology
A cross-sectional study conducted among 390 students of randomly selected two schools in Kirtipur Municipality. Self-administered questionnaires technique was applied using standard Internet addiction test (IAT) and Pittsburgh sleep quality index (PSQI) questionnaires to collect the data. Ethical approval was obtained from Nepal Health Research Council and written consents were taken from both students and from parents prior to the data collection. Regarding the analysis of IAT scores and PSQI scores, IAT scores up to 14 represented no net addiction and higher scores represented net addiction with varying severity, and PSQI scores ≤ 5 indicated good and ≥ 6 indicated poor sleep quality. Similarly, chi-square test, bivariate and multivariate logistic regressions ($p \leq 0.05$) were measured to determine the associations between internet addiction, sleep quality and health behaviours.

Results
More than half of the participants (55.4%) were male with mean age of 15 years. Likewise, nearly half of the participants (47.2%) were from Janajati and from upper middle-class family (47.4%). It was found that 21.5% of the respondents were diagnosed with borderline net addiction and 13.3% with possible net addiction. Poor sleep quality was prevalent in nearly one third (31%) of the participants whereas nearly half (43.8%) were practicing unhealthy behaviors. Furthermore, statistically significant associations between internet addiction, insomnia and health behaviors among students were established.

**Conclusion**

The study concludes adolescents with internet addiction were more prone to suffer from poor sleep quality and unhealthy practices. It is recommended that the municipality and schools should prepare plan to aware the adolescent students on use of internet and promote health behaviors.

**Keywords**

Internet addiction, sleep quality, health behaviors, adolescent students, Kirtipur

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2.1.6 Self-Esteem, Psychological Stress and Health Related Quality of Life among Older Adults at Mandan-Deupur Municipality of Kavrepalanchowk

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**Background**

Low self-esteem and psychological stress can deteriorate the health-related quality of life (HRQOL) which is the perception of physical and mental health. These may cause problems to older adults in managing their daily activities. The objective of the study was to assess the self-esteem, psychological stress and health related quality of life among older adults.

**Methodology**

A cross-sectional study was conducted among 239 older adults at Mandan - Deupur municipality. Two staged cluster sampling technique was used selecting 15 study wards and older adults were selected randomly. Interview was conducted to gather the data using valid questionnaires such as Rosenberg self-esteem scale, Perceived stress scale and WHOQOL-BREF after ethical approval from Nepal Health Research Council (NHRC). Written consents were obtained from the participants. Data were analyzed using descriptive statistic (frequency, percentage, mean/median and standard deviation) and inferential statistic (chi-square, independent t-test and one-way ANOVA).

**Results**

Among total participants, 27.2% were of aged 60-64 years and more than two third (69.9%) were male. It was found that majority of participants were married (65.5%) and illiterate (60.7%). Similarly, half of the older adults (49.8%) were living with their partners. Nearly half of the older adults (49%) had lower self-esteem and 78.7% had moderate level of stress. Furthermore, mean scores for social relationship domain and physical health domain of HRQOL were 12.0 and 11.9 respectively. Comparing the domains of physical health, psychological health and social relationship with age (p<0.001), marital status (p<0.001) and education level (p<0.001) were statistically significant.
Conclusion

It is concluded that self-esteem is associated with gender, income and marital status of older adults. Likewise, increase in age also increases the level of stress and the psychological domain that affect the mental health of older adults.

Keywords

Self-esteem, older adults, psychological stress, health related quality of life, Kavrepalanchowk

2.1.7 Breastfeeding Intention of Pregnant Women Visiting Selected Health Facilities in Pokhara Metropolitan

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Background

Breastfeeding is an effective health promoting strategy for maternal and child health. Knowledge, beliefs and perceptions towards breastfeeding influence the intentions and thereby the practices. In this context, this study aimed to measure the breastfeeding knowledge and intention of pregnant women based on theory of planned behaviour.

Methodology

Cross sectional data were obtained from 321 second and third trimester pregnant mothers visiting two health facilities of Pokhara metropolitan from June – December 2018. Face-to-face structured interview with written and verbal consent was used to gather data. Data entry was done in EpiData and analyzed in SPSS software. Chi square test and binary logistic regression were applied for inferential analysis along with selected descriptive analysis.

Results

Majority of mothers (60.7%) were primiparous and almost eight out of ten were age group of 20-30. More than half (55%) mothers possessed good knowledge and intention (51%). Majority of mothers possessed good perceived behaviour control (60.7%) and compliant towards subjective norms (52.3%), However the positive attitudes towards breastfeeding was limited to less than one-sixth mothers (16%).

Conclusion

Slightly more than half of mothers intended to breastfeed. Education, religion and parity were associated with breastfeeding intention. In addition, mother’s knowledge, attitudes, their subjective norms and perceived behaviour control were also associated with breastfeeding intention.

Keywords

Breastfeeding intention, exclusive breastfeeding, knowledge, attitude, subjective norms, behavioral control
2.1.8 Academic stress among very young school adolescents in Chitwan district of Nepal

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Background
Available literature suggests that stress has become an integral part of students' academic life and it can yield both positive and negative impact in academic performance. Minimal level of stress can lead to positive outcomes in the form of motivation and improved task performance while severe stress can result in anxiety, depression, social dysfunction and even suicidal ideation. This paper examines the level of academic stress among students age 10 to 14 years from Jana Jiwan Secondary School of Chitwan.

Methodology
The study followed the mixed method research design and used Scale for Assessing Academic Stress (SAAS) developed and standardized by Sinha et al. (2001) in Kathmandu valley. The test-retest reliability of SAAS tool over the period of one month was 0.88 and split-half reliability was 0.75 indicating adequate reliability of the scale. In the study conducted in Chitwan 148 very young adolescents, who were present on the day of data collection and willing to participate were included in the assessment. In addition, two focus group discussions with boy and girl adolescents were conducted for further exploration of their stress.

Results
The mean age of participants were 12.5 years, among them 43% were male and 57% were female. Overall, the mean academic stress was 12.4. There was significant difference in mean score (P=<0.001) of boys (mean =10.3; SD=4.57) and girls (mean=13.9; SD=5.40). The overall academic stress was measured under five indicators; cognitive, affective, physical, interpersonal and motivational indicator. Furthermore, in FGD, most of the students shared that punishment from teachers, overburden of homework, and over-expectation of parents were the major causes of academic stress.

Conclusion
Thus, academic stress appears as a main source of stress among the adolescents. Appropriate measures are to be taken for reducing academic stress of the very young school adolescents.

Keywords
Academic, stress, adolescents

2.1.9 Factors Associated to Screen Media Use among School-Going Adolescents and its Relationship with their Nutritional and Physical Health Status

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Background
Children and adolescents comprise of the primary audiences of screen based electronic media devices like TV, computers, smart phones and gaming devices. Within a few years of its advent, technology and its advancements have saturated our home, work and school environments. All across Nepal adolescents' access digital media avidly, yet its influence on their health and well being remain largely unexplored.

Methodology
Cross sectional and descriptive study design was used to complete this quantitative study including 829 school going adolescents within the age group 10 - 18 years. A self-administered questionnaire was used to collect information from the respondents selected by using two stage cluster random sampling technique. The data received from the completed questionnaires were entered into EpiData 3.1 and subjected to statistical analysis in IBM SPSS version 21.

Results
The patterns of Screen Media Use (SMU) among the respondents were found to be substantially different on a school day and on a holiday. 40.4 % and 83.6% of the respondent’s SMU time exceeded the recommended 2 hrs on a school day and on a holiday respectively. Age specific data showed increased screen time among teenagers. Factors such as physical availability, accessibility, social environment conducive to media use within households etc. were found influencing screen time. Health risk behaviors related to dietary consumption was found to be 2.5 times more common among respondents exceeding recommended screen time with overweight/obesity prevalent among 18% of respondents. Prevalence of self reported physical health complaint among respondents was 77% (SMU > 2hrs); 71 (SMU <2hrs) with headache being the most commonly reported health problem.

Conclusion
Screen media influences ill health, practical measures maintaining a balance between time spent on media based and non media based activities, along with reduction of media influenced dietary habits can be adopted at both household and school environments.

Keywords
Screen time, nutritional health status, screen media use, adolescents, screen based health risk behaviours

2.1.10 Effectiveness of cold application prior to intravenous cannulation on pain response among children admitted in BPKIHS
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Background

Intravenous cannulation is one of the most common medical procedures performed in hospitalized children. Pain related to intravenous cannulation may cause fear and anxiety to children as well as their parents and should be managed appropriately. Cold application is considered as simple and effective non-pharmacological method for reducing pain. The objective of the study was to assess the effectiveness of cold application prior to intravenous cannulation on pain response among children admitted in BPKIHS.

Methodology

An experimental study was conducted among children of age group 4-14 years admitted in pediatric emergency and pediatric wards of BPKIHS. Total 86 participants undergoing intravenous cannulation were selected by consecutive sampling technique and allocated randomly to control group and experimental group. Ice cubes covered by 0.4mm thick plastic and wrapped in cotton cloth of 0.6 mm thickness was applied over 5x5cm² area proximal to site of cannulation for 3 minutes prior to intravenous cannulation in experimental group only. Children’s pain level was assessed in both experimental and control group via self report using Faces Pain Scale- Revised. Mann Whitney test was used to compare means of pain score between experimental and control group.

Results

The mean pain score among experimental group was 3.24 and in control group 6.98. The experimental group showed significantly lower pain (p<0.001) compared to the control group. Application of cold did not cause a significant difference in the success of Intravenous cannulation. There was no association between socio-demographic variables, background variables and child’s experience of intravenous cannulation and pain response in both experimental and control group.

Conclusion

The findings suggest that cold application prior to intravenous cannulation is effective in reducing pain in children.

Keywords

Intravenous cannulation, pain, cold application

2.1.11 Prevalence of internet addiction and its associated factors among the older adolescents in a city of eastern Nepal

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Background
The present generation relies heavily on internet, and its usage is increasing rapidly in the low- and middle-income countries. Internet addiction is associated with a variety of psychiatric disorders including disorders of sleep, mood and self-esteem. This study aims to assess the prevalence of internet addiction among older adolescents of Dharan city in Nepal and its association with depression, stress, anxiety, insomnia and self-esteem.

Methodology
A cross sectional study was carried out among 690 higher school students from Dharan city in eastern Nepal. The participants were taken from schools, taking each school as a cluster. Cluster random sampling with probability proportionate to sample size method was applied to recruit respondents into the study. Self-administered internet addiction, self-esteem, insomnia and DASS questionnaires were used to collect the data. Bivariate and regression analysis were done to examine the association of different factors with internet addiction.

Results
The prevalence of internet addiction among the older adolescents was 11.7% and clinical insomnia was 4.0%. The prevalence of stress, anxiety and depression were 23.5%, 46.5% and 34.5% respectively. Insomnia (p<0.05) and stress (p<0.05) were strong predictors of internet addiction among the study population.

Conclusion
Internet addiction is a prevalent public health issue, having multiple risk factors and varied patterns of Internet use among older adolescents in Nepal. Internet addiction though seen as an upcoming public health issues at this time could grow as a significant public health issue if not addressed at this stage.

Keywords
Internet addiction, self-esteem, insomnia, depression, stress, anxiety

2.1.12 Health Problems and Associated Factors: A Cross Sectional Study on Nepalese Labour Migrants in Qatar
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Background
International Organization for Migration (IOM) claims that there are globally 105 million persons working in a country other than their country of birth and Nepal is no exception in this phenomenon. With the ever-increasing number of labour migrants in the country, they are more likely to experience a series of challenges including health problems, work-related injuries and difficulties in gaining access to health services. Yet, there is an evident lack of studies exploring these struggles. The study aimed at assessing the health problems faced by labour migrants in Qatar and the factors that are linked to those health issues.

Methodology
A cross sectional study was carried out among 301 Nepalese labour migrants re-entering Qatar, who
were selected conveniently. Semi-structured questionnaire, with the aid of face-to-face interview, was used to collect the data. Multivariate analysis among the variables that had p-value < 0.2 in bivariate analysis was carried out to find out the strongest predictors.

Results

Among 301 respondents, 21.6% of the respondents had suffered from several health problems during their stay in Qatar. Alcohol intake (p=0.012) and adjustment problems (p=0.001) were found to be the strongest predictors in the occurrence of health problems among the labour migrants.

Conclusion

Approximately, one-fifth of the respondents had suffered from health problems of varying types. The factors such as alcohol consumption and the adjustment problems during the stay were found to be significant predictors of the migrants suffering from those health problems. The factors that were significantly associated are modifiable to some degree, which paves a way for all the health workers and policymakers to strive for better health outcomes among the labour migrants.

Keywords

Labour migrants, Qatar, health problems, Nepalese

2.1.13 Health Service Utilization Practices among Elderly Population in Pokhara Metropolitan City

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Background

Old age is not a disease in itself, but it becomes a problem when the obvious physical and mental changes brought by the advancing age make them unable to do their own basic things. The utilization of a health care system, public or private, formal or non-formal, depend on socio-demographic factors, level of education, cultural beliefs, practices, economic factors, the disease pattern and health care system itself. Thus this study focuses on finding the utilization of health services among elderly population and its contributing factors.

Methodology

Quantitative descriptive cross-sectional study, with a total number of 230 elderly people residing in six wards of Pokhara metropolitan city was selected for the study. Simple random sampling technique was employed to select the study subject and the proportionate probability sampling was used to calculate the number of sample from each ward. Individuals were interviewed through self-developed semi-structured pre-tested questionnaires. Data were analyzed through descriptive and inferential statistics.

Results

The study found out that more than half (65%) of the respondents were utilizing the health services among them 62.2% were found to be suffered from chronic disease where hypertension followed by diabetes was found to be on top. Cost of health service was barrier for most of the respondents and old age allowance was found to be the major income source. Chronic disease condition and regular medication showed significant association with health services utilization at 95% level of confidence.
Conclusion

Dependence of elderly population on daily activities and cost as barrier for the utilization of health care services was remarkably high. Also, more than half of elderly were illiterate; most of them had to depend on their son’s decision to utilize health services so social support services to maintain their socio-economic independence, informal education and awareness on non-communicable diseases targeting the senior citizens is required.

Keywords

Elderly population, health service utilization

2.1.14 Prevalence of bullying among secondary school students of Madhyapur Thimi Municipality, Bhaktapur

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Background

Bullying is a worldwide phenomenon. It has been recognized as a health problem for school children because of their association with a range of adjustment problems, including poor mental health and violent behavior. Bullying is when someone repeatedly and on purpose says or does mean or hurtful things to another person who has a hard time defending oneself.

Methodology

This is a descriptive cross-sectional study conducted among students of 9th and 10th grade of both public and private schools in Madhyapur Thimi Municipality. Simple random sampling technique was used for the selection of number of both private and public schools and cluster sampling was done to select number of samples from each school. Information from respondents were collected using self-administered questionnaire method. A total of 542 students participated in the study.

Results

Mean age of the students participated in this study was 14.87 years. The prevalence of bullying was highest among the Muslim students. Bullying behavior was more exhibited by boys than girls. Students of grade 9 were more involved in bullying than those of grade 10. Bullying behavior was found more prevalent in public schools than in private schools. Bullying behavior was found to be associated with gender, ethnicity, smoking behavior, alcohol consumption and happiness.

Conclusion

Prevalence of bullying behavior among school students was unacceptable. The overall prevalence of bullying behavior (either bully or victim) was 29.3%. This study suggests that bully victimization is associated with poor mental health i.e. happiness and higher participation in risk behavior. Because bullying has been shown to affect both mental and physical health, it requires the attention of schools, parents and communities. So, the organizations who have been working in the field of mental health and schools should consider school bullying as a serious problem.

Keywords

Prevalence, bullying behaviors, school students
2.2.1 Epidemiology of urinary tract infection and antimicrobial resistance in the pediatric hospital in Nepal

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\textbf{Background}
Urinary tract infection is an infection affecting infants and children. The aim of this study was to determine the etiology of urinary tract infection along with their antimicrobial resistance.

\textbf{Methodology}
This cross-sectional study was conducted from June 2015 to January 2016 at Siddhi Memorial Hospital, Bhaktapur, Nepal. Urine samples were first cultured on cystine lactose electrolyte deficient agar and blood agar by semi-quantitative technique, and then incubated aerobically for 18-24 hours at 37°C. The identified bacterial isolates were tested for antimicrobial susceptibility by Kirby Bauer disc diffusion technique.

\textbf{Results}
Of 1,599 urine samples, 12.3\% samples showed significant bacterial growth. \textit{E. coli} (58.7\%) was the most common pathogen, followed by \textit{Klebsiella pneumoniae} (22.5\%). Most of the isolates were resistant to ampicillin and co-trimoxazole, while least were resistant to amikacin and nitrofurantoin. Higher multi-drug resistance (61.9\%) was observed among isolates.

\textbf{Conclusion}
\textit{E. coli} and \textit{Klebsiella} spp. were predominant cause of pediatric urinary tract infection in children. Higher susceptibility observed against aminoglycosides and nitrofurans make these drugs suitable in emergency.

\textbf{Keywords}
Antimicrobial resistance, \textit{E. coli}, \textit{Klebsiella} spp., Nepal, urinary tract infection

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2.2.2 Microbiology of Chronic suppurative otitis media at tertiary care centre of Nepal
Background

Chronic Suppurative Otitis Media (CSOM) infection remains a common and widespread problem and serious due to antimicrobial resistance among the etiological agents. In Nepal there has been limited data regarding the magnitude of CSOM infection and the level of drug resistance also lacking studies on anaerobic bacteria and fungal isolates.

Methodology

A prospective study was conducted over a period of six months (Feb, 2016-July 2016) in Department of Microbiology, and ENT and Head and Neck Surgery of TUTH. A total of 123 CSOM samples were collected and processed following standard methods.

Results

Out of total 123 samples, 115 (93.49%) shown microbial growth. Among the total growth, 68.1% were monomicrobial and 31.9% polymicrobial. *Staphylococcus aureus* (36.6%) was the most predominant pathogen followed by *Pseudomonas aeruginosa* (27.5%). Prevalence rate of anaerobes was 4.06% which included *Clostridium* spp. (60%), *Bacteroides* spp. (20%) and *Peptostreptococcus* spp. (20%). Fungal prevalence rate was 21.95% in which *Aspergillus species* (51.8%) principal pathogen followed by *Candida* spp. (14.8%). MDR was seen 24.4% and 18.3% Gram positive and negative isolates respectively. Among total *S. aureus* (n=48) 3 MRSA, 4 iMLSb strains while in Gram negative 12 ESBL and 1MBL were found. Gentamycin was the most effective antibiotic as compare to ciprofloxacin. All MDR *S. aureus* were susceptible to vancomycin similarly *P. aeruginosa* susceptible to polymyxinB and colistin sulphate. A high prevalence of isolates was resistant to amoxycillin.

Conclusion

The prevalence of micro-organisms causing was CSOM was quite high, *S. aureus* was the most common bacteria which was followed by *P. aeruginosa*, similarly among the fungi *Aspergillus* spp. was predominant. *Clostridium* spp. was the most common among anaerobes. Treatment of CSOM should be based on the result of culture and sensitivity and the possibility of fungi and anaerobes as etiological agents should be considered.

Keywords

CSOM, bacteria, MDR, MRSA, ESBL, MBL, fungi

2.2.3 Multidrug Resistant Acinetobacter baumannii Infection in a Tertiary Care Hospital of Nepal

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Background

Acinetobacter baumannii can cause various health care-associated infections and has emerged as MDR nosocomial pathogen worldwide. They have been reported increasingly from hospitalized patients and have developed resistance to most of the antibiotics. They are known to produce various acquired β-lactamases i.e. ESBLs, MBLs, AmpC and KPC. MBL producing strains have a potential for rapid dissemination in hospital settings. Hence, early detection of β-lactamases production is necessary for proper patient management and to initiate effective antibiotic therapy.

Methodology

This study was conducted at Tribhuvan University Teaching Hospital (TUTH), Nepal from January 2017 to January 2018. A total of 177 Acinetobacter baumannii isolated from patients hospitalized, were included in the study. The AST was performed by disc diffusion method as recommended by CLSI. MDR and XDR strains were identified by criteria of Magiorakos et al. ESBL, AmpC, MBL and KPC production was detected as per method of CLSI and Tsakris et al.

Results

Out of 177 A. baumannii, 91.0% were MDR and 76.3% were XDR. Among the MDR isolates, majorities were isolated from respiratory tract specimens and were from ICU patients. Most of them were resistant to all first line antibiotics but were sensitive to only last resort antibiotics i.e. polymyxin B and colistin sulfate. The common β-lactamase producers among MDR isolates were MBL (67.7%), followed by AmpC (38.5%), ESBL (19.9%), and KPC (9.3%).

Conclusion

Present study concludes that MDR A. baumannii causes variety of infections in hospitalized patients. MBL, ESBL and AmpC producing isolates are common in tertiary care hospital. These bacteria lead to high morbidity and mortality as there is only option of treating them by potentially toxic antibiotics and this is the worryment for hospitalized patients. Early detection of drug resistance and judicious use of antibiotics will help to prevent spread of these bugs.

Keywords

Acinetobacter baumannii, multidrug resistant, Metallo-β-lactamase

2.2.4 Phytochemical screening, Free radical scavenging Activity and In-vitro Alpha-amylase enzyme inhibition of Myrica esculenta Buch.-Ham. ex D.Don

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Background

Diabetes mellitus is the metabolic disease characterized by elevated blood glucose, either due to failure of the pancreas to produce enough insulin or when there is insulin resistance to available insulin. The aim of the study was to perform phytochemical screening, free radical scavenging, and in-vitro alpha-amylase inhibition of Myrica esculenta Buch.-Ham. ex D.Don to correlate anti-diabetic action.
Methodology

Stem and small branches were collected and extracted by using methanol and water. Phytochemical screening was performed by using suitable reagents while free radical scavenging test was done using 2,2-Diphenyl 1-Picrylhydrazly (DPPH) taking ascorbic as standard. Starch iodine method with voglibose as a standard was used for alpha-amylase inhibition assay.

Results

Phytochemical screening showed positive alkaloid, carbohydrate, glycoside, saponin, phenol, flavonoid, and tannin and terpenoid test in both samples and solvents. Methanolic Extract of *M. esculenta* small branches and stem bark showed potent DPPH free radical scavenging activity with IC$_{50}$ value 3.31 µg/ml and 4.23 µg/ml respectively which is almost comparable to the standard ascorbic acid. In water solvent, free radical scavenging activity of stem bark and small branches was found to be 5.92 µg/ml and 9.91 µg/ml respectively. Stem bark in methanol shows potent alpha-amylase inhibition at IC$_{50}$ value of 0.96 mg/ml whereas small branches in water showed IC$_{50}$ Value 1.60µg/ml which is almost comparable to standard drug Voglibose having IC$_{50}$ value of 0.26 mg/ml.

Conclusion

Thus, this study paved the marvelous path to understand phytoconstituents, anti-oxidant and the therapeutic potential of *M. esculenta* for improving glycemic control in diabetic subjects as well as supporting scientifically to the evidence of using this plant locally and traditionally in order to lower the blood glucose level.

Keywords

Diabetes mellitus, phytochemical screening, free radicals, alpha-amylase, Myrica esculenta

2.2.5 Knowledge and attitude regarding self-care among patients undergoing hemodialysis in selected hospital Kathmandu, Nepal, 2018

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**Background**

CKD is a global epidemic. Once kidney function goes below 10 to 15 percent of normal, dialysis or a kidney transplant is necessary. According to increasing number of hemodialysis patients and dependency of these patients on others in daily activities, the concept of self-care is of high importance. Thus, this study explores the knowledge and attitude regarding self-care among patient undergoing hemodialysis.

**Methodology**

The descriptive cross-sectional study was conducted at National Kidney Center, Banasthali, among 105 patients undergoing hemodialysis using Non-probability, Purposive Sampling technique. Data was gathered using pre-planned semi-structured questionnaires with interview technique. Data was entered in SPSS version 25 and was analyzed using descriptive and inferential statistics.

**Results**

This study reveals that 52.4% of patients had good knowledge and 96.2% had positive attitude regarding self-care. The knowledge regarding self-care is associated with educational level (p-value: 0.00) and duration of illness (p-value: 0.028)
Conclusion
The knowledge regarding self-care was found satisfactory though almost every participant had positive attitude. As 53.3% of patients had never received health education about self-care, hence, it is recommended that continue education should be provided which might be helpful to update the knowledge.

Keywords
Knowledge; attitude; self-care; hemodialysis

2.2.6 Anti-Inflammatory and Hepatoprotective action of bark extract of Cinnamomum Verum

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Background
Cinnamomum verum, belonging to family Lauracea is commonly used spice and has a wide variety of therapeutic uses. It is said to be active against inflammatory and hepatotoxic activity.

Methodology
Two months old Male Wistar rats were used for in-vivo study of anti-inflammatory and hepatoprotective action. In each case, animals were divided into six groups of four each; normal control, vehicle, negative control, positive control, and two extract groups (150 and 250 mg/kg b.w.). Inflammation was induced by intradermal injection of carrageenan (0.1 ml of 1% suspension in 0.9% NaCl) while hepatotoxicity was induced by intraperitoneal (i.p.) injection of CCl₄ 1ml/kg body weight (1:1 in olive oil). Anti-inflammatory and hepatoprotective activities were compared with Aceclofenac (10 mg/kg/i.p.) and Silymarin (150 mg/kg/i.p.) as standard conventional drugs respectively. Paw volume of rats was measured for anti-inflammatory studies while histopathological studies were done for hepatoprotective activity and results were compared.

Results
The normal control animals were compared with the carrageenan induced inflammatory group animals and observed a significant increase in change in paw volumes from 1 hr. onwards of paw injection. Slight decrease in paw volume was observed with carrageenan induced inflammatory group when treated with extract (150 mg/kg) but extract (250 mg/kg) showed similar edema lowering effect as of Aceclofenac. Histopathological examination of the liver tissues of CCl₄ group represented the presence of hepatocytes with loss of normal architecture associated with hydropic degeneration, cytoplasmic vacuolation and severe degenerative change while the pretreatment with extract (150 mg/kg) showed mild recovery but extract (250 mg/kg) preserved histoarchitecture of liver tissue to near normal or Silymarin.

Conclusion
The study demonstrated that cinnamon extract can be used as anti-inflammatory against carrageenan induced paw edema and hepatoprotective against CCl₄ induced hepatotoxicity.

Keywords
Bark extract, anti-inflammatory, hepatotoxicity, hepatoprotective, histopathology, carrageenan
2.2.7 Comparative In-Vitro Analysis on Anti-Diabetic Properties of Most Prevalent indigenous Medicinal Herbs of Nepal

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Background
As our country, Nepal is rich in natural resources herbal medicinal plants were in use in our country long before synthetic medicine even came into existence. People have been using these medicinal plants for different purposes. Still, in the most part of our country, herbal medicine is considered as preventive as well as the curative measures for different diseases. In addition, Ayurveda also highlighted the use of medicinal plants for health purposes and diabetes being the major one. In authenticating this belief research hence conducted aims to highlight the importance of different indigenous herbal medicines and bring the best out of them that have been in use since ages in order to control the blood sugar level.

Methodology
Collection of indigenous medicinal plant samples, shade drying, and moisture content determination followed by consequently by 90% methanolic extraction using rotary vacuum evaporator. In-vitro alpha-amylase and alpha-glucosidase inhibition assay were then performed taking acarbose as the standard drug in use against diabetes today. Laboratory protocols were strictly maintained. Percentage inhibition was calculated of triplicate readings and standard error was also calculated. Finally, IC50 values were calculated using software prism 5 volume 5.0 for both the assay.

Results
Comparative IC50 value of alpha-amylase inhibition assay suggest that Trigonella foenum (Methi), Asparagus officinalis (Kurilo), Ocimum basilicum (Tulsi), Calendula officinalis (Chalandula), Cannabis sativus (Ganja), showed high potential whereas Asperagus officinalis, Hordeum vulgare (Jamara), Cannabis sativus, Ocimum basilicum, and Chalandula ofiicinalis showed highest alpha-glucosidase inhibiting potential. Also, result from the extract of Cumini syzygium and Terminalia arjuna were found inconclusive and remaining sample showed medium to inhibition potential.

Conclusion
Most of these indigenous herbal plants showed dose-dependent anti-diabetic potency and possess the ability to help people regain their prosperous health highlighting their role as herbal medicinal plants. Further research is crucial in achieving the foresighted milestone of controlling and preventing diabetes.

Keywords
Indigenous medicinal plants, Diabetes, Acarbose, α-amylase, α-glucosidase
2.3.1 Knowledge and Attitude about Pulmonary Tuberculosis among Community People of Selected Ward, Butwal

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Background
Pulmonary Tuberculosis is contagious and airborne disease caused by Mycobacterium tuberculosis. It comes under one of the top 10 causes of death worldwide. It is a public health problem in Nepal as it is the 6th leading cause of death. Nearly half population (15 million people) of Nepal is infected and falls under medium burden country of tuberculosis. Each day 120 cases are diagnosed and 20 deaths are reported. This quantitative descriptive cross-sectional study was carried out to find out the knowledge and attitude regarding pulmonary tuberculosis among community people.

Methodology
The study was carried out among 128 respondents of age 20-59 years in ward no. 7 of Butwal Sub-metropolitan of Rupandehi district using non-probability purposive sampling technique. Data was collected by face to face interview. The data were analyzed using descriptive and inferential statistics through the Statistical Package for Social Sciences (SPSS) version 23.

Results
The study revealed that the majority of respondents (65.6%) had inadequate, 30.5% had moderate and only 3.9% had adequate knowledge about pulmonary tuberculosis. Most of the respondents (89.1%) had a positive attitude toward pulmonary tuberculosis. Knowledge is statistically significant with educational status (p=0.014), income status (p=0.015) and heard or seen pulmonary tuberculosis patient in the community (p=0.002) and attitude is associated with heard or seen pulmonary tuberculosis patient in the community (p=0.048).

Conclusion
The result of this study concluded that most of the respondents had inadequate knowledge and positive attitude about pulmonary tuberculosis. Therefore, the overall findings of this study suggest that periodical awareness program in the community should be strengthened including all aspects of pulmonary tuberculosis.

Keywords
Attitude, community people, knowledge, pulmonary tuberculosis
2.3.2 Seropositivity of Visceral Leishmaniasis on People of VL endemic three districts of Nepal

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Background
Visceral leishmaniasis is a life-threatening vector borne disease caused by the *Leishmania donovani* species complex. In Nepal, it is transmitted to humans by *Leishmania donovani*-infected *Phlebotomus argentipes* sand flies. The pathogenesis of VL is complex, and the clinical presentation ranges from asymptomatic infection to severe and fatal disease. Asymptomatic infection may act as potential reservoirs for sustained transmission of VL in endemic areas. We investigated the sero-prevalence of symptomatic and asymptomatic infection of VL in people of three endemic districts of Nepal by serology targeting family members and neighbours of VL patients.

Methodology
Sero-survey was conducted among 137 people of villages endemic to VL from Palpa, Sarlahi and Saptari districts during 2016 to 2018. Sera samples were tested for anti-*Leishmania* antibodies by rK39 test kits (InBios International, Seattle, WA). The study was approved by NHRC Ethical Review Board. Before the start of screening activities, written informed consent was obtained from each study participant and from guardian for all child participants.

Results
35.7% (10/28) VL seropositivity were seen in people of Sarlahi district, 6% (3/50) seropositivity were seen in people of Saptari district and 1.7% (1/59) VL seropositivity were seen in people of Palpa district. In Sarlahi district, seropositivity of VL was found to be highest among the age group below 15 years (44.4%). All family members of diagnosed VL cases in Saptari and Palpa districts were found to be VL seronegative. One asymptomatic person of Sarlahi district had no history of VL was found VL seropositive.

Conclusion
Since asymptomatic case of VL in people of VL endemic districts of Nepal was found to be VL seropositive, all febrile cases in VL endemic districts should be screened for VL for prevention of its transmission.

Keywords
VL, febrile cases, asymptomatic

2.3.3 Gender Difference and Associated Factors in Health-Related Quality Of Life among people living with HIV under Anti – Retroviral Therapy: A Comparative Cross Sectional Study

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Background

Health-Related Quality of Life (HRQOL) is an important outcome measure for the antiretroviral treatment program. In Nepal, studies have revealed there are improved qualities of life among adults living with HIV taking antiretroviral therapy but there is limited data showing a gender difference in health-related quality of life. The aim of the study was to assess gender difference in HRQOL and its associated factors among people living with HIV taking Anti-retroviral Therapy in ART center of Kaski district.

Methodology

A comparative cross-sectional study was conducted among 90 males and 90 females with HIV taking ART services. Health-related quality of life was measured using WHOQOL-HIV BREF. Socio-demographic characteristics and support from family were measured using semi-structured questionnaires. Berger Stigma scale –short version was used for assessing perceived stigma among PLHIV.

Results

Health-Related Quality Of Life was significantly associated with gender difference (p < 0.05). Female had a low mean score in all HRQOL domains. Educational status, personalized stigma, and negative self-image were the predictors for poor health-related quality of life for both genders whereas age and marital status were the significant influence only on males.

Conclusion

All quality of life domains significantly differed with gender. Public health interventions should take into account the physical, psychological, social, environmental, level of independence and spiritual health to improve HRQOL of PLHIV during treatment, care and support.

Keywords

Gender, HRQOL, people living with HIV, HIV/AIDS

2.3.4 In vitro biofilm formation by methicillin resistant Staphylococcus aureus from clinical specimens

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Background

The ability of Staphylococcus aureus (MRSA) to produce biofilm presents a serious threat to the successful treatment of staphylococcal infections. The aim of this study was to assess the in-vitro biofilm forming ability of MRSA isolated from different clinical specimens and their association with antibiotic resistance.
Methodology

This cross sectional hospital based study was conducted from August to November 2017 among 103 *S.aureus* isolates from various clinical specimens received at the microbiology laboratory of a hospital located at Lalitpur district of Nepal. *S.aureus* isolates were identified by conventional cultural techniques including colony characteristics, Gram’s staining, catalase, oxidase and coagulase tests. Antibiotic susceptibility testing was done by modified Kirby Bauer Disc diffusion method following CLSI guideline. Biofilm formation among the isolates was detected by tissue culture plate (TCP) method, tube adherence method (TM) and Congo red agar (CRA) method. The obtained data were analysed using Microsoft excel software and a p-value of less than 0.05 was considered to be significant.

Results

Out of 103 *S.aureus* isolates, 52.43% were MRSA. Biofilm formation was observed in 90.7%, 79.6% and 57.4% of MRSA by TCP, TM and CRA methods respectively. Similarly, 79.6%, 67.3% and 48.9% of methicillin sensitive *S.aureus* (MSSA) were found to be biofilm producers by TCP, TM and CRA methods respectively. About 87% of biofilm producing MRSA were multidrug resistant (MDR) and all the biofilm non producers were non-MDR (p<0.05).

Conclusion

In-vitro methods revealed that high percentage of MRSA isolated from clinical specimens has the ability to produce biofilm. Higher percentage of multidrug resistant biofilm producing MRSA strains warrants the regular surveillance of such strains.

Keywords

Biofilm, MDR, MRSA, MSSA

2.3.5 Intestinal Parasitic Infections among Prison Inmates in Kathmandu Nepal

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Background

Prison inmates are at high risk of Intestinal Parasitic Infections (IPIs). Thus, we studied IPIs among inmates of the Central Jail in Kathmandu, Nepal.

Methodology

Morning stool samples from 400 inmates (M=282 and F=118) were collected in a clean, dry and wide mouthed plastic container. The samples were transported to the research laboratory of Shi-Gan International College of Science and Technology and were fixed using 10% formal saline. Samples were then processed by formal ether sedimentation concentration technique and were
observed microscopically by direct-smear technique.

**Results**

Only 6% (24/400) samples were positive for intestinal parasites, with gender ratio (M: F) 1.7:1. But, co-parasitism was not observed. IPIs were higher among 21-40 years age-group, 3.5% (14/262). Similarly, IPIs were higher among 'Dalits' ethnic group, 21.1% (4/19). As compared to helminths, more protozoans, 62.5% (15/24), were observed. *Giardia lamblia*, 41.67% (10/24), was the most common protozoans while *Trichuris trichiura*, 25.0% (6/24), was the most common helminths. Administration of anti-parasitic drug in past 6 months, ‘Dalits’ ethnicity, residence before imprisonment, farming before imprisonment and being students before imprisonment were significantly associated with the IPIs.

**Conclusion**

IPIs were lower among the inmates of Central Jail but that cannot be presumed in other regional settings. Pure drinking water supply and effective deworming campaign can further reduce this figure.

**Keywords**

Intestinal Parasitic Infections, IPIs, Nepal, prison inmates

2.3.6 Living with Leprosy Ulcers: A Mixed Method of Analysis of Patient Perspectives and Treatment Outcomes

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**Background**

Since multidrug therapy for leprosy became widely available and utilised, prevalence rates have fallen dramatically worldwide. Most of the remaining morbidity attributed to leprosy is due to plantar ulcers. 20% of Persons Affected by Leprosy (PALs) develop an ulcer, making them the most common complication of leprosy. Patients’ opinions, experiences and challenges with regards to leprosy ulcers and their treatment are not well documented.

**Methodology**

A medical chart review of all admissions at Anandaban Hospital from January to December 2017 for leprosy ulcer treatment was undertaken, alongside. Three focus group discussions and 22 individual semi-structured interviews were taken.

**Results**

267 individual patients received ulcer treatment at Anandaban Hospital in 2017, some with multiple admissions. The mean duration of stay per admission was 39.1 days (range 1-213 days) and the mean cumulative duration of stay per patient was 48.9 days (range 1-284 days). Lower limb ulcers (89.0% of all ulcers) required longer inpatient stays than upper limb ulcers before healing. For Bacterial Index (BI), BI negative males were 47% more likely to be discharged than those with a reading of $b_i \geq 3$; however, BI negative females were 61% less likely to be discharged. The subjective experience of
having an ulcer was enhanced through treatment received and adherence to self-care. Health beliefs and barriers to treatment, the chronic nature of the physical impairment, loss of income, felt and enacted stigma resulting in exclusion from community and/or family relationships were all raised as negative aspects of having an ulcer.

Conclusion

This study demonstrates that developing an ulcer has an impact on PALs' physical, psychological and social well-being. Ulcers take a long time to heal, although some possible variables have been identified which after further research may help clinicians predict which patients will require longer treatment durations, and tailor such treatment appropriately.

Keywords

Plantar, ulcer, physical impairment, focus group discussion

2.3.7 How Effective Is Anti-Helminthic Treatment Alongside Water, Sanitation And Hygiene (Wash) Training In Sustaining Reduction Of Helminth Burden In Leprosy Patients?

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Background

Over 94% of annual new leprosy cases are from population co-endemic for Soil-Transmitted Helminths (STH). Herein, we aim to investigate the effectiveness of anti-helminthic treatment alongside Water, Sanitation and Hygiene (WASH) counseling among Nepalese leprosy patients.

Methodology

This is part of a larger cohort study involving enrolment of 225 new leprosy cases, 150 new reaction cases, and 200 Household Contacts (HHC). WASH counselling was provided at intake alongside albendazole and ivermectin, which was repeated 6-monthly during participation. Participants came for follow-up quarterly for up to 2 years. Questionnaires were used to collect relevant demographic, socioeconomic, and WASH factors. Stool samples from every visit were assessed by multiple microscopic methods as well as Quantitative Polymerase Chain Reaction (qPCR) for 5 species of STH endemic to Nepal.

Results

225 new leprosy and 79 reactions for a total of 304 patients were enrolled between January 2016 to June 2018. At intake, roughly 25% were employing or accessing some form of water purification; most were washing their hands and the majority (~93%) had access to some form of toilet. By 6- and 12-month follow-up, there were significant increases in reported improved water purification access by 50-60% (p 50% of participants > 1 STH species coinfection at intake. Compared to enrolment and
based upon microscopy alone (which is less sensitive), the prevalence of STH infection for new cases decreased to 2.5% (n=201) at 6-month follow-up and 1.3% (n=154) at 1 year. The prevalence of STH infection for reaction patients also decreased to 0% at 6 month (n=59) and 1 year (n=48) follow up.

**Conclusion**

WASH and appropriate anti-helminthic treatment can be effective; however, contextual challenges remain in limited resource settings. Longitudinal analyses incorporating qPCR detection of helminths from this cohort will enable insight into longer term impact, challenges and sustainability.

**Keywords**

Soil transmitted helminth, WASH, anti-helminthic treatment, kato-katz, wet mount, qPCR

### 2.3.8 Comparison of Acridine Orange Fluorescent Microscopy and Gram Stain Light Microscopy for the Rapid Detection of Bacteria in Cerebrospinal Fluid

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**Background**

Bacterial meningitis is a life-threatening condition that requires prompt recognition and treatment. Currently, Gram stain is widely used for the microscopic detection of bacterial pathogens in CSF. In Nepal, fluorescent microscopes have been installed in laboratories as a part of National Tuberculosis Program. However, there is not any data on the utility of the acridine orange stain for the direct detection of bacteria in CSF samples in Nepal. Therefore, this study aims to compare the Gram stain and acridine orange stain for the rapid detection of bacterial pathogens among clinically suspected meningitis cases in Kathmandu, Nepal.

**Methodology**

This cross-sectional prospective study was conducted from February to December 2018 among 387 Cerebrospinal Fluid (CSF) samples collected from clinically suspected meningitis cases attending different hospitals located at Kathmandu, Nepal. Each specimen was processed for culture by conventional bacteriological techniques at the respective collection sites. Gram’s staining and acridine orange staining of each specimen was done at National Public Health Laboratory, Teku, Kathmandu, Nepal. Culture was considered to be gold standard method. The obtained data was entered into IBM SPSS Statistics 21 software and a p-value of <0.05 was considered to be statistically significant.

**Results**

Out of 387 CSF samples, 32 (8.27%) were positive by culture for bacterial pathogens. Acridine orange was more sensitive than the Gram stain (acridine orange 97%, Gram stain 78%). The difference in detection of bacterial pathogens by acridine orange and Gram stain was statistically significant (p<0.001). Gram stain had more negative results (22%) than acridine orange (3%).

**Conclusion**

Acridine orange is a better alternative to Gram stain in the rapid detection of bacterial pathogens in CSF in the setting where fluorescent microscope is available. We recommend, however, that positive smears be reexamined with the Gram stain to determine the Grams reaction of the bacteria.
2.3.9 Gender as an influential variable in leprosy: a mixed method study in leprosy care services in Nepal

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Background
Gender is an influential component of leprosy in Nepal. This study aims to assess the effect of gender on clinical outcomes, delay in diagnosis, and economic impact, in addition to the role of stigma and discrimination in medical misconceptions and facilities.

Methodology
Medical charts for inpatients at Anandaban Hospital were reviewed from July 2016 to December 2017. Qualitative and quantitative studies were carried out separately and results later integrated. Demographic factors, Bacterial Index (BI), World Health Organisation (WHO) and Ridley Jopling classification were analysed. Twenty patients were interviewed.

Results
A total of 875 inpatient charts were reviewed with a male:female ratio of 2.9:1. BI, WHO and Ridley-Jopling classification trends were similar between genders: 40% were BI+; 93% MB; 47% Borderline Tuberculoid (BT), 27% Lepromatous Leprosy (LL), and 17% Borderline Lepromatous leprosy (BL). Roughly half of each gender (11 total) reported a delay in diagnosis >6 months, with 6 years being highest. Fifty percent of cases did not know about leprosy prior to diagnosis. Both genders reported similar difficulty in working due to swelling of extremities (8 male: 6 female); while 5 male and 2 females reported income loss. Confidentiality issues with health workers regarding fears of disclosure within their community were mentioned by 13 (7 male: 6 female). Ten patients (4 male: 6 female) mentioned encountering misconceptions and inadequate knowledge about leprosy among health professionals.

Conclusion
Gender differences across the globe are not only influenced by social status or economic factors but also in health seeking behaviour by both genders in different cultural settings. Gender differences were not observed in clinical trends; whereas gender-related socioeconomic and cultural factors were observed. Qualitative analyses highlighted detrimental delays in diagnosis and the need for improved awareness programs. Training health professionals in confidentiality and better counselling could aid in reducing social stigma.

Keywords
MB, BT, BL, LL, bacterial index, stigma, delay in diagnosis
2.3.10 Community-Based Active Case Finding Intervention in Central Nepal

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Background
Tuberculosis (TB) is a severe public health problem in Nepal with high morbidity and mortality with over 40,000 TB cases each year, and 4,000 deaths from TB. Nearly half of all cases (41.2\%) were reported from Central Nepal and 60\% from the terrai belt. Too many people remain undiagnosed or are diagnosed late, increasing morbidity, mortality and economic consequences. Birat Nepal Medical Trust (BNMT) implemented Active Case Finding (ACF) activities in four districts with a high burden of undiagnosed TB cases under the IMPACT TB project.

Methodology
From June 2017 to December 2018, BNMT implemented community-based ACF through community volunteers in Dhanusha, Mohattari, Makwanpur and Chitwan, who performed TB contact tracing around index TB cases, high risk group screening and TB mobile camps. Individuals were screened for TB symptoms using eight questions. Presumptive TB was defined as the presence of any one of the symptoms: cough for two weeks, blood stained sputum, weight loss, fever and night sweats. Symptomatic individuals were invited to provide a sputum sample for testing. Volunteers collected samples and transported them to GeneXpert or microscopy testing centres. If the result was positive, a volunteer then accompanied the patients to the DOTS centre to facilitate enrollment in TB treatment.

Results
21,710 people were screened, of which 16,150 (74.4\%) symptomatic individuals were identified and 15,565/16,150 (96.4\%) were tested. Among them, 645/15,565 (4.1\%) TB cases were diagnosed with bacteriologically confirmed TB and 629 (97.5\%) were enrolled on treatment.

Conclusion
Community-based symptom screening and testing by the community health volunteer network was shown to be feasible and effective in increasing trend TB case detection at four districts of central Nepal. Scale-up of intensive, sustained active TB case finding is essential for Nepal to accelerate towards the END-TB strategy goals.

Keywords
Active case Finding (ACF), tuberculosis, central, Nepal
2.4.1 Risk Perception towards Healthcare Waste among Hospital Attendants and Community People in Kathmandu, Nepal

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Background
Healthcare waste management has been a public concern in past few years. Significant effort has been directed towards safe management of hazardous healthcare waste. However, there is not yet clear understanding of the risks, and as consequences, inadequate management practices are often implemented. This study was conducted primarily to assess risk perception towards healthcare waste among hospital attendants and community people and secondarily to assess knowledge, attitude and identify factors associated with risk perception in Kathmandu, Nepal.

Methodology
A cross-sectional hospital and community-based studies were carried out among 120 hospital attendants and 270 community people of Kathmandu valley. Simple random sampling technique was used to select the hospital and participants. Face-to-face interview was conducted using semi-structured questionnaires. Risk perception of respondents was classified as good and poor, based on mean score. Bivariate and multivariate analysis was carried out to determine associates of risk perception towards healthcare waste.

Results
Around 51.0% of hospital attendants and 52.0% of community people had poor risk perception towards healthcare waste. Nearly, half (49.2%) of hospital attendants, and 26.3% of community people had inadequate knowledge on healthcare waste management. Forty-three percentage of hospital attendants and 40.0% of community people had negative attitude towards healthcare waste management. Training on healthcare waste management (p=0.028), housekeeping department (p=0.036) and attitude (p=0.001) were significant factors of risk perception towards healthcare waste among hospital attendants whereas knowledge (p=0.001) was a strong predictor of risk perception towards healthcare waste among community people.

Conclusion
The risk perception towards healthcare waste among the respondents was poor. This highlights the need for extensive awareness programs to make people aware about the risk associated with healthcare waste. Enhancing knowledge and training programs on healthcare waste management is a way to change the perception in Nepal.

**Keywords**
Healthcare waste management, risk perception, knowledge, attitude

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### 2.4.2 Factors Associated with the Practice of Personal Protective Equipment for Pesticides among Farmers of Panchkhal, Kavre

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**Background**
The concern towards the hazards due to exposure to pesticides is increasing globally. The possible hazards could be minimized by using Personal Protective Equipment (PPE) such as mask, gloves, glasses, boot, full sleeve shirts and trousers, (apron, rain coat), hat while handling pesticides. The objective of this study is to find out the use of PPE among the farmers while handling pesticides and the possible factors associated with it in Panchkhal, Kavre.

**Methodology**
One hundred and thirty-two (132) participants were randomly selected using proportionate systematic random sampling and interviewed using semi-structured questionnaire.

**Results**
It was found out that almost all the participants knew about PPE, around 80% of the respondents used at least 1 PPE which was most commonly used mask; around 16% of them used at least 4 PPE while handling pesticides. Only 1 participant used all of the PPE. Sixty percent of the respondents had good knowledge about pesticides and harmful effects. The factors that associated with the practice of PPE included ethnicity, educational status and level of knowledge on pesticide.

**Conclusion**
The findings show though almost all participants knew about PPE, still one fifth of the respondents do not use any PPE and only one participant used all the recommended PPE. The use of PPE was associated with the educational status and knowledge of respondents regarding pesticides. This indicates there is need of awareness, training and educational programs regarding the effects of pesticides, safety measures and importance of PPE.

**Keywords**
Pesticide, Personal Protective Equipment, Knowledge

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### 2.4.3 Self Reported Health Problems due to Air Pollution among Traffic Police in Kathmandu Valley

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Background
Traffic police personnel are at the highest risk of pollution related diseases, since they are constantly exposed to the air pollution (vehicular emissions) as the nature of their occupation.

Methodology
The cross-sectional descriptive study was carried out in Kathmandu Valley among traffic police. Samples were collected from each police station of ring road area. Total sample to be taken was 299 but due to non-response 222 samples were collected. Semi-structured questionnaire was developed as well as standard questionnaire for symptoms of physical problem, anxiety and stress i.e. ST-George respiratory questionnaire (SGRQ), Hamilton Anxiety rating scale and Perceived stress scale were developed respectively and provided to the traffic police as a means to collect all necessary information. And all the obtained data was entered into and analyzed using SPSS 16.0 version.

Results
The finding of the study shows that out of total 222 participants, majority of participants i.e. 89.6% were aged 35 and below. Most of the participants were male i.e. 95.5% and few were female i.e. 4.5%. About three fourth, 73.4% of the respondent had completed their higher secondary education whereas 26.6% were SLC pass. Most of the traffic police used mask, gloves and goggles as Personal Protective Equipment to protect themselves from the effects of air pollution. About 73% and 40.6% of traffic police were reported with anxiety stress. There was a significant association of sex and education with eye problem with p value 0.05 (fisher’s exact test) and 0.038 respectively. Similarly, significant association was seen between sex and upper respiratory tract problem with p value 0.05 (fisher’s exact test).

Conclusion
Traffic police in Nepal have both physical and mental health problems associated with air pollution. Hence, future interventions for the effort of reducing such problems should be prioritized, planned and implemented.

Keywords
Traffic police personnel, air pollution, Kathmandu valley, mental health, physical health, stress, anxiety, personal protective equipment

2.4.4 Factors Related to Adoption of Standard Precaution for Infection Prevention among Health Service Workers of Selected Public and Private Health Facilities in Pokhara Metropolitan.

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Background

Infection is a major problem in health care setting. Standard Precaution taken by health care workers focuses on prevention and, reduces the chance of transmission of disease-causing pathogen. This study was conducted to find out the knowledge and practices of health workers on standard precaution for infection prevention in public and private health facilities in Pokhara Metropolitan, Kaski, Nepal.

Methodology

Descriptive cross-sectional study was conducted, where simple random sampling was used to collect quantitative data. Total 178 samples were collected (109 from Public and 69 from Private health facility by using proportionate sampling technique). Two hospitals (one private and one public) were selected for this study. The data collection tools were questionnaire (self-administered) and observation checklist.

Results

Study showed that good knowledge on standard precaution was 55 % in public and 44.9 % in private health facility. Similarly, 45.9 % in Public and 66.7 % in private health facility respondents had good practices on standard precaution. Study showed only 68.8 % in Public and 82.6 % in Private H.F reported the availability of Personal Protective Equipment in their health facilities. Study showed knowledge on Standard Precaution is higher among health workers who had taken training on Personal Protective Equipment (PPE) with compared to who had not. More than four-fifth respondents from both health facilities reported that they got needle stick injury during work.

Conclusion

This study showed that the reason of higher number of health hazards faced by health workers were due to lack of availability of Personal Protective Equipment and poor knowledge and practices on standard precaution, which need to be improved by providing both basic and refresher training and also by making availability of PPE throughout the year.

Keywords

Health hazards, infection prevention, personal protective equipment, standard precaution

2.4.5 Knowledge and Practice of Pesticides Use among Orange Cultivating Farmers, Beni Municipality, Myagdi

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Background

Pesticides are used in public health to kill vectors of disease, such as mosquitoes, and in agriculture, to kill pests that damage crops. But it has also posed health problems such as acute poisoning and chronic effects on human health and the environment. The main objective of the research was to assess the knowledge, and practice of pesticides use among orange cultivating farmers of Beni Municipality.

Methodology

A cross-sectional study was conducted using a pretested structured questionnaire via interviews. The study sample comprised 115 farmers who were engaged on orange cultivation. Pesticide storage and use of personal protective equipment (PPE) were assessed through observation. Both descriptive and
inferential statistical analysis was performed.

Results

The questionnaire was completed by 115 farm workers. Among them males were over-represented and 63.5% (n=73) were between 42-61 years of age. Level of knowledge was significantly associated with education level (p=0.002). Unsafe behaviors were identified as the storage of pesticide products at home, mixing of pesticides, and inadequate disposal of empty pesticide containers, eating and drinking during pesticide application, and using inadequate protective measures. The most frequent health hazards experienced were 86.7% (n=91) dizziness and 75.2% (n=79) headache. This study shows, most participants were found wearing 74.8% (n=88) long sleeved shirt and trousers, 31.3% (n=36) gloves respondent had a protective mask during spraying or application of pesticides. Fungicides were common pesticides used by farmers.

Conclusion

A study reveals that currently, all farmers are using pesticide mainly for killing a pest. Farmers are facing various health hazards due to inadequate knowledge of pesticide health effects and personal protective equipment's. Therefore, health education programs concerning pesticides handling and personal protective equipment.

Keywords
Knowledge, practice, pesticides, and orange cultivating farmers

2.4.6 Knowledge and Practice on Pesticides Use and Attitude toward Organic Farming among Tomato Farmers of Kaski District

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Background

Pesticide is any substance, or mixture of substances of chemical or biological ingredients intended for repelling, destroying or controlling any pest, or regulating plant growth. Use of pesticides to increase the productivity of the agricultural products has been growing in the world which in turn can result in some occupational hazard to the regular users. The main objective of this research is to assess the knowledge and practice of pesticide use among the farmers of Kaski.

Methodology

A cross-sectional analytical study was conducted from June to November 2018 among commercial tomato farmers of Kaski district. Semi-structure questionnaire was used as data collection tool and face to face interview was used as technique. Data entry and analysis was done by using EPI-DATA and SPSS software. Chi-square test was used to explore the association of variables.

Results

In this study, majority of the respondents (88.8%) were using pesticides. Almost 68% of the respondents had good level of knowledge on pesticide use and 80% of them use any sort of personal protective equipment while spraying pesticides. Almost 90% of the respondents do not read labeled information and all of the respondents agreed they do not hesitate to eat while spraying the pesticide. There was significant association between level of knowledge on pesticide use with age (p<0.05) of the respondent, farm location (p<0.001), monthly income (p<0.001) and farm area (p<0.05). More
than 50% of the respondents agreed they have experienced some health effect after using pesticide like headache, eye irritation, breathlessness, skin burn etc.

**Conclusion**

Significant numbers of farmers are found to have poor level of knowledge and practice on proper use of pesticide. Hence, farmers should be motivated to enhance safe practice through appropriate behavior change programs.

**Keywords**

Pesticides, knowledge, practice, tomatoes, farmers

### 2.4.7 Occupational Health Hazard among Healthcare Workers of Manmohan Memorial Teaching Hospital

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**Background**

Healthy workforce is vital for sustainable social and economic development on a global, national and local level. Occupational health is a neglected public health issue among healthcare workers in developing countries. This has exposed healthcare workers in developing countries to various forms of hazards which have had negative consequences on their wellbeing and performance at work.

The objective of this study is to assess the occupational health hazard among healthcare workers of Manmohan Memorial Teaching Hospital, Kathmandu

**Methodology**

A descriptive-cross sectional study was carried out among 170 healthcare workers of Manmohan Memorial Teaching Hospital. A pretested structured questionnaire was used which included socio-demographic attributes, occupational history, behavioral patterns, forms of occupational hazards, control measures and level of compliance with SPs. The data obtained was tabulated and statistically analysed. Inferential statistics was done using Chi-square test to find out the association between occupational health hazards and various independent variables at 95% confidence interval where level of significance, p=0.05.

**Results**

Overall, 62.9% (n=107) of respondents reported experiencing an occupational health hazard. Among them, 46.5% (n=79) experienced biological hazards while 42.9% (n=73) experienced non-biological hazards. The proportion of healthcare workers who always comply with standard precautions was found to be 8.23% (n=14). Safety education and Training (p=0.008) and Daily hours of sleep (p=0.014) was significantly associated with the occupational health hazards.

**Conclusion**

Healthcare workers in this setting experience several hazards in their workplaces. An occupational health hazard faced by healthcare workers is in the higher rate, whereas compliance with standard precautions among the healthcare workers is very low. Interventions which include training of healthcare workers on standard precautions and consistent management support are recommended.

**Keywords**

Occupational health hazards, health hazards, healthcare workers and occupational health at hospitals settings
2.5.1 Formulation and In-vitro Evaluation of Transdermal Patches of Diclofenac Potassium Using Ficus Auriculata Fruit Mucilage and Hydroxypropyl Methyl Cellulose K4M

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Background
The use of natural polymers in designing transdermal delivery system has received must attention. The main objective of this research study was to formulate matrix-moderated transdermal systems of diclofenac potassium using Ficusauriculata fruit mucilage and hydroxylpropyl methyl cellulose K4M (HPMC K4M), and to evaluate them with respect to various in-vitro parameters.

Methodology
Transdermal systems were formulated using diclofenac potassium and various proportions of F. auriculata fruit mucilage (5%, 10%, 15%, 20% and 25% of total polymer) and HPMC K4M as matrix polymers along with polyethylene glycol-400 as plasticizer and tween-80 as penetration enhancer via solvent evaporation method. Formulated patches of diclofenac potassium were tested for various physicochemical parameters. In addition, in-vitro drug permeation and in-vitro release mechanism were also assessed. The in-vitro permeation studies were performed using a locally fabricated Franz-diffusion cell.

Results
The average weight, thickness, drug content, folding endurance and moisture contents of these diclofenac potassium transdermal patches were found satisfactory for all the patches. And the result showed desired drug permeation through dialysing membrane from all the patches except F2. The in-vitro release study was best explained by Korsmeyer-Peppas, which showed that the formulations (F4, F5 and F6) have N value above 0.89 (i.e. 1.16, 1.02 and 1.26 respectively) indicating controlled release diffusion. These above results reveal that, higher the concentration of F. auriculata fruit mucilage in combination with HPMC K4M, the better the permeation and release pattern of drug.

Conclusion
Thus, all results revealed that dried F auriculata fruit mucilage can be used along with HPMC K4M as a matrix forming polymer for formulating diclofenac potassium transdermal drug delivery system.

Keywords
Transdermal drug delivery system, diclofenac potassium, ficusauriculata, HPMC K4M, In-vitro
2.5.2 Self-Medication Practices in Surrounding Communities of Birat Medical College and Teaching Hospital of Eastern Nepal

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Background
Self-medication is the use of drugs to treat self-diagnosed disorders/symptoms, or the intermittent/continued use of a prescribed drug for chronic/recurrent disease/symptoms (WHO). It is the cause of many deaths, antibiotic resistance, inappropriate treatment, and financial burden. WHO listed self-medication at local context as one of the priority research areas. The main objective of this study was to find the prevalence and pattern of self-medication in surrounding communities of Birat Medical College and Teaching Hospital.

Methodology
Community-based cross-sectional study was conducted at surrounding communities of Birat Medical College from 1 Sept 2018 to 31 Jan 2019. Multistage sampling was used to collect information from 348 households having family members aged 16 years and above. Ethical approval was taken from the Institutional Review Committee. A pre-tested semi-structured questionnaire was used.

Results
Prevalence of self-medication was 44.04%. Majority used allopathic 82.71% followed by ayurvedic 15.04% and traditional healers 2.25%. The common medication were antipyretics 43.61%, antitussives 13.53%, analgesics 23.31%, antihistamines 6.77%, antibiotics 22.56%, tonics and vitamins 15.04%, anti-hypertensive 9.77% etc. The reason behind self-medication were illness too trivial/mild for consultation 18.80%, low cost of self-medication 30.08%, time saving 24.06%, old prescription for same illness 7.52%, familiar with treatment options 12.78%, no doctors nearby 7.52%, internet search 4.51%, fear of investigation at hospital/health center 6.04 %, high doctor fee 15.04 %, long waiting time in hospital 14.29 %, thought pharmacists are also doctors 6.77%, rude behavior of health-worker 3%, belief of traditional healer 11.28%.

Conclusion
Burden of self-medication was present in surrounding communities of Birat Medical College & Teaching Hospital. Allopathic drug including antibiotics was the common medicine used for self-medication. Continuous health education and advocacy help to reduce the burden of self-medication in coordination with local government for its sustainable solution.

Keywords
AMR, hospitals, Nepal, self medication
2.5.3 A Questionnaire Based Study to Assess Knowledge, Attitude and Practice (KAP) of Pharmacovigilance before and after the Training on Pharmacovigilance among the Health Care Professionals at Nepal Cancer Hospital and Research Center

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Background
The health care professionals as pharmacists and nurses have an immense responsibility in reporting adverse drug reactions. Therefore, the main objective of the study was to evaluate the knowledge, attitude and practices (KAP) towards pharmacovigilance and adverse drug reactions of healthcare professionals before and after the training on pharmacovigilance of the oncology-based hospitals.

Methodology
A pre-post interventional study based on KAP questionnaire and training was carried out among health care professionals (nurses and pharmacists) in the different department at oncology-based hospitals of Nepal i.e. Nepal Cancer Hospital and Research Center. Pvt. Ltd. A total number of 89 healthcare professionals took part in this study. The pre-study was carried out before Pharmacovigilance training and also, the post-study was carried after the training.

Results
The correct response of healthcare professionals on knowledge score was significantly increased after the training. The attitude was evaluated as the mean score to given questions both before and after the training. Out of 89 healthcare professionals, 78 (87.6%) were in the age group of 21-30 years. The vast majority of respondents were female 76 (85.4%) and 13 (14.6%) were male. 80 (89.9%) of the respondents had working experiences of 0.2-5.1 years and 1 (1.1%) respondents had working experience of more than 15 years. For, 49.4% responded, it was difficult to decide whether ADR has occurred or not. 23.6% of them responded that they lacked the time to report ADR, while 13.5 % of the respondents replied that there was no remuneration.

Conclusion
The knowledge of healthcare professionals regarding pharmacovigilance was significantly increased after the pharmacovigilance training was given. This provides a basis that pharmacovigilance training should be given to healthcare professionals timely to develop a positive attitude towards the practices and to improve them.

Keywords
Pharmacovigilance, healthcare professional, adverse drug reaction reporting, nurses, pharmacist
2.6.1 Perception and Attitude of Undergraduate Nurses in Research Writing in Nepal

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Background
Research is an extremely crucial element in the advancement and improvement of health care services provided to the public.

Methodology
A quantitative descriptive cross-sectional research design was used for the study, which was conducted among 127 undergraduate nurses who were studying in Bachelor of Science in nursing third year and Post Basic Bachelors 2nd year at Norvic Institute of Nursing Education, and Baidhya and Banskota (B&B) Medical Institute Kathmandu and Lalitpur respectively. Participants were selected through enumerating sampling technique. Self-developed semi structure questionnaire was used to assess socio-demographic factors, to assess level of attitude modified Bjork stromand Hamrin (2001) Nurses’ attitude and awareness towards research development within nursing (ATRAD-N) version II was used. Likewise, to assess level of perception predestined but modified questionnaires of Shahbazet all. 2016 and Gets a J Visser- Wijnveen 2015 was used. Data was checked for completeness and accuracy and collected data was entered in SPSS software version 21. Descriptive statistics such as number and percentage were used to describe demographic data and the level of perception and attitude. Analysis of variance test was used to find out the correlation between perception and attitude.

Results
Almost all 98.9% of participants believed importance of research in nursing, the vast majority 90.5% of participants considered nursing research as good choice for career development. About 88.4% of participants perceived research as an important criteria for career advancement after graduation.

Conclusion
Although 86.6% of participants had positive attitude towards research writing, still 13% of participants had negative perception. There is urgent need to raise awareness among nursing students about importance of research in nursing to improve quality of patient care and also for personal and professional development and to recognize them in scientific community as well.

Keywords
Perception, Attitude, Undergraduate Nurses, Research Writing
2.6.2 A Cross-Sectional Study on Practice, Challenges and Satisfaction Regarding Health Care Services among Tharu Married Women in Selected Municipalities of Bara District, Nepal

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Background
Health care practices indicate the attitudes of people towards health in the community. Various challenges have been faced by the respondents to receive the health care services. This study was aimed to assess the health care practice and challenges regarding health services by married females at Tharu community.

Methodology
Cross-sectional study design was used in the study. The study population was Tharu married women in the given location. The estimated total sample size in the study was 385, using confidence limit of 95% with allowable error of 5%. The data was analyzed using IBM Statistics SPSS Version 16.0. Under descriptive summary statistics of data, frequency, percentage, mean, standard deviation was calculated. Satisfaction in health care was measured using likert scale. Logistic regression analysis was conducted to determine the relationship between the variables.

Results
Most of the women visited traditional healers than public and private HC (37.9% vs 16.1% and 30.6%). Majority of the women did not treat during cough and cold, body ache, headache and diarrhea (48.3%, 44.4%, 46% and 42.3%). Affordability and cultural barrier were the major challenges in seeking health care (66.80% and 65.2%). Poor satisfaction regarding health care service was high (53.8%). The association was significant (p<0.05) between practice of health care and affordability.

Conclusion
In our study, health treatment from traditional healer was higher than the practice of health care from health center. The major challenge in seeking health care was affordability and cultural barrier. Affordability influenced the practice of health care services.

Keywords
Challenges, health care services, married women, practice

2.6.3 Estimation of Catastrophic Expenditure on Oral Health Care among the Residents of Sunsari District

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Background

Oral health is the major public health problem worldwide. The cost of the treatment for oral health is high and the majority of the expenses is made through out of pocket payment. This imposes a financial burden on the family and may lead to the financial catastrophe. The main objective was to estimate the catastrophic expenditure for oral health care among the residents of Sunsari district.

Methodology

A cross-sectional study was conducted among 204 households of Sunsari district who have sought oral health care in the past three months. Information regarding household expenditure, oral health-seeking behavior, oral health care expenditure and coping strategies were obtained from the household member >18 years of age. The catastrophic threshold was estimated using receivers' operating characteristics curve.

Results

The catastrophic threshold for oral health care was estimated to be 7.5%. Around one fifth (25.5%) of the households reported having catastrophic oral health expenditure in the past three months before the interview. The mean out of pocket expenditure for oral health care was found to be NPR. 3288.2. Undergoing root canal treatment and total cost of the treatment was found to be associated with the catastrophic expenditure.

Conclusion

Oral health care adds a financial burden to the family forcing them towards catastrophe. As prevention is better than cure, preventive approaches are suggested to improve the oral health of the general population that reduces the catastrophic expenditure in oral health care.

Keywords

Oral health care, catastrophic, oral health expenditure, out of pocket payment

2.6.4 Health Service Utilization and Out- of- Pocket-Expenditure among the Insured Population in Kaski District

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Background

Social Health Insurance is a form of financing and managing the health care based on risk pooling. Government of Nepal has initiated the pilot project of the Social Health Insurance Program in 3 districts i.e. Kailali, Baglung and Ilam in FY 2072/73. The total out-of-pocket expenditure is 55% in 2015 and has low health insurance service utilization. According to the Health Insurance Board of Kaski, only 13,448 households, which is 10.73% and 85,131 population are enrolled in the program till September 2018, where 38% population has utilized the services.

Methodology

Quantitative methods and cross-sectional analytical study design was used to assess the health service utilization and out-of-pocket expenditure among 210 insured people under the social health insurance program in Kaski district from June to December 2018. The sample was obtained through cluster sampling by using sampling strategy. Face to face interview was used for data collection.
using interview schedule. Reliability and validity were maintained by applying different strategies including pretest 10% i.e. 21 of estimated sample in ward number 13, which was not included in study. EPIDATA and SPSS was used for data entry management and analysis. Research ethics were maintained.

**Results**

Majority of participants had utilized the health service. Out-of-pocket expenditures has been decreased in the treatment and diagnosis of the diseases but not in medicine cost. The increment of benefit package would increase the health service utilization among the insured population.

**Conclusion**

Majority of participants had utilized the health service. Out-of-pocket expenditures has been decreased in the treatment and diagnosis of the diseases but not in medicine cost. The increment of benefit package would increase the health service utilization among the insured population.

**Keywords**

Social health insurance, health service utilization, health insurance, out-of-pocket expenditure

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**2.6.5 News in the Nepali Online Media Regarding “Doctor’s Negligence” during Treatment; A Review**

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**Background**

There has been the increasing number of news in Nepali media regarding the doctor's negligence in recent years. Many of the news is written with the headline “Doctor's Negligence Resulting the Patient's Death” before there has been proper investigation to the case. This review was done with objective to review the content of news and headline posted in Nepali online media with the title of “Doctor's Negligence”.

**Methodology**

Google search for the news was done with key words: “chikitsakkolaparbahī”, “doctorkolaparbahī” in Devnagari script. The news with the headline “Doctor's Negligence” and the content describing about the incident were included in the study. The headline, hospital/treating health professional's statement regarding the incident, the outcome of incident and disease condition of victims were noted.

**Results**

Among the 46-news reviewed, 74% of them used the headline “doctor's negligence resulting the patient's death/harm” and 26% quoted it as patient party's statement. Only 43% of the news has mentioned the hospital or treating health personnel's statement regarding the incident while 57% mention nothing about the hospital's or doctor's opinion. 57 % of the incidents were just accusation by patient party, 35 % resulted in demonstration and in 8 % of cases there was vandalism of hospital or physical assault. Most of the cases (57%) were belonging to delivery followed by surgical (24%), pediatrics (13%) and medical (6%) respectively.
Conclusion

Most of the news are being posted in online news and social media labeling as “Doctor’s Negligence” before the in-depth investigation has been made and without taking opinion of the hospitals and doctors treating the cases. This sort of news without thorough elaboration of the incident creates chaos among the public and further distorts the doctor-patient relationship.

Keywords
Doctor’s negligence, Nepali media

2.6.6 Gap in Translating Evidences into Policy: Opinions and Insights of Health Researchers and Policymakers in Nepal

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Background

The practice of Evidence-Based Policymaking (EBP) in Nepal is seen poor. Global evidences suggest factors like leadership changes, poor communications, and use of jargons in research for such phenomena. Therefore, this study aimed to assess the perception of Nepalese health policymakers and researchers on EBP and identify appropriate mechanisms to integrate evidence into policies.

Methodology

Qualitative research design was used in the study using grounded theory approach and following constructivist philosophical paradigm. Purposive sampling was performed and the total number of interviews was finalized following saturation theory. Thus, in total 12 in-depth interviews were conducted with 5 health policymakers and 7 researchers. All interviews were audio recorded, transcribed, translated to English, coded line by line and then developed into themes. Data were analyzed manually using thematic analysis technique.

Results

According to policymakers and researchers interviewed, evidences are utilized during policy formulation but not in the amount it should have been. The preference towards anecdotal evidences further reduces the chance. Study participants pointed out political influence, poor credibility of information obtained, poor targeted dissemination, different perspective on research of researchers and policymakers and low availability of policy-based researches as barriers behind low utilization. Similarly, the facilitators for utilization were publication of one pager research brief, conduction of nationally representative surveys especially quantitative studies, and few instances of partial cost-effectiveness study and policymaker’s involvement. Moreover, initiatives like DHIS 2 and federal structure are facilitating for evidences to be utilized more.

Conclusion

Though the evidences and policy analysis documents were considered in the policy formulation, political influence and finance played major roles in setting policy agendas. Participants have realized the need to improve the link between policy and research through initiatives such as involving policymakers since the beginning of research process, targeted dissemination, publication of one pager policy brief in Nepali and policymaker’s periodic interactions with researchers.
2.6.7 Retaining and motivating Skilled Birth Attendants (SBA) in Rural Nepal; SBAs Perspective

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Background
The number of deliveries with skilled birth attendance in Nepal is low. There is a severe shortage of skilled births attendants in rural areas of Nepal. This study aims to explore the factors contributing to retention and motivation of skilled births attendants to work in rural areas of Nepal.

Methodology
The study was descriptive, cross-sectional and used a qualitative methodology. Semi-structured interviews were conducted with skilled births attendants with prior experience of working in rural areas currently working in public health institutions of Kathmandu, Nepal. The interviews were conducted by telephone, translated, and transcribed. Thematic analysis was used to analyze the data manually.

Results
The skilled births attendants had a great concern for security to work in rural areas. They also reported the lack of equipment and supplies, poor means of communication and transportation, and insecurity as major factors negatively influencing their motivation to work in rural areas. In terms of their preferences for working in urban areas, married skilled births attendants preferred to work in urban areas as they were more concerned about their partners’ jobs and children’s education while younger skilled births attendants were mainly concerned about their career.

Conclusion
The skilled births attendants can be motivated to work and retain in rural area by a holistic approach. In this study, security was identified as the major challenge for skilled births attendants to work in rural areas of Nepal. Beside these, other factors such as equipped health facility and suitable places for living combined with financial incentives can attract and retain skilled births attendants in rural areas.

Keywords
Motivation, retention, rural areas, skilled birth attendants, Nepal

2.6.8 Health Related Quality of Life after Open Heart Surgery at National Cardiac Centre, Nepal

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Background

Though, Health Related Quality of Life (HRQOL) among the post-operative patients after open heart surgery has been assessed in many developed and developing countries, it has not yet been investigated in Nepalese population. The aim of the present study was to assess the level of HRQOL and identify the factors influencing HRQOL of patients who underwent open-heart surgery.

Methodology

A cross-sectional study was done in March to August, 2017 among 405 adult patients of age 19 years to 65 years who had undergone aortic, mitral or both valve replacement surgery and attending the follow up visit at Shahid Gangalal National Heart Centre (SGNHC). SF-36v2 questionnaire was adopted and pre-tested prior to final survey and data were managed by using SPSS software and performed chi-square test. Ethical approval was obtained from the Institutional Review Committee of SGNHC (Ref No: SGNHC/IRC No: 11-2017) and individual written consent was obtained prior to survey.

Results

The respondents were dominantly female of reproductive age group (mean age: 37.84±13.25), literate and married. The mean Physical Component Scores and Mental Component Scores were (62.90±19.25) and (65.70±20.40) respectively. The study findings showed that 65.4% of respondents had average HRQOL, 18.3% had good HRQOL and 16.3% had poor HRQOL. The study revealed significant association between age, marital status, educational status, occupation, type of valve replaced as well as duration after surgery; and HRQOL (p<0.05).

Conclusion

More than three-fifths of the patients had average HRQOL after valve replacement surgery. Age, educational status, marital status, type of valve replaced and duration after valve replacement surgery had significant impact on their HRQOL (p< 0.05). In the future, special attention should be given for the enhancement of quality of life among this group of patients.

Keywords

HRQOL, open heart surgery, valve replacement surgery, Nepal

2.6.9 Effectiveness of Magnesium Sulphate with Glycerin Dressing versus Heparinoid Ointment Application on Management of Phlebitis among Patients Admitted in Selected Wards of BPKIHS

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Background

Phlebitis is the inflammation of the tunica intima of the vein. If left untreated, it may lead to infection or thrombus formation. Early detection and appropriate interventions reduces the occurrence and severity of cannula related phlebitis. The main objective was to evaluate the effectiveness of magnesium
sulphate with glycerin dressing as compared to heparinoid ointment application on management of peripheral cannula induced phlebitis among admitted patients in Medical- Surgical Units of BPKIHS.

Methodology

A quasi experimental design was carried out among 50 admitted patients with cannula induced phlebitis. Data was collected from December to January 2018 for 4 weeks using simple random sampling technique to allocate the wards to each interventional group. And purposive sampling technique was used to select samples, where instruments baseline performa and observation scale was used to observe for 48 hours with an interval of 8 hours. Visual infusion scale was used to collect data. Collected data was analyzed using various descriptive and inferential statistical tests.

Results

The study findings revealed significantly reduced of phlebitis score after 48 hours of treatment with magnesium sulphate with glycerin dressing as well heparinoid ointment application. Thus, it was concluded that both the applications were effective in reducing level of phlebitis. Regarding effectiveness, there is a statistically significant difference in phlebitis score in both experimental groups after comparison of baseline within 8,16,32,40, 48 hours of administration of intervention( P=0.05). The mean visual infusion scale score is more in MSG group as compared with that of HPA group. It shows that there is more reduction of VIP score in Magnesium sulphate with glycerin (MSG) group.

Conclusion

In the research study, findings revealed that Magnesium sulphate with glycerin dressing is more effective than heparinoid ointment on management of peripheral cannula induced phlebitis.

Keywords

Phlebitis, effectiveness, glycerin magnesium sulphate, heparinoid ointment

2.6.10 Awareness, Attitude and Utilization of Complementary and Alternative Medicine among the People of Nagarjun Municipality, Kathmandu

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Background

Complementary and alternative medicine means a group of diverse medical and health care interventions, practices, products or disciplines that are not generally considered part of conventional medicine. CAM has been growing in popularity along with increase in attention and interest. This study has been designed with objective to assess awareness, attitude and utilization of CAM among the people of Nagarjun Municipality.

Methodology

A descriptive cross-sectional study was used a pre-tested structured questionnaire to gather information on CAM from 398 randomly selected respondents from Nagarjun Municipality.

Results

67.3% (268) of the respondents were aware of CAM, 41% (163) have positive attitude towards CAM and around 42% (169) had used CAM among which Ayurveda was the most popular form of CAM used i.e. 52.7% (165). The most common ailment used for was gastritis. Awareness and utilization of
CAM was significantly associated with religion, ethnicity, family type, monthly income, nearby health institution and CAM centers. Beside this, there was significant association of utilization of CAM with age and marital status and awareness with educational status but no significant association was found between various factors with attitude on CAM.

Conclusion

This study has revealed that the use of complementary and alternative medicine is quite popular among the studied population and a high proportion of the respondents use it. The majority of CAM users were satisfied with the effects of CAM. Also, more than half of the respondents agree on the statement that CAM should be integrated into mainstream of health care services. As its popularity is increasing day by day and from findings too, it seems a greater need for integration of allopathic medicine and CAM for overall improvement of health status of the nation.

Keywords
Complementary and alternative medicine, awareness, attitude, utilization

2.6.11The Knowledge, Attitude and Practices of Dentists towards the Use of Rubber Dam in Kathmandu, Nepal

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Background
Isolation of teeth is crucial for multiple procedures in dentistry. For this, the rubber dam is considered as a useful adjunct in dentistry, helping in achieving a drier field and improved visibility during operative procedures. Rubber dam serves well for isolation of the tooth by making the working field clear of oral fluid hindrances. The purpose of this study was to determine the general knowledge, attitude and practice of usage of rubber dam among dental practitioners in Kathmandu.

Methodology
A cross-sectional study was designed for this purpose. Three hundred questionnaires were distributed to dental practitioners of Kathmandu, working in various government or private hospitals or clinics. The data were collected and descriptive statistical analysis was done.

Results
Out of 300 questionnaires, only 267 were returned. Amongst, 247 that were filled completely were included in the study. The study revealed that most of the dental practitioners (97%) do not use rubber dam in their daily practice and it was observed to be used mostly by the endodontists.

Conclusion
The findings of this study show that the dentists of Kathmandu, although have significant knowledge of rubber dam use, do not use much rubber dam. This study shows that dentist have to be encouraged to use rubber dam.
Keywords
Dental anatomy, dental curriculum, forensic dentistry, tooth morphology

2.6.12 Quality of Work Life and Its’ Associated Factors Among the Paramedic Health Worker of Pokhara

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Background
Quality of work life (QWL) among the paramedic health worker is a key issue of the health care organization. Poor QWL degrade the quality of health care services. Paramedic health workers are vital in developing countries to make the quality health service easily accessible to the people but several problems are arising. So, QWL can be improved through job redesign, flexible work schedule and so on.

Methodology
Quantitative method and cross-sectional study design were used to assess QWL among 244 Paramedic health workers of Pokhara from June to December 2018. Reliability and Validity were maintained by applying different strategies; including pretest 10% i.e. 24 of estimated sample in the hospital of Pokhara Metropolitan which was not included in sample frames. EPIDATA and SPSS was used for data entry, management and analysis were done as per my data analysis plan. Research ethics were maintained.

Results
The Walton QWL questionnaire scored 80-130 which shows that, mean score was 2.9967±0.57292. and 85.2% (208) of the participants had moderate quality of work life. Among the dimension of QWL, the highest mean score was social relevance 3.2975±0.70728 and the lowest mean score was adequate and fair compensation dimension 2.6342±0.80486. A significant relationship (p=0.001) was found between variable such as required education for job, higher technical education, job category, working department, level of health services, working shift, and working hour per day with QWL.

Conclusion
Therefore, in order to reach the optimum situation more effort is needed to improve the QWL. As it has an important impact on attracting and retaining employees, it is necessary to pay more attention to the paramedic health worker’s quality of work life and its affecting factors.

Keywords
Quality of work life, paramedic health worker, factor associated with quality of work life, developing country, Nepal.
2.7.1 Knowledge and Attitude Regarding Family Planning Among Muslim Men Residing in Mahottari District

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Background
Globally due to different cultures and religious belief family planning has been a big challenge for the international development. Acceptability of family planning has been an issue among Muslim people. According to WHO Worldwide 214 Million people who want to avoid pregnancy are not using any modern contraceptive and one of the reasons behind it has been listed as cultural or religious barrier. Good knowledge and positive attitude lead to good practice of family planning and in male dominant society; men play a vital role in family planning.

Methodology
A Descriptive cross-sectional study was conducted to assess the knowledge and attitude regarding family planning among Muslim men residing in Mahottari District. A non – probability convenience sampling was used to select the household and non probability purposive sampling was used to select 76 participants who volunteer to participate. Structured questionnaire was used as a tool to collect data, researcher herself interviewed participant, to find out the knowledge and attitude. Obtained data were analyzed using descriptive statistics such as frequency, mean and standard deviation and inferential statistics such as t-test, ANNOVA & Karl Pearson’s Co-relation using SPSS version 23.

Results
The findings of the study concluded that the majority of the respondents have moderate knowledge regarding family planning. The findings of the study revealed that half of the respondents have positive attitude regarding family planning, whereas half of the respondent have negative attitudes regarding family planning. Age of the respondent was significantly associated with Knowledge level & occupation of the respondent was significantly associated with attitude .The study also revealed that there is no statistical significant correlation between knowledge and attitude.

Conclusion
Educational campaigns and more family planning programs can be conducted to increase attitude and bring positive attitude also involvement of males in male dominant society can increase chances of success.

Keywords
Family planning, Muslim, knowledge, attitude
2.7.2 Assessment of Thyroid Dysfunction during Pregnancy

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Background
Thyroid disease is second most common endocrinopathy that occurs in women during their reproductive years. The main objective of this study is to assess the frequency of thyroid disorder in different stages of pregnancy and to overview the pattern with increasing gestational week.

Methodology
Serum samples were collected from 124 pregnant women attending Patan Academy of Health Science for ANC (Ante Natal Care) visit. Thyroid Function test (FT3, FT4 and TSH) was performed by chemiluminescent immunoassay (VITROS ECI Immunodiagnostic Systems).

Results
Out of 124 pregnant women, we found that 17% of the pregnant women have TSH level above the normal level irrespective of trimester. The mean age group taken was 28.56± 3.87 years. Higher frequency of primary hypothyroidism was observed in third trimester (n=5) followed by first (n=4) and second trimester (n=2) while in case of subclinical hypothyroidism, more cases (n=5) was observed in second trimester followed by first and third trimester (n=3, n=2 respectively). Mean serum TSH levels were found to be increased with increasing trimester whereas mean serum fT3 and fT4 were higher in first trimester (3.39±0.96) as compared to second and third trimester (3.39±0.96, p= 0.049, 3.39±0.96, p= 0.002 respectively). Mean fT3 level tends to decrease with increasing gestational week, reach at peak value in 24-31 (3.42±0.53) gestational week and the level falls down with increasing gestational week. Mean fT4 level also increases with gestational week while mean TSH level also follow pattern similar to that of fT3 level but reaches peak value in 16-23 (5.04±3.89) gestational week.

Conclusion
Hypothyroidism is more common in pregnant women. Different complication can be minimized if diagnosis is done early. So thyroid function test should be recommended as routine test in every trimester.

Keywords
Thyroid disorder, pregnancy

2.7.3 A Study on The Male Partner’s Involvement and Perceived Barriers by Women During Antenatal Period in Banke

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Background
Male participation in ANC care is very low and different factors are responsible. This study was conducted to assess the male partner’s involvement and perceived barriers by women during antenatal period in Banke district.

**Methodology**

A descriptive cross-sectional study was conducted among 225 pregnant women visiting for ANC checkups in hospitals of Nepalgunj, Banke. Data was collected using semi-structured questionnaire through face-to-face interview technique. Frequency, percentage, means, standard deviation was calculated under descriptive analysis. Data was analyzed using SPSS version 16.0. Major statistical analyses used in the study were Chi-square test and binary logistic regression.

**Results**

Out of 225 respondents, husbands of a total 60% respondents had accompanied their wives in current ANC visit. When asked about the reasons of unaccompany to those whose husbands in current visit 70% replied that they were pre occupied with work. 141 of the respondents i.e. (63%) perceived cultural values and beliefs as the barriers. Significant association was found in between pregnancy intention and male partner’s involvement during ANC care (p value less than 0.001). Similarly, significant association was found in between educational status of respondents and male involvement in ANC care in the study (p value = 0.002).

**Conclusion**

In conclusion, it was found six out of ten husbands accompanied with their wives during current ANC visit. Also, the most perceived barriers by women for male involvement in ANC care was found to be cultural values and beliefs.

**Keywords**

Male partner, Involvement, Antenatal period, Barriers

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**2.7.4 Factors Influencing Cervical Cancer Screening Among Women in Banke District**

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**Background**

Cervical cancer is the most common cancer affecting females. Despite being preventable by regular screening, many women lose their life due to cervical cancer in developing countries. Existing evidence shows that very less proportion of women undergoes regular cervical cancer screening in Nepal. The main aim of this study was to determine the factors that influence cervical cancer screening among women in Banke district.

**Methodology**

A community-based cross-sectional study was carried out among 600 females aged 21 – 65 years. Data were collected using semi-structured questionnaire through face to face interview. Data were entered in MS Excel 2010 and analyzed using SPSS 11.5. Binary logistic regression model was used for multivariate analysis to determine the strongest predictors for screening.
Results

Only 14.6% of the respondents had done screening ever in their lifetime. Also 51.4% had poor knowledge of cervical cancer. Major barriers for screening were lack of problems/complaints, lack of knowledge about screening and place of screening while major facilitators for screening were cited as doctor’s advice, sense of care towards own health, having symptoms of cancer and suggestions from friends. In binary logistic regression, age (AOR: 1.1, p < 0.001), education (AOR 3.52, p = 0.003), income (AOR: 1, p = 0.009) and use of IUD (AOR: 8.45, p = 0.023) were found to be the significant predictors.

Conclusion

In this study, none of the respondents had good knowledge about cervical cancer and educational status was found to be one of the significant predictors. This implies the need to educate women about cervical cancer along with their susceptibility to the disease. Strategies like opportunistic screening can be used for women seeking reproductive/gynecological/family planning services to increase the screening rate.

Keywords

Cervical cancer, screening, knowledge, barriers, facilitators

2.7.5 Knowledge and Utilization of Condom among Gay, Bisexual and Transgender of Nepal

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Background

Gay, bisexual and transgender people are marginalized hidden and underserved population of Nepal. They are vulnerable to HIV/AIDS which is one of the major public health problems of Nepal. Condom plays important role for reducing the risk of most STIs including HIV/AIDS and thus continues to be important public health effort to reduce new cases of HIV/AIDS in the country.

Methodology

This is a cross-sectional descriptive quantitative study, carried out in Kathmandu valley. Samples were collected from various LGBT related organizations through snowball sampling techniques, recruiting 59 respondents of age 18 and above. A Semi structured questionnaire was developed for data collection and direct interview with the respondent was taken whose consent was taken before interview.

Results

Among 59 respondents, 90% of gay people had enough knowledge regarding condom, 77% of bisexual people had enough knowledge and 52% transgender had enough knowledge regarding condom. Similarly, 68% of gay people had followed good utilization practice of condom, 100% bisexual people had followed good utilization practice and 78% transgender had followed good utilization practice. Out of total respondent, 80% were found to be using condom consistently during sexual contact in last 12 months. 93% of the respondent were found to be associated with LGBTI related organization from where they obtained various types of health benefits. Similarly, 85% of the respondent participated
in Sexual and reproductive health programs. 58% of the respondent's family had no knowledge regarding sexual identity of respondent and 36% received no support for their sexual identity. There was found to be significant association between alcohol consumption during sexual contact and utilization of condom.

**Conclusion**

Gay, bisexual and transgender in Nepal are key population for HIV/AIDS transmission. Therefore, more efforts should be made for addressing this issue with proper prioritization, planning and implementation on condom program.

**Keywords**

Condom, gay, bisexual, transgender

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2.7.6 Factors Associated with Compliance of Iron and Folic Acid Supplement during Pregnancy in Kapilvastu District of Nepal

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**Background**

Approximately 60 percent of the pregnant women are anemic in developing countries, of which more than half are considered to be due to iron deficiency. In Nepal, the most common cause of maternal anemia is inadequate intake of iron. Although, Nepal government had started iron and folic acid (IFA) supplementation in early 2000, compliance with it is not encouraging especially in high anemia prevalent area, Terai region. This study aims to examine determinants of IFA consumption among pregnant women in Kapilvastu district of western Terai.

**Methodology**

A community based cross-sectional analytical study was conducted in Kapilvastu district. Altogether, 480 infant's mothers were selected using multistage cluster sampling technique. Data were collected through interview using pretested questionnaire. We applied binary logistic regression to examine relationship between risk factors and compliance with IFA supplement.

**Results**

The compliance of IFA supplement was 33.5% (95% CI:29.46-37.88). SLC and above respondent education status (AOR: 6.944, 95% CI: 2.251-19.675), ≥ 20 years age at first pregnancy (AOR: 1.927, 95% CI: 1.052-3.532), early ANC start (AOR: 3.548, 95% CI: 1.641-7.672), ANC visit ≥ 4 times (AOR: 3.205, 95% CI: 1.680-6.115), Health education about IFA supplement during antenatal visits (AOR: 8.107, 95% CI: 4.664-14.152) were found a significantly associated with IFA compliance during pregnancy. Side effects of the supplement and forgetfulness was most common reason for non-complaint.

**Conclusion**

Compliance to IFA supplement was low in Kapilvastu district. Educational status of mother, frequency of ANC, ANC start time, age at first pregnancy and health education about the iron and folic acid supplementation were found to be significantly associated with the compliance of iron folic acid supplements during pregnancy. An understanding of the influencing factors provides important
2.7.7 Menstrual Hygiene Practice and School Absenteeism among Rural adolescent girls of Kalikot

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Background
Menstruation is a part of female reproductive cycle that starts when girls become sexually mature at the time of puberty. During menstrual period a woman bleeds from her uterus via vagina. This study sought to assess the menstrual hygiene practice and school absenteeism among the rural school going adolescent girls.

Methodology
A descriptive cross-sectional study was done among 321 female high school students of 4 selected government school of rural district of Nepal.

Results
It was found that the majority of student’s menstrual hygiene practice was poor i.e. 86.9%. Majority of respondents (96%) used clean cloth during their menstruation cycle, whereas only 4% of respondents used sanitary pad. Almost every adolescent girl i.e. 98.8% practiced any cultural restrictions. Nearly one in four respondents (22.1%) did not attend school during their last menstruation and more than 1 in 10 adolescent girls felt that their academic performance was degraded after than before menarche. Similarly, age group 10-14 were 70% (OR=0.33, 95% CI=0.164-0.680) more likely to have good menstrual hygiene practice than 15-19 age group. Similarly, school absenteeism among respondent according to type of family i.e. nuclear and joint family share equal chance, i.e. 50% (OR=0.522, 95% CI=0.306-0.890).

Conclusion
The study revealed the fact that among the adolescent girls of the study area, the overall menstrual hygiene practice was found to be poor and the various beliefs were found to be inappropriate and school absenteeism was also prevalent during menstrual cycle.

Keywords
Menstrual hygiene, school absenteeism, adolescent girls, 10-19 years
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Background

Improving maternal health is one of the key components to achieve universal health coverage. Globally wide efforts have been made to achieve this goal and in some regions much progress has been achieved. However, progress has been uneven & inequitable, both between and within countries. Though there are wide disparities in maternal health services, this study was focused on the two key maternal health indicators (1) Skilled Birth Attendants (SBA) during delivery & (2) Place of delivery. “Three delays framework” was used to categorize and explain socio economic determinants of inequity in Nepal, India and Sri Lanka.

Methodology

This is an article review which adopted narrative synthesis (a mixed method approach). Literature search was conducted from a relevant database including: Scopus, ProQuest and PubMed. The search was performed using developed list of search terms to find out published papers from Nepal, India and Sri Lanka. The study also used data from Nepal Demographic Health Survey (NDHS, 2011), National Family Health Survey, India (NFHS, 2006) and Sri Lanka Demographic Health Survey (DHS, 2007).

Results

From 438 articles, sixteen studies were included, from Nepal, India and Sri Lanka. Findings were organized under three delays themes: (1) deciding to seek health care by women and/or her family, (2) Reaching health care facility and (3) Receiving adequate and appropriate health care at the facility. The evidence from these studies showed wide variation in use of maternal health services exist both between and within respective countries. These differences are affected by education, distance, lack of transportation, cost of transportation and cost of delivery at hospitals.

Conclusion

This study has shown high variations in the use of maternal health care services in South Asian countries. Nepal and India had lower access and higher inequalities in utilization of SBAs at delivery and institutional delivery by socio-economic determinants compared with Sri Lanka.

Keywords

Maternal health services, inequities, disparities, skilled birth attendants, institutional delivery

2.7.9 Quality of Life of Menopausal Women Residing in Dharan Sub-Metropolitan City

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Background

Menopause poses a big challenge during middle age and to the healthy aging of woman. Majority of women face various problems and disturbances in daily living leading to decrease in quality of life. The main aim of this study was to assess menopause related symptoms and quality of life of menopausal women in relation to the symptoms.
Methodology
Descriptive cross-sectional study was done among 200 women of age between 40-60 years at selected wards of Dharan Sub-metropolitan City from December 2014 to Jan 2015. Semi-structured questionnaire for demographic variables and menopause specific quality of life questionnaire were used to collect data. Interview technique was adapted. Descriptive and inferential statistics were used to interpret the data considering p value <0.05.

Results
Mean menopausal age of the study group was 47.14 years. The most common symptoms of vasomotor, psychosocial, physical and sexual domains were hot flushes, experiencing poor memory, feeling tired or worn out and change in sexual desire respectively. The overall score of menopausal quality of life for each domain reported that highest mean score in sexual domain (3.58 ± 1.62) and least score in vasomotor domain (2.08 ± 1.67). The score of physical domains was significantly high in late postmenopausal group than early postmenopausal group. Significant association was obtained with age, ethnicity, menopause status, physical activity and marital status in relation to the domains of quality of life.

Conclusion
The results conclude that all the menopausal women were having at least one menopausal symptom from each domain. The menopausal women scored highest in sexual domain and least in vasomotor domain, suggesting decrease quality of life in relation to sexual domain. Menopausal symptoms were associated with decreases in quality of life of. Thus, awareness regarding the menopausal changes should be focused in premenopausal age group of women.

Keywords
Menopause, quality of life, menopause specific quality of life

2.7.10 Knowledge Regarding Antenatal Care among Expectant Father Attending Tertiary Level Hospital
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Background
Antenatal care is considered as the one of the pillars of safe motherhood and is important in order to identify women at risk of developing pregnancy complications. The components of ANC include: risk identification; prevention and management of pregnancy-related or concurrent diseases; and health education and health promotion. For a successful pregnancy outcome, the support of the family, especially the husband cannot be over emphasized but in the developing country like Nepal the role of father during pregnancy is neglected.

Methodology
A descriptive cross-sectional study was conducted among 102 expectant fathers attending Antenatal Clinic of NMCTH using purposive sampling technique. Face to face interview was conducted by using self constructed valid structured questionnaire. Data analysis was done in SPSS Version 16 using descriptive statistics such as frequency, percentage, mean and standard deviation. Inferential statistics such as Chi square test and Fisher’s exact test was used to determine the association between knowledge and selected socio-demographic variables.
Results
Out of total 102 expectant fathers, majority 94(92.2%) of them had inadequate knowledge regarding antenatal care while least of the participants 8(7.7%) had moderate knowledge. Adequate knowledge was not found in any of the expectant father.

Conclusion
Even though most of the participants had inadequate knowledge regarding antenatal care, majority of the participants have accompanied their partners to the antenatal clinic for checkup at least once. Thus, the result signifies the crucial need to conduct more effective educational program to increase the level of knowledge among the expectant fathers as well as the pregnant women.

Keywords
Knowledge, expectant father, antenatal care

2.7.11 Use of Metformin in HAIR-AN Syndrome: A Case Report from Nepal
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Background
HAIR-AN syndrome is a sub phenotype of polycystic ovarian syndrome, an acronym for unusual multisystem disorder that consists of hyperandrogenism (HA), insulin resistance (IR), acanthosis nigricans (AN), which is often underdiagnosed. Hyperinsulinemia plays crucial pathogenic role in this syndrome favors that pharmacological interventions that decrease circulating insulin levels in women with HAIR-AN syndrome will improve the condition. Undiagnosed and untreated insulin resistance is linked to long term complications, such as dyslipidemia diabetes and coronary artery disease. The aim was to report a case of HAIR-AN syndrome effectively managed with metformin therapy.

Case summary
A 20 years female was referred to endocrine OPD for the evaluation of increased testosterone level with features of thickened skin lesion over the nape of neck and armpits, excessive weight gain and hair growth in different body parts for one year. Prior routine investigations were unremarkable while blood chemistry test revealed increased T3 and testosterone level. Abdominal ultrasound showed hepatomegaly with polycystic ovaries.

On examination, blood pressure: 120/80 mmHg, BMI: 29.05 with hyperpigmented skin over the nape of neck and axillary region, coarse skin, centripetal obesity, hirsutism, alopecia noted. Laboratory workup was done to rule out metabolic syndrome. Circulating testosterone and DHEAS level were markedly increased while SHBG and vitamin D were decreased. Lipid profile showed hypertriglyceridemia, antinuclear antibody test was negative. Blood sugar profile plus electrolytes were within normal limits. Contrast enhanced CT abdomen suggestive of hepatomegaly with fatty changes, bulky bilateral ovaries. She was diagnosed as HAIR-AN syndrome and managed with metformin in escalated dose in subsequent follow up visits with combined oral contraceptive pills and vitamin D3 plus calcium carbonate for three months. After six months of metformin therapy, she presented with reduction in
weight and regression of acanthosis nigricans was clinically observed.

**Conclusion**

Metformin causes reduction in weight which is beneficial in the management of HAIR-AN syndrome.

**Keywords**

PCOS, HAIR-AN Syndrome, Metformin, Weight loss

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2.7.12 Pre post knowledge assessment regarding effectiveness of short maternal and newborn health videos among pregnant women in Khotang district of Nepal

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**Background**

Lack of awareness has negative impact on utilization of maternal, newborn and child health (MNCH) services. Recognizing the importance of IEC/BCC in improving awareness, OHW in collaboration with Medical Aid Films has developed three MNCH videos Understanding Focused Antenatal Care, warning signs in pregnancy and Care of newborn, 10 minutes each and all approved by NHEICC. Objective: To assess whether viewing MNCH videos has an impact on the knowledge level related to MNCH among pregnant women

**Methodology**

Single arm pre post study design was used to measure the change in knowledge before and after watching the videos, applying paired t test. The videos were shown to pregnant women in four places of Khotang, 101 pregnant women participated in the study. Pre/post questionnaire were administered through interview before and after watching the videos. To calculate the knowledge level, 1 point was given for each correct answer. For three videos ANC, warning signs and newborn care, the total possible score were 19, 20 and 20 respectively.

**Results**

There was significant improvement in mean knowledge score after watching videos, mean knowledge score improved from 9.8 to 14.8 for ANC video, 2.6 to 10.2 for warning sign video and 6.4 to 14.2 for newborn care video. Knowledge on 4 ANC increased from 61% to 95%, maternity incentives increased from 43% to 77% and on at least two BPP from 34% to 70%. Knowledge on at least three danger signs, symptom of infection, eclampsia and PNC checkup were less than 20% before watching the videos which slightly increased after watching videos.

**Conclusion**

There is significant improvement in knowledge score on MNCH issues after watching the videos, which implicates that audio visual program at community level is effective in increasing their knowledge level.

**Keywords**

Maternal and newborn health, community videos, pre post knowledge, Nepal
2.8.1 Validation of Global Mental Health Assessment Tool in Western Development Region, Nepal: A Cross Sectional Study

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Background
Global Mental Health Assessment Tool Primary Care Version (GMHAT/PC) is comprehensive tool that can encompass wide array of mental health problems.

Methodology
A Cross sectional study was carried out in western regional hospital Kaski to validate and examine feasibility of Global Mental Health Assessment Tool Primary Care Version (GMHAT/PC). The GMHAT/PC tool and semi structured questionnaire was used to collect data. Interview was taken by the person with PCL in General medicine qualification. Data were analyzed using SPSS-16 version. Sensitivity and specificity were calculated to measure the validity of GMHAT/PC. Positive Predictive Value (PPV) and Negative Predictive Value (NPV) of tool, positive and negative likelihood ratio were calculated. Cohen’s Kappa statistics were calculated to determine inter-rater reliability for the tool. Average time taken for the interview, patient satisfaction and completion of interview by the patient was taken as an indicator of feasibility.

Results
The tool had good sensitivity 0.79 (95% CI: 0.73-0.85) and excellent specificity 0.94 (95% CI: 0.83 – 1). Overall, there was a good level of agreement between psychiatrist and GMHAT/PC 0.76 (95% CI: 0.67 – 0.84). Likewise, overall Positive Predictive Value (PPV) of the test was found to be excellent, 0.98 (95% CI: 0.94 – 0.99) while Negative Predictive Value (NPV was found to be fair 0.40 (95% CI: 0.24 – 0.56). And Likelihood Ratio Positive (LR +ve) of diagnostic agreement of the GMHAT/PC tool was found to be 13.17 (95% CI: 2.01 – 90.67) and Likelihood Ratio Negative (LR –ve) was 0.22 (95% CI: 0.15 – 0.31).

Conclusion
This study found good sensitivity, excellent specificity and good level of agreement and the GMHAT/PC tool was feasible in Nepal, so it can be used in different health care setting of Nepal

Keywords
2.8.2 Belief and Willingness Associated to Help Seeking Behavior Regarding Mental Illness among Undergraduate Students of Lalitpur District

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Background
Mental disorder will occur in one among five adolescents each year in future. Adolescents and young adults with mental illness are often discriminated and defamed causing them reluctant to seek help when needed. The purpose of this study was to assess belief and willingness associated to help seeking behavior regarding mental illness among undergraduate students of Lalitpur district.

Methodology
Descriptive cross-sectional study was used to conduct study among undergraduate students of Lalitpur district. A total of 400 samples was taken randomly from five colleges. Data analysis was conducted using SPSS version 16.0. Under descriptive summary statistics of data, frequency, percentage, mean, standard deviation was calculated. Association between dependent and independent variables were determined using chi-square test and binary logistic regression analysis.

Results
Among total 400 students, majority (79%) had previously sought help while facing any social or emotional problems. Major source of help seeking was friends (47.3%) from informal source and counselor (19.6%) from formal sources. Among 21% respondents who did not seek help; common reason was ‘it was not necessary’ (44.2%). More than half of the respondents had a negative belief towards mental illness (54.3%) and lower willingness to seek help (57%) respectively. There was a significant association between belief towards mental illness and help seeking behavior (p value=0.039). Also, significant association was found between willingness to seek help and help seeking behavior (p value =0.006).

Conclusion
Thus, it can be concluded that help seeking behavior regarding mental illness was found to be associated with both beliefs towards mental illness and willingness to seek help.

Keywords
Belief; help seeking; mental illness; willingness

2.8.3 The Influence of Night Shift Work on Quality of Life among the Nursing Students of Kathmandu

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Background
The night shift work has a certain impact in the individual’s sleep quality. However, quality of life due to sleep disturbance is yet to decide. This study helps in determining influence of night shift work on
quality of life among nursing students of Kathmandu.

**Methodology**

Cross-sectional study design was used in the study. The study population was third and fourth year Bsc. Nursing students. The required sample size for this study was 267. Data was analyzed using IBM Statistics SPSS version 16.0. Under descriptive statistics of data, frequency, percentage, mean, standard deviation was calculated. Data were collected using a standard questionnaire of PSQI and WHOQOL-BREF. The Cronbach's alpha of WHOQOL-Bref with 22 final statements was 0.899. The Cronbach's alpha of PSQI with 11 final statements was 0.719. The correlation between quality of life and sleep quality scores was evaluated using Spearman's correlation coefficient.

**Results**

Among the quality of life, social relationships domain, psychological domain and environmental domain had the lowest score in which environmental domain has (26.36±4.469) followed by psychological (20.04±3.422) and social relationships (11.04±2.214). The physical domain had the highest score (30.42±4.512). The mean quality of life was 87.86±12.042, 54.7% respondents had good quality of life and 45.3% respondents had poor quality of life. Sleep quality was weakly and negatively correlated with domains of quality of life; physical health (ρ = -0.337, P<0.001), psychological health (ρ = -0.268, P<0.001), social relationships (ρ = -0.226, P<0.001) and environment (ρ = -0.244, P<0.001).

**Conclusion**

This study revealed that Sleep quality was weakly and negatively correlated with domains of quality of life, which means better the sleep quality, better the quality of life.

**Keywords**

Quality of life, sleep quality, nursing students, night shift

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**2.8.4 Burden and Coping among Caregivers of Chronic Mental Illness attending Psychiatric Department BPKIHS**

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**Background**

Family caregivers of people with mental illnesses are a key support system. The caregivers suffer substantial burden as a result of the caregiving role and need help from the mental health professionals, since it is typically a chronic and long-term challenge. Caregivers use different coping strategies to cope with their burden.

The objective of the study was to assess the level of burden and coping among caregivers of chronic mental illness attending Psychiatric Department BPKIHS.

**Methodology**
A hospital based cross sectional study was adopted among 100 caregivers who had attended OPD and IPD of Psychiatric department. Caregivers were interviewed using the Zarit burden Interview scale and Brief Cope Inventory.

**Results**

More than half (52%) of the respondents were male and the mean age was 42.40. Majority of caregivers (66%) had severe burden, 28% had moderate to severe burden and six percent of them had mild to moderate burden. Mean score and SD of using Active coping as coping strategies was 6.97±1.167, followed by Acceptance 6.28±1.621 and Religion 6.28±1.471 respectively. Problem focused coping strategies were adopted more than emotion focused coping strategies. There was significant association between patient’s positions in the family and patient’s occupation with the burden. Positive correlation was found between caregiver burden and coping strategies that are statistically significant.

**Conclusion**

Majority of the caregivers experienced severe burden while caring their mentally ill relatives. Problem focused strategies were adopted by most of the respondents.

**Keywords**

Caregivers, chronic mentally ill patients, burden, coping, ZBI, COPE Inventory

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**2.8.5 Psychological Wellbeing among Hostel Students of Selected Hostel of Lalitpur**

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**Background**

Mental health problem is one of the most neglected issues among adolescents. Various studies have concluded the important effect of well-being on mental health. Many studies have been conducted to find out the psychological well-being among adolescents but very less is known about the psychological well-being of hostel students. The objective of this study was to identify the psychological well-being among hostel students.

**Methodology**

Descriptive cross-sectional research design was used in this study. The research was conducted in Little Angels College. The population for this study included all the students who were enrolled in hostel during the time of data collection at Little Angels College. A probability simple random technique was used to select the sample. Anonymity and confidentiality were maintained. Data was collected using self-administered structured questionnaire; Ryff’s Psychological Well-Being Scale developed by Carol Ryff. Data was analyzed by using descriptive statistics such as frequency, percentage, mean and standard deviation and inferential statistics such as t-test to find out association between selected variables.

**Results**

Findings of the study showed that majority of the respondents 51.2% were in the middle of the distribution, only 22.8% of them had high Psychological well-being and 26% had low Psychological well-being. There was a statistically significant association between Psychological well-being and satisfaction with academic performance (P=0.001), help from friends regarding studies (P=0.008),
faculty chosen (P=0.001) and physical health problems (P=0.002).

**Conclusion**

Findings of study concluded that the majority of the respondent’s psychological well-being was in middle of the distribution followed by low psychological well-being and very few respondents had high psychological well-being. Improving the quality or provision of facilities, peer support and good academic performance of students in hostels will enhance the psychological well-being of hostellers. So, counseling programs should be launched so that the hostel students can verbalize their feelings.

**Keywords**

Hostel students, psychological well-being

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**2.8.6 Stress and Its Coping Strategies among the Caregiver of Cancer Patients Attending B.P. Koirala Memorial Cancer Hospital, Bharatpur**

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**Background**

Care givers of patient suffering from chronic diseases like cancer faces variety of challenges like managing patients, fear of losing loved ones, financial burden etc and hence are at greater risk of developing mental health disorders like depression and stress. This study was conducted to assess the stress level and coping strategies adopted by the caregivers of cancer patient.

**Methodology**

A cross-sectional analytical study was carried out among the care givers of 138 cancer patients visiting B.P. Koirala Memorial Cancer Hospital. Kingston Caregiver Stress Scale was used to assess the stress level of respondents whereas coping strategy adopted by the respondent was assessed using modified version of Brief COPE Inventory.

**Results**

Almost one fourth of the respondents (26.1%) were suffering from moderate level of stress. Socio-economic factors like educational status and level of income were significantly associated (p<0.05) with level of stress of the respondents. Also, the relationship of caregiver was significantly associated (p<0.05) with stress level of the respondents. Praying and meditation (35.5%) and accepting the reality of fact that has happened (34.8%) were most adopted whereas, substance abuse (0.75%) 1.4%, blaming oneself for things happened (2.9%) and make fun of the situation (6.5%) were least adopted coping strategies by the respondents.

**Conclusion**

Significant number of immediate family members of cancer patients was suffering from moderate level of stress. Education as well as income level was associated with stress among respondent. Institution as well as community-based counseling centers can be helpful to manage the stress of the caregivers taking care of patients suffering from chronic diseases like cancer.

**Keywords**

Cancer, caregivers, stress, coping strategies


**2.8.7 Depression among Hypertensive Patients: A Hospital-Based Study**

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Background

The consequences of depression can be prevented by early detection, but it is still in growing trend aiding the burden of diseases. Similar to depression, hypertension is also influenced by biological and behavioral factors. Since both conditions tend to share a common pathway and combined have a far more adverse effect on health and quality of life. This study assessed the prevalence of depression and its factors among hypertensive patients.

Methodology

A hospital-based cross-sectional study was among 215 hypertensive patients at the Out-Patient Department of the randomly selected hospitals of Pokhara Metropolitan. High blood pressure was confirmed by their medical reports. Depression levels were assessed using the Beck Depression Inventory-II (BDI) scale. Demographics and risk factors were also assessed.

Results

The proportion of depression was 36.3% among hypertensive adults. Out of the depressed adults, majority had minimal or considerable depression i.e. 36.3% and few (8.8%) had severe depression. Age, sex, marital status, educational status, employment status, monthly income of the family, physical activity and history of chronic diseases were associated at p<0.05 with depression. Adults who never attended school were more likely to be depressed than adults who attended school (OR:2.98, CI: 1.18-7.52). Similarly, the adults who were unsatisfied with the health facilities provided by the hospital were more likely to depressed than the adults who were satisfied with the health facilities (OR=2.49, CI:1.20-5.18).

Conclusion

Around one-third of the hypertensive patients had depression in outpatient settings in Pokhara Metropolitan. Screening and awareness programs for the risk group of depression such as female, uneducated, unemployed and aged hypertensive population may contribute as an early intervention for depression.

Keywords

Depression, depression in hypertensive patients, hypertensive patients, mental illness, Nepal

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**2.8.8 The Magnitude of Anxiety and its Associated Factors among Elderly Population: A Hospital-based Study**

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Background

Anxiety is a normal phenomenon arising out of anticipation of danger. Normal anxiety becomes pathological when it causes significant subject distress and impairment of the functioning of the individual. Anxiety disorders are abnormal states in which most striking features are mental and physical symptoms. Globally, the prevalence of anxiety among elderly population ranges from 1.2% to 15% in community samples and 1% to 28% in clinical settings. This study assessed the prevalence of anxiety and its associated factors among the elderly population who visited a hospital for seeking health care.

Methodology

A hospital-based cross-sectional study using the Geriatric Anxiety Scale (GAS) – Version 2.0 was used among 318 geriatric population to assess anxiety symptoms. We applied consecutive sampling techniques to capture individual respondents. Descriptive statistics as mean, standard deviation and mean percentage were used to assess the level of anxiety. The association of level of anxiety with their selected demographic variables (age, sex, religion, ethnicity, type of family, residence, educational status, family monthly income) was analyzed by using the chi-square test.

Results

The magnitude of anxiety among the elderly population was found to be 68%. The highest score was 62 whereas the lowest score is 3 out of 75. The mean of the total score was 32.75±12.1 and the median score was 35. Sex, religion, and monthly family income were statistically significant (p-value <0.05) to the level of anxiety. Other demographic variables like age, type of family, religion, residence and educational status were not statistically significant.

Conclusion

More than two-thirds elderly population was suffered from anxiety. It can lead to further exacerbate the physical illness and adversely affecting a wide range of outcomes. The individual and group counseling and support programs could reduce the anxiety and its consequences among the elderly population.

Keywords

Anxiety; elderly population; geriatric anxiety scale; magnitude

2.8.9 Nicotine Dependence, Expenditure on Tobacco and Quitting Stages of Smokers in Shuklagandaki Municipality

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Background

Nicotine is a highly addictive chemical found in tobacco. Stages of change of smokers are salient for smoking prevention behaviors. The primary objective of this study was to assess the nicotine dependence, expenditure on tobacco and stages of change (SOC) of current smokers.

Methodology
Quantitative analysis was used among 280 samples of cross-sectional data obtained from June to December 2018 in Shuklagandaki municipality. Pretested questionnaire was used with face-to-face interview technique. Data entry was done in Epi Data and analyzed in SPSS software. Fagerstrom Test for Nicotine Dependence (FTND) and Heaviness of smoking index (HSI) was used to measure nicotine dependence where SOC model was used to assess the stages and decisional balance of smokers. Chi square test and binary logistic regression were applied for inferential analysis along with selected descriptive analysis.

Results

More than nine out of ten (92.5%) respondents were male and six out of ten (60%) were age group of 20-34 years. Almost one-tenth (9.3%) and more than one-third (36.8%) respondents were in medium to high nicotine dependency. The mean annual expenditure on tobacco products was Rs 33960. More than one-third (37.1%) respondents were in preparation stage and more than half (52.5%) respondents had weak decisional balance of smoking. Sex, age, educational status, marital status and duration of smoking were found to be associated on both nicotine dependence and heaviness of smoking.

Conclusion

Although more than one-third smokers were prepared for tobacco cessation, HSI dependency was found to be a public health problem. In contrast, FTND score showed that one out of ten respondents were nicotine dependent. The mean annual expenditure on tobacco products was Rs 33960.

Keywords

Current smokers, nicotine dependence, heaviness of smoking index, tobacco expenditure, stages of change, decisional balance

2.8.10 Health Promoting Behaviors and Mental Well-Being among Undergraduate Paramedics Students of Kathmandu Valley

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Background

Unhealthy lifestyle behaviors are major determinants of poor mental health and non-communicable diseases. The objective of this study was to assess the health promoting behaviors and mental wellbeing among undergraduate paramedics’ students studying at different colleges in the Kathmandu valley.

Methodology

This descriptive cross-sectional study was conducted among 423 undergraduate paramedics’ students studying at different health science colleges under Tribhuvan University, Pokhara University and Purbanchal University located within the Kathmandu Valley. The data were collected through self-administered questionnaire that included Health Promoting Lifestyle Profile (HPLP) module-II and Hospital Anxiety and Depression Scale (HADS) and socio-demographic questionnaire. The data were entered into Epi-data v3.1 and analyzed using Statistical Package for Social Science (SPSS v20).
Results

The overall HPLP mean score of the students was 134.85±15.98, with the highest mean score being for spiritual growth (25.71±4.15) and the lowest mean score being for physical activity (18.34 ± 3.89). A total 26.0% had severe anxiety and 23.9% had mild anxiety. Similarly, 4.3% had depression caseness and 18.2% were on borderline of depression case. About 50% of students had their HPLP score below the over mean score. Anxiety status was found significantly associated with student gender and their mother's occupation status. Similarly, students’ depression status was found associated with students’ faculty. Overall HPLP score was less than the mean HPLP score among those students with the borderline or presence of anxiety and depression caseness.

Conclusion

The students who were mentally healthy were found less likely to engage in poor health behaviors. Nearly, half of the students were categorized into some kind of anxiety status, therefore university should provide specific mental health training to enhance students’ skills in self-coping of anxiety and prevention of mental health disorders.

Keywords

Healthy behaviors, anxiety, depression, paramedic students, Nepal

2.8.11 Anxiety, Depression, Resilience and Self-esteem among Patients with Coronary Artery Disease Attending at a Cardiac Center, Kathmandu

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Background

Psychiatric morbidity such as anxiety and depression are common among patients with Coronary Artery Disease (CAD). The co-existence of psychiatric morbidity negatively affects the outcome of treatment and increases the overall burden of disease in CAD patients. The objective of the study was to identify the level of anxiety, depression, resilience and self-esteem among patients with CAD.

Methodology

Descriptive, cross-sectional research design and purposive sampling was used and a total of 168 patients having coronary artery disease were selected purposively for the study from the patients attending cardiac outpatient department of Sahid Gangalaal National Heart Center, Kathmandu. Data was collected from 2074-03-06BS to 2074-04-05BS by using pretested semi-structured interview schedule, Hospital Anxiety and Depression Scale, Essential Resilience Scale and Rosenberg Self Esteem Scale (RSES). Obtained data were entered into IBM SPSS 20 for window for analysis.

Results

The findings of the study showed that 27.4% of the CAD patients had anxiety caseness, 23.8% of the patients had depression caseness, 72.0% of respondents had higher resilience and only 45.8% of patients had higher self-esteem. Bivariate analysis showed the significant positive relationship between anxiety and depression score (r=0.482, p= <0.001), whereas negative relationship was
found between anxiety and resilience ($r=-0.281, p<0.001$) and depression and resilience ($r=-0.460, p<0.001$). Moreover, depression caseness and anxiety caseness were higher among patients who had lower self-esteem.

**Conclusion**

It is concluded that anxiety and depression are common among patients with CAD and one third of the patients have lower resilience and more than half had low self-esteem. Hence, CAD patients need be monitored regularly, provide regular counseling services to them and refer them for the treatment when needed.

**Keywords**

Coronary Artery Disease, anxiety, depression, resilience

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2.8.12 Prevalence of Dementia and Associated Factors among Senior Citizens Living in Old Age Homes of Kathmandu Valley

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**Background**

Mental illness among senior citizens is a major public health problem in both developed and developing countries. However, very less studies have been conducted to quantify actual scenario of this problem particularly in developing countries like Nepal. Therefore, this study aimed to assess the prevalence of dementia and its associated factors among the senior citizens living in old age homes of Kathmandu Valley.

**Methodology**

Cross sectional study was conducted among 304 senior citizens living at twelve different functional old age homes of Kathmandu Valley. Screening of the dementia was done using six-items scale (Six-Cognitive Impairment Test). The tool was translated into Nepali language and was pre-tested. The collected data were entered into Epi-data v3.1 and analyzed using SPSS v21. Descriptive analysis and multiple logistic regressions were performed.

**Results**

Among 304 residents (229 Females and 75 males) aged with 77.54 ± 9.53 years (mean ± SD) was included. Six-CIT disclosed that 24.3% had no cognitive impairment, whereas, 12.2%, and 163.5% had mild and severe cognitive impairment respectively. Chi square test revealed that dementia was associated with age (p = 0.004), gender (p <0.001), educational status (p <0.001), past occupation (p = 0.002), alcohol consumption (p = 0.042) and presence of diabetes (p = 0.006). Dementia was more than two times more likely among females (AOR = 2.86, 95% CI: 1.27-6.47) and among those who had depression (AOR = 5.12, 95% CI: 1.76-14.89) whereas, dementia was less likely among literate (AOR = 0.16, 95% CI: 0.07-0.380).
Conclusion

The results revealed high prevalence of dementia among senior citizens living in the functional old age homes of Kathmandu valley. Thus, prompt attention and appropriate interventions are required to prevent deterioration of their mental health for improved quality of life.

Keywords

Dementia, senior citizens, old age homes, Kathmandu valley

2.8.13 Knowledge and Attitudes towards Mental Illness among the Community People of Kageshwori Manahara Municipality

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Background

Mental illness refers to the wide range of mental health conditions disorder that affects person mood, thinking and behavior. Around 450 million people are currently suffering from mental disorders. Community's perspective and attitudes towards people with mental illness play an important role in mental health care. Community people can act as reinforcing agents for preventive, treatment seeking and rehabilitation of patients with mental illness. Therefore, this study was carried out to assess the knowledge and attitude of community people from age group 18 and above in Kageshwori Manahara Municipality.

Methodology

A community-based cross-sectional study was conducted with a sample of 308 respondents aged 18 and above years in Kageshwori Manahara Municipality. Proportionate probability sampling (PPS) technique was applied to select the study participants from particular wards. Data was collected using pretested semi-structured questionnaire. Data was entered and analyzed by (SPSS) software version 20. Chi-square test was used to identify the association.

Results

Among the total 308 respondents, 54.22% of the respondents had adequate knowledge on mental illness and 56.17% have positive attitude towards mental illness. Similarly, knowledge on mental illness was statistically significant with age (p=0.001), gender (p=0.004), monthly income (p=0.004) and educational status (p=0.001) of the respondents. Also, there was significant association of attitude towards mental illness with age (p=0.001) and educational status (p=0.001).

Conclusion

This study has revealed that there is inadequate knowledge in around half of the studied population. And also, there are still negative attitudes of respondents towards mental illness though the study is being conducted at the urban population. Efforts should be made to increase the level of knowledge and to bring about positive change in the attitudes of community people.

Keywords

Mental Illness, knowledge, attitudes
2.9.1 Assessment of cardiac self-efficacy and its impact on health behavior among the patients diagnosed with coronary artery disease in tertiary heart centers

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Background
Coronary artery disease is decreasing in many developed countries, but is increasing in developing and transitional countries, partly as a result of increasing longevity, urbanization, and lifestyle changes. Cardiac self-efficacy motivates the individuals to select a lifestyle about their cardiovascular disease via creating enthusiasm to adjust with such behaviors. The objective of the study was to assess the cardiac self-efficacy and its impact on health behavior of the patients.

Methodology
A cross-sectional study was carried out from October 2017- January 2018 among the patients with coronary artery disease from Manmohan Cardiothoracic and Vascular transplant center and B P Koirala Institute of Health Science using convenience sampling. Semi-structured questionnaire used in previous researches, with Cronbach alpha of 0.78 for cardiac knowledge scale, 0.87 for Cardiac Self-efficacy Scale and 0.75 for cardiac health behavior administered by face-to-face interview after pretesting was administered.1,2,3 Mean score was used to assess the cardiac self-efficacy. Statistical tools used were ANOVA, Independent t test, Pearson correlation and multiple linear regressions.

Results
Cardiac self-efficacy mean score was 37.14±7.32. The significant factors associated with cardiac self-efficacy were age, intake of green leafy vegetables and fruits in diet, cardiac knowledge and hyperlipidemia while the cardiac self-efficacy and cardiac health behavior was highly correlated.

Conclusion
Cardiac self-efficacy and health behavior are found to be correlated. It depended on age, academic qualification, Body Mass Index, intake of green leafy vegetables, hyperlipidemia and cardiac knowledge.

Keywords
Cardiac self-efficacy, cardiac knowledge and cardiac health behavior
2.9.2 Self-esteem and Coping Strategies among Deaf Students of Special School

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Background
In hearing world, deaf have to face more difficulties regarding their self-esteem. So, the purpose of this study was to find out the self-esteem and coping strategies among deaf students of special school.

Methodology
It was descriptive cross-sectional study. All the participants were selected for the data collection as 80 deaf adolescence students. Data was collected in Manakamana Bahira School by self-administered questionnaire, Rosenberg’s Standardized Self-esteem Scale and Coping Strategies Inventory Short Form. Anonymity and confidentiality was maintained. Data was collected and analyzed by using descriptive statistics such as frequency, percentage, mean, standard deviation and inferential statistics such as t-test to find out association between selected variables. Finally, the Pearson correlation test was used to measure the association between self-esteem and coping strategy of deaf students.

Results
The study found that most of the respondents (90%) had normal level of self-esteem followed by low level of self-esteem (7.5%). Only 2.5% of the respondents were in high level of self-esteem. Regarding the coping strategies, (3.68 ± 0.76) of respondents used emotion focused engagement followed by problem focused engagement (3.54 ± 0.66), problem focused disengagement (2.86 ± 0.48) and emotion focused disengagement (1.85 ± 0.65). We also found that self-esteem and coping strategies are correlated (r=0.256).

Conclusion
Deaf students had normal level of self-esteem and majority used emotional focused engagement. Counseling and awareness program should be given to upgrade self-esteem and encourage effective coping strategies among deaf students.

Keywords
Adolescence deaf students, coping strategies, self-esteem

2.9.3 Health promoting behavior and associated factor among school going adolescent residing Bharatpur Metropolitan City of Chitwan District

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Background
Health promotion is a core and the most cost-effective and efficient strategy to improve health, health literacy, empowerment, quality of life, social justice and reduce health inequality and poverty.
World Health Organization (WHO) pointed out, almost 60% of the quality of health of an individual health and the life depends on his/her behavior and lifestyle. The aim of the study was to assess the health promoting behavior and associated factor among school going adolescent residing Bhartpur Metropolitan City of Chitwan District.

**Methodology**

A descriptive cross-sectional study was done among 370 participants using self-administered questionnaire. Epi-data version 3.1 and SPSS version IBM 22 was used for data entry and analysis software respectively.

**Results**

Studies showed that the majority (84.3%) of adolescent were physically inactive and 75.9% of adolescents had good practice of using tobacco product-smoke, whereas 18.6% have average level and 5.4% have poor levels of using tobacco products-smoke. In addition, the majority (87.3%) had a good practice of using smokeless tobacco product, whereas 10.8% had average level and 1.9% had poor levels of using smokeless tobacco product. Almost half of respondents (45.9%) have practice of alcohol consumption and 65.1% of respondents have poor levels of regular health checkup behavior whereas one fifth had average level.

**Conclusion**

While comparing five health promoting behaviors (i.e. Physical activity, healthy food habit, smoke and smokeless tobacco use, alcohol consumption and regular health checkup), study showed that three fifth of adolescent had an average level of health promoting behavior whereas, one fifth had a good level of health promoting behavior and one fifth had poor level. Regarding association between different demographic variables, the level of health promoting behavior, gender-sex and educational qualification of mother were found to be statistically significant.

**Keywords**

Health promotion, physical activity, health food, tobacco use (smoke and smokeless), alcohol consumption and regular health check up

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**2.9.4 Prevalence, patterns, and correlates of physical activity in Nepal: Findings from a nationally representative study using the Global Physical Activity Questionnaire (GPAQ)**

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**Background**

The promotion of a physically active lifestyle might help address the increasing burden of non-communicable diseases in Nepal. However, there is a lack of nationally representative prevalence estimates on physical activity in Nepal. The aim of this nationwide cross-sectional study was to determine domain-specific physical activity (PA) levels and the association of socio-demographic and lifestyle characteristics with total physical activity among Nepalese adults aged 15-69 years.
Methodology
The data were collected using self-administered questionnaires in a nationally representative sample of 4,143 adults (66.5% females), comprised of both rural and urban populations in Nepal. Physical activity levels were assessed using the Global Physical Activity Questionnaire (GPAQ).

Results
Around 97% (95% confidence interval [CI]: 96% – 98%) of men and 98% (95% CI: 98% – 99%) of women were found to meet the recommended levels of physical activity. Both men and women engaged in high occupational physical activity, whilst most participants of both sexes did not engage in any leisure-time physical activity. A multiple regression analysis showed that less total physical activity was associated with older age, higher level of education, rural place of residence, never been married, being underweight, and smoking in both sexes and with overweight and obesity in males ($p<0.05$ for all).

Conclusion
Majority of Nepalese men and women are meeting the recommended levels of physical activity, due to labour intensive nature of jobs, whilst most people do not engage in any leisure-time physical activity. Our findings demonstrate the need for the promotion of leisure-time physical activity in Nepalese adults, especially targeting those of older age, unmarried, those with secondary and higher education, smokers, and people with body weight issues.

Keywords
Physical activity, STEPS survey, Nepal

2.9.5 Associated Risk Factors for Overweight and Obesity and Burden of Co-morbidities among Young Adult of Dharan-17
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Background
Obesity is a public health problem in several countries. South Asian countries are undergoing changes in disease structure marked by higher proportion of non-communicable diseases related morbidities and mortality. Nepal is currently experiencing significant lifestyle changes that include urbanization and migration which presents large health challenges. The primary objective was to find out risk factors for overweight and obesity among young adult of Dharan-17

Methodology
A community-based case control study was conducted in ward no. 17, Dharan. A self developed semi-structured questionnaire was used for data collection. Data was analyzed using SPSS version 16. Chi square test, Odds Ratio and Logistic Regression were calculated.

Results
The mean ± SD of body mass index among cases was 27.32 ± 2.84 and 21.107 ± 1.28 among controls.
Age, marital status, educational level, occupation, eating snacks, vegetable consumption, fruits intake, sweet intake, food consumption in hotel, physical activities, hours spending in gadgets, leisure time, exercise, day sleep were significantly associated with overweight and obesity. Overweight and obesity was significantly associated with respondent’s history of co-morbidities.

**Conclusion**

Age, occupation, snacks and vegetable consumption, eating in hotel, leisure time were the significant predictors of overweight and obesity. Special attention needed to be provided by policy makers while developing strategies to reduce the burden of overweight and obesity.

**Keywords**

overweight, obesity, risk factors, body mass index, case control study

**2.9.6 Prevalence of Risk Factors of Non-Communicable Diseases and Screening of Cardiovascular Diseases among Adults in Devchuli Municipality of Nawalpur District, Nepal**

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**Background**

The major Non-communicable diseases (NCDs) are cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases. Among the cardiovascular diseases, myocardial infarction and angina have high morbidity and mortality worldwide. This study assessed the risk factors of non-communicable diseases and screened myocardial infarction and angina.

**Methodology**

A cross-sectional study was conducted among adult population of 30 to 50 years in Devchuli Municipality of Nawalpur district, Nepal from June to December 2018. We used WHO STEPS survey questionnaire and rose angina questionnaire as study tools. We used complete filled 372 questionnaires to analyze and draw the results. Proportionate random sampling was performed to obtain the sample from each ward. Ethical approval was taken from Institutional Review Committee of Pokhara University. Permission to conduct study was taken from administration section of Devchuli Municipality and written informed consent was obtained from each participant.

**Results**

The prevalence of NCDs was 26.1%. Out of 372 participants, 34.1% had two risk factors of NCDs. The prevalence of the use of any type of tobacco products was 20.7% and consumption of alcoholic products was 19.62%. Prevalence of physically inactive was found at 44.9%. Out of the total participants 25%, 15.3%, and 3.5% reported hypertension, diabetes, and cardiovascular diseases respectively. Prevalence of rose angina and the myocardial infarction was found to be 8.06% and 2.7% respectively. Smoking and alcohol consumption were seen significantly associated with rose angina.

**Conclusion**

Prevalence of risk factors of non-communicable diseases was high. Angina and the myocardial infarction were also seen in the adult population. Individual and community-based behavior change intervention program would be the way out to overcome the problem.
Keywords
Angina, myocardial infarction, cardiovascular disease, non-communicable diseases, STEPS survey.

2.9.7 Health promoting lifestyle behaviors and quality of life among married adult females of Mahalaxmi municipality of Lalitpur district
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Background
Health promoting lifestyle behaviors are considered as the important determinants of both individual's positive health and quality of life (QOL). The aim of this study was to assess the health promoting lifestyle behaviors and quality of life among married adult females residing in Mahalaxmi municipality of Lalitpur district.

Methodology
This cross-sectional study was conducted among randomly selected 423 married adult females living in Mahalaxmi Municipality. A socio-demographic questionnaire, Health-Promoting Lifestyle Profile [HPLP II] module and WHOQOL Brief module was administrated through face to face interview method. The collected data was entered into Epi-data v3.1 and analyzed using Statistical Package for Social Sciences (SPSS v.20). Analysis of variance (ANOVA) test and independent t-test was applied.

Results
The overall Health Promoting Life Profile (HPLP) mean score of participants was 138.26±19.27, with the highest mean score being for spiritual growth (25.09±4.13) and lowest mean score being for physical activity (20.23±4.49). The overall QOL mean score of participants was 88.57±11.14, with the highest mean score being for environment domain (26.80±4.32) and lowest mean score being for social relationship domain (10.74±2.12). A total 45.60% of the participants had their QOL score less than the overall QOL mean score. The difference in the mean scores of HPLP sub-scales such as nutrition, interpersonal relationship and stress management were found significantly associated with the participants’ husband occupation. Furthermore, HPLP and QOL overall score were positively correlated.

Conclusion
The study showed relatively low HPLP overall score among majority of the participants and nearly half of the participants had their QOL score less than the average score. The results indicated need of interventions for the healthy behaviors promotion and quality of life improvement of the adult married Nepalese females.

Keywords
Health promoting behaviors, lifestyle, quality of life, and females
2.9.8 Awareness and Attitude on Hypertension among Female Community Health Volunteers in Kirtipur Municipality

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Background
Hypertension is one of the preventable causes of cardiovascular mortality and morbidity worldwide. Female community Health Volunteers (FCHVs) can be effectively utilized in hypertension management program in low- and middle-income countries hence, their awareness and attitude on hypertension should be good so as to deliver effective health education in community. The objective of the study was to assess awareness and attitude on hypertension among female community health volunteers (FCHVs) in Kirtipur municipality.

Methodology
A descriptive cross-sectional research design was used for the study. A total of 92 FCHVs were selected from 10 health posts of Kirtipur municipality by probability cluster random sampling method in proportionate number and were interviewed using a semi-structured interview schedule. Data was analyzed via SPSS version 20 by using descriptive statistics like percentage, mean, frequency and chi square test was used to identify the association between variables.

Results
The findings of the study concluded that most of the female community health volunteers (FCHVs) was 45.59 years. More than half (77.2%) respondents had moderately adequate awareness, 17.4% of respondents had adequate awareness and only 5.4% of respondents had inadequate awareness on hypertension. The study revealed that the majority of FCHVs had positive attitude towards their future involvement in hypertension management and community behaviour related to hypertension. The study showed that there was significant association of levels of awareness with age group, education level and training related to hypertension.

Conclusion
Result of the study concluded that most of the female community health volunteers (FCHVs) had high level of interest and readiness for hypertension prevention, control and management in community settings but had moderately adequate awareness which highlights that there is need to improve awareness of female community health volunteers (FCHVs) for which training programs will be effective to enhance their awareness on hypertension.

Keywords
Awareness, attitude, hypertension, female community health volunteers

2.9.9 Female Patients Satisfaction on Overall and Gender Responsive Service of selected Eye Health Facilities in Nepal

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Background
Previous studies found that cost, transportation and gender responsive eye health service are of the major barriers of service utilization by female. The aimed of the study was to assess the satisfaction of female patients with overall and gender responsive services of eye facilities and utilize it for further action in eye health to improve the gap of the services.

Methodology
A cross-sectional study was designed to conduct exit interviews with 308 female patients visiting eight eye care facilities in five districts of Nepal in 2018. A face-to-face interview was performed using a pretested semi structured tool adopted from Midterm Review of Vision 2020 and Gender Manual for Eye Health Programming and collected data in Open Data Kit. Descriptive analysis was undertaken using SPSS V19.

Results
Ninety-seven percent participants reported that they received services as per their expectation. Majority (90.4%) of operable cataract cases were willing to return to the same facility for future care. The major factors for satisfaction with service received at eye health facilities were: behavior of staff (39.7%), cleanliness (38.8%), treatment and transportation cost (37.2%), availability of female staff (21.5%) and gender responsive care (8.0%). The barriers faced were: unreceptive staff (22.2%), mismanaged queue (11.1%), did not examine thoroughly (11.15%). About 14.6% participants perceived that being female was the reason for difficulty in service access. Most of the participants rated user fee as reasonable. Majority (86%) had paid by out of pocket and taking loan.

Conclusion
Most of the patients reported that the available eye health services are within expectation of participants except gender friendliness of eye facilities. Further action is required to generate the information to address the all issues related to gender sensitive eye health intervention.

Keywords
Eye health, gender, Nepal, patient’s satisfaction

2.9.10 Barriers to Reporting of Medication Administration Errors among Nurses Working at Teaching Hospital, Kathmandu

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Background
Medication administration error reporting has been accepted as a basic attempt for the improvement of patient safety. The main objective of the study is to identify the barriers to reporting of the medication administration error among nurses.

Methodology
Descriptive cross-sectional research design was used. All the registered nurses working on various inpatient units of Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu were taken as study population. Proportionate stratified random sampling technique was used to select 228 nurses. A structured questionnaire was used to collect data. The findings were entered into EPI DATA3.1 and transferred onto the statistical package for social science 16 version for further analysis. Data was analyzed and interpreted by descriptive; mean, median, standard deviation, frequency and percentages and inferential statistics; independent t test, one-way ANOVA.

Results
Possible medication administration error was wrong dose (66.70%). Fear (1.76±0.36) and administrative response (1.46±0.39) related barrier was major barrier to reporting of medication administration error among nurses. It is observed that nurses who had less than five years of work experience present higher perception level regarding administrative response barriers in reporting MAEs. There is significant difference between disagreement over error related barrier and background variables such as age (p=.02, marital status (p=.01), work experience (0.006).

Conclusion
In this study, fear and administrative response related barrier is present as most influential barrier to reporting of Medication Administration Error. So it is necessary to establish communicative environment in inpatient unit to reduce fear and provide positive reinforcement to encourage reporting.

Keywords
Barrier, medication administration error, reporting

2.9.11 Community-level estimate of Deaths due to Injuries in Rural Areas of Makwanpur District, Nepal: A Verbal Autopsy Study
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Background
In settings where many deaths occur at home and where civil registration systems are not well established, deaths that occur away from health facilities may not be recorded and the cause of death not identified. Lack of such data at population level is one of the major barriers to planning and implementing health services for injury prevention. This research is a part of the Nepal Injury Research Centre (NIRC) project and will be conducted in Nepal with the support of Nepal collaborators: Mother and Infant Research activities (MIRA) and Kathmandu Medical College (KMC). The aim of this study is to test a model to identify and record deaths secondary to injuries.
Methodology
A one-year, prospective study that will take place in two rural municipalities (Bakaiya and Bhimphedi) in the Makwanpur district of Nepal using the Verbal Autopsy (VA) method. Data collection will be conducted in two stages: notification of an injury death in the community followed by the VA interview. FCHVs notify all deaths to local health post in-charge. From these, researcher identifies injury deaths and invites relatives of those who died from injuries to take part in a structured face-to-face interview.

Results
Based on a population size of 64,600, and proportion of deaths secondary to injury of 10%, we anticipate identifying ~64 injury deaths over one year. These cases will illustrate the circumstances of fatal injury in these communities, potentially modifiable risk factors for injury and indicate the proportion of fatal injury cases that access healthcare facilities.

Conclusion
The model developed and employed within this study may inform future methods to explore the epidemiology of fatal injury across rural Nepal, with the potential to monitor trends in injury deaths over time. Such information may be used to develop injury prevention interventions and inform health policies and services.

Keywords
Verbal autopsy, injury, death, Nepal

2.9.12 Micromarsupialization with intralesional corticosteroids to treat mucocele: A case report
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Background
Oral mucoceles, usually presenting as a single bluish lesion, are the most common benign lesions of the minor salivary gland often caused by trauma to the minor salivary gland ducts. Most of the treatment options available are invasive. They include marsupialization, surgical excision, dissection, laser ablation, cryosurgery, electrocautery, and intralesional steroid injections. This case report highlights the successful use of a less invasive combination treatment procedure as an alternative to the commonly practised invasive treatment options.

Methodology
A large mucocele on the ventral surface of tongue was treated by using micromarsupialization along with intralesional corticosteroid injection (dexamethasone). 4 surgical knots with 3-0 silk suture were made and 1 ml of intralesional dexamethasone (4mg/ml) was administered in the first visit. In the second and third visits in 1 week interval 0.5 and 0.4 ml of intralesional dexamethasone (4mg/ml) was given respectively.

Results
There was complete remission of the lesion. A one month and 3 months follow-up revealed no
Conclusion

The combination therapy used here can be a less invasive alternative to treat mucoceles. Moreover, the procedure is simple, well tolerated by patients and without any reported complications.

Keywords
Micromarsupilaization, dexamethasone, mucocele

2.9.13 Prevalence of smoking and its contributing factors among engineering students of Tribhuvan University in Kathmandu valley

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Background

The use of tobacco among youth, in smoking as well as smokeless forms, is quite high in the South East Asian Region including Nepal. The prevalence of smoking among non-health professional students (58.8%) was significantly higher than health professional students. This study was carried out to assess the prevalence of smoking and its contributing factors among the Engineering students of Tribhuvan University in Kathmandu Valley.

Methodology

This was a descriptive cross-sectional study carried out among the students of three TU colleges of engineering within Kathmandu valley whose sample size was 385. A pre-tested semi-structured self-administered questionnaire was used for data collection.

Results

The study revealed that the prevalence of current smoking was 24.9% (n=96) and the prevalence of use of smokeless tobacco was found to be 12.7% (n= 49) (95% CI=6.371-25.471). Almost 41% (n=157) of the respondents were ever smokers. Male respondents were more prone to be smoker than female respondents and was statistically significant (p=0.000). As per the study, 59.2% (n=93) started smoking after the age of 16 years. The main reason for smoking was to relieve stress (50.7%) and the main factor that influenced smoking was friends/peers (69.2%). Other factors like age (p=0.000), educational grades (p=0.000), income of family (p=0.000), pocket money (p=0.000), fathers’ education (p=0.003), place of living (p=0.000), smoking behaviors of family members (p=0.000), having smokers’ friends (p=0.000) are also highly associated with smoking behaviors.

Conclusion

The study revealed that the prevalence of smoking and smokeless tobacco was high among engineering students and effective measures to reduce tobacco smoking among engineering students are needed. Anti-smoking campaign should be launched among the university level students.

Keywords
Tobacco use, cigarette smoking, contributing factors, engineering students
2.9.14 Road safety knowledge and behavior among public health students in Kathmandu valley

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Background
Road traffic accident (RTA) has been constantly imposing an inconceivable public health challenge worldwide. World Health Organization, 2017 has predicted RTA to be the seventh leading cause of death by 2030 if the current rate surges. The UN General Assembly has declared 2011 to 2020 as the “Decade of Action for Road Safety”.

Methodology
A descriptive-cross sectional study was carried out among the public health students of 3 different colleges of Kathmandu Valley. Descriptive and inferential statistics were done.

Results
The age of the students ranged between 18 - 26 years with the mean age of 20.32 (SD +/- 1.666) consisting of 38.2% (n=84) male and 61.8% (n=136) female students. About 26% (n= 56) were daily vehicle riders. Almost 36% of the students had incurred road accidents within last 3 years with 11% cases resulting in hospitalization. Out of total students, 45% (n=99) and out of vehicle riding students 54% (n=30) had good knowledge regarding road safety. Knowledge was found associated with age (p=0.016), sex (p=0.034), students' grade (p=0.001), past experience of RTA (p=0.032) and having driving license (p= 0.031). Likewise, 53% (n=117) total students and 41% (n=23) vehicle riding students had good behavior. Behavior was found associated with sex (p=0.032), student grade (p=0.039), father education (p=0.042), past experience of RTA (p=0.039) and all behavioral variables. Male were comparatively more knowledgeable and had good behavior as compared to female students. Non-compliance rate of the student was 41%. A total of 70% (n=154) preferred Facebook website to get road safety information.

Conclusion
The study revealed female students had less knowledge and more risky behavior as compared to male students. Also, students with good knowledge had good behavior.

Keywords
RTA, road safety knowledge, college students

2.9.15 Attitude towards disability among person with physical disability in relation to income generation activities in Bhaktapur Municipality

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Background
Individual’s self-perception plays a vital role in understanding attitude towards disability. Attitudes
are the cognitive and behavioral processes that involve judgment and favorable/unfavorable reactions to aspects of disability. Furthermore, income generation activities make people socially and economically independent leading to a positive attitude. The main aim of this study is to assess attitude towards disability among person with physical disability in relation to income generation activities in Bhaktapur municipality.

Methodology
A cross-sectional analytical study was conducted among physically disabled in Bhaktapur Municipality from June to December 2018. Simple random sampling was performed among 175 sample through interview schedule. Data were entered in Epidata and analyzed through Statistical Package for Social Sciences software. T-test and one-way ANNOVA were performed to identify the association.

Results
The mean score for attitude towards disability was 55.65 ± 8.72. About 35.4% of the respondents were employed. Those who were employed had a positive attitude.

Conclusion
The positive attitude was found among people with physical disability to their own disability and focusing on the employment opportunities can improve their attitude. This study also inferred that research on attitude between public and disabled people are needed.

Keywords
Attitude towards disability, income generation activities, physical disability

2.9.16 Health Literacy on Diabetes Mellitus among Diabetes Patient at Kathmandu Model Hospital
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Background
Diabetes Mellitus is defined as the disorder of carbohydrate metabolism characterized by impaired ability of the body to produce or respond to insulin and thereby maintain proper levels of glucose in the blood. Diabetes mellitus has become one of the most challenging public health problems throughout the world. Health literacy as a term used for one’s skills to perform effective healthcare activities and appropriately use medical information. Health literacy is an emerging concept that involves the bringing together of people from both the health and literacy fields. Health literacy is a set of skills that include basic, functional, comprehensive, and critical and numeracy skills.

Methodology
Descriptive cross-sectional study design was used for this study. Sample size was 91 in number at Kathmandu Model Hospital among diabetic patient. Non – probability Purposive sampling technique was used to select the sample. STOFLA (Short Test of Functional Health Literacy in Adults) and RELAM Health Literacy Test (Rapid Estimate of Adult Literacy in Medicine.) were used for the data collection via interview method. Privacy was maintained by screening each respondent during the interview session. Informed consent was taken from the respondent before collecting the data.

Results
The findings of the study revealed that (80) 87.9% respondents don’t reveals the normal blood glucose level. Majority of the respondents (81) 89% couldn’t remember their last blood glucose level and (21) 23.1% respondents forgot their medicine name they are taking. Respondents had unsatisfactory health literacy level which is 86.65%.

**Conclusion**

Most of the respondent did not know the normal blood glucose level and medicine they are taking regularly. Hence there is important to enhance the health literacy on diabetes which will help to take prompt action during emergencies and minimize diabetes relates complications.

**Keywords**

Diabetes Mellitus, Health Literacy, Basic, Functional, Numeracy, Comprehensive & Critical health literacy

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**2.9.17 Health Literacy on Hypertension among Hypertensive Patient at Kathmandu Model Hospital**

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**Background**

Blood pressure is the force of blood against the artery walls as it circulates through the body. High blood pressure or hypertension is the constant pumping of blood through blood vessels with excessive force. Hypertension kills nearly 8 million people every year, worldwide. Health Literacy is the degree to which individuals have the ability to obtain, process, and understand basic information. Health literacy is a set of skills that include Basic health literacy, functional health literacy, comprehensive health literacy, critical health literacy, numeracy skills.

**Methodology**

Descriptive cross-sectional research design was used for the study. Sample size was 74 of hypertensive patient at Kathmandu Model Hospital. Non-Probability Purposive sampling technique was used for sample selection.

Information was collected through interview methods with the help of questionnaires consists of Rapid Estimate of Adult Literacy in Medicine (REALM), Short Test of Functional Health Literacy in Adults (STOFILA) including questionnaire related to Socio Demographic Variable.

**Results**

The findings of the study reveal that 50 (67.6%) patient have family history of Hypertension. 25 (33.8%) patient can only read and write and 73% patient do not remember the name of the medicine that they are regularly taking for the hypertension.

**Conclusion**

Most of the respondents that 73% patient could not remember the name of the medicine. Hence there is important to enhance the knowledge the on health which will help to take prompt action during emergencies and help in minimizing the complications of Hypertension.

**Keywords**

Hypertension, health literacy, literacy, patient
2.10.1 Household economic status and body mass index among rural and urban population in Nepal

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Background

Inequalities in many low-and middle-income countries (LMICs) are higher in terms of underweight among poorer and overweight among richer quintile households manifesting dire nutritional challenges on either side. The aim of this study is to assess the association of wealth quintile and place of residence on underweight and overweight in Nepal.

Methodology

Nationally representative data of 2016 Nepal Demographic Health Survey (NDHS) were analyzed to observe the association between wealth quintile and participant’s place of residence and BMI of women and men age 15 to 49 years. Logistic regression analysis was used to access the relationship between BMI, place of residence and wealth quintiles.

Results

For both sexes, the distribution of underweight increased subsequently among poorer wealth quintiles and the prevalence of overweight was dispersed more among households in the richer quintiles. The proportion of underweight was the highest in rural while the urban has the highest proportion of overweight population. Wealth quintile was strongly associated with BMI for both sexes. A positive significant association between low BMI and poverty was observed with a higher likelihood of being underweight in poorer households. Richer households were associated with significantly higher BMI values. Compared to rural men, women in the rural were associated with higher odds of being underweight and the odds of being overweight were higher among the urban population.

Conclusion

Likelihood of having high BMI for both men and women was associated with an increase in household wealth and individuals in the poorer households were more likely to be underweight than the richer quintiles. The findings clarify that the wealth and urban/rural inequalities persist in nutrition posing challenges in nutrition among Nepalese. It is an alarming call for policy direction as the urban population is increasing rapidly along with the change in their dietary habits.

Keywords

BMI, undernutrition, overweight, adult nutrition, Nepal

2.10.2 Dietary Practices and Its Associated Factors among Secondary Level
Students of Private Schools in Pokhara Metropolitan

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Background
Since significant growth in an individual’s life is marked during his adolescence, diet of an adolescent should include nutrient required to meet the physical and cognitive development. This research assessed the dietary practices and its associated factors among secondary level students of private schools in Pokhara Metropolitan.

Methodology
A cross-sectional study was conducted among 411 secondary level students of private schools in Pokhara Metropolitan. Self-administered questionnaire was used as data collection tool to assess the 24-hour dietary recall, weekly food consumption pattern and factors affecting food choices of the adolescents. Chi-square test was used to explore the association between study variables.

Results
Significant number of adolescent boys (35.6% of <14 years & 56.1% of >14 years) had energy intake less than Recommended Daily Allowance (RDA). Almost 54% of the participants had good level of knowledge on balanced diet where 60.5% and 43.1% of the participants said they consume vegetables and fruits daily respectively. Consumption of junk/fast food was also found to be significant among the participants where 43% of the adolescent consume it daily. Variables like hours spent in school (p<0.01) and schooling nature (p<0.05) were significantly associated with participant’s knowledge on nutrition. Hunger, nutrient content of the food, high in fiber and food good for skin/teeth/hair were most important factors whereas, good advertisement, low calories, low fat, no additives, not expensive and food which keeps one alert were least considered factors for the choice of food items.

Conclusion
Significant numbers of adolescent boy do not meet their RDA for energy intake. Junk/fast food consumption among adolescent on daily basis is also remarkable. Hence, school and community based nutritional health program can have good prospect for prevention of adult onset of nutrition related diseases in future.

Keywords
Dietary Practices; Energy level, Adolescent

2.10.3 Nutritional Awareness and Health Status among Sportspeople in Baglung District, Nepal

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Background
Healthy dietary habits and food choices are strongly associated with nutritional knowledge. Most of the sportspeople have low nutritional knowledge and moreover they do not translate their knowledge in making appropriate dietary practices, as a result it is affecting their health and performance. This research studied the nutritional awareness and health status of sportspeople in Baglung district, Nepal.

Methodology
A cross-sectional analytical study was conducted among 198 sportspeople from July-December 2018 in Baglung district. Proportionate random sampling technique was used for selecting samples and face to face interview was taken. A semi-structured questionnaire was developed by reviewing the similar articles to my study and used as a tool for assessing the nutritional awareness and dietary habits. Health status was assessed through BMI, waist-hip ratio and physical fitness. Chi-square test was used to explore the association between dependent and independent variables. Karl Pearson correlation was used to examine the relation between nutritional awareness and dietary habits. Ethical approval was obtained from Institutional Review Committee, Pokhara University.

Results
The study among 198 respondents showed more than half i.e. 100 (50.5%) of the sportspeople had poor nutritional awareness and majority i.e. 107 (54.1%) had poor dietary habits. The relation between nutritional awareness and dietary habits was positive (r=0.372, p>0.001). About one-fourth of the respondents were underweight and ten percent were overweight whereas three of the respondents were found to be obese. About two-third i.e. 117 (60.06%) of the sportspeople had excellent physical fitness.

Conclusion
Majority of the sports people were poorly aware about nutrition and had poor dietary habits. Most of the sportspeople had excellent physical fitness. There was a positive correlation between nutritional awareness and dietary habits. Along with training, nutritional education should be provided to increase their nutritional awareness and health status.

Keywords
Nutritional awareness, dietary habits, BMI, waist-hip ratio and physical fitness

2.10.4 Nutritional status of under-five years children in Mugu, Nepal
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Background
Malnutrition in under five years children is a major public health problem, especially in rural Nepal. The study objective was to identify prevalence of malnutrition among children aged 6 to 59 months in rural municipality of western Nepal.

Methodology
Anthropometric measurements of children were made in nine erstwhile Village Development
Committees of three municipalities in western region i.e. Chhayanath Rara municipality, Khatyad and Soru rural municipality of Mugu district. Snowball sampling technique identified 1122 households with children aged 6 to 59 months during the period of June-July 2018. If a household included more than one under five year’s children, youngest child was selected for anthropometric measurements with standardized tools. Anthropometric indicators – underweight, stunting, and wasting was analyzed as per WHO 2006 standards. Emergency Nutrition Assessment software was used to analyze anthropometric measurements.

Results

In the surveyed areas of Mugu district, 16.4% children had global acute malnutrition (wasting) (18.9% boys & 13.6% girls), 9.5% were moderately (11.9% boys & 6.9% girls) and 6.9% were severely wasted (7.0% boys & 6.7% girls). In same age group, 59.6% were stunted (59.8% boys & 59.5% girls), 27.2% were moderately (25.5% boys & 29.1% girls), and 32.4% were severely stunted (34.2% boys & 30.4% girls). Prevalence of underweight was 40.6% (41.6% boys & 39.4% girls) where, 24.0% were moderately (25.4% boys & 22.4% girls), and 16.6% were severely underweight (16.2% boys & 17.0% girls).

Conclusion

Prevalence of malnutrition (stunting, underweight, and wasting) still remains major health problem among under five children. Severe stunting is major nutritional consequence for children in Mugu.

Keywords
Nutrition, anthropometric, stunting, underweight, wasting, under-five years

2.10.5 Food insecurity and dietary pattern among mothers having under-five age of children in Jaya-Prithivi municipality of Bajhang district

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Background

Food insecurity is a major public health challenge particularly in developing countries. More than half of the Nepalese households faced some level of food insecurity in the year round. Balance diet and recommended dietary diversity are essential to maintain healthy life and wellbeing of individual. This study aimed to assess the household food insecurity and dietary patterns among mothers having under-five age of children’s in Jaya-Prithivi municipality of Bajhang district.

Methodology

This is a community based cross-sectional study conducted among 417 randomly selected mothers having under five years’ age children. Data was collected through face to face interview using the Nepalese version of Household Food Insecurity Access Scale (HFIAS) and Minimum Dietary Diversity for Women (MDD-W) based on 24 hours recall method. Data entry was done in Epi-data software.
and analysis was done using SPSS v.20 software. Descriptive analysis, chi-square test and t-test was performed. A p-value < 0.05 in the analysis was considered as significant.

**Results**

The study showed more than half of the household had experienced some level of food insecurity in last 12 months. The average dietary diversity score (DDS) among mothers was 5.68 ± 1.42. About 42% of mother had low dietary diversity score i.e. below the average DDS. Low DDS of mothers were found significantly associated with food insecure households, mothers' low education status and mothers' informal occupation status.

**Conclusion**

Majority of the households were food insecure and more than two third of mothers had low dietary diversity score. Therefore, local nutritious food promotion is essential to meet recommended dietary requirements of mothers. Community based food security program is also recommended to prevent household food insecurity in hill community.

**Keywords**

Food insecurity, dietary diversity, and mothers

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**2.10.6 Knowledge and Practices of Mothers’ on Complementary Feeding and Nutritional Status of 6-23 Months Children among Marginalized Tharu Community**

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**Background**

Complementary feeding practice is a critical determinant of nutrition and health outcomes in infancy and early childhood and has lifelong repercussions. In Nepal, compliance to recommended complementary feeding practice has been shown to be low despite adoption of high impact policies and guidelines. However, significant gaps in complementary feeding lead the main reasons of malnutrition. The study therefore investigated complementary feeding practices on mothers’ in relation to the nutritional status of children aged 6-23-month-old children in marginalized community.

**Methodology**

A community based cross sectional research design was used to determine the knowledge and practices of mother’s on complementary feeding and nutritional status among children aged 6-23 months. Total of 145 mothers were interviewed by using structured questionnaire. Systematic random sampling was used for data collection. Interviews were conducted using a self-developed questionnaire.

**Results**

Almost one fourth (23.45%) of the mothers had high level of knowledge, less than (44.1%) of the mothers had average knowledge and one third (32.41%) of the mothers had low level of knowledge on complementary feeding. The present study has shown only 49.66% of the mothers had practice of exclusive breast feeding. The prevalence of nutritional status of this study showed that 20.71% of the children were stunted, 46.48% of the children were wasted and 41.96% were underweight.
Conclusion

Compliance to recommended complementary feeding practice remains low among mothers of infants and young children at marginalized community. Level of education, and family income were found to be significant correlates of nutritional status with the higher level of education being shown to enhance compliance to recommended complementary feeding practice. The maternal knowledge and practice towards complementary feeding was inadequate and there was a big gap between knowledge and desired practices although timely initiation complementary feeding overcome the malnutrition in Nepal.

Keywords
Complementary feeding, mother, nutritional status

2.10.7 Nutritional status of under five children and its associated factors in urban slums of Kathmandu valley, Nepal

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Background

Child nutritional status is a sensitive indicator of community health and nutrition. Malnutrition and poor diet constitute the prominent driver of global burden of disease. Children are one of the most vulnerable groups in the community and their vulnerability to poor nutrition and health is increased substantially due to substandard environment conditions and poverty in the slums. On the other hand, formation and proliferation of slums are one of the most visible and enduring manifestation of urban poverty in Nepal. This study aims to determine prevalence of nutritional status and its associated factors among under five children in urban slums of Kathmandu valley.

Methodology

This study is a descriptive cross-sectional study conducted in 11 small urban slums of Kathmandu valley using quantitative method among 106 children aged 6-59 months. Height and weight of child were measured using standard anthropometric measurement tools and z-scores for height for age, weight for age and weight for height were compared with WHO reference median population to determine prevalence of stunting, underweight and wasting respectively. Structured questionnaire was used to collect data through direct interviews and household visits and modified Kuppuswamy scale was used to measure socio-economic status of households. Data were entered in Epidata v3.1 and analyzed in SPSS V22.

Results and Conclusion

The study found that stunting and underweight have high prevalence and wasting is a serious public health problem. The prevalence of stunting, underweight and wasting was 34.9% [95% CI: 25.8%-44%], 30.2% [95% CI: 21.4%-33%] and 14.2% [95% CI: 7.6%-20.8%] respectively. Both underweight and stunting were found significantly associated with socio-economic status of the family and ethnicity. Underweight was found significantly associated with age of child and stunting was found significantly associated educational status of mother, age of child and perceived weight at birth.

Keywords
Malnutrition, under five children, nutritional status, malnutrition and under five children, urban slums