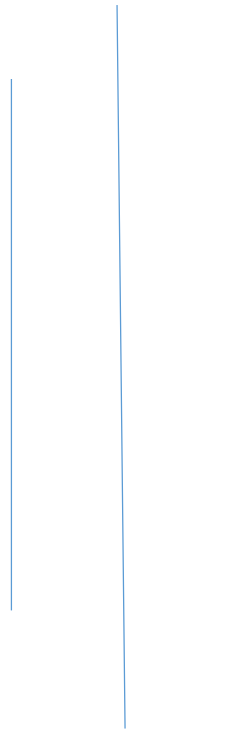


Abstract Book

**11th National Summit of Health and Population
Scientists in Nepal
10-12 April 2025**



**Health, Climate and Population Dynamics: Building Resilient Health Systems for a
Sustainable and Equitable Future**

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Welcome Letter

Dear Summit Delegates,

On behalf of the Nepal Health Research Council (NHRC), along with the Steering Committee, Scientific Committee, and Organizing Committee, it is our great pleasure to welcome you to the **11th National Summit of Health and Population Scientists in Nepal**. This annual summit is part of our ongoing commitment to fostering a strong research culture in the country and ensuring that scientific evidence informs policies and practices for a healthier Nepal. This year, we gather under the theme **Health, Climate and Population Dynamics: Building Resilient Health Systems for a Sustainable and Equitable Future**.

As Nepal navigates the evolving landscape of health challenges, climate change, and shifting population dynamics, building resilient health systems is more crucial than ever. The impact of climate variability on disease patterns, access to healthcare, and the well-being of vulnerable population demands urgent attention. At the same time, demographic shifts, including urbanization and migration, call for adaptive health strategies that ensure inclusivity and sustainability. Addressing these multifaceted issues requires a collaborative, evidence-driven approach that bridges research, policy, and practice.

Over the next few days, our summit will serve as a platform to engage in discussions, share new findings, and exchange ideas that can help Nepal build a stronger, more equitable health system. Through plenary sessions, panel discussions, and research presentations, we will explore how Nepal can be more responsive, equitable, and sustainable in the face of emerging challenges.

We aim to catalyse meaningful collaboration that drives impactful policy reforms and enhances health resilience. We are honoured to welcome participants from diverse sectors, including academia, research institutions, government agencies, NGOs/INGOs, and development partners. Your presence and active engagement are invaluable in shaping evidence-based policies and forging lasting partnerships for innovation in health research and policy-making.

We extend our sincere gratitude to Government of Nepal, policymakers, researchers, health development partners, and stakeholders who have contributed to making this summit possible. We look forward to an inspiring and productive exchange of ideas that will drive meaningful change for Nepal's health sector and beyond.
Thank you, and welcome to the summit!

.....

Dr. Pramod Joshi
Executive Chief (Member-Secretary)
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1. Plenary Session: Building Resilient Health System

1.1 Antimicrobial resistance and occupational health

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Abstract

Background: Antimicrobial resistance is a pervasive challenge in infection control. Although the microbiological mechanisms leading to e.g. antibiotic resistance (ABR) in the laboratory are well understood, and the societal structures that drive the development of ABR are generally known, there are still significant knowledge gaps and understudied biosocial dynamics involved in AMR in general and ABR in particular. Focusing on antibiotic resistance among workers in selected industries, this presentation will discuss preliminary findings from an international research project [AMR@LAB) that combines a wide range of disciplines and methods to forge new ways of understanding the development and control of ABR. The study shows that industrial work environments drive ABR in ways that vary across industries and argues that this is a hitherto overlooked dimension of ABR development.

1.2 Empowering communities to strength healthcare systems in the face of emerging health and financial challenges.

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Abstract

Background: In recent decades, Nepal's health system has faced quadrupled challenges: population transition, epidemiologic transition, health workforce migration, and climate change effects. Nepal has embraced devolution of power through three-tier federalism, and local levels are functional after a 15-year gap. These local levels have constitutional obligations to provide primary health services, contributing to a more responsive health system tailored to local needs and fostering accountability. However, fragmented efforts operating in silos, coupled with a lack of coordination mechanisms, capacity and resources, impeding the continuation of business as usual. Therefore, a new approach engaging local levels with communities is needed to address these emerging issues, further exacerbated by current financial challenges.

Case Studies:

1. Mothers' groups conducted a community survey on a topic never discussed before: child injuries. After a few months of engagement, facilitated by Female Community Health Volunteers and monitored by the local health post in-charge, these groups were empowered to conduct household visits and identify injured children.

2. The same community groups then utilized the information from the community survey to develop interventions. They established and managed a day-care centre, organized advocacy activities, and secured funds from the municipality.

3. Newly formed community groups in eight municipalities have learned about the new concept of road safety, identified road sections for safety improvements, negotiated with municipal leadership, secured their inclusion in the municipality's red book within a period of one year, and are developing a legal instrument to mainstream these activities sustainably.

These case studies demonstrate the feasibility of working closely with grassroots communities to conduct research, develop interventions, and advocate for policy changes. Many aspects of these approaches are transferable and applicable to priority health problems across all municipalities. A crucial need is a mechanism to coordinate communication between communities and local levels.

1.3 BHAVYA (Bihar Health Application Visionary Yojana for All)—pioneering initiative under the Mukhyamantri digital health Yojana, Government of Bihar, India

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Abstract

Background: Session will highlight BHAVYA (Bihar Health Application Visionary Yojana for All)—a pioneering initiative under the Mukhyamantri Digital Health Yojana, Government of Bihar, India—designed to digitalize Bihar's health ecosystem at scale. By integrating 13,000+ health facilities, 90,000 ASHAs, and 30,000+ medical professionals, BHAVYA is enhancing service delivery, streamlining workflows, and improving resource allocation. It strengthens disease surveillance, referral systems, and emergency response mechanisms, which are crucial for mitigating health risks. Through its integrated digital platform, BHAVYA optimizes patient care, resource management, and real-time data driven decision-making. Looking ahead, the future of digital health must incorporate the One Health approach—recognizing the interdependence of human, animal, and environmental health. With rising threats like zoonotic diseases, antimicrobial resistance (AMR), and climate change driven health risks, digital solutions can enable early outbreak detection, AI-driven predictive analytics, and the health interventions in remote areas. Expanding BHAVYA's framework to integrate One Health principles will strengthen disease prevention and public health preparedness. The discussion will also explore how digitized health infrastructure can future-proof healthcare systems against climate challenges, ensuring universal access, sustainability, and equity. Bihar's experience offers a scalable and replicable blueprint for digital health transformation across diverse populations, paving the way for a resilient and adaptive global health future.

1.4 Impact of climate change and extreme weather events on the transmission risk of dengue fever in China

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Abstract

Background: Dengue fever, an infectious disease caused by dengue viruses and transmitted by Aedes mosquitoes, has been on the rise globally, especially in China. Climate change, which alters temperature and precipitation patterns, significantly impacts the breeding of Aedes mosquitoes, virus replication, and disease transmission, making it a crucial factor in the spread of dengue fever.

Objectives/Methods: To explore these relationships, multiple models were employed, such as the spatio-temporal Bayesian mixed-effects model and the Ross-Macdonald model. These models analyzed data from various sources, including dengue fever cases in different regions and climate-related indices.

Results: The results showed that both extreme wet and dry conditions increased the risk of dengue fever, with different lag effects. Urbanization indicators modified this relationship, for example, higher economic development levels reduced the risk. In future projections, regions like South China had a high exposure risk, and the attributable excess risk of dengue fever varied under different climate change scenarios. The invasion pattern of dengue fever in China was concentrated in the southeast of the Hu Huanyong Line, and key driving factors were identified. Tropical cyclones were found to increase the risk of dengue fever, especially affecting male and people over 60 years old, and also influencing the density of Aedes mosquito.

Conclusion: In conclusion, climate change and extreme weather events have a complex impact on the spread of dengue fever in China. However, current research has limitations, such as more theoretical studies and fewer model levels. Future research should focus on constructing interdisciplinary coupling models and obtaining more laboratory evidence to better understand and prevent the spread of dengue fever.

1.5 Non-medical prescribing to widen access to medicines and mitigate health inequalities: International experiences

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Abstract

Background: Non-medical prescribing (NMP) refers to healthcare practitioners other than doctors or dentists such as pharmacists, nurses and midwives having legal rights to prescribe medications. Within the UK, NMP was introduced initially as supplementary prescribing practice, which required such prescribing to be supervised by doctors. However, this soon transitioned to independent prescribing. Through specialized training, practitioners are able to practice independent prescribing. Lately, this requirement of additional training has been abolished for pharmacists in the UK—all pharmacist upon registration have independent prescribing rights. NMP practices are beginning to emerge in other healthcare systems in the West.

NMP can have offer several benefits. It can help address the global healthcare/prescribing workforce gap, widens professional roles, maximises patient access to prescribers and thereby mitigate inequalities in access to prescribed medicines. However, barriers remain in its wider reach including lack of suitable implementation frameworks, lack of opportunities for NMP and patient trusts.

This keynote speech will provide a scoping view of international practices. It will summarise key evidence (and gaps) in relation to NMP implementation, barriers and outcomes. Presentation will also summarise how NMP can be incorporated to mitigate health inequalities faced by the poorest citizens in the society by bringing examples from speaker's own research in mental health and homelessness.

Gaps in healthcare workforce, made worse by emigration of healthcare workers and the need to address unauthorised prescribing practices within community pharmacies in Nepal makes the debate on NMP very timely. Speaker will offer personal insight on how NMP can be contextually adapted in Nepal.

2. Parallel Session

2.1 Theme: Non-communicable Diseases (NCDs)

2.1.1 Spectrum of overweight and obesity among school going population of Nepal: A meta-analysis

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Abstract

Background: Nepal is low-resource country focusing mainly on undernutrition and food supplementation in school going population. However, the spectrum of over nutrition including overweight and obesity is frequently under looked. Overweight and obesity at young age has been linked with risk of cardiovascular illness in adult life. So, this review aims to analyse the spectrum of overweight and obesity in school going population of Nepal.

Methodology: This systematic review and meta-analysis was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. Electronic database of Embase, PubMed, Google Scholar, Scopus, and Web of Science were searched from inception till September 1st, 2024 to find the potential articles on overweight and obesity in school going population of Nepal. Random effect model with 95% confidence interval (CI) was used to calculate the prevalence of overweight/obesity.

Results: Altogether, 29 studies with a total of 18325 school going population were included in the meta-analysis. The students were of age 5 to 23 years and were studying upto grade twelve. The pooled prevalence of overweight/obesity was 14% (95%CI: 0.11-0.16, $I^2=96.88\%$, $p<0.001$). Similarly, by pooling the data from 25 studies, prevalence of overweight was 10% (95%CI: 0.08-0.12, $I^2=94.97\%$, $p<0.001$); prevalence of obesity from 23 studies was 3% (95%CI: 0.03-0.04, $I^2=92.92\%$, $p<0.001$). From subgroup analysis, the prevalence of overweight/obesity was higher in urban areas 15% (95%CI: 0.12-0.19, $I^2=95.13\%$, $p<0.001$) compared to rural areas 13% (95%CI: 0.08-0.17, $I^2=96.88\%$, $p<0.001$). Furthermore, overweight/obesity was in rising trend after 2019 compared to previous years; 15% (95%CI: 0.11-0.19, $I^2=96.38\%$, $p<0.001$) vs 13% (95%CI: 0.10-0.16, $I^2=96.96\%$, $p<0.001$) respectively.

Conclusions: This meta-analysis showed significant burden of overweight/obesity among school going population of Nepal and is in increasing trend.

Keywords: BMI, Nepal, Obesity, Overweight, School health

2.1.2 Awareness and compliance with tobacco control policies among retailers nearby school in Arghakhachi district of Nepal: A mixed method study

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Abstract

Background: Tobacco consumption is the second leading cause of death among adults, and it is a major public health challenge worldwide including Nepal. This paper aims to assess the awareness and compliance of tobacco legislation among retailers nearby school and facilitators, and barriers to implement the legislation.

Methods: A cross-sectional mixed-method study design was carried out among randomly selected retailers (n=203) located within 100 meters of schools from 51 sites, along with 8 Key Informant Interviews (KII) with purposefully selected officials. Data were collected using an interview schedule, a checklist, and KII guideline. Awareness and compliance of retailers were measured for 14 provisions of the Tobacco Products (Control and Regulatory) Act (TPCRA), 2011 of Nepal. Bivariate and multivariate analyses were conducted to identify associations between variables and independent predictors for policy compliance, and manual thematic analysis was performed for qualitative data.

Results: Only one third (33%) of retailers were found aware on provisions of TPCRA while majority (93.6%) of retailers were found violating policy provision by selling tobacco close to school. Only 14.7% of tobacco retailers were found in compliance with the provision of not selling tobacco to minors and 5.8% retailers were found restricting sale of loose cigarettes. Retailers of rural settings were found two times (aOR 2.50, 95% CI, 0.99-6.27) more likely complying with ban to selling tobacco to minors compared to urban retailers. The enforcement of legislation, dedicated inspection mechanism and raised public awareness were found as key facilitators for policy implementation.

Conclusion: Awareness and compliance among retailers were found to be inadequate despite the enforcement of the TPCRA since 2011. In order to strengthen policy implementation, it is essential to raise awareness, conduct regular inspections, and empower officials and elected representatives to take proactive measures.

Keywords: Awareness, Compliance, Nepal, Tobacco control policies, Tobacco retailers

2.1.3 Dietary salt intake in suburban community of Nepal: Findings from a 24-Hour urinary sodium

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Abstract

Background: Most people consume nearly double the recommended amount of salt, averaging 9–12 grams daily, despite the World Health Organization's suggested <5.0 grams per day. Systematic reviews and meta-analysis shows that consumption of daily recommended salt intake would lower blood pressure BP by 7/4 and 4/2 mmHg in high blood pressure and normal blood pressure subjects respectively. Despite the high prevalence of hypertension and CVD in Nepal, there is insufficient evidence regarding actual salt intake using robust methods like 24-hour urinary sodium collection. Thus, the main objective of the study is to accurately assess the dietary salt intake in a suburban Nepali community by measuring 24-hour urinary sodium excretion.

Methods: This cross-sectional study was conducted in Dhulikhel municipality of Bagmati province Nepal. Anthropometric data, and blood pressure, were collected along with a self-administered questionnaire related to daily salt consumption. All inclusion criteria matched participants were well instructed about 24-hours urine collection procedure. Collected 24-hour urine sample was transported immediately to Dhulikhel Hospital-Kathmandu University Hospital (DH-KUH) for the measurement of urinary sodium. Descriptive statistics were employed to summarize participant's characteristics and estimated salt intake levels.

Results: A total of 309 participants (197 female and 112 males) meets all the criteria for 24-hours urinary sodium measurements. Mean age was 49.9 ± 15.5 , Mean urine volume 1905.1 ± 688.8 liter in 24 hours. Mean of estimated daily NaCl intake was 9.55 ± 3.2 g/day. There was statistically significant ($P=0.0005$) difference between daily salt consumption in different ethnic groups and dining out habits.

Conclusion: The study reveals that the average daily salt (NaCl) intake in this suburban Nepali community is nearly double then the recommended daily intake, and suggesting a potential risk for hypertension and cardiovascular diseases in the population. A community-based interventions is crucial to reduce salt consumption and reduce CVD burden.

Keywords: 24-hours Urinary sodium, Dietary Salt, Hypertension

2.1.4 Prevalence and predictors of glycemic control among diabetic patients in Lalitpur: A hospital based cross sectional study

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Abstract

Background: Diabetes Mellitus is a growing public health concern in Nepal and glycemic control is crucial for preventing diabetic related complications and deaths. It is influenced by multifactor, and prevalence of uncontrolled diabetes continues to rise despite treatment advancements. Hence, this study aims to find out the prevalence of glycemic control and its predictors among diabetic patients.

Methodology: A hospital-based, descriptive cross-sectional study was conducted in Lalitpur. Diabetic patients aged 18 years or above, on treatment for more than three months, and with HbA1c test in last three months were included. A pre-tested, semi-structured questionnaire based on WHO Stepwise approach was used for interviews. A purposive sampling technique selected 212 participants. Data were analyzed using descriptive statistics, chi square tests, and logistic regression to identify predictors.

Results: More than half of the participants were middle aged (53.8%) and female (51.9%), with majority residing in urban areas (82.1%). Most of the participants (93.9%) had Type 2 diabetes, and 67% had comorbidities. Nearly all participants (99.5%) were on oral antidiabetic drugs and 9.4% were receiving insulin therapy. Regarding glycemic control, 67% had poor control ($HbA1c \geq 7\%$), while only 33% achieved good control ($HbA1c < 7\%$). Poor glycemic control was significantly associated with rural residence, diabetes duration and treatment of 10 years or more, insulin therapy, and uncontrolled blood pressure. Regression analysis revealed that rural residents had 2.54 times higher odds of poor glycemic control compared to urban residents ($p = 0.04$). Similarly, participants with uncontrolled blood pressure were 2.47 times more likely to have poor glycemic control than controlled blood pressure ($p = 0.03$).

Conclusion: This study found that two thirds of participants had poor glycemic control, highlighting the need for targeted interventions, especially for rural residents and those with uncontrolled blood pressure to prevent complications.

Keywords: Diabetes, Glycemic control

2.1.5 Nutritional knowledge and dietary adherence among hypertensive patients in Lalitpur

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Abstract

Background: Hypertension is a significant public health issue and a leading cause of premature deaths globally. Adhering to the DASH diet is essential for managing high blood pressure. Despite the rising incidence of hypertension in Nepal, research on knowledge and adherence to the DASH diet is limited.

Methodology: This study aimed to evaluate the knowledge and adherence to the DASH diet among hypertensive patients in Lalitpur and the factors influencing them. A cross-sectional, descriptive, and analytical study was conducted at the outpatient department of KIST Medical College and Teaching Hospital in Lalitpur from November 6th to January 18th, 2023. A systematic random sampling method and a structured questionnaire were utilized to interview 290 hypertensive individuals aged 20-59 years. Multivariate logistic regression was employed to examine the relationship between independent and dependent variables, and the association was interpreted using an adjusted odds ratio at 95% confidence interval.

Results: Our study, showed less than half of the respondents (46.2%) had high DASH diet knowledge to which factors like education at least up to secondary level [AOR=3.6 (CI: 1.896-6.936) $p<0.001$], awareness about blood pressure level [AOR=2.3 (CI: 1.096-4.778) $p=0.028$], non-smokers [AOR=2 (CI: 1.037-3.882) $p=0.039$], and having high knowledge of hypertension [AOR=3.7 (CI: 1.077-13.012) $p=0.038$] were statistically significant. Only 41% of the hypertensive respondents were found adherent to the DASH diet to which factors like hypertension duration (>7 years) [AOR=2.2 (CI: 1.050-4.610) $p=0.037$], high level of DASH diet knowledge [AOR=2.3 (CI: 1.232-4.248) $p=0.009$], and high self-efficacy [AOR=7.7 (CI: 4.305-13.732) $p<0.001$] were statistically significant. The study concludes that the majority of respondents were non-adherent to DASH diet. Therefore, implementing strategies to enhance understanding of hypertension and the DASH diet, along with boosting self-efficacy, could be beneficial for improving health of hypertensive patients.

Keywords: Adherence, DASH Diet, Hypertension, Nutritional Knowledge

2.1.6 Linking community to public primary health center for management of hypertension: An implementation study of an integrated digital health application in rural Nepal

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Abstract

Background: This study aimed to assess adoption & feasibility of implementing android mobile phone application through Female Community Health Volunteers (FCHVs) linked to Front-Line Health Workers (FLHWs) at primary health centers (PHCs) to screen high blood pressure & provide continuum of care to people living with HTN in Nepal. We designed an android hypertension application. Our previous research on exploration of implementing HTN applications in rural Nepal FCHVs had shown willingness to extend their services on prevention of Non Communicable Diseases (NCDs). Therefore, the target users were FCHVs & FLHWs while target recipients were community people of Panchkhal and Bethanchok municipalities. We conducted key informant interviews (KIIs) and focus group discussions (FGDs) with

stakeholders(government & non government officials, FLHWs, FCHVs and patients with HTN)and analyzed thematically fitting in RE-AIM to evaluate the intervention triangulating backend data from application. Out of 294 community people screened by 27 FCHVs, 129 and 54 people were known and suspected cases of HTN respectively. Hypertensive cases were provided health education and 176 cases were referred to the health posts by FCHVs. Application offered complete digital recording, continuum of care from community to PHCs. Despite challenges; unavailability of combination medicines in PHCs and worries regarding lifetime medicine usage, stakeholders were positive regarding implementation and future scale up of the application in improving primary- and community-based care. The android application was feasible, well received, and provided support linking community people to PHCs for hypertension management.

Keywords: community, digital health, hypertension

2.1.7 Age-Sex distribution of overweight and obesity in school-aged children and its predictors: Insights from a multicountry study with a focus on Nepal

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Abstract

Background: Childhood overweight and obesity are increasing globally, contributing to the rising burden of non-communicable diseases (NCDs). This study examines the age-sex distribution and predictors of overweight/obesity among school-aged children across multiple countries, with a specific focus on Nepal.

Methods: This study uses data from the Global School-based Student Health Survey (GSHS) and the Health Behavior in School-aged Children (HBSC) study, covering 102 countries and territories. The analysis includes students aged 12–15 years (n=324,433), with Nepal contributing a sample of 4,616 students from 2015 survey. Overweight/obesity was defined using World Health Organization (WHO) child growth standards. Behavioral risk factors—including diet, physical activity, smoking, and alcohol consumption—were examined using logistic regression models, adjusting for age, sex, and country-level covariates such as the Human Development Index (HDI) and Gender Development Index (GDI).

Results: The overall prevalence of overweight/obesity varied significantly across countries, with higher rates in high-income regions. In Nepal, the prevalence was 8.2% (95% CI: 8.0–8.5), lower than the global average but reflecting a growing public health concern. Males had a higher prevalence than females in Nepal as well as among all the participants. Low physical activity (80.4%) and low fruit/vegetable intake (24.8%) were prominent risk factors in Nepal, consistent with observations in other low- and middle-income countries. Logistic regression analysis showed that low physical activity, low fruits and vegetable intake, HDI and were significant predictors of overweight/obesity.

Conclusion: While overweight/obesity is a global issue, regional disparities highlight the need for country-specific interventions. In Nepal, the high prevalence underscores the urgency of policies promoting physical activity and healthier diets. These findings contribute to the broader understanding of childhood obesity in Nepal and within low- and middle-income settings.

Keywords: NCDs, diet, obesity, physical activity, school-aged children

2.1.8 Vitamin D and Human health: Insights from local studies in Nepalese population

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Abstract

Background: Vitamin D is a critical micronutrient that plays a vital role in maintaining bone health, modulating immune responses, and preventing chronic diseases. Globally, there is increasing recognition of the importance of vitamin D in optimizing health and preventing various medical conditions. Low levels of vitamin D have been consistently linked to disorders such as rickets, osteomalacia, and osteoporosis. Additionally, vitamin D influences numerous biological processes, including cell growth, differentiation, apoptosis, immune regulation, DNA stability, and neuronal development. Here, we report the status of vitamin D among Nepalese population, drawing insights from local studies.

Methodology: Our study carried out in different districts of Madhesh province and Bagmati Province of Nepal revealed a markedly low value for vitamin D (27.18 ± 9.72 and 22.25 ± 7.13 , respectively) among study population. These data from local studies suggest a deficiency in vitamin D level in average Nepalese population according to the guidelines set by US Endocrine society that defines vitamin D deficiency as the level below 30 ng/ml in a normal adult. Additionally, one of our genetic study carried out among individuals visiting Tribhuvan University Teaching Hospital demonstrated significantly higher level of polymorphism in genes encoding Group specific vitamin D binding protein, vitamin D receptor and vitamin D-25 hydroxylase enzyme. Moreover, polymorphism in *rs4588*, a gene for group specific vitamin D binding protein, and *rs2238136*, a gene for vitamin D receptor was significantly associated with lower level of vitamin D.

Results: The findings highlight the prevalence of vitamin D deficiency across various demographic groups in Nepal, and explores the role of genetic polymorphisms in modulating vitamin D metabolism. It also summarizes the association between vitamin D status and other health outcomes. By integrating our findings with the global literature, we present the distinctive challenges faced by the Nepalese population in addressing vitamin D deficiency and its associated health impacts. The insights gained

from this review can improve public health strategies aimed at mitigating vitamin D deficiency and its associated risks in Nepal.

Keywords: Diabetes, Patient education, Health Literacy Questionnaire, Nepal

2.1.9 Effectiveness of the awareness program on non-communicable disease among future female nursing professionals of Nepal

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Abstract

Background: In Nepal, a study underscores the necessity of capacity building among health professionals, particularly newly qualified nurses, to address gaps in knowledge and skills related to Non-Communicable Diseases (NCDs). The study highlights the importance of NCD awareness programs as low-cost and high-impact interventions. To assess the impact of such programs, a single-group pre-post study was conducted among PCL nursing students in Kathmandu Valley, involving 540 participants.

Methods: The study utilized a mixed-method approach, with a structured questionnaire for quantitative data and focus group discussions/interviews for qualitative insights. The research focused on evaluating changes in knowledge and perceived program effectiveness. Participants, aged 18 and above, attended an NCD awareness class, and the study covered socio-demographic factors, awareness of NCDs, and the Package of Essential Non-Communicable Disease (PEN) intervention program.

Results: The results demonstrated significant knowledge improvement across different NCD domains. Participants showed enhanced understanding of NCD overview, risk factors, and prevention/control measures after the educational intervention. Although knowledge about the government's PEN program slightly declined in the delayed post-test, overall knowledge scores increased significantly, indicating the program's effectiveness. Qualitative findings revealed positive participant feedback, emphasizing improved understanding of NCDs, including signs, symptoms, control measures, and details about the PEN program. Teachers and students praised the program's thoroughness and impact, though some concerns about knowledge retention over time were raised.

Conclusion: In conclusion, the study highlights the success of the NCD awareness program in enhancing nursing students' knowledge and underscores the importance of continued efforts and curriculum integration for sustained impact.

2.2 Theme: Health Financing

2.2.1 Does Nepal's national health insurance program protect against catastrophic health spending?

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Abstract

Introduction: This study evaluates the effectiveness of Nepal's National Health Insurance Program (NHIP) in reducing catastrophic health expenditure (CHE), a significant concern in low- and middle-income countries.

Methods: We conducted an analytical cross-sectional study in Pokhara Metropolitan City, employing a two-stage random sampling strategy to select 1,276 households from 11 wards. Data were collected through structured interviews between May and October 2023. Propensity Score Matching (PSM) was employed to address selection bias arising from voluntary enrollment, and CHE was defined as out-of-pocket expenditure (OOPE) exceeding 10% of total household consumption. The Average Treatment Effect on the Treated (ATET) was estimated using post-matching diagnostics to ensure balance in covariates, while logistic regression analyzed the association between NHIP enrollment and CHE. Sensitivity analysis, utilizing Rosenbaum bounds, assessed the robustness of results to unobserved confounding.

Results: Of the 1,276 households surveyed, 534 (42%) were enrolled in the NHIP. However, NHIP enrollment was not significantly associated with reduced odds of CHE (Adjusted Odds Ratio [AOR] = 1.174, 95% CI: 0.78–1.74), and the ATET analysis indicated a 3.1 percentage point increase in the likelihood of experiencing CHE among enrolled households. These results suggest limited effectiveness of NHIP in protecting against CHE. Barriers to enrollment and retention, such as long waiting times (64%) and medication shortages (25%), contributed to a 16% dropout rate and reflect significant accessibility and operational inefficiencies. Additionally, the NHIP's benefit package was found to be insufficient, with essential services like transportation, diagnostics, and medicines inadequately covered, leading to persistent OOPE.

Conclusion: The findings highlight the need for NHIP to expand its coverage, introduce flexible coverage limits based on income and healthcare needs. Implementation of strategies to mitigate adverse selection and optimization of resource allocation and administrative processes will be critical to finance these improvements.

Keywords: Catastrophic Health Expenditure, Financial Protection, Health Financing, National Health Insurance Program, Nepal

2.2.2 Implementation and assessment of facilitation support for improving health insurance coverage in Achham

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Abstract

Background: Health insurance is a critical strategy for achieving universal health coverage, reducing out-of-pocket (OOP) healthcare expenditures, and improving access to healthcare services. Despite the implementation of the National Health Insurance Program (NHIP) in Nepal, enrollment and renewal rates remain low, particularly in districts like Achham. This study aimed to assess the effectiveness of facilitation support, delivered through patient navigators, enrollment assistants, and community health workers (CHWs), in increasing health insurance coverage.

Methodology: A mixed-methods approach was employed. The descriptive analysis examined enrollment trends and assessed the impact of CHW-led counseling on enrollment and renewal processes. The qualitative component explored program acceptability, adoption, feasibility challenges, and systemic barriers encountered during implementation.

Results: Facilitation support improved health insurance uptake, leading to a 5.1 percent increase in new enrollments within three months. While awareness of NHIP was high (62.7%), only 37.7 percent of households had at least one insured member, and 43.1 percent of policies were inactive. Among those counseled for renewal, 76.3 percent agreed to enroll or renew, with 71.3 percent successfully completing the process. Enrollment increased from 57,556 individuals in FY 2079/80 to 58,630 in FY 2080/81, representing a 1.9 percent growth in Achham district. Despite these gains, service gaps persisted; Stakeholders identified limited availability of enrollment assistants, barriers to referrals, activation time, first service point, healthcare service availability, insufficient financial support, stockouts of essential medications, and procedural complexities as key obstacles.

Conclusion: The facilitation strategy improved health insurance enrollment in Achham by addressing awareness, affordability, and procedural barriers. To sustain impact, efforts should focus on reducing Enrollment Assistant dropout rates, improving the referral system, ensuring timely healthcare services for insured individuals, and providing financial support for low-income groups. Scaling up these targeted improvements can enhance NHIP's effectiveness.

Keywords: Barriers, Enrollment, Feasibility, Health Insurance, Healthcare

2.2.3 Economic impact (Out-of-pocket and catastrophic health expense) of the national health insurance scheme in Nepal: A quantitative study

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Abstract

Background: One of the key objectives of the Nepal's National Health Insurance (NHI) Policy 2014 is to increase the financial protection of people by reducing out-of-pocket (OOP) and catastrophic health expense (CHE), which constitutes 54% of current health expenditure. Health Insurance Board (HIB) manages NHI; and the study measuring the progress towards financial protection is key to evaluate NHI impact and HIB implementation approaches.

Methodology: The study employed the pre-post with control group to measure NHI impact on OOP and CHE based on one district (Kaski). The study is part of a larger, mixed method with a concurrent qualitative component; and the qualitative findings are not included. A random sample of 100 pre-post household (HH) intervention group and 125 HH control group (only recruited corresponding in time to the post intervention survey) was interviewed, at the interval of 17 months, to record the health expense. The health expenses were disaggregated based on WHO criteria. Descriptive and inferential statistics were employed to measure the health expense between pre-post intervention group and with the control group.

Results: The total outpatient OOP and chronic illness cost increased from NRs 1700 to NRs 3900 ($p: 0.027$) and NRs 1500 to NRs 2000 ($p: 0.058$) respectively from pre to the post-intervention group. The hospitalization cost, however, was reduced by more than half from NRs 30000 to NRs 13000, in the same intervention group, though the difference was not statistically significant ($p: 0.465$). The CHE incidence decreased by maximum 5% at 10% threshold for the hospitalization expense from pre to the post-intervention. The control group had more health expense, for both outpatient and hospitalization cost, compared to intervention group. The findings had limitations but indicates that the NHI protected its members from CHE.

Keywords: Health Insurance, catastrophic health expense, financial protection, health financing, out-of-pocket health expense

2.2.4 Impoverishment impact of cancer in Nepal: A cross-sectional study from two public tertiary cancer hospitals

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Abstract

Background: Estimating the financial burden on patients with cancer is crucial for the evaluation of national cancer programs and policies. However, there is a dearth of comprehensive research on the impact of cancer care on patient level in low-resource settings. This study aims to estimate the impoverishment impact of cancer in Nepal as well as identify financial coping strategies used by patients and their families.

Methods: This cross-sectional study was conducted in two tertiary public cancer hospitals of Nepal. Face-to-face interviews were conducted with 353 patients undergoing cancer treatment. To estimate the incidence of impoverishment, we calculated the proportion of households that fell below the national poverty line after deducing out of pocket spending on cancer from the annual household expenditure. Similarly, the intensity of impoverishment was calculated by comparing the poverty headcounts before and after the out-of-pocket payments.

Results: Overall, 58.6% of the patients were members of at least one social health protection scheme and 81.6% had utilized treatment subsidies for cancer. Likewise, 56.4% of the households were already below the poverty line while after post-payment, 82.7% were below the poverty line. Out-of-pocket payments due to cancer thus pushed 26.3% of the households below the poverty line. Household or own individual income (83.3%) was the major source of financing for cancer care followed by borrowing or taking loans (59.2%). Overall, 40.2% of the participants had to cut back on food and other household consumption while 34.8% had to cut back on non-food expenditure.

Conclusion: This study highlights a substantial proportion of patients being impoverished due to cancer treatment expenses. Similarly, cancer treatment has depleted household resources and have compromised the ability to finance necessities such as food. These findings warrant the urgent need for prioritizing cancer interventions within the country's health benefit packages.

Keywords: Nepal, cancer, coping, impoverishment

2.3 Theme: Sexual and Reproductive Health and Rights

2.3.1 Trends and causes of mortality in PLHIV at Makawanpur art center, Hetauda hospital

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Abstract

Background: People Living with HIV (PLHIV) mortality is still a concern despite major improvements in HIV care and treatment. Improving interventions and care plans requires an understanding of death trends and causes. The patterns of mortality among people living with HIV have changed as a result of effective adherence to antiretroviral therapy (ART) and appropriate counseling.

Methodology: At the Makawanpur ART Center, Hetauda Hospital, 59 documented deaths among PLHIV were examined in a retrospective assessment of mortality data from 2013 to 2024. The information was gathered by carefully going over client files. HIV-related and non-HIV-related causes of death were distinguished, and trends were examined over time.

Results: Of 59 deaths, 41 (69.5%) were HIV-related, mostly due to advanced illness, pneumonia, and TB. Non-HIV deaths (18, 30.5%) were mainly from alcohol-related issues, heart failure, and suicide. In 2024, all five deaths were non-HIV-related, showing the impact of ART and better healthcare.

Conclusion: HIV remains a priority (P1) program under the Nepal Government, emphasizing the need to reduce HIV-related mortality among PLHIV. Encouraging early ART initiation and ensuring adherence support are critical strategies to improve survival rates. All healthcare workers must take responsibility for maintaining adherence, providing HIV-friendly services, and strengthening integrated care models to further reduce mortality in this population.

Keywords: PLHIV, HIV, ART, HIV/AIDS, adherence support, advanced HIV disease, tuberculosis, pneumonia, alcohol-related mortality, suicide, cardiac failure.

Keywords:

2.3.2 Socio-economic and demographic determinants of pregnancy pressure among married women in Nepal: An analysis of autonomy and ethnic disparities

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Abstract

Background: Socio-cultural dynamics deeply influence the reproductive health of women in Nepal. This study explores the demographic and socio-economic determinants of pregnancy pressure among married women of reproductive age in Nepal. It aims to provide insights into the cultural forces causing pressure.

Methods: This paper utilizes secondary data from the 2022 Nepal Demographic and Health Survey (NDHS). The analysis focuses on currently married women aged 15-49 (n=11,180). The research includes univariate, bivariate, and multivariate analyses. Binary logistic regression is employed to assess the factors associated with pregnancy pressure from husband and family members.

Results: Women with moderate or high autonomy in household decisions face significantly lower pregnancy pressure ($p<0.001$ for moderate autonomy, $p<0.01$ for high autonomy). Age plays a key role, with women aged 35 or above ($p<0.001$) and those aged 25-34 ($p<0.01$) facing higher odds. Ethnic disparities are evident, with Dalit, Muslim, and Madhesi women facing significantly higher pressure ($p<0.001$) than Brahmin/Chhetri women. Women with secondary or higher education face less pressure ($p<0.01$). Fertility status indicates higher pressure among women without children ($p<0.01$). Madhesh province faces the highest pressure ($p<0.01$). Place of residence, ecological region, and employment status are not significantly associated,

poorer women experience higher pressure ($p<0.01$). The model explains 3.4% of the variance in pregnancy pressure.

Conclusion: The analysis reveals that socio-economic and demographic factors significantly impact the likelihood of married women being pressured to become pregnant. Women with greater autonomy in household decisions face less pressure, while older age, ethnicity, lower education, and poorer economic status increase the odds.

Keywords: Family pressure in pregnancy, Forced pregnancy, Gender norms and pregnancy, Women autonomy

2.3.3 Menstrual knowledge, hygiene management practices and hygiene needs among the school adolescent girls of Gokarneshwor municipality, Kathmandu district

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Abstract

Background: Menstrual health and hygiene are vital for the wellbeing and empowerment of women and adolescent girls. Lack of awareness about menstruation can lead to unhealthy practices, while poor hygiene may cause reproductive health issues. This study aimed to assess the knowledge on menstruation, menstruation hygiene management practices and hygiene needs among the school adolescent girls of Gokarneshwor Municipality, Kathmandu District.

Methodology: A cross-sectional study was conducted among school adolescent girls of Gokarneshwor Municipality. Knowledge on menstruation and menstruation hygiene management practices was assessed using adapted tools and for menstrual hygiene needs, a tool by Julie Hennegan and colleagues was used. Bivariate analysis and Chi-square tests were performed to identify associations between dependent and independent variables, with significantly associated variables further analyzed through logistic regression.

Results: Overall, 58% of the participants had adequate knowledge on menstruation, while 73.5% of them practiced proper menstrual hygiene management. However, all participants had at least one unmet hygiene needs. The chi-square test results showed significant associations between menstruation knowledge and factors such as age ($p=0.001$), family type ($p=0.000$), father's occupational status ($p=0.000$), mother's occupational status ($p=0.000$), and living arrangement ($p=0.015$). Additionally, family type ($p=0.015$) was significantly associated with menstruation hygiene management practices.

Conclusion: Mothers play a crucial role in improving the practice of menstrual hygiene. Despite inadequate knowledge, adolescent girls can maintain proper hygiene, though all had at least one unmet hygiene need. Coordinated efforts from families,

schools, and local governments are essential to provide accurate information and create an environment that supports menstrual hygiene needs at home, school, and in the community.

Keywords: Kathmandu, Menstrual hygiene needs, Menstruation hygiene management practice, Menstruation knowledge, School adolescent girls.

2.3.4 Correlates of never testing for HIV among men who have sex with men in Nepal

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Abstract

Background: Men who have sex with men (MSM) are disproportionately affected by HIV. Existing structural barriers to HIV prevention efforts in Nepal increase vulnerability to HIV acquisition and transmission among MSM, undermining the HIV response. HIV testing is considered the gateway to both prevention and treatment of HIV, enabling timely intervention in HIV transmission. Therefore, this study aimed to measure and determine factors associated with never testing for HIV among MSM in Nepal. We conducted the population-based HIV bio-behavioral surveillance study of MSM between October and December 2022 using the respondent-driven sampling (RDS) method. We computed estimates for never testing HIV and conducted bivariate and multivariate analyses to explore the correlation between participant characteristics and never testing HIV. Among the 250 participants, 54.1% were under 25 years old, and 50.9% identified as bisexual. Over half of the participants (52.5%) had never tested for HIV in their lifetime, and only 11.7% had tested for HIV in the last 12 months. MSM who had not engaged in transactional sex (aOR:0.3; 95% CI: 0.1-0.8), had no daily internet access (aOR: 5.8; 95% CI: 1.6-21.2), had no prior diagnosis of sexually transmitted infection (aOR: 8.5; 95% CI: 2.9-25.5), had never heard of HIV self-testing (aOR:6.8; 95% CI: 2.9-16.2), and were unaware that someone taking PrEP (aOR:45.6; 95% CI: 10.7-194.1) had higher odds of never having been tested for HIV. Conversely, MSM who were single (aOR:0.3; 95% CI: 0.1-0.8) had lower odds of never being tested for HIV. This study highlights a significant gap in HIV testing among MSM in Nepal, particularly among those who engage in transactional sex, have been diagnosed with STIs, and were unaware of an HIV self-testing kit. The findings underscore the need to for targeted interventions to address multi-level barriers to increase HIV testing rates among Nepali MSM.

Keywords: HIV prevention, Men who have sex with men, Nepal, Never testing HIV

2.3.5 A realist synthesis of menstrual seclusion interventions in Nepal: How programs work, for whom, in which contexts, and why

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Abstract

Background: In parts of Nepal, menstruators follow chhaupadi, a menstrual seclusion ritual grounded in social and religious traditions, which exposes them to a spectrum of physical and psychological harms. Despite several interventions, including policies banning and criminalizing the practice, chhaupadi persists. To date, no studies have comprehensively assessed which components of chhaupadi interventions hold promise. This study aims to distill programmatic insights from chhaupadi interventions to elucidate how programs work, for whom, in which contexts, and why.

Methodology: Utilizing Realist Synthesis (RS), which involves identifying underlying causal mechanisms and exploring how interventions function under specific conditions, we synthesized the scientific and grey literature, and consulted with chhaupadi program experts, implementers, and community members in Nepal. Program documents, articles, videos, and transcripts were analyzed utilizing realist methodology, including context, mechanism, outcome (CMO) configurations.

Results: We identified key lessons from chhaupadi interventions, including: 1) Wide Stakeholder Engagement: Experts emphasized the importance of diverse stakeholder agreement, especially a combination of policy and grassroots approaches, whereas others felt that the field needs to have a stronger focus on the household level. 2) Knowledge and Behavior Change: The effectiveness of the messenger varies by context, with outside messengers sometimes being more effective than trusted insiders. However, experts agreed that knowledge and education alone are not enough to promote behavior change. 3) Male Involvement: Male involvement in chhaupadi programming is crucial, and there is a need for a stronger focus on the needs of people with disabilities and the LGBTIQ+ community.

Conclusion: This study identified crucial factors that impact the effectiveness of chhaupadi programs in Nepal. The findings are expected to provide program planners, researchers, and policy makers a strong conceptual grounding to design subsequent, contextually appropriate and evidence-informed chhaupadi programs in a range of settings across Nepal.

Keywords: evaluation, interventions, menstruation, realist synthesis

2.4 Theme: Migration and Health

2.4.1 International labour migration, remittance and health care expenditures in selected municipalities of Koshi Province

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Abstract

Background: International Labour migration is defined as the movement of persons from their home country to another country for the purpose of employment. Remittance is money or goods sent by migrant to their family. Health care expenditure is the total amount of money spent on health services. The aim of this study is to assess the use of remittance in health care expenditures of left behind family. A descriptive Cross-sectional study was carried out. Quantitative and Qualitative both approach was applied for information collection. Face to Face interview was conducted among 767 sample households from each ward. Two municipalities were selected by lottery method of simple random sampling techniques. Each ward was supposed as cluster, proportionate to size method was used to identify the household number from each cluster. At last systematic random sampling Technique was used to collect information from household. Data was collected from labour migrant and nonimmigrant households to show the difference in health care expenditures. Health care expenditures question was adopted from Nepal living standard survey and modify it according to objectives. Data was extracted in SPSS for further analysis. Quantitative data was analyzed by Descriptive statistics. Almost all households received remittance in last three months. Remittance was used must frequently for daily consumption in household. Nearly one in two members of the household got ill in last three months. Among the ill, 77% went for consultation and most of them prefer modern medical practitioners for consultation. Nearly half of those who went for consultation were in private health facilities. Significant association was found among the household whose income was remittance with health care expenditure (P-value-<0.001) and visiting private health facilities (P-value-0.009). There was an indirect role of remittance (income source) with health care expenditures observed in this study.

Keywords: Health care expenditure, labour Migration, remittance

2.4.2 Impact of men's international migration on the physical health of their wives who remain behind in Nepal

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Abstract

Background: In Nepal, it is common for male migrant workers to leave behind their spouses and children, leading to long-term transnational relationships. This mixed-methods study investigates the impact of men's international labour migration on the physical health of left-behind wives in Tanahun and Nawalparasi districts. A cross-sectional survey was conducted with 200 migrant wives and 200 cohabiting wives. The Short-Form 36 tool measured physical health, with scores ranging from 0 to 100, where higher scores indicated better health. Additionally, 15 in-depth interviews were conducted with migrant wives. Quantitative data were analysed using hierarchical multiple regressions in SPSS, while qualitative data were analysed using thematic analysis. Findings were integrated through a joint-display table.

The overall Physical Component Summary (PCS) score was 50.38 (SD 6.41), indicating average physical health. Husband's migration status did not significantly affect PCS scores in either study site. However, migrant wives in Aanbu Khairani had significantly higher PCS scores ($B=1.96$; $p<0.05$) than those in Pahli Nandan. Surprisingly, receiving remittance more frequently and greater control over remittances spending significantly and negatively impacted PCS scores. Qualitative interviews showed mixed experiences—half of the women reported no health effects, some experienced improved healthcare access due to financial stability, while others felt fatigued from increased workloads. Mixed-method findings suggested that while there were positive impacts on migrant wives' health due to improved remittances and healthcare accessibility, increased household work burden, farmwork and participation in financial and social activities had adverse impacts, leading to a net insignificant impact.

Future research should explore additional factors such as nutrition, healthcare access, and the long- and short-term impacts of migration on health. Longitudinal or pre-post migration designs are recommended. Interventions, such as community programs for financial management and farming productivity, are necessary to help migrant wives manage their workload.

Keywords:

2.4.3 Exploring migration health research priorities in Nepal: Using CHNRI initiative

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Abstract

Migration health is comparatively underexplored area in Nepal and South Asia with limited focus on the health and social care needs of migrant labours, particularly those who are

transient, diverse and heterogeneous population in the region.⁽¹⁾ Consideration to migrants' health, and the broader field of migration health, remains patchy, restricted to specific health conditions –most notably infectious diseases, followed by psychosocial and mental health, non-communicable diseases, maternal and reproductive health.^{(2),(3)}

Existing literature on migration health in countries in Nepal and South Asia, does not capture the full complexities of migration journeys, the full spectrum of health issues experienced by migrant workers in pre-departure, in transit, destination, and on return, and the wider social, environmental and political that affect their health and well-being. Emerging evidence from Nepal as well as states in India reveal that labour migrants are return with a range of disabilities or loss of lives. Yet, there is a significant lack of systematic evaluation of health systems responses and the interventions that can ensure continuity of care for migrants, aiming to reduce death and disability.

Given this context, the Child Health and Nutrition Research Initiative (CHNRI) exercise⁽³⁾ conducted in Nepal — a method to democratically identify pressing research questions in the area of migration health in Nepal following prescribed processes. The first round of preliminary findings has indicated that range of issues are as emerging as key priorities. These include: (1) Governance, policies and programmes in Nepal and destination countries. (2) Social and structural determinants of migrants' health (3) Mental health and psychosocial wellbeing of and coping strategies adopted by migrant workers (4) Impact on families left behind (5) Migrants health data/pre-and post-departure as well as post-returning health screening of migrant workers. This is an ongoing this will be concluded by completing remaining 4 steps of CHNRI method.

Key Words: Migration data, social and structural determinants of migrants' health, mental health and psychosocial well-being

2.4.4 Ensuring well-being beyond borders: policies on migrant health in Nepal

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Abstract

Nepal has put in place a number of measures to protect the health of its migrant laborers. Pre-departure medical evaluations are required under the Foreign Employment Act (FEA) 2007 to guarantee suitability for employment overseas. Furthermore, a tax is collected from migrant workers by the government for the Foreign Employment Welfare Fund, which gives free legal advice and compensation for fatalities or injuries. Employers are required under bilateral labor accords to offer insurance before employees leave. Additionally, a contribution-based social security program that covers old age security, dependent family protection, and accident and disability protection has been implemented. Telemedicine services provide Nepali migrant workers with free medical and counseling services in partnership with Bir Hospital and the Non-Resident

Nepali Association (NRNA). Even with these steps, problems still exist. Due to stigma, lack of understanding, or restricted access, many migrant workers who return find it difficult to obtain high-quality healthcare treatments. Among the particular difficulties faced by female returnees include mental health issues, sexual and reproductive health issues, and job harassment. These issues are sometimes made worse by stigma and exclusion from public health programs. Furthermore, Nepal's present migrant health recordkeeping process is disjointed and does not have a single online system or official health evaluations upon return. Additionally, pre-employment medical exams frequently ignore mental health concerns, depriving many migrant workers of essential care, and many are afraid to disclose their health problems to employers for fear of losing their jobs.

To address these gaps, Nepal must enhance collaboration with destination countries, improve pre-departure screenings, expand health insurance, and strengthen support for returnees to ensure migrant well-being through an integrated health and social protection approach. Experts recommend integrating a dedicated healthcare provision for migrant workers into Nepal's National Health Policy, establishing a unified health information management system, and enhancing access to healthcare services, including mental health support, for migrant workers.

2.5 Theme: Health Inequalities and Social Determinants of Health

2.5.1 Participatory approaches to assess living conditions, access to health care services and governance in Nepal's informal settlements

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Abstract

Background: Informal settlements in Nepal face multidimensional challenges, including inadequate access to services, poor living conditions, and weak governance structures. This study, conducted under the ARISE Responsive Fund Project, employed participatory methods i.e., Transect Walk, Stakeholder Analysis, and Social Mapping, to assess the realities of four informal settlements and explore governance accountability.

Methods: A multi-method approach was used, integrating qualitative and participatory techniques. Transect walks were conducted in Manohara, Namuna Basti, Khudikhola, and Barahi Tole to document environmental risks, infrastructure gaps, and community concerns. Social Mapping exercises captured spatial and social dynamics, while Stakeholder Analysis identified key actors influencing service provision and policy implementation. Community members actively engaged in co-designing and interpreting findings, ensuring inclusivity and relevance.

Findings: Transect walks highlighted critical issues such as inadequate water supply, poor sanitation, disaster vulnerability, and inconsistent governmental support. Social Mapping revealed variations in settlement structures, with some communities demonstrating strong internal cohesion while others faced fragmentation. Stakeholder Analysis underscored the inconsistent involvement of local governments and NGOs, with gaps in health service delivery and legal recognition. The need for enhanced collaboration between local stakeholders, policymakers, and informal settlement residents was evident.

Conclusion: Participatory methods provided nuanced insights into the socio-environmental and governance challenges in informal settlements. Strengthening community-driven advocacy, improving service access, and fostering multi-stakeholder collaboration are essential for sustainable interventions. The study underscores the importance of accountability frameworks that prioritize informal settlers' voices in policymaking and urban development.

Keywords:

2.5.2 Life in Nepal's informal settlements: A photovoice study on health, equity and resilience

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Abstract

Background: Informal urban settlements in Nepal face significant challenges related to housing, livelihoods, access to services, and environmental hazards. This study, conducted under the ARISE Hub in partnership with PHASE Nepal, employed Photovoice, a participatory research method, to document the lived experience of residents of informal settlement in Kathmandu Valley.

Methodology: Eighteen participants were selected from informal settlements named Manohara and Namuna Basti of Kathmandu through co-researchers' help. The participants received two-day training on photography, ethics, and fieldwork. Using their mobile phones, they documented life in informal settlements across three rounds, followed by interviews. Participants selected five key images each, fostering community co-creation to explore predefined themes in depth.

Findings: The study explored key themes such as housing conditions, employment, water and sanitation, mental health, environmental risks, and challenges faced by vulnerable groups. Findings revealed significant challenges in informal settlements, including makeshift zinc-sheet houses without insulation, ventilation, or safety. Livelihoods primarily depend on daily wage labor, such as construction and sand collection, with high youth unemployment contributing to substance abuse and other social issues. Access to essential services is limited, with residents walking long distances for water, facing insufficient healthcare, and struggling with under-resourced educational facilities. Mental health problems are widespread, driven by environmental

hazards, fears of eviction, and social stigma. Environmental risks, such as flooding and pollution, further endanger community health, while water scarcity, poor sanitation, and irregular waste collection exacerbate unsanitary conditions. Vulnerable groups, including the elderly, disabled, and single mothers, face disproportionate hardships despite ongoing community-led support efforts to mitigate these systemic challenges.

Conclusion: This study underscores the need for inclusive urban planning, improved WASH services, and targeted social protection measures for informal settlers. It advocates for participatory approaches in health research and policymaking to ensure equitable and sustainable development in Nepal's urban landscape.

Keywords:

2.5.3 Role of commercial determinants of health in use of alcohol in Nepal: An exploratory qualitative study

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Abstract

Background: Commercial Determinants of Health are the private sector activities that have direct, indirect, positive or negative impact on human health. It affects risk factors like air pollution, smoking, alcohol consumption, obesity and physical inactivity, and health outcomes like epidemics and non-communicable diseases, injuries, violence, and mental health issues. Its influence on alcohol consumption is a serious public health issue. The aim of this study was to explore the role of commercial determinants of health in use of alcohol in Nepal.

Methodology: A qualitative study was carried out, comprising interviews of twenty-eight respondents from government bodies, civil society and those involved in alcohol business. Participants were purposively selected based on their positions in respective bodies and their experiences with the research issue. Interview guides prepared after extensive literature review and content expert's feedback were used. Framework analysis of the transcribed interviews was done, using the model of commercial determinants of health.

Result: Respondents from government bodies and civil society shared about the influence of large alcohol industries in policy making. Activists revealed about being threatened by alcohol industries for speaking against them. Most shared about the cunning advertisement strategies of alcohol industries such as sponsoring different programs to promote their products. They shared about strict financial monitoring being done by the government in alcohol industries. Respondents also shared about the social activities done by industries to maintain their good reputation.

Conclusion: The study explored commercial sector practices of alcohol industries in Nepal through multiple stakeholders' experiences and understanding. Even those involved in alcohol businesses could not deny the fact that commercial determinants of health play role in use of alcohol. These findings underscore the need of strict

implementation of policies and can help in evidence-based policymaking, keeping public health at the center.

Keywords: Alcohol, Commercial Determinants of health, Commercial sector practices

2.5.4 Poverty and intersecting inequities in access to health services: insights from nationally representative surveys

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Abstract

Background: Physical accessibility to health facilities significantly influences healthcare utilization, especially in Nepal, where sparse facility distribution, difficult terrain, and limited transportation options prevail. Inequitable facility expansion worsens disparities, particularly for those in poverty, rural areas, and challenging terrains, deepening with overlapping deprivations. This study examines intersecting inequities in access to health care services in Nepal.

Methodology: We analysed data from Living Standard Survey 2023 (9,600 households) and the Demographic and Health Survey 2022 (14,845 households). In both surveys, participants were selected via multi-stage random sampling. Accounting for complex survey design, we assessed intersections of poverty, province, and urban/rural settings, examining inequities in physical access (travel time/distance) and self-reported barrier to service utilization. Descriptive bivariate analysis and logistic regression were conducted using R software.

Results: Poor individuals face greater healthcare access barriers than non-poor populations, with a median distance of 3.61 km to health facilities for the poor versus 2.74 km for the non-poor. Only 26.8% of the poor can reach a government hospital within 30 minutes, compared to 47.3% of the non-poor. Disparities widen in urban-rural settings: 11.7% of poor rural residents access a hospital within 30 minutes, versus 58.8% of non-poor urban residents. Distance barriers affects 12.6% of the richest and 65.6% of the poorest quintile participants. Inequities intensify with the intersection of poverty, urban-rural setting, and province. Regression analysis shows 92% lower odds for Karnali poor rural residents, 87% lower for Bagmati poor rural residents, and 72% lower for Gandaki poor rural residents, underscoring stark healthcare access inequities.

Conclusions: Establishing health facilities based solely on administrative structures perpetuates inequitable access. To ensure equity, government should switch to targeted interventions rather than relying on blanket approaches.

Keywords:

2.5.5 Urban health and equity in Nepal: Analyzing social determinants, disease prevalence, and health outcomes

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Abstract

Background: This study examines urban health and equity in Nepal, drawing on national data.

Methodology: This study analyzed health and equity issues in Nepal using secondary data from 2022 Nepal Demographic Health Survey (NDHS) for maternal and child health, 2011 Population Census for sociodemographic and mortality data, 2022/23 Nepal Living Standards Survey (NLSS) for social determinants and disease prevalence, and 2019 STEP Survey for non-communicable diseases (NCDs) and risk behaviors. Bivariate analysis was conducted between Social Determinants, Disease Prevalence, and Health Outcomes among rural and urban areas.

Results: The analysis indicated that urban areas possess better social determinants such as literacy (86% vs 71.8%), sanitation (97.7% vs 94.7%), and lower poverty (3.9%) compared to rural areas which have higher active employment (47.3%) but lower clean cooking fuel usage (16.4%). Rural regions have higher fertility (2.4%) and chronic respiratory illnesses (11.4%), while urban areas report more diabetes (22.4%) and hypertension (27.3% vs 15.6%). Private health facilities are preferred for NCDs in urban areas as compared to rural areas (44.4% vs 32.4%). Mortality rates from NCDs and CDs are highest in metropolitan areas, while lowest in rural areas. Health outcomes show urban areas shows comparatively higher ANC visits (79.5%) and institutional deliveries (80.9%), while rural areas have higher vaccination rates (80.3%). Stunting is more common in rural areas (31%), whereas urban areas face higher wasting rates. Expenditure on non-communicable diseases is higher in wealthier population (Rs 28,936.1 vs rural Rs 21,130). Pregnancy-related mortality is lowest in metropolitan areas, while suicide rates are highest in rural municipalities

Conclusion: The findings reveal urban-rural disparities, with urban areas excelling in literacy, sanitation, and healthcare access but facing higher rates of NCDs like diabetes, hypertension while rural areas struggling with limited healthcare access, infectious diseases, and suicide rates.

Keywords: Disease, Equity, Nepal, Urban Health

2.5.6 Determinants of wealth-based inequality in mental health: A decomposition analysis of Nepal demographic and health survey 2022

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Abstract

Background: In 2019, around 970 million people worldwide were estimated to be living with mental disorders, with approximately four in five cases coming from LMICs. Most mental health studies are funded by high-income countries, with only 5% of the total funding going to research in LMICs like Nepal. Although there are some studies on anxiety and depression in Nepal, they are limited to specific geographic areas and among specific groups. This study aims to assess wealth-based inequality's prevalence and determinants in mental health outcomes using a nationally representative sample.

Methods: We conducted a secondary analysis of the NDHS 2022. Anxiety and Depression were measured using GAD-7 and PHQ-9 respectively. Binary logistic regression models were conducted to identify the associated factors with mental health problems. The concentration curve and Erreygers normalized concentration index were used to assess inequality in mental health. Household wealth quintile index scores were used to measure wealth-related inequality, and decomposition analysis was conducted to identify determinants explaining inequality in the mental health outcomes.

Results: About 18% of the respondents had anxiety and/or depression. Sex, ethnicity, wealth, residence, marital status, and alcohol consumption were associated with mental health outcomes. The concentration curve was above the line of equality with the relative Erreygers normalized concentration index of 0.043, indicating that anxiety and/or depression were disproportionately higher among poor groups. The decomposition analysis identified that ethnicity (9.50%), occupation (11.66%), marital status (7.50%), and residence (-49.90%) were important contributors to inequalities in mental health outcomes.

Conclusion: This study reveals a significant prevalence of anxiety and depression in Nepal, disproportionately burdening poorer populations and underscoring the critical role of socioeconomic factors in shaping mental health outcomes. These findings call for urgent, targeted policy interventions and resource allocations to bridge the disparities in mental health care and improve overall well-being.

Keywords: Anxiety and Depression, Decomposition Analysis, Inequality, Mental Health, Nepal

2.5.7 Trends and inequalities in institutional deliveries in Nepal: Evidence from 1996 to 2022 Nepal demographic and health surveys

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Abstract

Utilizing health facilities during childbirth is important for reducing maternal and child morbidity and mortality. Nepal has been promoting maternal healthcare services for many years through a free delivery and transport scheme for women who deliver in health facilities. Wealth status and caste/ethnicity are the major factors in inequalities in health facility utilization in Nepal. The study used all six rounds of survey data from 1996 to 2022 Nepal Demographic and Health Surveys (NDHS). The women who had the last live births in the last three years preceding the survey were pulled into a single dataset which was 18,742. This study gauges the trend of institutional deliveries in six different surveys and assesses the inequalities in wealth and caste/ethnicity for institutional deliveries. This study received approval for data utilization from the DHS program. The result showed that institutional delivery was 34% in aggregate for the last 30 years and ranges from 7.5% in 1996 and 78.9% in 2022. Similarly, 18% poorest women delivered in HFs whereas the rate was 65% among the richest women. Further, women from Dalit, Muslim, Janjati, and Madhesi utilized the HF less for delivery compared to Brahmin/Chhetri and Newari women. The lowest rate was among Dalit women. Institutional deliveries are significantly difference among different wealth status and caste/ethnicity groups. The concentration index shows significant inequalities in the utilization of health facilities during childbirth in all rounds of surveys, the highest inequality was in 1996 and 2001(Con. Index-0.54) and the lowest was in 2022(Con. Index-0.08). The findings from the study conclude that though institutional deliveries are increasing in trend, still some women who do not have access to health facilities for their childbirth. Inequality significantly persists among different cast/ethnicity groups and wealth status. Targeted intervention among marginalized women will be helpful to universal access of institutional delivery.

Keywords: Caste/Ethnicity, Concentration index, Inequality, Institutional delivery, Nepal Demographic and Health Survey

2.5.8 Health and illness narratives: A scoping review from anthropological perspectives

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Abstract

Introduction: Through an anthropological lens, human health is largely anchored in socio-cultural contexts in human history and civilization. There is growing body of evidence that health and illness narratives are socially produced and locally grounded within and across cultures. The aim of this scoping review is to explore the anthropological evidence and deepen our understanding on how health and illness narratives are socially embedded within and across cultures from critical medical anthropology perspectives at large.

Methodology: The methodological approach is desk and scoping review of both published and grey literatures on medical anthropology focusing on health and illness narratives in different contexts. This anthropological scholarship primarily aims to explore the larger socio-cultural, political, economic and historical contexts of health and illness narratives in the local context.

Results: Local health care systems intersect with social, cultural, political and economic conditions. The indigenous knowledge, beliefs and narratives of health and illness are shaped by differential dimensions of ecological, economic, social, cultural and symbolic frameworks contributing to epidemiological transition. While the profiles of health and illness in societies change over time, medical pluralism can define and redefine the health and illness narratives within and across different social groups.

Conclusion: There needs a holistic study of the human condition as it relates to health and illness in social, cultural, behavioral, biological, psychological, and historical contexts. While the idea of health and illness relies on social differences, borders and boundaries of any kind, local understanding and narratives of social sufferings and healings are historically nurtured, patterned and influenced by differences in social position within a society, thereby determining people's access to health care in communities.

Keywords:

2.6 Theme: Environmental Health and Climate Change

2.6.1 Climate adaptation interventions to improve maternal and perinatal health in low- and middle-income countries: Findings from a scoping review

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Abstract

Background: Climate change impacts the vulnerability among pregnant women and newborns. The situation is predicted to worsen in disaster-prone low and middle-income countries (LMICs) like Nepal, where maternal and neonatal mortality is considerably high. This scoping review aims to map the evidence of the impact of climate change and existing adaptation interventions to improve maternal and perinatal health in LMICs.

Methodology: We conducted a comprehensive systematic literature search in PubMed/Medline, Scopus, Web of Science, Cochrane Library, Global Health, EMBASE and Google Scholar for articles on the impacts of climate change on maternal and perinatal outcomes as well as interventions to avert effects of climate change. Two authors independently screened and selected the relevant studies based on predefined eligibility criteria. Data on characteristics of the study, maternal and perinatal outcomes, and interventions were extracted. The findings were synthesized using narrative summaries.

Results: A total of 9006 records were identified from the initial search, of which 27 met the inclusion criteria and were included in this systematic review. The association between climate and maternal or neonatal health was reported in 22 articles, whilst five reported climate adaptation interventions. Most studies reported the impact of extreme temperature on gestational hypertension and maternal stress, preterm birth and low birth weight. Climate adaptation intervention included nutrition support, water supplies, social-behaviour change and education to address the impact of heat exposure on pregnant/postpartum women and newborns.

Conclusion: Although the impact of changing climate on maternal and perinatal health in LMICs is well documented, there is a huge gap in climate adaptation interventions to improve maternal and perinatal health in these countries. Co-creation of climate change adaptation interventions is essential to protecting the vulnerable population in climate-hit LMICs.

PROSPERO registration number: CRD42024514071

Keywords: Climate change adaptation, low and middle-income countries, maternal health, neonatal health, perinatal health

2.6.2 Seasonal variation in sympathetic autonomic activity in young adults

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Abstract

Background: Seasonal variations in autonomic function have been linked to cardiovascular morbidity and mortality. The cold pressor test (CPT) and handgrip test (HGT) are studied as determinants of blood pressure regulation during stress, but their

differential effect in seasons are less explored. This study aimed to investigate seasonal differences in cardiovascular sympathetic activity in healthy young adults.

Methodology: A prospective study was conducted among undergraduate students of Karnali Province during winter and summer of 2023. A non-probability purposive sampling technique was used. Blood pressure was measured before and after CPT and HGT. Baseline systolic and diastolic pressures (SBP and DBP) and their rise during interventions were compared between summer and winter season. Paired t-test and simple regression analysis was conducted using SPSS v21.0.

Results: Total 45 students (55.6% female) with mean age 21.62 ± 2.93 years participated. Baseline SBP and DBP were higher in winter than in summer (SBP: 120.78 ± 11.31 vs 107.71 ± 12.17 , $p=0.001$; DBP: 77.60 ± 8.83 vs 71.49 ± 8.74 , $p=0.001$); but the mean maximum SBP and DBP during CPT and HGT were not statistically significant between seasons. During CPT, there was a statistically significant rise in BP in summer compared to winter (SBP: 25.27 ± 11.56 vs 13.84 ± 11.17 , $p<0.001$; DBP: 25.53 ± 10.14 vs 13.51 ± 7.15 , $p<0.001$; paired t-test). Similarly, HGT also raised the BP in summer than in winter (SBP: 35.07 ± 17.11 vs 25.47 ± 14.81 , $p=0.008$; DBP: 30.96 ± 12.12 vs 24.16 ± 11.64 , $p=0.009$; paired t-test); and was confirmed in linear regression analysis ($p<0.01$). Hyperresponders (those with >21 mmHg rise in SBP) during CPT were higher in summer (22) than winter (10).

Conclusion: In summer, while baseline BP is lower, the sympathetic response to stress is heightened, indicating seasonal modulation of autonomic function. This finding may have implications for cardiovascular risk and adaptability to environmental changes.

Keywords: Blood pressure, Cold pressor test (CPT), Seasonal variation, Sympathetic activity, handgrip test (HGT)

2.6.3 Climate Resilience through Women's leadership in Nepal's Koshi province

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Abstract

Koshi Province of Nepal is highly vulnerable to the impacts of climate change. Rising temperatures, drought, and an increase in average annual river flows and flooding across the province are expected to get worse in the years ahead. Further, vulnerable communities, particularly those living in poverty, in remote areas, and working in subsistence agriculture, are at the highest risk. Women in the Koshi Province are disproportionately impacted by climate change, as they make up most smallholder farmers and are heavily involved in agricultural and natural resource-based livelihood activities. Despite these challenges, women's groups are at the forefront of grassroots efforts to build climate resilience and adapt livelihood strategies. The literature reviewed for the study shows that climate change exacerbates food insecurity, poverty, and inequality in Nepal. It disproportionately impacts women and marginalized groups; however, it also shows that women play an important role in natural resource management, but their contributions are often overlooked. Furthermore, the literature

also shows that policies acknowledge gender but do not prioritize gender equality or include gender analysis and reflects that there is a lack of gender-disaggregated data on vulnerabilities. Thus, the qualitative study presents what interventions are most effective for building the capacity of women's groups and marginalized communities to adapt to climate change at the local level and role can women's leadership and network building play in advancing climate change adaptation strategies and policies.

Keywords:

2.6.4 Risk assessment of adverse health impact on the population exposed and unexposed to landfill sites: A comparative cross-sectional study in Dhading, Nuwakot, and Kathmandu districts of Nepal

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Abstract

Introduction: Municipal solid waste (MSW) generation has increased due to rapid urbanization and population growth which has raised significant public health concerns for populations living near landfill sites. Landfills are associated with the release of harmful pollutants, including leachates, bioaerosols, and volatile organic compounds, which can adversely affect human health. This study aims to evaluate and compare the health risks among populations exposed and unexposed to landfill sites in Dhading, Nuwakot, and Kathmandu districts of Nepal.

Methods: A comparative cross-sectional study was conducted among 230 households (115 exposed and 115 unexposed) selected through convenience sampling. Data were collected using a structured questionnaire, which included sociodemographic variables, behavioral factors, acute symptoms, chronic diseases, and maternal and child health outcomes. The exposed population resided within a four kilometer radius of the Sisdol and Bancharedanda landfill sites, while the unexposed population was selected from Tarakeshwar Municipality in Kathmandu. Data were analyzed using SPSS version 16, with descriptive statistics, chi-square tests, and odds ratios used to assess associations.

Results: Significant differences in acute health symptoms between exposed and unexposed populations were found for conditions like burning eyes ($p < 0.00001$), breathlessness ($p < 0.00001$), sore throat ($p < 0.00001$), diarrhea ($p < 0.00001$), nausea/vomiting ($p < 0.00001$), headache ($p < 0.00001$), dizziness ($p = 0.000023$), and skin-related conditions (rashes, boils, itchy skin; $p < 0.00001$), with the conditions being more prevalent in exposed population. Chronic conditions like obstructive respiratory disease ($p = 0.016$) and renal disease ($p < 0.00001$) were also significantly

higher in the exposed group. No significant differences were observed in maternal and child health outcomes, including congenital anomalies, low birth weight, premature birth, miscarriages, and pregnancy complications.

Conclusion: Findings suggest increased health risks for landfill-adjacent populations, emphasizing the need for improved waste management and public health interventions. Further longitudinal studies are recommended.

Keywords: acute symptoms, chronic diseases, health risks, landfill sites, maternal and child health

2.6.5 Strengthening toxicology services in Nepal: Addressing the burden of poisoning through poison information center and advocacy in pesticide regulation

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Abstract

Background: Poisoning, particularly from highly hazardous pesticides (HHPs), remains a critical public health challenge in Nepal, contributing significantly to morbidity and mortality. However, the country needed a dedicated institutional Poison Information Center (PIC) and structured toxicology services. To address this gap, a multi-faceted approach integrating evidence-based advocacy, policy reform, and Nepal's first institution-based PIC was established in 2023 to strengthen toxicology services.

Objectives: To assess the impact of PIC in toxicovigilance and policy advocacy on pesticide regulation and poisoning management in Nepal, highlighting how research-driven interventions led to HHP bans, and improvement in poisoning surveillance, treatment and prevention.

Methods: A retrospective analysis of pesticide poisoning cases was conducted to assess the burden. Research findings were presented to national stakeholders, catalyzing policy discussions on HHP bans. Poison Information Center was established at Tribhuvan University Teaching Hospital (TUTH) on 10 September, 2023 to provide real-time toxicology consultations and generate data on various poisonings. International collaborations facilitated capacity-building, resource mobilization, and long-term sustainability planning.

Results: Policy advocacy resulted in the ban of key HHPs, marking a significant milestone in Nepal's pesticide regulation. The Poison Information Center at TUTH became operational, handling 471 cases in 18 months and strengthening poisoning management nationwide. This initiative has fostered interdisciplinary partnerships by organizing monthly webinars featuring national and international experts, advancing toxicology education, research, and clinical response capabilities.

Conclusion: The integration of research, advocacy, and institutional capacity-building has significantly enhanced Nepal's toxicology services. The successful banning of HHPs and the operationalization of the Poison Information Center underscore the power of data-driven policymaking and collaborative action in improving poisoning

prevention and management. Future efforts should prioritize sustainability, continued regulatory reforms, and further strengthening of toxicology infrastructure for long-term public health benefits.

Keywords: Toxicology, Highly Hazardous Pesticides, Poison Information Center, Pesticide Regulation, Nepal

2.6.6 Integrating occupational health and safety services in primary healthcare system: Lesson learned from informal waste workers and farmers programmes in Nepal

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Abstract:

Occupational Health and Safety (OHS) remains a neglected area in Nepal's public health system, especially for informal sector workers such as waste workers and farmers. Despite alarming global and national statistics on work-related diseases and deaths, Nepal lacks comprehensive legislation and institutional frameworks to address the OHS needs of these high-risk populations. This presentation reflects on the efforts of Médecins du Monde (MdM)-France Nepal in integrating OHS into primary healthcare services by focusing on community-based interventions, health system strengthening, and policy advocacy. It documents the successes and challenges of pilot programs implemented since 2018, which reached 903 waste workers, 2644 farmers and strengthened 13 health facilities. Interventions included health SBCC, distribution of personal protective equipment (PPE), health worker training, and formalization initiatives through community-based organizations.

The analysis underscores systemic gaps such as insufficient policy coverage, limited data and research, and poor coordination among stakeholders. Lessons learned reveal the need for continuous capacity building of health workers, stronger government ownership, and improved awareness strategies to encourage OHS adoption among informal workers. The presentation concludes by emphasizing multi-sectoral collaboration, evidence-based advocacy, and localized implementation of OHS policies to ensure health rights and protections for vulnerable occupational groups in Nepal.

2.7 Theme: Infectious Diseases and Epidemic Preparedness

2.7.1 Mapping Nepal's infectious disease surveillance: Systems, stakeholders, and challenges

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Abstract

Background: Infectious disease surveillance is vital for early detection, rapid response, and outbreak containment. Nepal's geographical diversity, socio-economic disparities, and open borders present distinct public health challenges, requiring a well-integrated surveillance system. While multiple surveillance systems have been implemented, evidence on their functionality, particularly regarding stakeholder engagement, remains limited. This study maps key surveillance systems and stakeholders, outlining their roles within the existing framework.

Methodology: This study employed a systematic review of national policies, national and international guidelines, surveillance frameworks, and programmatic reports. Keywords such as disease surveillance, surveillance systems, and infectious diseases guided the literature review, which was analysed thematically to identify key stakeholders and roles, informing discussions with government and development partners on surveillance practices and frameworks.

Results: Findings reveal that Nepal has adopted a combination of event-based and indicator-based surveillance systems, each led by different government entities. Nepal's surveillance systems are guided by policies such as the Infectious Disease Act (1964), Public Health Service Act (2018), and National Health Policy (2019). Key surveillance systems include Early Warning and Reporting System, SORMAS, antimicrobial resistance (AMR) surveillance, and influenza surveillance. Hospitals, laboratories, rapid response teams (RRTs), and local governments play critical roles in detection, reporting, and response. Federal and provincial government plays important role in analysis, response, and policy development. However, challenges persist within the systems such as overlapping responsibilities, multiple reporting channels and limited data utilisation. Furthermore, this study also identifies the potential role of the National Statistics Office in strengthening surveillance-related data systems.

Conclusion: This study highlights the need for a unified approach to surveillance, leveraging existing systems and stakeholder networks to enhance early detection, response, and resource allocation, contributing to improved public health outcomes in Nepal

Keywords:

2.7.2 Avoid fluoroquinolones as empiric therapy, reserve for tuberculosis

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Abstract

Background: Fluoroquinolones (Levofloxacin & Moxifloxacin) is one of the empiric antibiotics commonly used for Community-Acquired Pneumonia, Hospital-acquired or Ventilator-associated Pneumonia, as recommended by IDSA & ATS guidelines. Fluoroquinolone (FQ) is also a major component of the drug regimen for the newly recommended 4-month course of drug-sensitive Pulmonary Tuberculosis & one of the most effective drugs used in multi-drug-resistant Tuberculosis. There are different mechanisms of resistance, but even a single point mutation in DNA gyrase can render a gram-negative bacteria acquire resistance to the FQ drug class; hence, FQ is considered to have a low barrier to resistance.

In areas where there is a big burden of AMR, there is also a co-existent burden of Tuberculosis (TB). TB can present as typical bacterial pneumonia as evident in one of the studies done in the USA, where 48 % of diagnosed TB cases had initially received FQ for presumed bacterial pneumonia, thus delaying diagnosis & treatment of TB. TB can also present as sterile pyuria resembling bacterial UTI. Since FQ is very effective against drug-sensitive TB, there is a high chance that FQ inadvertently used as monotherapy (instead of multi-drug regimen) in such missed TB cases, will actually result in some clinical improvement for a few weeks before ultimate clinical deterioration & potential selection of FQ resistance. This will further complicate the treatment regimen if the TB happens to be multi-drug resistant TB when eventually diagnosed.

Therefore, it makes more sense to avoid FQ as empiric antibiotic in Pneumonia (and even other infections like UTI), as long as there are other options since FQ is one of the most effective drugs available for TB & needs to be preserved. Guidelines need to address this issue as soon as possible.

Keywords: Fluoroquinolones, MDRTB, TB, Tuberculosis, drug resistant TB

2.7.3 Molecular docking and pharmacokinetic studies of punica granatum peel phytocompounds to explore potential antibacterial activity

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Abstract

Background: The emergence of novel antibiotic resistant bacteria is a growing global concern. These resistant strains against available antibiotics are due to indiscriminate use of antibiotics and make difficult in treatment challenge. In this regards, medicinal plants make a great hope for drug development.

Objectives: This study aims to identify potential inhibitors of phytocompounds to combat bacterial infection caused by multidrug resistant bacteria.

Materials and Method: For this, *in silico* analysis of inhibition of D-alanine-D alanine ligase bearing PDB ID: 3N8D from gram positive and DNA gyrase bearing PDB ID: 4Z2D from gram negative bacteria by 17 *Punica granatum* peel compounds were studied by using AutoDock 4.2.6 version followed by ADME/T and BOILED Egg model for evaluation of drug likeliness properties of phytocompounds.

Results: Granatin A showing least binding energy of -9.9 kcal/mol with 3N8D in comparison to vancomycin (-8.7 kcal/mol) and -9.5kcal/mol with 4Z2D in comparison to levofloxacin (-7.6 kcal/mol).

Conclusion: Thus, molecular docking analysis shows the importance of granatin A and use for formulation of granatin A based drugs in future.

Keywords: Antibiotic resistant bacteria, Medicinal plants, molecular docking, ADME/T, BOILED Egg

2.7.4 Serum zinc levels in Leprosy patients with ENL reaction, non-reaction controls, and healthy controls: A comparative study

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Abstract

Background: Although leprosy is caused by *Mycobacterium leprae*, and the host immune response determines the clinical presentations of the disease. 20-50% of leprosy cases undergo inflammatory exacerbations before, during and after treatment in form of T1R and T2R. Zinc plays a crucial role in immune function and infection prevention. Zinc deficiency has been implicated in various immune dysfunctions, and its role in leprosy, particularly in reactional states, warrants investigation.

Methods: This retrospective study (2022-2025) was designed to analyze the serum zinc levels three groups: patients with leprosy experiencing ENL (n=16), non-reactional leprosy patients undergoing MDT treatment (n=16), and non-leprosy healthy controls (n=16). Blood samples from study participants were collected in metal-free vial and serum zinc levels (Reference range: 75-291 µg/dL) were estimated using spectrophotometric technique. The median values for each group were calculated and compared. Data analysis included descriptive statistics and statistical tests to evaluate the differences between groups.

Results: The mean age of participants in ENL, non-reaction leprosy and healthy groups were 41.5 years, 37.6 years and 30.4 years respectively. 81.3% of ENL patients, 68.8% of non-reaction leprosy and 56.3% of healthy controls were males. The median serum zinc levels in ENL, non-reaction leprosy and healthy participants were 60.5 (95% CI: 53.4-73.3), 207.1 (95% CI 107.8-254.9) and 240.4 (95% CI 148.8-305.8). The zinc levels in ENL were significantly lower compared to non-reaction leprosy ($p<0.05$) and healthy controls ($p<0.005$).

Discussion: These findings suggest that patients with ENL have a significant zinc deficiency compared to both non-reactional leprosy patients and healthy individuals (with $p=0.005$, Kruskal-Wallis test). Zinc deficiency may contribute to immune dysregulation observed in ENL, highlighting the potential role of zinc supplementation as a benefit for the therapeutic intervention.

Conclusion: Further studies are required to validate these findings and explore the clinical benefits of zinc in managing leprosy reactions.

Keywords:

2.7.5 Parental motivations and perceived barriers to participating in pediatric vaccine clinical trials: Findings from the OCV-S trial in Nepal

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Abstract

Background: In low-resource settings like Nepal, where clinical trials are relatively new, recruitment and retention of participants are. Parental motivations, perceived barriers, and experiences of participating in pediatric vaccine trial in Nepal, which hasn't previously been explored, needs to be understood.

Materials and Methods: We performed face-to-face exit interviews from April 6, 2022 to June 7, 2022, with parents whose children participated in the phase III clinical trial of the Oral Cholera Vaccine – Simplified (OCVS) using a structured questionnaire on motivations for enrolling and barriers faced during the trial. Descriptive statistics were used. Additionally, thematic analysis was performed on responses to open-ended questions.

Results: A total of 258 parents responded, 196 (76.0 %), had a positive initial attitude towards the trial, and 204 (79.1%) reported a positive overall experience. The primary motivations for participation included the potential health benefits for their children (56.2 %, n = 145). Despite 69 (26.7 %) participants receiving discouraging information from others, only 4 (5.8 %) were influenced by it. Most participants (n = 219, 84.9 %), felt that the trial had met their expectations. Challenges faced included loss of time (n = 30, 11.6 %) and missed school for children (n = 22, 8.5 %). Participants who received specific details about the study before visiting the study site were significantly more likely to report positive experience, with an adjusted odds ratio of 1.97 (95 % CI: 1.03 – 3.72).

Conclusion: Majority of parents were supportive of their children's participation in the OCV-S trial, motivated largely by anticipated health benefits for their child. Key barriers identified included logistical issues, costs (both financial and opportunity costs), misinformation, and concerns about trial procedures and potential side effects. The high level of enthusiasm for clinical trials among parents, highlights the promising potential for future research endeavors in Nepal.

Keywords:

2.7.6 Telemedicine for chronic disease care during the COVID-19 pandemic in Nepal: A retrospective study

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Abstract

Introduction: In low middle income countries, low doctor-patient ratio and difficult health care access can be addressed through telehealth. During the COVID-19 pandemic, telemedicine was used by the “Kidney Hypertension Diabetes and Cardiopulmonary disease” non-governmental organization in Nepal. Our study aims to evaluate the role of telemedicine, and factors associated with patient adherence to telemedicine-based recommendations.

Methods: Patients who received telemedicine consultations from 2nd January 2021 to 9th October 2021 were evaluated in this study. Adherence to advice was assessed at three months by reviewing prescribed lab reports, medications used, and available health facility visit records. Patients’ satisfaction was assessed by using a closed question survey to enquire about the satisfaction with the telehealth services and about their willingness to take similar services in the future. Logistic regression was used to determine factors associated with adherence to telemedicine advice.

Results: A total of 505 patients were consulted by telemedicine. Nine patients were excluded due to incomplete records. Most of the tele-consultations were done for patients with chronic non-communicable diseases. Overall, 86.1% patients were managed without need for in-person hospital visit. 98.3% patients were satisfied with the telemedicine service and were willing to use the service in the future. Adherence to the test advised through telemedicine was significantly associated with availability of telemedicine service within their district (OR 1.79; 95% CI 1.17-2.73; p=0.007). Adherence to medicine prescribed was significantly associated with male gender (OR 1.62; 95% CI 1.02-2.57; p=0.041) and COVID-19 infection (OR 0.27; 95% CI 0.15-0.50; p<0.001).

Conclusion: Patients adhered to the advice provided by telehealth and were satisfied with the service during the COVID-19 crisis. “Telemedicine” can thus be one of the plans of a national strategy for pandemic preparedness.

Keywords: Chronic disease, Pandemic, Preparedness, Telemedicine

2.7.7 Assessment of supply chain management system of prioritized neglected tropical disease’s drugs and diagnostics in Nepal during COVID-19

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Abstract

Background: The constant threat of COVID-19 has affected the healthcare delivery system causing impairment in routine healthcare services. Neglected Tropical Diseases are the most affected by this pandemic resulting in disruption of essential supplies. This project aimed to assess the supply chain management system of prioritized NTDs drugs and Diagnostics as well as the client perspective on the service.

Methods: Purposive sampling will be done for the assessment of Logistic System Assessment Tool at all levels of healthcare service provider. 30 health facilities were selected and data was collected adopting and modifying LSAT and Logistic Indicator assessment Tool as needed in addition to the exit client interview were. Quantitative data collected were analyzed using LSAT analytical scoring system. The text data will be given codes and assigned to different categories as per the nature of the data.

Results: In case of Federal system, product selection had lowest performance of 65% and highest being that of LMIS and Procurement with 100% performance. All other system indicators have the performance of between 80% up to 95%. Both the Madesh province and district selected within were found low in all the indicators assessed using LSAT. 77.8% Health Facilities received the amount of drugs and diagnostics they demanded, 33.3% maintained proper storage conditions, 14.8% have faced stock-out within six months prior, and 59.3% HF ensured near term product availability. The percentage of exist client being highly satisfied with behavior of health professionals, availability and accessibility of healthcare services, and infrastructure of the health facilities were found to be 54.3%, 42.9% and 40% respectively.

Conclusion: This study highlighted gaps in the current supply chain management system of NTDs drugs and diagnostics amidst COVID -19. Drug supply at delivery point was found even more efficient during COVID with significant patient satisfaction on the healthcare services received.

Keywords:

2.7.8 Surveillance of drug resistance in recurrent leprosy cases using Mouse Foot Pad (MFP) assay

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Abstract

Background: Mouse Foot Pad assay (MFP) is considered the gold standard for assessing bacterial viability and drug susceptibility in leprosy. Anti-microbial resistance surveillance in leprosy is essential as no other antibiotics other than those in

WHO-MDT regimen have been introduced since 1980's. Thus, emergence of drug resistance is to be carefully monitored and promptly reported for effective treatment and cut transmission. Anandaban Hospital is the referral center for leprosy relapse confirmation and monitoring drug resistance of leprosy in Nepal.

Methodology: A retrospective review of records of MB recurrent patient between 2017 and 2023 was analyzed. Skin biopsies were taken from MB recurrence patients, and *M. leprae* isolated from the biopsies were subjected for viability and drug susceptibility testing in MFP. The drug susceptibility testing was done for Dapsone (0.01% and 0.0001%) and Rifampicin (0.1% and 0.05%).

Results: Among 125 recurrence leprosy cases, 90 were male, and 35 were female, with a mean age of 47 years (range: 15–84 years). The overall viability was 68% (85/125). Out of total, 72% had a BI $\geq 4+$, of which 53.6% (67/125) of biopsies revealed viable bacteria. The median time for recurrence was 16 years (range: 4–44 years). The maximum viability (28%, 35/125) was observed in cases which recurred after ≥ 20 years. Of the cases with treatment records, 110 had previously received MBMDT, 12 had PBMDT, and 3 had DDS monotherapy. Among the 62 cases treated with a 12-month MB-MDT regimen, 71% (44/62) showed bacterial viability.

Out of 85 biopsies showing bacterial growth, two strains exhibited low-level resistance to dapsone (0.0001%), and one strain showed low-level resistance to rifampicin (0.05%). No isolates showed resistance at higher drug concentrations.

Conclusion: The drug resistance surveillance done using MFP among MB recurrence cases did not show any resistance in recommended dosage for rifampicin and dapsone.

2.7.9 Clinical profile of leprosy in children under 10 years in Nepal: A 29-year review

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Abstract

Introduction: Leprosy in children under 10 years presents unique challenges due to their immature immune systems, lack of dose-adjustable blister packs, and dependence on guardians for treatment adherence.

Methods: This retrospective study analyzed medical records of children under 10 diagnosed with leprosy at Anandaban Hospital, Nepal (1995–2023), focusing on demographics, clinical features, contact history, classification, disability grading, and reactions.

Results: Out of 306 child leprosy cases (<15 years), 76 (25%) were under 10 years old, with a mean age of 7.3 years (range: 2–9 years). Males accounted for 62%, and 38% were females. Slit skin smear positivity was noted in 30% of cases. Regarding treatment, 70% of children received multibacillary (MB) multidrug therapy (MDT), 29% received paucibacillary (PB) MDT, and 1% received a single dose of rifampicin,

ofloxacin, and minocycline (ROM). Family contact with leprosy was reported in 45% of cases, most commonly involving fathers (38%). Among these, 20% had ≥ 2 family members with leprosy, while 35% reported no known contacts. Clinical classification revealed borderline tuberculoid (BT) as the most common form (56%), followed by tuberculoid (TT, 20%), borderline lepromatous (BL, 12%), borderline-borderline (BB, 4%), lepromatous (LL, 3%), and pure neuritic (PN, 5%). Most cases had no disability, with 93% at grades 0, while 4% were classified as grade 1 and 3% as grade 2. Reactional states were uncommon, with 79% showing no reactions. However, 11% experienced type 1 reactions (T1R), 9% had neuritis, and 1% had type 2 reactions (T2R/ENL).

Conclusion: Leprosy in children under 10 years is associated with a significant proportion of MB treatment cases, familial clustering, and mild disability grades. Reactional states are rare but include T1R and neuritis. These findings emphasize the importance of enhanced contact screening, early diagnosis, and age-appropriate treatment approaches to address the unique challenges in this vulnerable population.

Keywords:

2.7.10 Knowledge, attitude and practice towards antimicrobial resistance and antimicrobial adherence among female community health volunteers before and after an educational intervention

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Abstract

Introduction: Antimicrobial resistance is a serious problem in Nepal. Knowledge, attitude, practice and adherence of Female community healthcare volunteers of an intervention area about antimicrobials before and immediately after a workshop conducted on 24th February 2024 was measured.

Methods: A questionnaire containing 4 sections related to various themes of antimicrobials was developed. Knowledge, Attitude and Practice questions were analyzed using two sample proportion tests. Feedback regarding the educational intervention was also obtained using a 7-item tool and open responses.

Results: All Female Community Health care Volunteers from Mahalaxmi municipality participated. Most participants were aged between 41-50 years [19 (42.2%)] and [25 (55.6%)] had working experience greater than 10 years.

The scores for statements antimicrobial resistance are a serious problem worldwide, [84.4% vs 60% ($p=0.004$)] and antibiotics are used to inhibit the growth of bacteria improved post- intervention [100% vs 77.8% ($p<0.001$)]. Scores for attitude statements like, taking antibiotics without consulting a physician [91.1% vs 60% ($p<0.001$)], missing a dose or two of antibiotic treatment contribution to antibiotic resistance, [75.5% vs 46.6% ($p=0.002$)] among others improved.

The scores for certain practice statements also improved post-intervention. The median scores for attitude scale, [31 vs 26 ($p<0.001$)] and practice scale, [31 vs 34 ($p=0.011$)]

were different before and after the workshop. Participant feedback on the workshop was positive.

Conclusions: The session was effective in increasing participants' practice scores and may lead to more rational use of antimicrobials. The attitude, practice and total scores were different before and after the workshop.

Keywords:

2.8 Theme: Mental Health and Well-being

2.8.1 Mobile based ecological momentary assessment and machine learning for predicting suicidal ideation among gay, bisexual, and other men who have sex with men

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Abstract

Background: Mobile-based ecological momentary assessment (EMA) is increasingly used to study suicidal thoughts and behaviors (STBs). This study combines EMA and machine learning (ML) to predict next-day suicidal ideation among gay, bisexual, and other men who have sex with men (GBMSM) in Nepal, a population facing elevated STBs due to stigma and marginalization.

Methodology: This 30-day prospective study enrolled 50 GBMSM in Nepal between May and July 2024. Participants completed a baseline demographic survey and then began three fixed-schedule daily EMAs (morning, afternoon, and evening) via a smartphone application. EMAs assessed emotional states, sleep, smoking, social support, and suicidal thoughts. A LightGBM ML model was used to predict next-day suicidal ideation using aggregated EMA features with hyperparameter optimization via 5-fold cross-validated grid search and tuning parameters.

Results: The study included 50 GBMSM (mean age 27.8, SD 8.0), with 58% identified as gay, 26% as MSM, and 16% as bisexual. Mental health indicators showed 84% had depressive symptoms, and 79% reported lifetime suicidal ideation. EMA adherence was 67.7% (morning: 69.2%, afternoon: 66.7%, evening: 67.1%). Over the 30-day follow-up period, suicidal ideation was reported on 197 EMA occasions (16%) by 23 participants (46.9%). For the first 15 days, suicidal ideation was reported on 72 EMA occasions (17.1%) by 18 participants (36.7%). The LightGBM model achieved strong performance in predicting next-day suicidal ideation (accuracy: 93.6%, AUC: 95.6%,

precision: 81%, sensitivity: 77%, specificity: 96.0%. Key predictors included cumulative emotional stress, prior-day suicidal ideation, prior-day sleep quality, smoking frequency, and social support levels.

Conclusion: This study demonstrated the potential of mobile-based EMAs to predict suicidal ideation among MSM in Nepal. These findings underscore the utility of real-time digital tools in identifying at-risk individuals, even in resource-limited settings. Future research should optimize these tools for broader use in suicide prevention strategies and intervention development

Keywords: Ecological Momentary Assessment, Gay Bisexual and Other Men who Have Sex with Men, Machine Learning, Suicide Prevention

2.8.2 Preliminary impact of multi-component family intervention to lower depression and address intimate partner violence (MILAP) among young married women

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Abstract

Background: Intimate partner violence (IPV) is a major public health problem in low- and middle-income countries (LMICs) like Nepal. As per 2022 data, 27% of women in Nepal experience IPV during their lifetime. Young women in LMICs often face persistent violence but are less inclined to seek divorce or separation. Research indicates that 25-50% of women experiencing IPV report depression symptoms, establishing it as a prominent contributor to mental illness. In multi-generational households common in Nepal, mothers-in-law (MILs) frequently influence IPV, impacting the daughters-in-law's (DILs) autonomy and freedom of movement (FOM) and affecting their mental well-being. This study aimed to assess preliminary effectiveness of Multi-Component Family Intervention to Lower Depression and Address Intimate Partner Violence (MILAP), a family intervention (comprising woman, husband and MIL), through a 6-month single-arm pilot among young women aged 15-24 years in Dhanusa, Nepal.

Methodology: We conducted a pre-post analysis using standardized instruments between February 2022 and February 2023 to assess the effectiveness of intervention on depression, IPV, FOM and post-traumatic stress disorder (PTSD). We conducted assessments at baseline (prior to intervention), one month, three months and six months by the research staff not involved in the intervention.

Results: Of the 25 families, 96% completed the intervention, and 84% completed the 6-month assessments. The findings revealed a reduction in the rate of moderate

depression Patient Health Questionnaire-9 (PHQ-9) (PHQ-9 > 9; 46% to 13%, $p < 0.01$), a decrease in the mean rate of IPV events in the last month (2.1 to 0.75, $p > 0.05$), and an increase in FOM (33.3% to 96%, $p < 0.01$). Additionally, PTSD decreased from 48% to 40% ($p < 0.01$) after 6 months.

Conclusion: MILAP is promising in reducing depression and IPV among young women. Translating the insights gained from this pilot, we are currently conducting a randomized controlled trial to evaluate the effectiveness of MILAP.

2.8.3 Quality of life, stress and its coping strategies among the parents of children with autism spectrum disorder in Kathmandu valley: A mixed method study

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Abstract

Background: This study examines the quality of life, stress, and coping strategies of parents raising children with autism spectrum disorder in Kathmandu Valley. These parents face unique challenges, including caregiving demands, societal stigma, and limited support resources. Limited research exists on the psychosocial impacts these parents experience in Nepal, making this study crucial for understanding their struggles.

Methodology: This cross-sectional mixed-method study was conducted in autism care centers across Kathmandu Valley. Quantitative data from 140 parents was collected using validated scales (Autism Parenting Stress Index, Brief-COPE, Multidimensional Scale of Perceived Social Support, and Family Quality of Life Scale), analyzed with STATA/EZR, while qualitative data from semi-structured interviews was thematically analyzed using RQDA. Purposive sampling ensured diverse experiences, and the tools were pretested for reliability and validity.

Results: Parents' greatest stressors were concerns about their child's future independence (76.43%), acceptance (72.14%), communication (66.43%), and social development (51.44%). They primarily relied on active coping and planning, with family providing more consistent support than friends. Unemployed parents had a lower family quality of life than homemakers ($p = 0.003$). Greater use of emotion-focused ($p = 0.017$) and problem-focused coping ($p < 0.001$) was associated with lower family quality of life. Parents faced stigma and limited support from family and society, impacting their mental health. Some experienced severe stress, requiring medical help. Key challenges included school and community rejection, stigma, and concerns about the child's future. Those with better acceptance and social support reported lower stress and a higher quality of life. Many were dissatisfied with government support and resources for their children.

Conclusion: This study highlights that these parents face various psychosocial burdens and struggles that affect their quality of life and they need interventions to reduce stigma, improve family well-being to ultimately improve their ability to care for their children.

Keywords: autism, coping, parents, stress

2.8.4 Burnout and its' associated factors among health workers: A hospital-based cross-sectional study from Pokhara

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Abstract

Background: Health workers' burnout compromises patient safety and satisfaction, in addition to their own health. Over the last three decades or more, burnout syndrome has been getting more attention. High levels of burnout have been reported by health workers globally, and Nepal is no exception, including those, mainly in hospital settings. Despite this, burnout issues have not been given enough attention in the literature. Hence, this study aims to assess the prevalence of burnout and its' associated factors.

Materials and methods: A hospital-based cross-sectional study was carried out among 242 health workers from selected hospitals of Pokhara, Kaski, from Sep to Oct, 2024. Data was collected using a valid scale - the Oldenburg Burnout Inventory. Frequency, percentage, and median were calculated to describe the sample characteristics whereas, chi-square tests and logistic regression were used to determine the factors associated with burnout.

Results: The prevalence of burnout was 61.6%. When subscales were evaluated separately, slightly more than and nearly three-fourths were found to have both high disengagement (76.4%) and high exhaustion (71.9%). Multi-variate logistic regression showed that the insufficient sleeping hours at night (aOR: 2.292, 95% CI: 1.193–4.404), poor job satisfaction (aOR: 3.391, 95% CI: 1.286–8.943), and poor work-life balance (aOR: 5.187, 95% CI: 2.600–10.350) were associated with burnout status.

Conclusions: Nearly two-thirds of the hospital health workers experienced burnout. Insufficient sleeping duration at night, poor job satisfaction, and poor work-life balance determine burnout status of health workers. Appropriate health-promoting strategies targeting them in hospitals are warranted.

Keywords:

2.8.5 Suicide prevalence in Nepal: Evidence from the 2021 census

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Abstract

Background: Suicidal behaviour is a significant public health concern claiming 726,000 lives annually, with many more attempts. Suicide impacts all age groups and was the third leading cause of death among 15–29-year-olds globally in 2021. Notably, nearly 73% of suicides occur in low- and middle-income countries. Nepal has also witnessed a rising suicide burden, recording 7,221 suicide deaths in the fiscal year 2023/24.

Methods: This study utilized data from the Nepal Population and Housing Census 2021 to analyze the prevalence of suicide cases in Nepal. The dataset included a total population of 28,925,480 excluding institutional population, with 5,271 reported suicide cases during the one-year reference period. Descriptive analysis was conducted to identify suicide rates across provinces, ecological regions, districts, and local administrative units, gender and the area of settlement.

Findings: The national suicide prevalence rate was approximately 1.8 per million people, averaging 14.4 suicides per day. Koshi province had the highest suicide rate (2.4 per million), while Madhesh province had the lowest (1 per million). The Mountain region exhibited the highest prevalence (2.4 per million), whereas the Tarai region had the lowest (1.7 per million). At the district level, Solukhumbu had the highest suicide rate (5.15 per million), while Humla was the only district with no recorded cases. At the local level, Malika Rural Municipality in Myagdi had the highest suicide rate (9.3 per million). The prevalence was higher in rural areas (2.02 per million) than in urban areas (1.72 per million) and was more severe among males than females.

Conclusion: Suicide remains a critical public health issue in Nepal, with notable regional disparities. Higher suicide rates in certain provinces and rural municipalities highlight the need for targeted mental health interventions and policy responses. Understanding these geographic variations can inform suicide prevention strategies and resource allocation in Nepal.

Keywords:

2.9 Theme: Nutrition and Food Security

2.9.1 Innovative functional foods: Exploring the health benefits of probiotics and bioactive phytochemicals

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Abstract

Background: Plant-derived bioactive compounds, notably abundant in foods like pumpkin and carrots, have garnered considerable interest for their potential health benefits. This study was aimed to study the effect of probiotics to enhance the nutritional profiles of carrots and pumpkins during fermentation which may be a source of potential plant-derived bioactive compounds in enhancing the nutritional profile of

fermented foods for preventive medicine and health promotion. Methodology: In the present study, LAB namely *Lactobacillus plantarum*, *Lactobacillus rhamnoses* and *Saccharomyces cerevisiae* were inoculated in pumpkin pulp and carrots and kept for fermentation for 48 hours at 37°C. After fermentation, the products were analyzed for the nutritional profile, bacterial count, shelf life, and alcohol content. Results: Results indicate that the viable cell count was found greater than 7.92 log CFU/mL and showed good sensory quality of product. Qualitative analysis showed presence of active phytochemical compounds and antioxidant activity. The fermented carrot and pumpkin foods with probiotics exhibited superior nutritional content compared to the control. Conclusion: It can be concluded that the fermentation of pumpkin and carrots with probiotics might be creation of innovative food items with added nutrition a unique offering to consumers which can enhance potential health advantages with expanding market of food value. So, the study underscores the potential of utilizing fermented plant-based foods enriched with bioactive compounds and probiotics for promoting health and longevity through dietary interventions.

Keywords:

2.9.2 Probiotics and their postbiotics for mitigating Aflatoxin contamination in food grains: An innovative approach to enhance food safety

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Abstract

Background: Aflatoxin contamination in food grains presents a substantial hazard to food safety and human health, necessitating innovative mitigation strategies. This research investigates the potential of probiotics and their postbiotics as a novel approach to enhance food safety by reducing aflatoxin contamination in food grains. The study aims to assess the antifungal effect of potential lactic acid bacteria (LAB) strains against *Aspergillus flavus* and its aflatoxin production. Methodology: LAB strains were isolated from dairy products such as curd and characterized for their probiotic properties. The antifungal activity of the LAB strains was determined by observing reductions in fungal colony size, while the inhibition of aflatoxin production was achieved through simultaneous inoculation of LAB with fungal spores. Qualitative and quantitative analysis of aflatoxin were carried out using UV-transilluminator and Thin Layer Chromatography. Results: The results demonstrate the efficacy of LAB strains in controlling aflatoxin contamination in food grains. This study highlights the significance of this innovative approach and its potential to uphold the quality and safety of the food supply. Additionally, the study explores the efficacy of selected probiotic strains and their metabolites (postbiotics) in degrading aflatoxins in contaminated food grains through both in vitro and in vivo experiments. Conclusion: The findings contribute to advancing our understanding of probiotic-mediated aflatoxin detoxification and offer practical insights into the development of sustainable solutions

to mitigate aflatoxin contamination in food grains, thereby safeguarding public health and improving food security.

Keywords:

2.9.3 Comparative analysis of child nutrition and feeding practices in intervention and non-intervention areas of Mugu and Sindhupalchok, Nepal

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Abstract

Background: Child malnutrition remains a significant challenge in Nepal, particularly in remote rural areas. This study compares the nutritional status, feeding practices, and maternal knowledge of child nutrition between PHASE Nepal intervention areas and non-intervention areas in Mugu and Sindhupalchok districts.

Methods: A cross-sectional study was conducted among 971 households, collecting anthropometric data, breastfeeding and complementary feeding practices, and household food diversity. WHO Z-score classifications were used to assess malnutrition levels, and statistical comparisons were made between intervention and non-intervention areas.

Results

- Exclusive Breastfeeding: Higher in intervention areas (99.4%) than in non-intervention areas (98.7%).
- Stunting: Severe stunting affected 38% of children in intervention areas compared to 42.2% in non-intervention areas.
- Wasting: Severe wasting was slightly lower in intervention areas (12.9%) than in non-intervention areas (15.7%).
- Underweight: Severe underweight prevalence was lower in intervention areas (20.9%) compared to non-intervention areas (32.4%).
- Dietary Diversity: In intervention areas, 31.5% of children consumed milk/milk products more than twice a week, while in non-intervention areas, it was only 20.2%. Consumption of Sarbottam Pitho (super flour) was significantly higher in intervention areas (69%) than in non-intervention areas (36.7%).
- Maternal Knowledge: Awareness about "Golden 1000 Days" was higher in intervention areas (45.7%) compared to non-intervention areas (5.3%).

Conclusion: The findings suggest that PHASE Nepal's intervention areas demonstrate better nutritional outcomes, breastfeeding practices, and dietary diversity than non-intervention areas. However, gaps remain in complementary feeding and dietary diversity, emphasizing the need for further targeted interventions in non-intervention areas. Strengthening community nutrition programs and improving food security are essential for sustainable improvements in child nutrition in rural Nepal.

Keywords: Child nutrition, Malnutrition, Nepal, breastfeeding, stunting

2.9.4 Food insecurity among vulnerable populations in informal settlements of Nepal: Insights from Kathmandu and Pokhara Valley

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Abstract

Background: Food insecurity remains a critical public health challenge in urban informal settlements of Nepal. This study, conducted by PHASE Nepal with support from the Liverpool School of Tropical Medicine under the ARISE Responsive Fund, assessed food security, living conditions, mental health, and access to services among residents of informal settlements in Kathmandu and Pokhara Valleys.

Methods: A mixed-method design was employed, incorporating a survey questionnaire administered to 2,009 participants across 15 informal settlements. Data analysis involved descriptive statistics and regression analysis to identify associations between food security and socio-economic variables.

Results: The study revealed that 35.2% of households experienced food insecurity, with higher prevalence among those engaged in informal employment and those with monthly incomes below NRs. 10,000. Households earning more than NRs. 20,000 reported comparatively lower food insecurity levels. Food insecurity was further exacerbated by poor living conditions, inadequate access to clean water, and lack of health services. Key drivers included unemployment (54.4%), limited government support, and environmental risks such as flooding.

Conclusion: Addressing food insecurity in informal settlements requires multi-sectoral collaboration, policy advocacy, and targeted support programs. Strategies should focus on promoting formal employment pathways, enhancing emergency preparedness, and engaging communities in policy formulation to ensure sustainable food security interventions.

Keywords: Food insecurity, Informal settlements, Nepal, Public health policy, Urban health

2.9.5 Ecological factors that drive microbial communities in culturally diverse fermented foods

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Abstract

Background: Fermented foods are increasingly recognized for their health benefits. Historically, cultures worldwide have relied on fermentation to preserve foods and enhance their digestibility, flavor, aromas, and taste. Despite the abundance of global diversity of fermented foods, the microbial communities in traditionally fermented non-European foods remain largely understudied. Here, we characterized the bacterial and fungal communities in 90 plant and animal based fermented foods from Nepal, South Korea, Ethiopia, and Kazakhstan, all traditionally prepared for household consumption. Our results reveal that these foods host diverse and intricately interconnected ecosystems of bacteria and fungi. Beyond the well-known fermenters such as lactic acid bacteria (LABs), Bacillales, and yeasts (Saccharomycetales), these foods contain additional microbes whose roles in fermentation are not well understood. While the microbial compositions of fermented foods vary by geography and preparation methods, the type of food substrate has the most significant effect on differentiating bacterial communities. Vegetable-based ferments harbor bacterial communities consisting primarily of LABs and potential pathways associated with carbohydrates degradation. Contrastingly, legumes and animal-based fermented foods are enriched with Bacillales and protein and lipid degradation pathways. Moreover, the microbial interactions, characterized via bacteria-bacteria and bacteria-fungi co-occurrence networks, differ significantly across traditionally fermented plants, legumes, and dairy products, indicating that microbial ecosystems vary between traditional fermented foods derived from different substrates. Our findings highlight the underexplored diversity of microbial communities in traditional fermented foods and underscore the need to understand the entire microbial communities present in these foods and their functions when evaluating their effect on nutrition and health.

Keywords:

2.9.6 Food insecurity and nutritional status among pregnant women in Kailali district, Nepal.

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Abstract

Background: Adequate nutrition during pregnancy is crucial for maternal and fetal health. This study aims to assess the nutritional status, food insecurity, and socio-demographic factors affecting the nutritional status of pregnant women in this region.

Methods: A cross-sectional study was conducted among 903 pregnant women in Kailali district. Data were collected using structured questionnaires covering socio-demographic characteristics, food insecurity and knowledge of nutrition. Nutritional status was assessed using Mid-Upper Arm Circumference (MUAC). Statistical analysis was performed to identify associations between nutritional status and various factors.

Results: The majority of women (68.6%) had normal nutritional status (MUAC >23 cm), while 31.4% were either had severe or moderate malnutrition. Approximately 10% to 12% of participants reported food insecurity. A significant association was found between higher MUAC and factors such as sufficient nutrition knowledge, regular antenatal care visits, increased dietary intake, and a higher pre-pregnancy BMI. Ethnic disparities were also noted, with Dalit, Janjati, and Brahmin women having higher MUAC compared to Madeshi and Muslim women.

Conclusions: Nutritional deficiencies and food insecurity remain significant challenges for pregnant women in Kailali district. Strengthening nutrition education, improving food security, and promoting antenatal care can improve maternal nutrition and health outcomes.

Keywords:

2.9.7 Antibiotic Resistance Profiles of Lactic acid bacteria (LABs) and *Bacillus* spp isolated from traditional fermented foods and beverages in Nepal

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Abstract

Background: One of the important dietary traditions among people living in the Himalaya is the consumption of fermented foods, prepared using knowledge passed down through generations. Beyond their cultural significance, fermented foods offer probiotic benefits due to beneficial microorganisms like Lactic Acid Bacteria (LABs) and *Bacillus* species, which play key roles in food fermentation. However, studies show these probiotic microorganisms can harbor antibiotic resistance genes (ARGs) and potentially transfer them to commensal bacteria and food-associated pathogens. In this study, we assessed the antibiotic resistance profiles of LAB and *Bacillus* species isolated from traditionally fermented foods and beverages collected as part of The KiKha Microbiome Project (Ki meaning fermented in Limbu, and Kha from khana, meaning food in Nepali), which includes over 1,000 samples across Nepal's diverse fermented foods.

A total of 36 isolates (28 LABs and 8 *Bacillus* spp) from diverse Nepali fermented foods were tested for antibiotic susceptibility using the disk diffusion method against 10 antibiotics. All 28 LABs and 8 *Bacillus* isolates were sensitive to chloramphenicol, azithromycin, erythromycin, and gentamicin. *Bacillus* isolates were also susceptible to vancomycin and ampicillin. However, all LABs were resistant to vancomycin, and all *Bacillus* isolates to bacitracin, corresponding to their intrinsic properties. Several bacteria showed resistance to additional antibiotics, with LABs resistant to ceftriaxone (50%), tetracycline (14.3%), and clindamycin (3.6%). Additionally, 17.9% and 7.1% of LAB isolates exhibited intermediate resistance to bacitracin and ampicillin, and several *Bacillus* isolates to ceftriaxone, clindamycin, and tetracycline. These antibiotics are commonly used in clinics. We are pursuing shotgun metagenomics and long-read sequencing to evaluate the genetic basis of antibiotic resistance. Observed resistance highlights Nepal's antimicrobial burden, necessitating better regulations.

Keywords: Antibiotic susceptibility, Antimicrobial resistance, Fermented foods, Lactic Acid Bacteria (LAB), Probiotic

2.9.8 Effect of adolescent-led school-based intervention for improving adolescents nutrition in selected schools of Sarlahi district: A mixed methods study

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Abstract

Background: Adolescence is a critical window for laying the foundations of good health. Poor nutrition, especially among adolescent girls, significantly contributes to the intergenerational cycle of malnutrition. School-based interventions have proven to be effective in promoting adolescent nutrition and health. However, evidence on participatory approach equipping adolescents with knowledge and skills to take care of their own nutritional needs remains scarce.

Methodology: A mixed-method quasi-experimental study design was conducted among 914 students from grades 7,8, and 9 of selected schools in the Sarlahi district through convenient sampling. Generalized Estimating Equation (GEE) models were used to analyze the effect of the intervention and qualitative data were analyzed through thematic analysis. Moreover, triangulation was done between quantitative and qualitative findings.

Result: The quantitative analysis included 914 participating at baseline and 700 at the follow-up, resulting in a follow-up rate of 76.85%. The intervention significantly improved coverage of iron folic acid (IFA) (DID coefficient: 0.268, p-value: <0.001), awareness about IFA distribution among adolescent girls (DID coefficient: 0.252, p-

value: <0.001), and deworming programs (DID coefficient: 0.119, p-value: 0.012), and reduction in unhealthy food consumption (DID coefficient: -0.09, p-value: 0.001). Similarly, qualitative findings echoed quantitative results, emphasizing the intervention's potential for immediate measurable outcomes such as improved awareness and attitude towards school health and nutrition among stakeholders from schools and local government.

Conclusion: There was a positive effect of the intervention on iron-folic acid distribution and awareness, raising awareness about deworming, and reducing consumption of unhealthy food. However, there was no significant effect on nutrition status, nutritional knowledge, health knowledge, or hygiene practices. Establishing strong linkages of school-based interventions with the community is essential for long-term behavioral changes that require longer interventions and follow-up periods.

Keywords: Adolescents, Deworming, Dietary Diversity, IFA, Nutrition

2.9.9 Altitude and anemia prevalence: A socio-geographic analysis from three districts of Nepal

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Abstract

Background: Anemia is a pervasive public health challenge in Nepal and is associated with significant morbidity and mortality. Reporting of anemia rates and anemia severity in Nepal is based on standard WHO classification criteria for measured HgB levels according to gender, pregnancy status and age. Living at high altitude influences hemoglobin levels and therefore the WHO recommends that a HgB correction factor should be applied to measurements taken of high altitude residents. We describe the rates of anemia before and after application of the WHO recommended altitude correction factor in 3 districts of Nepal.

Methodology: In this cross-sectional quantitative study we utilized data obtained by Nepal based medical teams during community health screening events in 3 districts of Nepal: Solukhumbu (Pasang Lhamu RM), Humla (Sarkeghat M); Nuwakot (Belkotgadhi RM). We abstracted demographic information, location of residence and measured hemoglobin values from medical records and applied WHO standard classification criteria for anemia. In addition, we applied the WHO altitude correction criteria to adjust measured HgB values for resident's altitude. We report rates of anemia, anemia severity before and after altitude correction in 3 distinct districts of Nepal. We used the Fisher Exact test to determine significance.

Results: We reviewed 2639 hemoglobin tests obtained in Humla (159); Solukhumbu (828), Nuwakot (1652). After adjusting HgB values for the altitude of residence, anemia prevalence rates increased from: 28% to 76% (Humla); 11% to 60% (Solukhumbu); 60% to 80% (Nuwakot) [$p<0.01$]. Anemia was highly prevalent in both genders but 9% higher among women [$p<0.05$]. Janajati and Sherpa demographic categories experiences similar anemia rates. Women of reproductive age and females under 12 had the highest anemia rates. After application of the WHO altitude correction, rates of severe anemia increased from 2% to 16% across all districts.

Conclusion: Reporting rates of anemia without applying the WHO recommended correction factors for high altitude residents may result in underreporting of anemia prevalence and severity in populations residing at elevations above 1500m. Re-examination of national NDHS anemia data may be warranted to align distribution of resources of public health resources with anemia prevalence rates.

2.10 Theme: Occupational Health and Safety

2.10.1 Prevalence of burnout and its associated factors among doctors in Nepal

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Abstract

Background: Burnout is a ubiquitous phenomenon among doctors and incidence are rising globally. Burnout is defined as a syndrome of emotional exhaustion, depersonalization and sense of low personal accomplishment. It is due to poorly managed job stress and work life balance and may lead to significant negative personal and professional consequences. The objective of this study was to assess the prevalence of burnout and its associated factors among medical doctors in Nepal.

Methodology: A cross sectional study was conducted among the doctors working in Nepal. Copenhagen Burnout Inventory was used to assess the burnout among the doctors. The difference between domains of burnout and socio-demographic characteristics and occupational variables was tested by t test and ANOVA. The variables that were statistically significant were further adjusted in multiple linear regression models.

Results: The prevalence of burnout was 76.1 % (Personal), 56.1% (work-related), 43.3% (client-related) and 54.9% (overall). The mean score for each CBI domain is 59.13±16.55 (personal), 53.62±18.83 (work- related), 47.68±23.59 (client-related), 53.48±17.67 (overall). There was significant association between personal burn out and

experience of less than 10 year ($p=0.026$) and not having regular increment in the salary ($p=0.023$). The shift duty >8 hours is associated with work related burnout ($p=0.046$). Client related burnout is significantly associated with age ≤ 35 year ($p=0.048$), those not having chronic health disease ($p=0.003$) and working in public institutes ($p=0.023$). Being not satisfied to job is highly significant in all the domains of burnout. ($p=0.001$).

Conclusion: The prevalence of burnout among the doctors in Nepal is significantly high. Non satisfaction to the job is the most important factor associated with it

Keywords: Burnout, Copenhagen Burnout Inventory, Doctors, Nepal

2.10.2 Musculoskeletal disorders and other occupational health outcomes among the sanitation workers in Nepal: a community based cross-sectional survey exploring the risk factors, knowledge and practice

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Abstract

Background: Sanitation workers play a crucial role in waste management and are at the risk of significant occupational health hazards. This study aims to assess work related musculoskeletal disorder along with other occupational health outcomes, knowledge and practices pertaining to the occupational health risk among the sanitation workers from the five major municipalities of Nepal.

Methodology: A community-based quantitative cross-sectional survey was conducted among 790 sanitation workers using a nonprobability sampling method. Study was conducted from December 2023 to December 2024, which involved structured face-to-face interviews and health assessments by trained medical doctors. A stepwise backward selection method was employed for conducting multiple logistic regression to identify the significant predictors of musculoskeletal disorder. Odds ratio and 95% CI were used to estimate the magnitude of association.

Results: Musculoskeletal disorders were observed among 36% (95% CI: 35.5-39.7) of the sanitation workers. Knowledge scores on occupational health risk prevention were moderate (70.7%), with personal protective usage reported by 70.1% of the workers. Predictors of musculoskeletal disorder were age (OR:1.02, 95% CI:1.00-1.03), underprivileged ethnic groups (OR: 2.14, 95% CI:1.01-5.53), education (grade 1-5) (OR:1.49, 95%CI:1.03-2.16) and workers from Pokhara municipality (OR:1.43, 95% CI:0.94-2.18).

Conclusion: Sanitation workers in Nepal face significant work-related occupational health risks particularly musculoskeletal disorders, influenced by socio-demographic and job specific factors. It is essential to implement targeted training program for

occupational safety, enforce workplace safety regulation, and routine health screening by the municipality.

2.10.3 Occupational health risks and safety awareness among welders in Bhaktapur, Nepal

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Abstract

Background: Over 2.3 million people die each year as a result of diseases or injuries related to their jobs, and 313 million suffer non-fatal ailments. Welding is one of such professions which is a hazard-prone job with several potential risks, including burns, electrocution, and potential deadly risk of fume exposure. In Nepal people taking the welding profession are aware of the risks associated with their jobs, but they often choose not to take preventive measures because of ignorance, discomfort from their jobs, and lack of knowledge about occupational safety laws and regulations, which increases the probability of accidents. The purpose of this study was to explore occupational health risks and safety awareness among welders and their adherence to occupational safety and health regulations.

Methods: We adopted a qualitative research design, conducting in-depth interviews with 26 individuals working as welders using a semi-structure interview guide. We implemented a snowball sampling method to identify the interview participants. The interviews were recorded, transcribed in Nepali, translated to English and were analyzed using NVivo 12 pro qualitative data management software, using thematic analysis approach.

Result: The study revealed significant occupational health risks including eye burns, electric shocks, and physical exhaustion among the welders. Further, the participating welders reported limited access to health insurance and inadequate awareness and access to personal protective equipment (PPE). Further the awareness of safety policies is also low in welders. While support groups and associations exist, their support is often insufficient, thus perpetuating challenges in workplace safety.

Conclusion: This study reveals the ground reality of welding workers in small scale industries in Nepal, showing gaps and need for safe occupational practice which needs to be addressed. Further study and work are needed to establish better occupational safety practices and improve the health and safety status of welders.

Keywords: Nepal, Occupational health and safety, Personal protective equipment, Welders

2.11 Theme: Pharmaceuticals and Access to Medicines

2.11.1 Systematic review of evidence based practice of forecasting and procurement of essential drugs and medicines (paracetamol and iron tablets) in public health logistics system.

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Abstract

Background: This systematic review aims to explore evidence-based approaches for the quantification, forecasting, and procurement of essential drugs globally, particularly in low-resource settings like Nepal. The review aims to guide research on the practice of quantification, forecasting, and procurement of Paracetamol and Iron Tablets in Nepal.

Methodology: This systematic review aims to analyze evidence-based practices in quantification and procurement of essential drugs. Search engines like SCOPUS and Web of Science were used to retrieve relevant research publications. Articles referencing quantification, forecasting, procurement, public logistics system, essential drugs, and supply chain management systems were analyzed. Non-referenced, non-journal or conference-proceeding work, and non-English-language research were excluded. The PRISMA flow statement was followed for analysis.

Results: Accurate forecasting of pharmaceutical needs relies on high-quality data from health information systems. Insufficient data utilization can lead to stock-outs, impacting health service delivery. Improved logistics management information systems can enhance procurement strategies, increasing contraceptive availability. Optimizing procurement processes can yield cost savings and improve pharmaceutical availability. Changes in supply chain and procurement processes can enhance health system performance, especially in low/middle-income countries. E-logistics practices improve healthcare supply chain management. Procurement practices in the public health sector emphasize data-driven decision-making, with quantification methodologies crucial for addressing health needs.

Conclusion: Evidence-based quantification/forecasting, and procurement of drugs are crucial for health logistics systems. Integrating high-quality data systems, effective LMIS, and optimized procurement processes enhances health outcomes, in resource-limited settings. Recommending research on evidence based quantification/forecasting and procurement of Paracetamol and Iron tablets in Nepal.

Keywords: Essential Drugs, Forecasting, Procurement, Public Health Logistics System, Quantification

2.11.2 Unlocking insights into medication utilisation patterns in Nepalese healthcare: a meta-analysis and systematic review using WHO prescribing indicators

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Abstract

Background: Inappropriate medication use remains a critical global health concern, particularly in low-resource settings. This meta-analysis and systematic review assessed the prescribing patterns in Nepalese healthcare facilities using WHO core prescribing indicators.

Methods: A comprehensive literature search was conducted in PubMed, Embase, CINAHL, INRUD bibliography, NepJOL, NepMed and Google Scholar. Observational studies that reported at least one WHO prescribing indicator within Nepalese healthcare settings were considered for inclusion. Data were examined using descriptive statistics and proportional meta-analysis (random-effects model). To evaluate variability across studies, heterogeneity was measured using Cochran's Q test and the I² statistic, with subgroup analyses according to the characteristics of healthcare facility.

Results: This review included 88 studies from 2108 healthcare facilities and 60,191 patient encounters. The average number of medications prescribed per prescription was 3.0 (95% CI 2.5–3.2), exceeding the WHO recommended threshold of <2.0. Generic prescribing was low (21.8%; 95% CI 15.6–28.8%) and showed a declining trend. Antibiotics were prescribed in 64.4% (95% CI: 57.7–70.8%) of prescriptions, particularly in secondary and tertiary care settings. This exceeds the WHO-recommended threshold of <30%. Overall, injection prescribing (22.9%; 95% CI 12.2–35.8) met WHO recommendation but was disproportionately high in emergency department and inpatient settings. Essential medicines from WHO and Nepal's lists constituted 53.0% (95% CI 41.1–64.7) and 54.4% (95% CI 47.7–60.9) of prescriptions, indicating underutilisation by prescribers.

Conclusion: Medication prescriptions in Nepalese healthcare facilities deviated significantly from WHO core prescribing standards, with excessive antibiotic use, low generic prescribing, and underuse of essential medicines. Targeted interventions, including prescriber education, policy reforms, enhanced monitoring, and regular prescription audits, are essential to promote rational prescribing and improve drug-related outcomes, including an opportunity to reduce antimicrobial resistance.

Keywords: Drug utilization, Healthcare facilities, Rational drug use, Systematic review, Who Prescribing Indicators

2.11.3 Treatment practices, cost of treatment and its implications in the management of hypertension at Shree Birendra hospital

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Abstract

Background: Hypertension is the most common cardiovascular disease. Blood pressure of 140/90mmHg or higher characterizes a group of patients whose risk of hypertension-related cardiovascular disease is high enough to merit medical attention. It is also the principal cause of stroke, myocardial infarction and sudden cardiac death. This study aims to describe the prescribing pattern, cost of treatment and its implications in the management of hypertension at Shree Birendra Hospital.

Methods: A prospective observational study was conducted for 6 months (28th April 2019 to 8th November) on patients attending the OPD of the Department of Internal Medicine. Newly diagnosed hypertensive patients without co-morbidities of all age groups were included. Treatment prescribed for the management of hypertension as well as cost of investigations and unit cost of prescribed drugs were recorded on the first day of presentation to the hospital.

Result: Out of 60 prescriptions, 20 patients were managed non pharmacologically, 22 were given monotherapy, and 18 were given polytherapy. Amlodipine was the most common drug prescribed in monotherapy whereas FDC of Amlodipine + Losartan was the most common drug prescribed in polytherapy. The cost of Amlodipine/unit drug in monotherapy and the FDC of Amlodipine + Losartan/unit in polytherapy were the most inexpensive among all other drugs prescribed.

Conclusion: Amlodipine was the most inexpensive and Olmesartan was the most expensive drug among all the prescribed drugs in monotherapy. FDC of CCB (Amlodipine) + ARB (Losartan) was the most inexpensive and FDC of ARB (Telmisartan) + diuretic (Hydrochlorothiazide) was the most expensive FDC among polytherapy. Injection Frusemide was three times more costly than injection Torsemide. The cost of treatment was Rs.384.72 for non-pharmacologically treated patients.

Keywords:

2.11.4 Predictors and drug-related problems in chronic obstructive pulmonary disease patients at a primary hospital in Western Nepal

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Abstract

Background: Chronic Obstructive Pulmonary Disease (COPD) poses a growing economic burden, particularly in low- and middle-income countries. Drug-related problems (DRPs) further exacerbate this burden, yet limited information is available on the prevalence and costs associated with DRPs in COPD. This study aims to assess the prevalence of DRPs, identify associated factors, and estimate associated prescription costs.

Methods: A cross-sectional study was conducted among 156 COPD patients visiting Dailekh District Hospital between May and September 2024. DRPs were identified using the PCNE V9.1 classification, patient interviews, and medical records. Clinically significant drug interactions were analyzed using Micromedex, Medscape, and UpToDate. Cost analysis was performed based on hospital pharmacy purchase prices. Multivariable logistic regression and independent t-tests identified factors associated with DRPs, with significance at $p < 0.05$.

Results: Nearly three-quarters (71.8%) of patients experienced DRPs, with an average of 1.45 DRPs and 2.2 DRPs causes per patient. The most common DRPs identified were drug treatment not optimal (34.5%), followed by adverse drug events (possibly) occurring (12.4%). The leading causes of DRPs were patient-related factors (40.7%), followed by dispensing (16.6%). Male patients [adjusted odds ratio (aOR): 3.0; 95% CI: 1.2–7.4], those from Dalit/Janajati communities [(aOR): 3.3; 95% CI: 1.1–9.8], and patients with co-morbidities [(aOR): 2.7; 95% CI: 1.2–5.9] had higher odds of experiencing DRPs. On average, a patient incurred a total cost of Rs. 6,543 ($\pm 1,424$), with patients having dispensing-related DRPs incurring an additional Rs. 525.2 (95% CI: 81.0–969.5; $p=0.02$).

Conclusion: The study highlights a high prevalence of DRPs among COPD patients, with significant economic implications. It underscores the vital role of pharmacists in identifying, resolving, and preventing DRPs in inpatient settings. Targeted interventions for males, Dalit/Janajati communities, and patients with co-morbidities, along with improved drug availability, are essential to reducing DRPs, improving outcomes, and alleviating financial burdens.

Keywords: COPD, Drug adherence, Drug interactions, Drug related Problems, Lower middle-income countries

2.12 Theme: Health Technology and Innovation

2.12.1 Job satisfaction among school health nurses working in Bagmati Province

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Abstract

Background: A school health nurse is a specialized person who plays a crucial role in promoting health behaviors, and protecting the health of students, their development, and academic success; and job satisfaction is most important for this role. Thus the objective of the study was to determine the level of job satisfaction among school health nurses working in Bagmati province.

Methodology: A descriptive cross-sectional research design was conducted among 132 school health nurses working in Bagmati province. A simple random sampling technique was adopted to collect the data. The study used Paula L. Stamp's modified Index of Work Satisfaction. Data was collected through the online, self-administered questionnaire distributed electronically. Data was entered in Statistical Package for Social Science (SPSS version 25) and analysis was done by using descriptive i.e. percentage, frequency, median, quartiles and inferential statistics i.e. chi-square test.

Results: The finding of the study shows that most (68.2%) of respondents were satisfied with their job and the areas where nurses reported high levels of satisfaction included their tasks and profession status. However, dissatisfaction was primarily associated with organizational policies, particularly the lack of opportunities for career advancement for school nurses. This study found association between level of job satisfaction and educational level of respondents as statistically signified by p-value 0.001.

Conclusion: Based on the finding it is concluded that some school health nurses are satisfied where as some are dissatisfied with their job related to organizational policies regarding career advancement. Hence, the nurse manager, health directory, and school administration can put programs and strategies to promote all sub-scales of job satisfaction.

Keywords: Job satisfaction, School health nurse

2.12.2 Co-designing urban health data hub: A multi-phase approach for digital transformation in an urban municipality of Nepal

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Abstract

Background: Urbanization in Nepal has led to significant health challenges, particularly in municipalities like Budhanilkantha, where rapid population growth and environmental issues persist. Moreover, the lack of quality, up-to-date data further complicates effective decision-making for addressing urban health

concerns. This study aims to develop and implement Urban Health Data Hub using code design approach to support evidence-based advocacy and community-led health interventions.

Methods: This implementation study employed comprehensive review of urban health data in Nepal through secondary data analysis, document review to identify data gaps. A household census in wards 7 and 4 and a household survey (1,200 households across remaining wards) will assess urban health issues that guide to develop family health folder. Public health facility assessment will evaluate public health services and infrastructure. After compilation and analyzing the data, the project will develop and implement centralized Urban Health Data Hub through co-design approach with municipal officials.

Results: The project will develop urban health data hub which will centralize real-time and forecasted health data, improving accessibility, accountability, and decision-making for municipal health interventions. This data hub provides real-time insights into disease prevalence, identifies high-risk groups, assesses healthcare needs, and supports targeted interventions. This platform will be embedded within the municipality's website, the initiative is anticipated to strengthen data accessibility, accountability, and utilization for urban health governance. The co-design approach will foster municipal ownership, ensuring the sustainability and long-term impact of the data hub on urban health interventions.

Conclusion: This study outlines significant step towards leveraging digital technologies for informed decision-making and improved healthcare outcomes in urban municipalities of Nepal. The Urban Health Data Hub showcases its potential for scalability to other municipalities and underscores its sustainability as a vital tool for facilitating evidence-based urban health planning and governance.

Keywords:

2.12.3 Digital literacy and factors associated with digital technology use among auxiliary nurse midwives in Nepal

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Abstract

Background: Digital literacy among healthcare providers is crucial in countries like Nepal for successful integration of technology in healthcare to improve patient access, preventive services, and overall quality of care. This study aims to assess digital literacy and factors associated with the use of digital technologies among auxiliary nurse midwives (ANMs) in Nepal.

Methodology: We conducted an online cross-sectional study among 172 ANMs in primary healthcare facilities in Nepal. Data were collected on socio-demographic characteristics, perceived usefulness, perceived ease of use, attitudes, social influence, facilitating factors, and anxiety regarding digital technology usage. Multivariate linear regression analyses were conducted to explore the relationships

among sociodemographic variables and other factors with composite scores for frequency of use, skills, and confidence.

Results: The mean composite scores for digital technology usage were: frequency of use (26 ± 5.1), skill (26 ± 6.25), and confidence (26.2 ± 6.23). ANMs aged ≥ 35 scored lower across all measures (frequency: $\beta = -2.6$, $p = 0.001$; skill: $\beta = -3.3$, $p < 0.001$; confidence: $\beta = -1.6$, $p = 0.021$). Higher education and marital status were positively associated with frequency of use. Negative attitudes were linked to lower frequency ($\beta = -0.46$, $p = 0.003$) and confidence ($\beta = -0.38$, $p = 0.003$). Social influence and facilitating conditions showed positive associations with frequency of use and confidence. Anxiety was negatively associated with all composite scores. Additionally, composite frequency of use and skill were positively associated with confidence (frequency: $\beta = 0.66$, $p < 0.001$; skill: $\beta = 0.28$, $p < 0.001$).

Conclusion: This study identifies age, education, marital status, attitudes, and anxiety as factors influencing midwives' use of digital health technology. It highlights the importance of regular use and proficiency in enhancing self-assurance, including targeted strategies to address these factors and improve technology utilization for better healthcare.

Keywords: Auxiliary nurse midwives, Digital literacy, Digital technology, Nepal

2.12.4 Bio-banking and national health security

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Abstract

Background: Emerging concept of biobank is as an essential component of global health security against potential health emergencies due to environmental threats, natural disasters and infectious disease outbreaks. Thus, rational planning model and quality management and networking of biobank is crucial for national emergency preparedness to achieve health security through research and services following one health approach.

It is high time establish biobanks for the research and services, incorporation with national health system, ethical aspects and provision of national guideline, prospective national planning for regulation of biobanks, quality management and global networking with collaborative multidisciplinary engagement.

2.12.5 Insights and challenges from the initial implementation of digital health initiatives in Gandaki province, Nepal

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Abstract

Digital technology is rapidly evolving and providing an excellent opportunity to improve efficiency of health systems. Gandaki Province initiated various digital tools to improve health systems and health care delivery. This paper summarizes key findings and lessons learned from rollout of these tools based on the review of relevant documents and presentations, in-depth interviews with key officials, and inputs from 28 field practitioners representing provincial, district, palika and health facilities. The implementation of digital health system presents numerous opportunities and challenges. Opportunities include the availability of quality and real-time data for decision-making, timely data for program planning and monitoring, and ensuring equitable health services reaching all populations. Enhanced feedback between providers and managers, reduced efforts for data recording, reporting, and compilation, and the potential for further research based on detailed databases are significant benefits. Additionally, digital tools enable predictive analysis of health system data. However, challenges include the need for initial investment and commitment,

development of Information Communication Technology (ICT) infrastructure, and training health workers to be Information Technology (IT)-friendly, and managing client/patient consultations alongside data entry in digital systems. Rapid scale-up, monitoring, and support requirements, data security concerns, lack of standardized system/tools, and interoperability between different systems also pose substantial obstacles. Endorsing Standard Operating Procedures, developing centralized system/infrastructure, managing competent human resources, providing continuous training, ensuring data security, fostering federal-provincial-local level collaboration, and establishing support services to maintain and improve the system are the priorities to institutionalize and strengthen the system.

Keywords: Digital health, Electronic health records, Electronic medical records, Gandaki, Unique Health ID

2.13 Theme: Primary Healthcare and Universal Health Coverage

2.13.1 From constitutional provision to implementation: An assessment of basic health care services in Nepal using demographic health survey data

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Abstract

Background: Delivering Basic Health Care Service (BHCS) is a commitment of the Government of Nepal to achieve universal health coverage. This study aims to identify availability, accessibility, quality of care, and utilization of BHCS in the public health facilities of Nepal using data from two nationally representative surveys.

Methods: We analyzed data from the Nepal Demographic and Health Survey (NDHS) 2022 and Nepal Health Facility Survey (NHFS) 2021, focusing on the services included in the Nepal's BHCS package. Descriptive analysis of the key indicators of the BHCS availability, accessibility, quality of service, and utilization was conducted drawing data on 1448 public health facilities, 457 observations and 320 client interviews from the NHFS 2021 and 14,845 women aged 15-49 from the NDHS 2022. The quality-of-care index was calculated with equal weight to three domains: experience of care, standard of care, and service readiness.

Results: Overall, 16 out of 41 services assessed under BHCS package were available at more than 90% of the health facilities, but all 41 services were available at less than one percent of the health facilities. Two of three women could reach the nearest health facility within a 30-minute travel time. Child health services had low utilization, with growth monitoring (6.0%) being the least used. Care seeking

fever (19.6%), diarrhea (25.4%), and acute respiratory infection care (25.5%) were also low, while antenatal care visits (80.5%) and deworming (84.1%) were highly utilized. The overall quality of care index was 69.3 out of 100.

Conclusions: Despite constitutional mandate to provide BHCS, this study found low availability of BHCS in public health facilities of Nepal. Although accessibility was not a problem, we found low utilization of services (especially child health) and moderate quality of care. Early BHCS implementation showed the need for realism and service review.

Keywords:

2.13.2 General health service readiness, its facilitators and barriers among the primary level public health facilities of Baitadi district: A sequential explanatory mixed method study

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Abstract

Background: Health service readiness is crucial for the healthcare facilities to deliver quality care. The aim of this study was to assess general health service readiness in primary-level health facilities followed by exploring facilitators in facilities with high readiness and the barriers in the low-readiness facilities.

Methodology: A cross-sectional study was conducted among the primary public health facilities of Baitadi, Nepal using a sequential explanatory mixed method approach. Quantitative data were collected through face-to-face interviews and observation using WHO SARA tool and analyzed via EZR software. The logistic regression model was applied to assess the factors associated with outcome variable using an adjusted odds ratio with a 95% CI, and a p-value <0.05 was considered statistically significant. 12 Key informant interviews were conducted with health facility in-charge and thematic analysis handled qualitative data.

Results: The mean general health service readiness was found 0.66 ± 0.14 (95% CI: 0.626-0.694) with significant gaps in basic amenities (0.53), diagnostic capacity (0.45), and essential medicines (0.52). The odds of having readiness among the health facilities with supervision within four months from the higher level was 7.24 times (aOR: 7.24, 95% CI: 1.32-39.80) as compared to those without having supervision within four months. Similarly, the odds of having readiness among health facilities with availability of HFOMC guidelines was 6.95 times (aOR: 5.95, 95% CI: 1.23-39.20) as compared to those without having HFOMC guidelines adjusting other variables. Effective coordination and leadership, supervision, staff motivations were found as the facilitators while poor physical infrastructure and resources, procurement delays and poor coordination as barriers for health service readiness.

Conclusion: Most of the health facilities were not found ready highlighting the significant gaps in basic amenities, diagnostic capacity and essential readiness domain. Regular supervision, effective coordination, timely transparent bidding process and responsive leadership are crucial for enhancing readiness.

Keywords: General health service, barriers, facilitators, health facilities, readiness

2.13.3 Rehabilitation service needs and referral systems: A pathway to primary health care integration in Karnali province, Nepal

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Abstract

Globally, 2.4 billion people live with health conditions that could benefit from rehabilitation, contributing to 310 million Years Lived with Disability (YLD), which increased by 63% from 1990 to 2019. The gap between the demand for rehabilitation services and access remains high worldwide. In low- and middle-income countries, unmet rehabilitation needs are even greater. Conflicts, disasters, and outbreaks escalate the need for rehabilitation services. To bring health services closer and fill the health service gap, Karnali Province endorsed a Provincial Rehabilitation Strategy. This study explores knowledge, awareness, practices, challenges, and needs in Karnali Province, Nepal.

A cross-sectional study was conducted among 313 health workers working in various settings in Karnali province from March 2024 to December 2024. The data was collected through a self-administered questionnaire sent to health workers in their emails or social media. The protocol received ethical approval from the Nepal Health Research Council (NHRC).

Among the participants, 63.2% were male, 72.8% belonged to the Brahmin/Chettri/Thakuri ethnic group, 36.1% worked in Surkhet, and 27.2% worked in a health post. Approximately 72.3% reported knowledge of rehabilitation services. Within health services, 79.9% were knowledgeable about physiotherapy, while 10% were not familiar with its services. Around 85% stated they felt rehabilitation is essential in primary health care, 31.6% felt they had been trained in rehabilitation services, and about 63.3% knew where to refer cases. About 27.2% of participants felt Karnali province is fully prepared to integrate rehabilitation into primary health care service.

A high proportion of participants were familiar with rehabilitation services, referral services, challenges, and types of services. However, a low proportion of them were ready to provide rehabilitation services. Timely addressing of health system challenges is essential for the effective integration of rehabilitation services. Capacity development of health workers, especially those serving in remote areas, is also recommended.

Keywords: Karnali, Nepal, primary health care, referral system, rehabilitation service

2.14 Theme: Maternal and Child Health

2.14.1 Facilitators and barriers to human papilloma virus (HPV) vaccine uptake among adolescent girls in Kathmandu District: A mixed-method study

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Abstract

Background: HPV is a common sexually transmitted infection and is responsible for over 95% of global cervical cancer cases. In Nepal, cervical cancer is the most common cancer among women, with high incidence and mortality rates. The Nepal government started vaccinating girls of 14 years in 2023, starting with 20000 doses across seven provinces.

Objective: This study aims to assess the prevalence of HPV vaccine uptake and its associated factors and explore the facilitators and barriers of HPV vaccination among adolescent girls in the Kathmandu district.

Methods: We conducted a mixed-method study in Kathmandu district from July to September 2023. The quantitative study included a self-administered survey among 1510 adolescent girls (14–15 years) from eight municipalities offering the HPV vaccine, selected through multistage cluster sampling from 142 schools. To identify factors influencing HPV vaccine uptake, we used generalized estimating equations and Poisson regression, accounting for cluster sampling by school and adjusting for sample weights. Additionally, qualitative data 27 in-depth interviews with parents, girls, policymakers, program implementers, and school authorities using purposive sampling, CFIR-based tools and deductive framework analysis.

Result: HPV vaccine uptake among was 12.74%. Over half lacked knowledge of cervical cancer (57.38%), HPV infection (79.72%), and vaccine (79.36%), with 45.49% having negative perceptions. Factors significantly associated with HPV vaccine uptake were school type, age of girls, parents' occupation, sole income earners in the family, knowledge about HPV infection and HPV vaccine. Qualitative analysis identified facilitators as effective awareness, free vaccination, on-site school vaccine locations, and availability of school health nurses. Barriers

included lack of knowledge, myths/misconceptions, limited accessibility, and insufficient vaccine availability.

Conclusion: The study highlights that increasing awareness, improving accessibility, and addressing misconceptions are key to enhancing HPV vaccine uptake. Comprehensive research and effective awareness campaigns are needed to overcome barriers like limited knowledge and accessibility.

Keywords: HPV infection, HPV vaccine, adolescent girls, barriers, facilitators

2.14.2 Measuring age interaction with pesticide exposure during pregnancy and low-birth weight: A hospital-based retro-prospective cohort study in Chitwan, Nepal

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Abstract

Background: Young pregnant women in Nepal are exposed to chemical pesticide because of its widespread use, and a phenomenon called “Feminization of Agriculture” where female farmers have outnumbered the male because of latter’s outmigration. The objective of this study was to measure the effect of pesticide exposure during pregnancy on low-birth-weight (LBW) babies in young mothers and to assess interaction between maternal age and pesticide exposure.

Methodology: A retro-prospective cohort study was carried out on pregnant women in Bharatpur hospital, Chitwan, Nepal. Since exposure was rare, all pregnant women exposed to pesticide were enrolled (census of exposed) and a sample of the unexposed were taken to meet the required sample size. Exposure history was collected retrospectively and the birth outcome data was collected prospectively. Data were analyzed using STATA 18. Interaction was assessed in additive scale.

Results: Pregnant women (≤ 20 yrs) had 136% higher risk of delivering a LBW baby compared to those aged >20 yrs (RR= 2.36, 95% CI- 1.59,3.51). Pregnant women exposed to pesticide had higher risk (48%) of delivering LBW babies (RR=1.48, 95% CI- 0.91,2.4). The risk lowered when adjusted for confounding variables (RR=1.26, 95% CI=0.73, 2.1). Young pregnant women (≤ 20 yrs) exposed to pesticide have 305% higher risk of delivering a LBW baby compared to unexposed older pregnant women (>20 yrs) (RR=4.05, 95% CI- 1.99,8.20). Relative excess risk of interaction RERI=1.56. 38.46% of LBW in young mothers ≤ 20 yrs exposed to pesticide during pregnancy is attributed to interaction between maternal age and pesticide.

Conclusion: Pesticide exposure during pregnancy has adverse effect on LBW outcome. The risk is much higher in young mothers. Substantial interaction occurs

between young maternal age and pesticide exposure, therefore, all pregnant women should be discouraged to handle pesticide. Younger women (≤ 20 yrs) should be prohibited to do so.

Keywords: Pesticide exposure, Young mother, low-birth-weight

2.14.3 Delivery care practices and associated barriers among women in Soru rural municipality, Nepal

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Abstract

Background: Access to skilled delivery care is essential for reducing maternal and neonatal mortality. This study explores delivery care practices in Soru Rural Municipality to identify barriers and facilitators influencing institutional delivery and postnatal care utilization.

Methods: A cross-sectional survey was conducted in wards 3, 4, 5, 6, and 7 of Soru Rural Municipality. A sample of 385 households was selected using probability sampling. Data were collected using structured questionnaires and analyzed using SPSS version 24. Ethical approval was obtained from relevant authorities, and informed consent was secured from participants.

Results: Out of 417 respondents, 65.47% delivered their youngest child at a health facility, while 30.70% opted for home delivery. The primary reason for not choosing institutional delivery was the distance to the health facility (59.73%). Among health facility deliveries, 99.27% were normal deliveries. Nurses or midwives assisted 66.19% of deliveries, while 26.62% were supported by relatives. Postnatal check-ups were reported by 74.34% of respondents, predominantly within the first 24 hours (83.88%). Barriers to postnatal care included distance (59.68%) and lack of knowledge (22.59%).

Conclusion: While the majority of women utilized institutional delivery services, geographical distance and limited awareness persist as significant barriers. Strengthening community-based awareness programs and improving accessibility to health facilities could enhance delivery and postnatal care uptake.

Keywords: Delivery care practices, Soru Rural Municipality, institutional delivery, maternal health, postnatal care.

2.14.4 Equity gaps in determinants of neonatal mortality in Nepal: Insights from NDHS 2016 and 2022 analysis

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Abstract

Background: Nepal has made significant progress in reducing the Neonatal Mortality Rate (NMR) over the past two decades. However, since 2016, NMR has stagnated at 21 deaths per 1,000 live births, indicating stalled improvements in neonatal survival. Past studies highlighted the disparities, with socioeconomically disadvantaged groups experiencing a higher rate of neonatal deaths. However, limited evidence exists on NMR trends and determinants in Nepal that examined the factors with the trend. This study analyzed NMR trends and key determinants using data from the two most recent Nepal Demographic and Health Surveys (NDHS).

Methods: NDHS 2016 and NDHS 2022 data were used to calculate NMR. Both surveys received ethical approval from the Nepal Health Research Council. The study included 106 neonatal deaths out of 5,087 live births in 2016 and 105 out of 5,192 in 2022. Independent variables included household characteristics, parental factors, pregnancy-related factors, maternal and newborn care, women's empowerment, and health system factors. NMRs were constructed using births within completed months from 1 to 61. A general linear model assessed NMR trends, while logit regression identified key determinants.

Results: While national NMR remained unchanged since 2016, an increasing trend was observed among disadvantaged groups and mothers who did not utilize maternal/newborn health services. NMR rose from 27.3 to 27.8 per 1,000 live births ($p=0.001$) among poor and poorest households. Maithili-speaking mothers had higher NMR (27.4 in 2022 vs. 23.4 in 2016, $p<0.001$). Women lacking decision-making power in healthcare had higher NMRs of 25.9 in 2022 vs. 23.4 in 2016 ($p=0.021$). Higher NMRs were also found among uneducated mothers and those who delivered without skilled birth attendants.

Conclusions: Targeted health system interventions are needed for disadvantaged groups. A focused survey on neonatal mortality and causes of death is recommended to explore determinants and link them with health service readiness.

Keywords: Determinants, Equity gap, Neonatal Mortality, Nepal Demographic and Health Survey, Trend Analysis

2.15 Theme: Aging and Geriatric Health

2.15.1 Barriers and opportunities in Nepal's aged care: From policy to practice

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Abstract

Background: Like many countries around the world the population of older adults (60 years) in Nepal is increasing. Over the years, several aged care policies have been introduced and implemented in Nepal. However, significant challenges around the implementation of these policies. The aim of this work was to identify national aged care-related policies in Nepal with a focus on identifying the barriers and facilitators to aged care policy implementation.

Methods: A narrative review of aged care policies related to the care of older adults in Nepal was conducted. Google Scholar, PubMed and Google were used with the keywords older adults, Nepal, and policy or guidelines to identify relevant policies and/or policy evaluations. A grey literature search of online Ministry of Health and Ministry of Social Welfare documentation was conducted with a snowball approach. For each policy, the target aged care sector (facility or community-based care), level of implementation, barriers and facilitators to implementation, and impact were explored.

Results: We identified 10 age care-related National policies relevant to aged care. Most policies focused on the community and the aged care homes. The level of implementation varied, with many policies only partially implemented. Major barriers to implementation included poor policy execution, financial limitations, poor coordination between government agencies, lack of institutional care and limited awareness among older adults. The importance of and respect for older adults in Nepalese culture, government priority, and the potential for future development of the aged care sector were identified as facilitators. Mixed policy impact and overall policy evaluation remained limited.

Conclusions: While aged care policies are present in Nepal, the impact of these policies is hindered by weak implementation, resource constraints and poor coordination among concerned stakeholders. These challenges underscore the need

for a structured and proactive approach to aged care policy development and implementation.

Keywords: Nepal, Older adults, Policies, Practices, barriers and facilitator

2.15.2 What is known about the spirituality in older adults living in residential care facilities? An Integrative review

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Abstract

Background: Spirituality is a very important aspect of aging. Transition to residential care facilities is one of the most stressful events for older adults. The study aimed to synthesize evidence regarding the spiritual needs and care of older adults living in residential care facilities from the perspectives of older adults and nurses or caregivers.

Methodology: Integrative review of literature using CINAHL Plus with Full Text via EBSCO, Scopus, PubMed, PsychInfo, Web of Science, and ProQuest Social Science Databases. Whittemore and Knafl framework and PRISMA were used in the selection of eligible articles. Mixed Method Appraisal Tool was used.

Results: There is limited evidence and no agreed definition of spiritual needs and care of older adults living in residential care facilities. Spiritual needs of older adults in residential care facilities is a psychosocial, religious and existential construct. Spiritual care in residential care facilities is linked to information gathering, religious guidance, maintaining family connections, providing companionship, discussing end of life issues, and providing counseling. Older adults highly value the role of nurses and caregivers in fulfilling their spiritual needs and providing spiritual care. However, nurses and caregivers perceived arranging a referral to a religious advisor as the main aspect of spiritual care. Therefore, nurses', caregivers', and older adults' views on spiritual care differed.

Conclusion: The practical aspects of spiritual needs assessment and spiritual care provision requires further investigation, which is essential to improve the effectiveness of service delivery in residential care facilities.

Keywords: caregivers, nurses, older adults, residential care, spirituality

2.15.3 Lived experiences of caregivers of dementia patients in Nepal

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Abstract

Background: Dementia is becoming more common, particularly in low-resource nations like Nepal where the burden is increased by aging populations and insufficient medical facilities. Caregivers—mostly family members—face financial, emotional, and physical hardship due to a lack of support systems. Services rely on personal resilience, community networks, and traditions. This research intends to fill the information gap on dementia caregivers' experiences in Nepal by investigating their daily realities, coping strategies, and potential improvements to support networks.

Methodology: This qualitative exploratory study examined the experiences of dementia caregivers in Nepal using purposive sampling. Thirty caregivers with at least three months of experience were interviewed in private settings to ensure demographic and geographic diversity. Verbal consent was obtained, and ethical approval was granted (*ERB#462-2024*). Data were analyzed using a six-step thematic analysis approach.

Results: The analysis identified seven key themes: physical, psychological, and social challenges; financial burden; management learning process; facilitators and barriers to adequate care; and policy recommendations. Caregivers struggle with emotional and physical strain while ensuring patients' mobility and quality of life. Financial difficulties persist, yet caregiving is often seen as a duty. Some adapt their homes for better care, but limited respite care and social support add to the burden. The study recommends community support groups, caregiver education, and home-based healthcare services to enhance caregiver support.

Conclusion: Dementia is a growing concern in Nepal, with home caregivers playing a vital yet challenging role. Strengthening caregiver support through education, resources, and formal systems is crucial for improving care quality.

Keywords: Caregivers, Dementia, Lived experiences, Nepal

2.15.4 A qualitative exploration of dementia care in Nepal

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Abstract

Background: Around 2/3rd of those with dementia live in low- and middle-income countries (LMICs), which face the greatest burden due to limited financial resources and underdeveloped health and social care systems but research on supporting people with dementia (PwD) in these settings is sparse. In South India, caregivers experience physical and emotional burnout, lack respite care, shared caregiving arrangements, knowledge of dementia, and community support services. Primary healthcare center (PHC) providers in Uganda often lack the necessary knowledge and skills for person-centered care, needing training in dementia awareness, diagnosis, management, and referral. Similarly, in Nepal, healthcare providers face critical challenges due to limited dementia-specific education and a poor provider-to-patient ratio, reducing the quality of care.

Methodology: An exploratory qualitative study was conducted in Dolakha between September and December 2023. We conducted three focus groups with CHWs and six one-on-one interviews with family caregivers, healthcare providers, and a government office representative. Data was collected through purposive and snowball sampling, with audio recordings transcribed for analysis.

Results: Key findings include misconceptions about dementia, challenges faced by caregivers, and systemic issues in healthcare. CHWs identified the need for greater dementia awareness and improved healthcare services. Caregivers reported emotional, physical, and financial burdens and emphasized the importance of community support. Healthcare providers highlighted the lack of specialized training and resources, affecting diagnosis and long-term care. Stakeholders stressed the importance of cross-sector collaboration and culturally sensitive policy development to improve care.

Conclusion: Dementia care in Nepal faces significant challenges, including diagnostic difficulties, resource shortages, low community awareness, and a fragmented healthcare system. Addressing these barriers and leveraging facilitators, such as community engagement, media campaigns, family-centered care, and specialized training for healthcare providers, can improve dementia care in Nepal.

Keywords: Aging Population, Barriers, Caregivers, Dementia care, Health care providers

2.15.5 The silent crisis: Unpacking public health issues for older adults in Nepal

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Abstract

Background: The older population (³ 60 years) in Nepal is increasing due to increased life expectancy and declining fertility rates. Challenges such as changing societal structure, urbanization and migration are impacting older adults in Nepal. This study aimed to identify major public health issues faced by older adults in Nepal.

Methods: A narrative review was conducted using peer-reviewed articles, government reports, and grey literature published between 2000 and 2023. Google Scholar, PubMed and Google were searched using the keywords older adults, Nepal, health status and public health issues.

Results: Several key public health issues were identified, such as the high prevalence of age-related health complications and diseases, resident or medication safety issues, mental health issues, nutrition issues, low health literacy, loneliness or neglect due to migration of loved ones and poor availability of health and aged care services. Social isolation and loneliness are also prevalent due to weakening community networks and inadequate social support structures. Considerable differences were found between issues faced by older adults in rural and urban locations in terms of community structure, health accessibility and availability of resources. Moreover, public health issues vary significantly between older adults living alone and those living with family.

Conclusion: Nepal faces significant public health challenges in aged care and older adults living in the community, including poor health status, age-related diseases and complications, medication safety issues and inadequate access to healthcare services. Strengthening healthcare systems for geriatric care and coordination between different levels of government, enhancing access to geriatric care, and promoting community-based support networks are crucial for addressing these issues.

Keywords: Geriatric care, Healthcare, Nepal, Older adults, Public Health

2.16 Theme: Eye Health Care

2.16.1 Barriers to cataract surgeries as perceived by cataract visually impaired & blind >50 years participants of Nepal survey for rapid assessment of avoidable blindness.

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Abstract

Background: Cataract surgery is the 2nd most cost-effective public health initiative to address avoidable blindness. To identify the main barriers and determinants to cataract surgery as perceived by 50 years and older Nepali people with severe visual impairment & blind due to cataracts.

Methods: This was part of the Rapid Assessment for Avoidable Blindness (RAAB), held in all provinces of Nepal from 2018 to 2021. Cataract blindness was defined as a person having the best-corrected vision, <6/60 in the better eye, and an unoperated cataract, which was the principal cause of visual disability. The participants were interviewed using a pretested questionnaire with seven known barriers.

Results: We surveyed 718 cataract blinds. Two-thirds of the participants were females. Four in ten were aged 50 to 59 years. The main barriers perceived were 'need is not felt' (237; 33%), cost associated with surgery (218; 30%), lack of access (93; 13%), fear of surgery (88; 12%), nobody to accompany (40; 6%), unaware of surgery (18; 3%), and treatment denied (24; 3%). High cost was a perceived barrier in all provinces except Gandaki. Access to treatment was a barrier in the Gandaki province (38%). One in four participants in the Madhesh and Bagmati provinces feared surgery. Nearly half of the cataract blind in the Madhesh and Lumbini province did not feel 'need for restoring vision'.

Discussion/Conclusions: To improve cataract surgery uptake, identified barriers, like lack of awareness, low visual need, and high cost must be addressed. The strategies could be devised according to provincial barriers but similar to both genders and all 50 years and older cataract blind. Offering low-cost cataract surgery, financial assistance and health promotion to improve awareness and remove fear were recommended.

Keywords: Barriers, Cataract surgery, Nepal, RAAB Survey

2.16.2 Impact of live and cloud based tele-ophthalmology system on referral patterns and disease identification at community eye centers in Nepal

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Abstract

Background: Utilization of tele-ophthalmology service is rapidly increasing globally for the remote eye disease screening. This study aimed to assess the impact of live and cloud based tele-ophthalmology system on referral patterns and disease identification at community eye centers (CEC) in Nepal.

Methods: Cross sectional study was conducted among the patients over 18 years to assess the effects of combined tele-ophthalmology system at two CECs in Nepal. Sample size calculated was 600. Fundus camera (Right Medical PVT LTD, India) having facilities of both the anterior and posterior segment photo of eye was used. Images were transferred via cloud based technique and also live consultation was provided. Detailed demographics, history, diagnosis, referral and follow up were recorded. Data was collected in micro-soft excel and IBM SPSS V20 was used for the analysis. For descriptive analysis, mean, standard deviation, number, percentages were calculated.

Result: Total 600 patients were screened using the tele-ophthalmology service from two CECs. The mean age was 62.3 years with SD 13.0. Two thirds (63.3%) were female. Diabetes mellitus and hypertension was found in 29.8% and 54.5% of the participants respectively. Half of the study participants presented for blurring of vision. Overall, 89% of the cases had ocular problems. Anterior segment ocular problems comprised of 44.8% and posterior segment problems in 64.6%. One third of the cases needed referral from the CECs. One fourth of the referred cases presented within one month at tertiary eye care center for evaluation.

Conclusion: Nine out of ten screened cases had some ocular problems. Posterior segment problems comprised of over three fifth of the cases. One third of total cases needed referral. One fourth of referred cases presented within the one month for further consultation. Findings of the study could help for scaling up tele-ophthalmology service in remote places to reduce the blindness.

Keywords: Tele-ophthalmology, cloud based consultation, eye diseases, fundus photography, live consultation

2.17 Theme: Disability, Rehabilitation, and Accessibility

2.17.1 Investigating the sustainability of cooperatives in the context of leprosy and the work of leprosy mission in Nepal: A qualitative study

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Abstract

Background: The sustainability of cooperative funded by external agencies but managed by individuals affected by leprosy, people with disabilities, and marginalized communities remains largely unexplored. This study aims to understand the barriers to sustainability and identify strategies for overcoming them through stakeholders and beneficiaries' insights.

A qualitative interview study examined the sustainability of two TLMN program activities (2009 – 2019) in Rautahat and Makwanpur districts. Using purposive and snowball sampling, 63 participants were selected based on their project knowledge, including project staff, SHG members, family members, funding agency staff, government officials, and a cooperative manager uninvolved in project's implementation. Data was analyzed using Braun and Clarke's thematic analysis, categorizing cooperatives as thriving, financially constrained, struggling, or non-functional.

We conducted 54 interviews, while nine participants were unreachable for various reasons. Analysis of fourteen cooperatives formed during the project implementation phase, it was found that only six were thriving, three were financially constrained, two were struggling, and three were non-functional. Successful cooperatives exhibited strong financial practices, including effective financial literacy that supported daily operations, facilitated external funding, and helped them manage unforeseen challenges such as COVID-19. Conversely, struggling and financially constrained cooperatives faced issues such as delayed registration, reduced member motivation due to decreased funding, and insufficient management experience, which impaired their ability to utilize bookkeeping and accounting training effectively. Non-functional cooperative suffered from a lack of educated individuals, leading to fund embezzlement, and a misunderstanding of grant conditions, which contributed to their downfall.

The study highlights the importance of financial literacy and management for sustaining cooperatives led by marginalized groups. Thriving cooperatives showcased resilience, those lacking financial practices struggled or failed. These findings advocate for policies that enhance financial education and continuous management support for sustainability.

Keywords:

2.18 Theme: Emergency Medicine and Trauma Care

2.18.1 Road Traffic Accident Mortality in Nepal

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Abstract

Background: More than a million people die each year worldwide in road traffic accidents, making it a leading cause of death among young people. However, many of these deaths are preventable by reducing accidents and injuries. This study presents statistics on road traffic accident (RTA) deaths, highlighting variations across administrative levels to guide priority interventions for risk reduction.

Method: The study analyzed data from Nepal's 2021 Population and Housing Census and calculated the RTA mortality rate per 100,000 population, stratified by ecological belt, province, district, and local levels. A Poisson regression model was used to examine the association between RTA mortality and province, local level, ecological zone, and the proportion of the poorest wealth quintile.

Results: More than ten people die in road traffic accidents daily in Nepal, with a mortality rate of 13.1 per 100,000 population. Among males, this rate is 21.4 per 100,000. The highest mortality rates are observed in Lumbini (14.7) and Koshi (14.5) provinces and the Terai ecological belt (14.8). Age is positively associated with RTA mortality, indicating higher risks among adult individuals. Manang and Mugu have notably high RTA death rates, followed by Chitwan, Parbat, and Dhading, the five districts with the highest prevalence. Regression analysis shows higher RTA mortality rates in Gandaki, Madhesh, Koshi, and Lumbini provinces. Rural municipalities and areas with higher poverty levels also face significantly greater risks.

Conclusion: The study highlights significant disparities in RTA mortality across Nepal, with higher risks in rural areas, poorer communities, male population and adult populations. Addressing these disparities through policy-driven, region-specific strategies can help reduce preventable deaths and improve road safety nationwide.

Keywords:

2.18.2 Community resilience and disaster response: Insights from Jajarkot and Rukum West, Nepal for 2023 earthquake

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Abstract

Background: Globally, disasters impact hundreds of thousands of people, with over two hundred thousand deaths annually. Low- and middle-income countries, including Nepal, face a higher disaster burden due to insufficient infrastructure and inadequate response mechanisms. On November 3rd, 2023, a magnitude 6.4 earthquake struck Nepal, causing significant damage. A multi-sectoral approach

was adopted for disaster response, with the Nepal Police leading alongside other organizations.

This community-based mixed-methods study assessed community perceptions of the earthquake response. We interviewed 660 residents and 20 key informants from Jajarkot and Rukum West districts. An ethical clearance was taken from the Nepal Health Research Council (NHRC) and Nepal police headquarters before the study. Among participants, 55% were male, 84.85% were married, and their ages ranged from 25 to 44 years (mean: 37.53). Additionally, 30% had less than a primary education, and 68.57% worked in agriculture. The average family size was 5.56 persons. Regarding preparedness, 40.75% felt informed about pre-earthquake measures, while 23.46% lacked awareness. Additionally, 65.41% felt adequately prepared, 52.58% perceived communication as excellent, and 46.02% confirmed receiving critical information, such as evaluation procedures. Police assistance was reported by 95.91%, and 96.36% witnessed security forces actively managing the aftermath, boosting community confidence. Furthermore, 82.73% rated the police response as highly effective. Collaboration between the police, security forces, the community, the private sector, the government, and non-governmental organizations was crucial for an effective response.

This study highlights the effective role of the police in disaster response. The positive perception of their efforts underscores their importance in recovery. Enhancing disaster awareness at the local level and implementing targeted communication strategies can further strengthen trust and understanding of the police's role in public health crises. This study further highlights the role of the community and other stakeholders in timely disaster response

Keywords: Disaster, Earthquake, Nepal, Police

2.19 Theme: Ayurveda and Alternative Medicine

2.19.1 Punica granatum peel extract stimulates insulin secretion from clonal pancreatic BRIN-BD11 β -cells and improves glucose homeostasis in high-fat-fed diet-induced obese mice

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Abstract

Background: *Punica granatum* peel extract (PGPE) has been traditionally used as a remedy, including diabetes. It possesses potent antioxidant and anti-inflammatory activities, which may alleviate diabetes-associated complications. This study examined the insulin-releasing and glucose-lowering properties of PGPE in *in vitro* and *in vivo* models.

Methodology: This study investigated the effects of PGPE on insulin release, both with and without insulin modulators, in BRIN-BD11 cells. β -cell proliferation was assessed using the Ki67 primary antibody. In high-fat-fed (HFF) diet-induced obese mice, the effects of PGPE (150 and 250 mg/kg) on acute oral glucose tolerance were examined. Fasting blood glucose (FBG), body weight, and food and fluid intake were also measured at 3-day intervals in HFF diet-induced obese mice treated for 21 days. At the end of the study, gut motility was evaluated.

Results: PGPE stimulated insulin secretion in BRIN-BD11 cells both with and without insulin modulators like IBMX and Tolbutamide, while partially decreasing with diazoxide and verapamil. It also improved β -cell proliferation compared to control. In HFF diet-induced obese mice, PGPE (150 and 250 mg/kg) improved glucose tolerance at 30, 60, and 120 mins. Both doses consistently improved fasting blood glucose (FBG) and food intake in a time-dependent manner, with 250 mg/kg being more effective than 150 mg/kg for improving body weight and fluid intake over the 21-day study. PGPE's effect on FBG was comparable to the positive control, glibenclamide (5 mg/kg). PGPE also promoted gut motility at both doses in HFF diet-induced obese mice.

Conclusion: The present findings suggest that PGPE has the potential to improve insulin secretion from β -cells and regulate glucose homeostasis in HFF diet-induced obese mice. Further studies are warranted to explore the underlying mechanisms of action of PGPE and its phytoconstituents.

Keywords: BRIN-BD11 cells, *Punica granatum*, diabetes mellitus, insulin, obesity

2.20 Theme: Health Governance, Policy and System Research

2.20.1 People's voice survey in Nepal: Service users' satisfaction and trust in the health system

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Abstract

Background: Trust in health systems is critical factor impacting service utilization and adherence to medications or treatment. Low perceived quality and satisfaction with healthcare can lead to limited use of health services. In many low- and middle-income countries, governments lack comprehensive data on people's health system

interactions. We conducted People's Voice Survey (PVS) in Nepal to evaluate service users' satisfaction and trust in the health system, identify gaps in service delivery, and understand user experiences.

Methodology: The study employed a mixed-methods approach, incorporating qualitative interviews and a quantitative cross-sectional survey. Cognitive interviews were conducted with 10 purposively selected diverse participants to validate the survey instrument and ensure cultural and contextual relevance. Quantitative cross-sectional survey was conducted among 2010 respondents via mobile phone, targeting a representative sample of the Nepalese population. The survey gathers information on service utilization patterns, coverage of healthcare services, perceptions of health system quality (such as user experience and perceived competence of care), and overall trust in the health system.

Results: Out of 2,010 participants, 38.6% reported having good to excellent health, while one-third reported having longstanding illnesses. Nearly half lacked a regular healthcare provider, and preventive service coverage was low. High costs and distance were reported as major barriers to healthcare access. Government services received lower ratings than private services. About one third of the population was found to be living with chronic illness. While one in 10 had an unmet need of health care, only four out of ten service users rated health service experience positively. Participants suggested that even minor changes can help make the health system much better.

Conclusion: PVS provided valuable insights into public perceptions of Nepal's health system using a large representative sample. The study highlights the importance of enhancing service quality, reducing healthcare costs, and improving accessibility to healthcare.

Keywords: Satisfaction, experience, health system, public perception, trust

2.20.2 The influence of news media on health policy making in Nepal: Insights from journalists and policymakers

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Abstract

Background: News media play a vital role in framing the public issues, setting agendas, and influencing audience opinions and policies. While media are growing in numbers, there are insufficient scientific evidence on weather media influence health policy, program decisions and intervention in Nepal. This study aims to explore the influence of news media on health policy decision-making in Nepal.

Methodology: We conducted a cross-sectional mixed-method study that involved journalists reporting on health issues from all seven provinces of Nepal and federal level health policymakers as respondents. A quantitative online survey was administered among 525 journalists using a survey tool, while 12 in-depth

interviews with journalists and health policymakers. The survey data were analyzed descriptively using SPSS, while the qualitative data were analyzed thematically using NVivo. Both data types were triangulated to inform the final interpretation.

Results: Our study found that government reports and expert interviews were the most common source of evidence for health news reporting, while scientific research papers were less frequently used. Media was found to have a notable impact on health policy decisions particularly in areas such as tobacco control, malaria outbreaks and contributed to corrective actions in governance issues. An informal ally between journalists and policy makers was formed in some cases to overcome corporate non-compliance of law. Policy makers recognized media as one of major sources of information to shape their opinion.

Conclusion: This study highlights the important role of news media in influencing health policy decisions. Credible information and collaboration between journalists and policy makers is key to maximizing uptake of news information in the health policy decisions and actions.

Keywords:

2.20.3 Job satisfaction among local level health workers following federalization in Nepal

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Abstract

Introduction: Global evidence on how federalization has improved health workforce satisfaction remains inconclusive, despite numerous studies. These studies have not fully covered all dimensions and building blocks of health systems. In particular, research on the effects of decentralization policies on health workers' motivation and performance is lacking. To address this gap, we examined job satisfaction among health workers in Nepal, where federalization has shifted more responsibility to municipal and provincial governments following the transition from monarchy to a republic.

Methods: A web-based cross-sectional study was conducted among 444 local health employees in Sudurpashchim province using non-probability sampling. Job satisfaction was measured using a five-point Likert scale with 31 items across three domains: working environment, employment adjustment process and policy, and local governance. Bivariate analysis and multivariate logistic regression were performed to identify factors associated with job satisfaction.

Results: Only 14.9% of local health employees were overall satisfied, 34.7% with the working environment, 16.2% with local governance and 4.3% with the employee adjustment process and policy. Non-officer-level employees were more likely to be satisfied (aOR: 2.07; 95% CI: 1.16–3.68). Similarly, those with a bachelor's degree or lower (aOR: 2.62; 95% CI: 1.12–6.12) reported greater satisfaction with the working environment. Health employees in the health section were more satisfied with local governance (aOR: 2.02; 95% CI: 1.12–3.64). Employees from the mountain region were less satisfied with local governance (aOR: 0.38; 95% CI: 0.15–0.99).

Conclusion: The study revealed widespread dissatisfaction, particularly with the employee adjustment process and policy, underscoring the need for fairness and transparency. Addressing officer-level concerns through better support and communication is crucial. Improving the working environment, especially for highly educated employees, requires adequate resources, authority, and responsibilities. Local governments should prioritize peripheral health workers' needs and enhance job satisfaction in mountain regions through targeted interventions.

Keywords: Job satisfaction, employment adjustment, health governance, local health employee, natural experiment

2.20.4 Performance of health facility operation and management committees (HFOMCs) in Nepal: A self-evaluation study

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Introduction: Local health service management varies widely, with governance models engaging communities to meet health needs. The Nepal Health Sector Strategy emphasizes citizen and community involvement to ensure accountability in health services. Nepal has implemented Health Facility Operation and Management Committees (HFOMCs) to manage health facilities at the local level. This study assessed HFOMC performance, highlighting strengths, challenges and areas for improvement.

Methods: A cross-sectional study was conducted in late 2023 among 64 HFOMCs across six local levels in three districts: Mugu, Sindhupalchowk, and Nawalparasi West representing Nepal's three geographical regions: Himalayan (Chhayanath Rara Municipality and Mugum Karmarong Rural Municipality in Karnali Province), Hilly (Chautara Sangachowkgadhi Municipality and Panchpokhari Thangpal Rural Municipality in Bagmati Province), and Terai (Ramgram Municipality and Susta Rural Municipality in Lumbini Province). Data were collected using Nepal's standardized HFOMC Self-Evaluation Tool, which assesses performance based on 51 indicators across three components: (1) institutional capacity and committee empowerment, (2) health facility management, and (3) status of health services. Descriptive statistics were analyzed using SPSS.

Results: The overall HFOMC performance score was 73.9%, indicating moderate functionality. Strengths included high meeting attendance (96.9%) and strong coordination with local governments (95.3%). However, key challenges included irregular meetings (76.5%), inadequate infrastructure management (53.1%), limited

health workforce supervision (37.5%), and low presence of skilled birth attendants during institutional deliveries (29.7%)

Conclusion: HFOMCs demonstrated strengths in community engagement and coordination but faced challenges in governance, infrastructure, supervision and maternal health services. Strengthening capacity building, supervision mechanisms, governance practices and infrastructure investment can enhance HFOMC effectiveness, leading to more equitable health outcomes across Nepal.

Keywords: HFOMC, health facility management, self-evaluation, community participation, Nepal

2.20.5 Policy analysis of antimicrobial resistance in Nepal: Challenges, gaps, and recommendation

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Abstract

Background: Antimicrobial Resistance (AMR), a silent pandemic, is a global health catastrophe eroding antimicrobial efficacy. Irrational antimicrobial uses across One Health (OH) interface has accelerated resistant pathogen emergence, resulting in an estimated 36 million deaths since 1990. World Bank 2017 projects AMR could drive additional 28.3 million into extreme poverty by 2050. In Nepal, AMR was associated with 23,200 fatalities and attributed to 6,400 additional deaths in 2019.

Objective: To evaluate existing AMR policies and propose actionable recommendations for containment.

Methods: We conducted a systematic review using secondary data, including government reports, gray literature, and peer-reviewed journals.

Results: SWOT analysis highlights Nepal's policy efforts in AMR containment, including the 'Jaipur Declaration 2011' and the 'National AMR Containment Action Plan 2016.' The recently endorsed 'NAP-AMR 2024–2029' marks progress, yet resource constraints and policy fragmentation hinder implementation. The 'National Antibiotic Treatment Guidelines 2023' for human and animal health must be swiftly integrated across public and private sectors. The outdated 'Drugs Act 1978' requires urgent revision in OH framework, while the 'National Health Policy 2019' formally recognizing AMR as a public health challenge necessitates adaption and full implementation at 753 local levels under NAP-AMR. Similarly, the 'National Drug Policy 1995' must be updated to ensure antimicrobial quality, regulation, and biohazard waste management. The 'One Health Strategy 2019,' aligned with Nepal's constitutional mandate to protect public health, emphasizes multisectoral collaboration. However, gaps remain in stakeholder coordination and community engagement across human, animal, agricultural, and environmental sectors.

Conclusion: Urgent community-level implementation of existing AMR policies is essential. Enforcing prescription-only antimicrobial dispensing, updating outdated drug regulations, and integrating AMR education into school curricula are critical.

Prioritizing multisectoral collaboration within the OH framework, strong political will and effective governance, is imperative for translating policy into action.

Keywords: AMR Containment, Antimicrobial Resistance, NAP-AMR, One Health, Policy

2.21 Theme: Health Education and Promotion

2.21.1 Utilization of printed health education materials on family planning, safe motherhood and new born care in Nepal

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Abstract

Introduction: Printed health education materials are cost-effective method to reach wide range of audience and reinforce verbal information. In Nepal, National Health Education, Information, and Communication Centre (NHEICC) employs various approaches to promote healthy behaviors. This study explored utilization of printed health education materials on selected topics, identify existing gaps and generate innovative ideas for developing new health education materials.

Methodology: Qualitative study was carried out in FY 2080/81 in three local levels (LLs) covering three ecological regions. Convenience sampling was used to select LLs and respective provinces and districts were selected. Thirty-eight in-depth interviews, key informant interviews, and focus group discussions were conducted with service providers, service receivers and officials from LLs, districts, and provinces. Thematic analysis was done based on recurring and emerging themes.

Findings: NHEICC is the principal government entity to supply printed health education materials to districts, who would supply to LLs. LLs would provide these materials to health facilities. However, the materials could be obtained directly through NHEICC also. The availability of health education materials was insufficient at all levels. But, where available materials were used effectively aiding in understanding and decision-making processes. Participants suggested to increase font sizes, develop larger posters, and consolidate information into single booklet, anuse human faces over cartoons. Some officials noted despite decreased interest of health workers and clients in using printed materials, its continuity is needed. They emphasized development of mobile applications, social media posts, SMS, caller ringtones as alternative

methods. They indicated budgetary constraints, mismanagement and misuse of materials hindered availability and utilization of the materials.

Conclusions: The study identified gaps in availability, accessibility, and use of printed health education materials in Nepal. A holistic approach including improved distribution channels, budget allocation, and digital innovations, is needed to increase effectiveness of health education.

Keywords:

3. Poster Presentation

3.1 Theme: Aging and Geriatric Health

3.1.1 Social health insurance, family support, and chronic diseases as determinants of health service utilization among senior citizens in rural Nepal

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Abstract

Background: The increasing trend of senior citizens and their complex healthcare needs demands the improvised provision of healthcare services and strategies to improve health service utilization to ensure health for all. Although health service provision has been prioritized, health service utilization is also a prime aspect that should be addressed to target the chronic needs of senior citizens. This study aims to assess the status of health service utilization and its influencing factors among senior citizens in the rural municipalities of Kaski, Nepal.

Methods: A cross-sectional study was carried out using a semi-structured interview schedule based on the Study on Global Aging and Adult Health questionnaire to assess health service utilization. Cochran's formula was utilized to estimate a sample size of 392 from selected wards in all four rural municipalities. The data was analyzed using epidata 3.1 software and SPSS version 20, using Pearson chi-square, binary, and multiple logistic regression for statistically significant variables.

Results: More than half (54.6%) of the senior citizens in the study visited healthcare facilities in the 12 months. Health service utilization was significantly associated with awareness of free healthcare services, membership in social health insurance, family support, self-perceived health status, independence in activities of daily living, and chronic disease. After controlling for confounders, membership in social health insurance (aor= 3.85, 95% CI: 2.31-6.40), family support (aor= 2.06, 95% CI: 1.01-4.15), and the presence of chronic disease (aor= 2.92, 95% CI: 1.70-4.98) were statistically significant with health service utilization among the senior citizens.

Conclusions: Many senior citizens did not utilize healthcare services, but enrolling in social health insurance, awareness of free services, family support, and chronic conditions increase health service utilization. Establishing recreational centers would increase awareness about health including social health insurance and foster a sense of security and well-being.

3.1.2 Depressive symptoms and its associated factors among elderly living in Kirtipur municipality of Kathmandu valley, Nepal during COVID-19 pandemic

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Abstract

Geriatric depression is a critical public health issue contributing to disability in older adults, often overlooked due to co-morbid conditions, inadequate diagnosis and treatment, and a growing elderly population with a 3.5% growth rate in Nepal. The COVID-19 pandemic has exacerbated increased instances of abuse and neglect in care facilities and heightened risks of violence for those living with families. This study focuses on assessing the prevalence of depressive symptoms among older adults in Kirtipur municipality, Kathmandu, and aims to identify factors associated with these. The study employed a descriptive cross-sectional design to investigate depressive symptoms among elderly individuals aged 60 and above in Kirtipur Municipality, Kathmandu Valley. Systematic Random Sampling technique, using a structured questionnaire validated by the Geriatric Depression Scale (GDS-15), was used. Epidata 3.1 was used for data entry, and analyses were performed using SPSS v 20, with Chi-square tests to explore associations between depressive symptoms and various factors. The study reveals a 64.4% prevalence of depressive symptoms among the elderly in Kirtipur municipality, Kathmandu, with 18% exhibiting mild symptoms, 27.3% moderate symptoms, and 19.1% severe symptoms. Sex (OR = 10.54, 95% CI: 1.08–4.66), past family type (OR = 3.58, 95% CI: 1.81–7.08), ethnicity (OR = 2.365, 95% CI: 1.18–4.72), marital status (separated/divorced) (OR = 6.33, 95% CI: 1.19–31.0) and like chronic physical health problem (p=0.002), individual factor of feeling of loneliness (p=0.009) along with social factor being victim of the stigma related to COVID-19 (p=0.001) were found to have significant association with depressive symptoms among the older adults' population. This is an important issue that calls for targeted mental health initiatives and approaches that facilitate a positive change in their state of mental health. It also calls for significant collaboration between administrators, health facilities, local government agencies, and organisations in order to bring about the desired transformation to improve the mental health of older adults residing in community during pandemic.

Keywords: Depressive Symptoms, Elderly

3.1.3 Elderly patients' satisfaction on health services among those enrolled in National health insurance in Ilam district

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Abstract

Background: Patient satisfaction serves as a crucial indicator for assessing a health facility's performance, indicating how well it meets patient needs and expectations. World Health Organization (WHO) recommends implementing compulsory health insurance to address the financial burden of healthcare. Many nations, including Nepal, have adopted National Health Insurance Schemes (NHIS) to ensure universal health coverage (UHC) and financial protection. Measuring enrollee satisfaction is essential not only for achieving UHC but also for NHIS success, providing feedback for quality improvement, identifying areas for intervention and enhancing trust.

Objective: The major objective of this study is to assess the elderly patients' satisfaction with health services under National Health Insurance in Ilam district.

Methods: A cross-sectional study was conducted among 230 elderly patients visiting out-patient department (OPD) of the Ilam district hospital through a face to face interview. A modified version of Short Assessment of Patient's Satisfaction (SAPS) tool was used to measure the satisfaction level. Chi-square test was performed to test the association, while binomial logistic regression was performed to identify the factors associated with satisfaction.

Results: Out of total 230 study participants, 55.7 percent of the respondents were less than 70 years of age. By gender, 57.4 percent were male. Almost one third of the population were illiterate, followed by 28 percent who could only write their names. In our study, 57% of the total elderly patients were satisfied with NHIS. Likewise, the elderly patient's satisfaction was 3.996 times higher in married than in widowed. Conclusion: The study revealed that the overall satisfaction level of elderly towards health services provision under the national health insurance was slightly higher than the half, but satisfaction scores can still be improved. Despite a high level of satisfaction, more than 80% of the participants said there was less availability of necessary services in the district.

Keywords: Elderly patients, Patients' satisfaction, National Health Insurance, Health services

3.2 Theme: Disability, Rehabilitation and Accessibility

3.2.1 Epidemiology of surgical admissions among children with physical disabilities in Nepal: A retrospective analysis and forecasting using machine learning techniques

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Abstract

Background: Children with physical disabilities often require surgical interventions to improve their quality of life and functional independence. This study analyzes surgical admission patterns at the Hospital and Rehabilitation Centre for Disabled Children (HRDC) in Nepal from 2007 to 2023 and forecasts future trends using machine learning techniques.

Methods: A retrospective analysis was conducted using HRDC's electronic medical records and surgical admission registers. All eligible cases during the study period were included. Independent variables included age, gender, type of physical disability, geographic location, and year of admission. Dependent variables were surgical admission rates and types of surgeries performed. Data extracted covered demographics, diagnoses, surgical procedures, and outcomes. Descriptive statistics were used to identify trends, while machine learning models, including time series forecasting and regression analysis, predicted future admission patterns.

Results: A total of 34,478 surgical admissions were recorded. Congenital disabilities accounted for 38.48% of cases, with Congenital Talipes Equinovarus (CTEV) being the most prevalent (26.88%). Neuromuscular conditions contributed 26.53%, primarily cerebral palsy (19.91%). Trauma-related surgeries constituted 18.01%, with forearm, wrist, and hand injuries being most frequent (4.52%). Other conditions included metabolic (4.19%), infections (4.05%), miscellaneous (2.08%), tumors (0.98%), and post-burn contractures (3.94%). Forecasting indicated a rise in surgical admissions, particularly for congenital and neuromuscular conditions.

Conclusions: The study highlights the significant burden of congenital and neuromuscular disabilities requiring surgical care in Nepal. The projected rise in admissions underscores the need for targeted healthcare planning and resource allocation. Ethical approval was obtained from the BNB/HRDC Institutional Review Board, ensuring patient confidentiality.

3.3 Theme: Emergency, Medical and Trauma

3.3.1 An interventional study on knowledge and attitude regarding first aid among taxi drivers in Kathmandu, Nepal

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Abstract

Introduction: Lack of emergency medical services in low- and middle-income nations, like Nepal, is one of the major responsible factors for high prehospital mortality rates since victims of accidents are occasionally transported without receiving any medical treatment. As Nepal utilizes taxis as primary emergency vehicles, it is necessary to assess taxi drivers' first aid competency so that prehospital care can be improved and preventable deaths avoided.

Methods: This cross-sectional survey assessed first aid knowledge and attitudes among public taxi drivers in Kathmandu, Nepal using a self-administered questionnaire before and after reading an educational booklet. Data from the participants were analyzed and statistical tests were applied to compare pre- and post-intervention results.

Results: The study surveyed 163 taxi drivers from Kathmandu, most of whom had no prior proper first-aid training. Most of them prioritized rushing the victims to hospitals over providing immediate care. After receiving educational materials, their understanding improved significantly, especially in managing bleeding, fractures, and neck injuries. Attitudes also shifted, with more drivers recognizing the importance of giving first aid at accident scenes rather than just transporting the victims.

Conclusion: Offering first aid training to taxi drivers could be a practical and cost-effective solution, as they frequently act as first responders, especially in countries like Nepal where a robust EMS system is not available and most of the victims are transported via taxi. First aid training for professional drivers is essential to help them manage road accidents until emergency services arrive, but more research is needed to understand its long-term benefits.

3.4 Theme: Environmental and Health and Climate Change

3.4.1 Framework adaptation for assessing the climate resilience of health systems in Nepal

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Abstract

Background: Climate change poses significant challenges to health systems, particularly in resource-constrained settings such as Nepal. Assessing health system resilience to climate risks is essential for strengthening preparedness and response strategies. While global frameworks exist, their applicability in Nepal's diverse socio-environmental context requires adaptation. This study explores the process of adapting

a global climate resilience capacity assessment framework to Nepal's health systems and the key lessons learned.

Methods: A structured review of existing global and regional documents and policies including climate resilience frameworks such as the WHO operational framework on building climate resilient health systems was conducted. The review focused on the relevance of these frameworks to Nepal's health system context mainly in six building blocks: governance and leadership, health workforce, health information system, essential medical products and technologies, service delivery, and sustainable financing mechanisms. Consultation's workshop was held with subject matter experts to refine the framework. The adapted framework was piloted at local level to assess its feasibility and relevance and inform revisions.

Results: Adapting framework to assess Nepal's health system to respond climate change highlighted the importance of contextualizing assessment indicators to reflect Nepal's diverse geography, governance structure, and regional climate vulnerabilities. The pilot test showed gaps in collaboration across sectors like WASH, disaster management, and infrastructure planning. Similarly, it reflects the need of comprehensive capacity building programs, policy integration, building financial sustainability, and the need of green infrastructure to cope with impact of climate change.

Conclusion: Adapting a climate resilience assessment framework requires a localized approach that aligns with national policies and local realities. The findings provide insights for scaling up climate resilience assessments across Nepal after tailoring to local context to strengthen Nepal's capacity to adapt to and mitigate the impacts of climate change on public health.

Keywords: Health System, Resilient, Climate Change

3.4.2 Knowledge, attitude and practice of medical students and interns about climate change and its impact on human health: A cross-sectional questionnaire-based study in Lalitpur, Nepal

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Abstract

Introduction: Climate change is a global problem. This study examines the knowledge, attitude and practice of medical students, interns and postgraduates about climate change and its impact on human health, a topic not commonly studied in Nepal.

Method: The cross-sectional study was carried out at KIST Medical College, Lalitpur, Nepal from 1st September to 30th November 2024 among first year to final year medical students, interns and postgraduates (residents). A self-administered questionnaire was used. This was a modified and adapted Knowledge, Attitudes, and Practices (KAP) of Medical Students Regarding Climate Change Education questionnaire used in a Turkish Study with the author's permission. Data were entered in Microsoft excel and imported to SPSS version 29 for analysis.

Results: A total of 531 out of 657 students participated, providing a response rate of 80.8%. The largest participants were from the age group of 21-23 years. Males, 251 (47.2%) were slightly more than females. Maximum participants, 430 (80.9%) were from urban areas. The majority were from the first year 118 (22.2%); 259 (48.8%) participants were from the hilly areas.

The knowledge and practice scores were found to be significantly different among subgroups ($p < 0.001$). The knowledge score and the total KAP were higher among younger students while the practice score was higher among older respondents. Knowledge score and total KAP scores were higher among urban respondents, while practice scores were higher among rural respondents.

Total knowledge and total attitude scores were positively correlated (0.235, $p < 0.001$). The total knowledge and total practice scores were negatively correlated (-0.277, $p < 0.001$).

Conclusion: The results of this study are an important step in understanding the knowledge, attitude and perception of medical students and postgraduates about climate change in Nepal. Suggestions for incorporating climate change in the curriculum were obtained.

Keywords:

3.4.3 Association between climate factors and road traffic crashes in Nepal

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Abstract

Background: Road traffic crashes are a significant public health challenge globally, with the Global Status Report on Road Safety 2023 reporting 1.19 million annual fatalities. Over the past five fiscal years, 12,371 people have lost their lives in vehicle accidents across Nepal according to records maintained by Nepal police. The incidence of road traffic crashes is influenced by various factors and is projected to become the fifth leading cause of death by 2030, resulting in approximately 2.4 million fatalities worldwide. This study aims to investigate the association between climate factors and road traffic crashes in Nepal and assess long-distance public vehicle drivers' knowledge, attitudes, and practices (KAP) on climate factors.

Methodology: A cross-sectional study was done to explore the association between climate factors and road traffic crashes. Convenience sampling was followed for the KAP study among 385 long-distance public transport drivers of Gongabu Bus Park using a semi-structured questionnaire via face-to-face interviews. Similarly, a correlation study of six months of data on maximum and minimum temperatures, precipitation, and road traffic crashes across seven districts from seven different provinces, sourced from the Department of Hydrology and Meteorology and Nepal Traffic Police record, was done and analyzed using SPSS version 25.

Results: Findings revealed that only 20.5% of drivers had good knowledge regarding association between climate factors and road traffic crashes, 8.8% exhibited positive attitude towards safe driving in adverse weather conditions and only 1.6% adhered to good safety practices, suggesting a significant gap between knowledge, attitude and practice. Additionally, a positive correlation (p -value < 0.05) was found between climate factors (maximum temperature, minimum temperature and precipitation) and the total number of road traffic deaths.

Conclusion: The study highlights the need to improve the KAP of long-distance public transport drivers in Nepal and emphasizes integrating environmental considerations into road safety strategies.

Keywords: Climate factors, Road traffic crashes

3.4.4 Climate resilience in health systems- evidence from selected local levels in Nepal

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Abstract

Background: Climate change is expected to increase health disparities in low- and middle-income countries, with weaker health systems. Nepal, ranked as one of the highly vulnerable countries to climate change, faces extreme weather events and associated health risks. While national policies exist, implementation remains challenging. Local stakeholders' understanding and preparedness are vital for building a climate-resilient health system. However, there is limited evidence on capacity of local health systems to address health impacts of climate change. This study aims to explore how climate change is addressed in policy frameworks and explore understanding and preparedness of local health systems to manage climate-related health risks.

Methods: We used a mixed-methods approach, which included policy review and qualitative data collection from 23 key-informant interviews. The informants included officials representing health, environment, planning, disaster and agriculture sectors from federal and local levels. The study sites were Kapilvastu municipality, Kapilvastu; Patarashi rural municipality, Jumla and Budhanilkantha municipality, Kathmandu. We analyzed the data thematically.

Results: Nepal has developed various policies regarding climate change, focusing on resilience and adaptation. However, the study found low awareness and understanding of federal policies at local levels. Moreover, limited understanding exists in terms of identifying climate change issues and their mitigation or adaptation strategies due to

insufficient orientation and guidance for implementation. Further, local plans focus on response over preparedness. Additionally, climate change is a minimal priority in annual plans due to capacity and resource constraints, leaving the health system vulnerable to climate risks.

Conclusion: While federal policies exist, there is a gap in translating these into actions at local levels. Health systems at local levels are under-prepared for climate crisis, highlighting the need for greater support, improved communication, and enhanced integration of climate resilience into local health governance to strengthen better preparedness and response to climate change.

Keywords: climate change, health systems, resilience

3.5 Theme: Eye Health Care

3.5.1 Digital eye strain among adults presenting to tertiary care hospital in the era of COVID-19 pandemic: A descriptive cross-sectional study

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Abstract

Introduction: The Novel Coronavirus disease 2019 pandemic had sent humanity indoors, replacing human contact with an electronic connection. The mandatory online classes and work from home policy to maintain the social distancing during the pandemic had forced the individual to spend most of the time in front of laptops or mobile screens. Digital eye strain is a group of vision-related symptoms that result from the continuous use of devices with digital displays, such as computers, tablets, and smartphones. The present study was done to find out the prevalence of digital eye strain among the adult population in a tertiary care hospital in the era of the COVID-19 pandemic.

Methods: This descriptive cross-sectional study was done from January 2021 to July 2021 in a tertiary care hospital of Nepal after receiving ethical approval from the Institutional Review Committee (Registration number: 077/78/30). Convenience sampling was done. The sample size calculated in our study was 322. Data collection and entry were done in Microsoft Excel, point estimate at 95% Confidence Interval was calculated along with frequency and proportion for binary data.

Results: The prevalence of digital eye strain was 300 (94.3%) (91.8-96.8 at 95% Confidence Interval) among 318 respondents. Eye strain (irritation, heaviness) was the most common digital eye strain symptom 199 (62.6%) followed by the tiredness of eyes 162 (50.9%).

Conclusions: The present study concluded that the prevalence of digital eye strain in the era of COVID-19 was high as compared to other studies conducted among adults.

3.6 Theme: Health Financing

3.6.1 Ethnography of local health systems, differing context in three provinces (Gandaki, Bagmati and Madhesh)

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Abstract

Introduction: This ethnographic study explores federalism in Nepal and its impact on the health system's federalization. It examines how newly autonomous urban and rural municipalities prioritize and manage healthcare delivery under their constitutional mandate to provide free basic health services. This paper presents preliminary findings from three study locations in Gandaki, Madhesh, and Bagmati Provinces, offering insights into local health system dynamics.

Methods: An ethnographic approach was used, employing non-participant observation, in-depth stakeholder interviews, and reflexive field notes. The study focused on three municipalities—Arughat Rural Municipality (RM), Ganeshman Charnath Municipality (M), and Gangajamuna RM—located in Gorkha, Dhanusha, and Dhading districts, respectively. A Realist Evaluation framework was applied to explore the interplay of contextual factors and mechanisms influencing local health system performance.

Findings: In Gorkha, rugged terrain limits healthcare access, increasing reliance on traditional healers and informal providers. Government efforts are constrained by staffing and resource shortages, prompting many to depend on local medicine shops. In Dhanusha, financial constraints and transport issues hinder healthcare use despite well-developed facilities. Community health volunteers help bridge service gaps, but inconsistent funding threatens sustainability. In Dhading, integrating traditional and modern healthcare complicates formal service improvements. Policy implementation varies, shaping healthcare delivery.

Conclusion: This study provides insights for policymakers and stakeholders seeking to strengthen decentralized health systems. Context-specific interventions aligned with each province's sociocultural dynamics are essential to improving healthcare access and outcomes across Nepal's diverse populations.

Keywords: Health Systems, Local Levels, Federalism, Healthcare Delivery

3.6.2 The socio-economic impact and burden of tuberculosis patients in national tuberculosis control center Bhaktapur Nepal

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Abstract

Background: Tuberculosis (TB) remains a significant public health challenge, particularly in low- and middle-income countries, where it imposes both a health and economic burden. This study aims to assess the socio-economic impact and financial burden of TB patients seeking treatment at the National Tuberculosis Control Centre (NTCC), Bhaktapur, Nepal.

Methods: A cross-sectional study was conducted among 370 TB patients attending NTCC for diagnosis and treatment. Data were collected through face-to-face interviews using a semi-structured questionnaire. Socio-demographic characteristics, direct and indirect costs, and the financial burden on households were assessed. Data analysis was performed using SPSS version 25, employing descriptive statistics, chi-square tests, and logistic regression to determine the association between socioeconomic factors and TB-related economic burden.

Results: The study found that 30.3% of participants were diagnosed with TB, with pulmonary TB being the most common form (18.6%). The majority of TB patients belonged to economically active age groups (56.2%) and were predominantly male (57.6%). Patients incurred significant direct and indirect costs, with 64.9% spending between NPR 1,000–5,000. The economic burden was higher among patients from rural areas, daily wage earners, and low-income households. Job absenteeism and waiting time at NTCC contributed to income loss, with 32.7% losing NPR 1,000–2,500. TB treatment costs forced many households to adopt coping strategies such as asset sales and loans.

Conclusion: The socio-economic burden of TB is substantial, particularly for vulnerable populations. Strategies to minimize financial hardship, such as transportation subsidies, social protection policies, and community-based treatment support, are crucial for improving TB care in Nepal.

3.7 Theme: Health Technology and Innovation

3.7.1 Clinical profile and management of Paederus Dermatitis: Insights from Teledermatology in a tertiary care setting in Nepal

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Abstract

Background: Paederus dermatitis, a toxin-mediated skin condition caused by rove beetles (Paederus) species, is increasingly reported in Nepal, with emerging evidence linking its rising incidence to climate change. Warmer, wetter rainy seasons create favorable breeding conditions for these beetles, heightening exposure risks in rural agricultural communities. However, diagnosis remains challenging in remote areas lacking dermatological services. Tele dermatology has the potential to bridge this gap, yet its effectiveness for Paederus dermatitis remains underexplored.

Objectives: To analyze the clinical profile, management outcomes, and role of tele dermatology in diagnosing Paederus dermatitis in rural Nepal.

Methods: A retrospective cross-sectional study of 54 patients diagnosed via tele dermatology at Dhulikhel Hospital (June–August 2024). Data included demographics, symptoms, lesion characteristics, and treatment. Statistical analysis assessed correlations between variables. Ethical approval was obtained from Kathmandu University's Institutional Review Committee (Ref: 289/24).

Results: Participants (mean age: 28.4±6.6 years; 59.26% male) primarily presented with itching and burning (35.2%), pain (24.1%), and linear erythematous plaques (42.6%). Most cases occurred in Sindhuli (22.6%) and farming communities (16.67%). Only 20.4% reported insect contact. Treatment with topical steroids resolved symptoms in 94.4% of cases, with improvement within 5.98±0.84 days. Symptom duration (mean: 3.43±1.59 days) showed no significant correlation with age ($r=0.078$, $p=0.564$) or lesion count ($r=0.040$, $p=0.744$). Regression analysis confirmed no association between age/lesion count and symptom duration ($p>0.05$).

Conclusion: Tele dermatology effectively addresses Paederus dermatitis in climate-vulnerable rural Nepal, enabling prompt diagnosis and low-cost management. The surge in cases, likely exacerbated by climate-driven beetle proliferation, underscores the need for integrating telemedicine with community education on prevention. Tele dermatology effectively bridges diagnostic gaps for Paederus dermatitis in rural Nepal, enabling timely management. The condition's self-limiting nature and lack of direct insect contact reports underscore the need for community education on preventive measures. Expanding tele dermatology could transform care for other skin conditions in underserved regions.

Keywords: Dermatology, Nepal, Paederus Dermatitis, Rural Health, Tele dermatology

3.7.2 Patterns of health conditions managed via telehealth in rural Nepal: A descriptive retrospective study of two years

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Abstract

Background: Telehealth has emerged as a significant approach/tool to improve health care delivery and access to services, especially in rural Nepal (1,2). However, there is limited evidence on conditions managed, utilization, and referral trends, which are needed for effective telehealth implementation and health care delivery. This study examines health conditions managed in Sudurpaschim Province over the last two years (2023-2025), through Smart Health Global (SHG) toolkit platform developed to deliver telehealth services.

Methodology: We used retrospective telehealth data from 2020-2025, from 28 health facilities using the SHG toolkit. We analyzed consultation records, socio-demographic data, and referral trends. We ensured ethical compliance with data confidentiality and security.

Results: The mean age of participants was 29.96 years, including 74.9% females. Healthcare providers carried out 1,519 consultations, with a majority of cases from Bajura district (47.5%), followed by Baitdai (18.7%) and Doti (17.2%). The primary reasons for the visits included general medical conditions (48.5%), antenatal check-ups (46.6%), and post-natal check-ups (4.9%). Providers made 301 referrals (19.8%), attributed mostly to the absence of laboratory and imaging facilities, followed by lack of specialist consultations, and medical emergencies like acute abdomen, pre-term labor, eclampsia, and acute coronary syndromes.

Conclusion: Our study investigated the growing role of telehealth in rural Nepal, which highlighted the necessity for improved health facilities with well-equipped laboratories and qualified personnel to deliver better and more cost-effective health services to the rural population. The findings can also inform planning and policymaking at all levels of government.

Keywords: rural health; telehealth; health disparity; teleconsultation; retrospective study

3.8 Theme: Health Education and Promotion

3.8.1 Exploring the knowledge status of healthy behaviors and its promotional practices among high school students: A descriptive cross-sectional study and associated factors

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Abstract

Background: Even as adolescence is typically recognized as a favorable age for the establishment of health-promoting behaviors, there is still a tendency for most adolescents to indulge in a variety of unhealthy actions, becoming risk factors for the emergence of chronic diseases. The objective of this study was to investigate the knowledge and attitude toward health-promoting behavior among high school students in the Kageshwori Manohara Municipality in Nepal in 2024.

Methods: A descriptive cross-sectional design was used, with a structured questionnaire HPLP-II by (SN Walker) was distributed to 421 randomly selected students. The study looked at a variety of health behaviours, including both knowledge of good habits and their actual application. Age, gender, parental education, and economic position were considered independent variables.

Results: The findings revealed an average mean score of 2.65 (SD = 0.365) for overall health-promoting practices. Among the subscales, spiritual growth practices scored the highest (mean = 3.06), followed by interpersonal relationships (mean = 2.88). However, physical activity (mean = 2.37) and stress management (mean = 2.35) showed lower engagement levels, indicating areas needing more attention. Only for religion, where Hindus exhibited a significantly higher knowledge level compared to Buddhists and Christians with ($p = 0.011$).

Conclusions: This study identifies considerable gaps in teenagers' health-promoting behaviors, particularly in physical activity and stress management. Targeted interventions are required to improve healthy lifestyle habits among students in the region.

Keywords: Adolescents, Health Promotion, Knowledge, Practices, Public Health, Kageshwori Manohara Municipality

3.8.2 Sleep deprivation and its associated factors among public health undergraduates in Kathmandu Valley: A cross-sectional analysis

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Abstract

Background: Sleep Deprivation is condition of not having adequate duration, quality of sleep to support decent alertness, performance and health of any individual. It is one of the emerging global health problems which can lead to different kinds of mental health illnesses and NCDs.

Objective: To determine the sleep deprivation status and associated factors among Public Health undergraduates in Kathmandu Valley.

Materials and Methods: Descriptive cross-sectional study was conducted using Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS) and Sleep Hygiene Index (SHI).

Results: The mean age of the participants in this study was 21.22 ± 2.2 years. The mean PSQI score of these students was 5.15 ± 2.4 . Majority (70%) of the female participants in this study have sleep deprivation compared to (25.8%) of males. Current academic year of enrollment was associated with higher sleep deprivation among the students. (31.7%) of the participants had excessive daytime sleepiness. (11%) of the respondents had poor sleep hygiene. Associations were observed at p value 0.05 between current academic year of enrollment and sleep quality, 0.03 with daytime sleepiness. Different environmental, lifestyle, illness and mental health related characteristics showed associations with sleep quality and daytime sleepiness. Similarly, significant association was noticed between sleep environment characteristics and sleep hygiene at p value 0.001, between levels of exercise, doing major works before sleeping and sleep hygiene at p value 0.03 respectively. Also, significant associations were also seen between lifestyle related characteristic with sleep hygiene and mental health related characteristics at p value 0.001 respectively.

Conclusion: This study demonstrates that the poor sleep pattern of students on measuring with different scales was higher among the public health students and different factors were associated with sleep deprivation among these students.

Keywords: Sleep Quality, Daytime Sleepiness, Sleep Hygiene, Public Health Students

3.8.3 Subjective happiness, self-rated health, and satisfaction of life among people living Dhunibeshi-3 Ramailochaur Dhading

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Abstract

Background: Self-rated health is the analysis of the health status of individuals on their own. It also plays an important role in identifying a disease. So, this study aimed to assess subjective happiness, self-rated health, and satisfaction of life among general people living Dhunibeshi-3 Ramailochaur Dhading.

Methods: A cross-sectional and descriptive study was conducted among 299 households in a ward no 3 of Dhunibeshi municipality. Cochran's formula for sample size calculation (z^2pq/d^2) was used with 80% prevalence of satisfied about happiness, health, and life from previous study. Systematic random sampling was employed to select individual household. Single item self-rated health question was used to measure the self-rated perceived health status. Four items General happiness scale was used to measure happiness and to measure the satisfaction scale was used. Score will be given for response as per its instruction and added to get final score. Score obtaining higher score will be considered as more happiness and satisfaction of life.

Results: Most of the respondents were female (58.2%) and mean age of 48.7(\pm 16.8) range from 18 years to 92 years. More than one third were illiterate (37.7%) and most of people (75.3%) were involved in agriculture works. Median for happiness score was 18(IQR=3) with minimum 7 to 26 score. More than two-thirds (69.6%) were satisfied from life. 39.5% of people rate their health status as good. People who were literate, were satisfied from life($p=0.026$) than illiterate.

Conclusion: Most of the people satisfied with life. Nearly two among five people rate their health status as good since the happiness score is 18. Literacy was associated with higher life satisfaction. So education program, should advocate to increase the satisfaction level. Moreover, health awareness promotion for agriculture workers could increase life satisfaction and perceived health status.

Keywords: self-rated health, satisfaction, subjective happiness

3.8.4 Health literacy and its associated factors among elected leaders of local governments of Syangja, Nepal

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Abstract

Background: The World Health Organization (WHO) recognizes health literacy as a cornerstone for enhancing global health and achieving public health priorities. Adequate health literacy among political leaders is essential for informed decision-making and for fostering improved health outcomes within communities. Despite its significance, limited research has been conducted to assess the health literacy levels of locally elected leaders. This study, therefore, aims to assess the factors influencing health literacy among locally elected leaders of selected local governments of Syangja, Nepal

Methodology: A cross-sectional study was carried out among locally elected leaders from selected local governments in the Syangja district, employing a complete enumeration technique. Data were collected using the self-administered European Health Literacy Questionnaire (EHLQ). Descriptive statistics, including frequency, percentage, mean, and standard deviation (SD), were used to summarize the data. Additionally, chi-square tests were employed to explore associations between health literacy levels and various demographic and socio-economic factors.

Results: The mean age of the leaders was 47 years, and the majority were male (56.7%). Leaders demonstrated strong competency in understanding health information (Mean: 5.66 ± 0.84) but lower competency in appraising health information (Mean: 2.46 ± 0.77). Overall, 77.2% of the leaders were found to have adequate health literacy. Significant associations with adequate health literacy were observed for age ($p = 0.018$), gender ($p = 0.025$), family type ($p = 0.027$), the primary source of family income ($p = 0.049$), educational level ($p = 0.003$), previous occupation ($p = 0.002$), the presence of chronic disease ($p = 0.021$), and daily use of prescribed medication ($p < 0.001$).

Conclusion: Approximately three-fourths of locally elected leaders exhibited adequate health literacy. Targeted interventions, including context-specific information on diseases and medication, may further enhance health literacy among this group,

enabling them to make informed health decisions and contribute effectively to public health improvements.

3.8.5 Health promoting lifestyle and its associated factors among adolescent of Punarbas municipality, Kanchanpur, Nepal

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Abstract

Background: Health-promoting lifestyles are defined as the actions and beliefs that individuals adopt to maintain their health and prevent the development of diseases. Adolescents are at greater risk of developing poor lifestyles or behaviors that can lead to chronic illness in adulthood. However, little is known about health-promoting behaviors among adolescents. This study, therefore, aims to assess the health-promoting lifestyle and its associated factors among adolescents of Punarbas Municipality, Kanchanpur.

Methodology: An institutional-based cross-sectional study was carried out among 456 adolescents studying in grades 11 and 12 through a multi-stage sampling technique. Data were collected through a self-administered semi-structured questionnaire. Health promoting lifestyle was assessed using the Health Promoting Lifestyle Profile (HPLP) II. Categorical variables were presented as frequency and percentage, while continuous variables were summarized as mean and standard deviation. The chi-square test was applied to identify factors associated with health-promoting lifestyles.

Results: The mean age of the participants was 17.29 years and more than half (54.1%) were female. The overall mean score of the HPLP II scale was 2.63 ± 0.36 , where the highest mean score among subscales was for spiritual growth (3.17 ± 0.49) and the lowest for physical activity (2.27 ± 0.59). About two-thirds (67.54%) of the participants had good health-promoting lifestyles. From the chi-square test, gender (p-value: 0.021), ethnicity (p-value: 0.048), and main source of family income (p-value: 0.022) were significantly associated with good health-promoting lifestyles.

Conclusion: About two-thirds of the adolescents had good health-promoting lifestyles. Gender, ethnicity, and family occupation should be considered while designing interventions for promoting healthy lifestyles among adolescents.

Keywords: Adolescents, Health Promotion, Health Behavior, HPLP II scale, Nepal

3.8.6 The structural analysis of nutrient foramina in human long bones

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Abstract

Background: The primary blood supply for long bones is provided by nutrient arteries, which pass through the nutrient foramina. It's essential to understand the location and structure of these foramina during surgical procedures to ensure the bone's blood supply remains intact. This study aimed to examine the morphology and topography of nutrient foramina and determine the foraminal index for long bones in the upper and lower limbs. The study included 47 humeri, 38 radii, 38 ulnae, 53 femurs, 57 tibiae, and 44 fibulae. The number and position of primary nutrient foramina were noted, and the foraminal index was calculated.

Results indicated that 82.95% of the humeri had a single nutrient foramen, while 17.02% had double foramina. For radii, 97.36% had a single nutrient foramen, and 2.63% had double foramina. All ulnae had a single nutrient foramen. In the lower limb bones, 41.5% of femurs had a single nutrient foramen, 56.6% had double foramina, and only 1.88% had triple nutrient foramina. Tibiae showed 92.98% with a single nutrient foramen and 7.01% with double foramina. Fibulae typically had one nutrient foramen. The mean foraminal index was 57.26 for the humerus, 34.82 for the radius, and 39.32 for the ulna. Similarly, the mean foraminal index of the femur was 44.73, the tibia was 32.32, and the fibula was 46.18. Understanding the location of nutrient foramina is crucial for maintaining bone vasculature during surgical procedures, enhancing the success rates of bone grafting, fracture fixation, and joint replacement surgeries involving the shoulder, elbow, and knee.

Keywords: Foraminal index, Nutrient foramen, Nutrient artery, Morphometry

3.8.7 Morphological variations and morphometric analysis of caudate lobe of liver and their surgical implications

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Abstract

Introduction: The caudate lobe is most referred area of the liver radiologically. In cirrhosis, the right lobe exhibits relatively greater shrinkage, while the caudate lobe undergoes relative enlargement as it is the only segment which receives blood independently from left and right branches of portal veins. Aims: To assess the morphological variations and morphometric analysis of the caudate lobe of liver in the cadavers.

Methods: This was a cross-sectional descriptive study conducted on 48 formalin fixed human liver specimens available in the gross anatomy laboratory of Department of Anatomy, National Medical College, Birgunj, Nepal. The caudate lobe of liver specimens was studied for morphological variations and different measurements were taken, and the result was presented in tables.

Results: The caudate lobe showed a wide range of variations in shape. Caudate lobe was present in all 48 specimens of liver out of which, 15 specimens were rectangular (31.25%), 26 specimens were pyriform (54.16%) and 7 specimens were irregular (14.58%) respectively. In 6 liver specimens (12.50% of total number of liver

specimens), there was vertical fissure that extended upwards from the lower border of caudate lobe was seen in 6 specimens (12.50%). Notch was present in 10 specimens (20.83%). Conclusion: The caudate lobe of the liver showed a great degree of variations and the most common shape was pyriform. The ratio of the transverse diameter of the caudate lobe to that of the right lobe of the liver (CT/RL) ratio was found to be 0.14.

3.8.8 Knowledge and attitude on breast self-examination among female of public health students of Pokhara University, Kathmandu valley.

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Abstract

Introduction: Breast cancer is the most common malignancy in women. Lack of early detection leads to low survival rates in less developed countries. Breast self-examination (BSE) is a simple, quick, and cost free procedure for early detection. This study attempts to assess the level of knowledge & attitude regarding self breast examination in a cohort of female Bachelor public health students.

Objective: To assess the level of knowledge and attitude among Undergraduate female public health students of Pokhara university.

Methodology: A total of 160 female public health students were included in the descriptive cross-sectional study, who filled in the questionnaire. The study conducted among undergraduate female public health students of Pokhara university. The questionnaire comprised of 33 questions (9 on socio-demographic, 14 on knowledge and 7 on attitude). For knowledge items, categorical responses (yes, and no) were applied with an item score of “2,” and “1” respectively, for positive knowledge. For attitude, the answers were either yes, no or options were already specified

Result: Almost below half (46.9%) had good knowledge and majority of the respondents (86.9%) had poor attitude on BSE. Total mean knowledge score was 93.45 ± 4.22 and attitude score was 8.54 ± 1.01 . Almost half of the respondents (52.0%) agreed that BSE is a screening method. About third quarter (77.9%) said that palpation of the breast should be done in the circular motion. Majority (96.2%) of the respondents didn't have a history of breast cancer. Half of the respondents (51.6%) strongly agreed that BSE should be done in front of mirror.

Conclusion: BSE functions as an effective preventive health behaviour and an important component of any program for the early detection of breast cancer.

3.9 Theme: Health Governance Policy and System Research

3.9.1 Population confidence in the health system: Results from a nationally representative phone-based survey

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Abstract

Introduction: In many countries, healthcare systems serve as the primary interface between the public and the government. The Lancet Global Health Commission on high-quality health systems highlights confidence as a key outcome. Public trust enhances healthcare utilization and treatment adherence while also fostering social cohesion and stability. This study presents findings from a population representative survey evaluating confidence in the health system from the public's perspective in Nepal.

Methods: A quantitative cross-sectional study was conducted among 2010 respondents using a phone-based survey. Confidence in the health system was measured using two domains: health security (confidence in the system's response to health needs and affordability of care) and endorsement of the health system (agreeing that the health system improved in the past 2 years and the system works well and needs only minor reforms). A binary logistic regression examined the relationship between confidence and health system quality and responsiveness.

Results: More than half the respondents were health-secure and reported being confident in getting and affording quality care. Three-quarters of respondents reported that the health system is getting better in the past two years. Only a quarter of respondents endorsed their current health system, deeming it to work well with no need for major reform. Less wealthy individuals were almost half less likely to show confidence in health security (aor: 0.56, 95% CI: 0.43 – 0.74) indicating economic disparities in perceived healthcare accessibility and affordability. Young (aor: 0.63, 95% CI: 0.46 – 0.88) and educated (aor: 0.49, 95% CI: 0.34 – 0.69) respondents were less likely to endorse the health system, suggesting growing skepticism about the system's ability to meet evolving expectations.

Conclusion: Confidence in Nepal's health system remains uneven, highlighting socioeconomic and generational disparities. Strengthening public confidence in Nepal's health system requires targeted interventions addressing both access and quality of care.

Keywords: Health System, System Confidence, Health Security, Phone-based survey, Nepal

3.9.2 Local Health System Planning Process: Insights from learning site of Nepal

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Abstract

Background: With the promulgation of the Constitution of Nepal in 2015, federalism was introduced as a transformative governance approach, devolving the local authorities to make their own plans and programs, including delivery of basic health services, remaining within the framework of federal and provincial plans and policies. This case study aims to provide insights about the annual workplan and budgeting process at the local level and factors influencing health prioritization during this process. We provide evidence from our experience of supporting local government in three cycles of the annual planning process.

Methodology: ReBUILD for Resilience research team conducted this study in a municipality of Kapilvastu District of Lumbini province employing participatory action research design. Local policies and documents including annual work plan and budget allocation were reviewed and local stakeholders were interviewed to understand the local planning process. The thematically analyzed findings are from qualitative inquiries- eleven key informants with local stakeholders, including routine observation notes of a researcher embedded within the local health system.

Results: Our findings showed that although the seven-step planning process has not been fully followed, it is influenced by federal-led budgeting, individual and institutional capacities & priorities. The federal government sets a budget ceiling annually and local-level should comply with it, having limited opportunities to provide feedback for need estimation. With delays in estimating budget ceiling, there were minimal and inconsistent practices of gathering community inputs during settlement level and municipal planning meetings. Further health priorities were often driven by perceived public popularity and mostly focused on physical infrastructures, due to capacities constraints of the ward-level in effective evidence-use.

Conclusion: Health prioritization is largely guided by conditional grants, however real-health needs should be addressed through evidence-based health initiatives in internal budget at ward and municipal level.

Keywords: Health budgeting, federalism, health system prioritization, local health governance, resource allocation

3.9.3 Innovations in evaluation of health system performance: Feasibility of phone based surveys in Nepalese context

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Abstract

Background: Phone interviews using Random Digit Dialing (RDD) is an effective approach for conducting population-based surveys in high mobile penetration settings such as Nepal where around 86% of the population own a mobile phone. It allows collection of data from a broad range of population, capturing insights from diverse geographic, socio-economic, and demographic groups. This study details the methodology for a nationwide phone survey aimed at assessing public perceptions and evaluating health system performance in Nepal.

Methodology: The survey employed a multi-stage process, including sample size estimation, development of a comprehensive sampling frame, and the random selection of phone numbers from approximately 123 million possible combinations across Nepal's three major telecommunication providers: NTC, Ncell, and SmartCell. A detailed sampling frame was developed to ensure proportional representation based on ecological belt, residence type, gender, and age. To mitigate the challenge of inactive numbers several adjustments were made, including over-sampling and reallocation of unresponsive numbers with additional numbers from the sampling frame. To account for non-response and non-coverage errors we made 5 follow-up attempts.

Results: Of 44,284 dialed numbers, 22.7% (10,054) were active, with 19.9% of active numbers completing interviews. The non-initiation rate after meeting eligibility criteria was 45.6%, while the dropout rate among initiated interviews was only 14.8%. Higher response rates were observed during weekends, among urban respondents, males and respondents from Province 3. Implementation challenges included interviewer fatigue from handling inactive numbers and multiple follow-ups, difficulty maintaining respondent engagement during 20-30-minute calls, and limited rural reach due to urban-concentrated mobile penetration. Administrative challenges included active tracking and recording of over 45,000 numbers.

Conclusion: This study highlights the feasibility of RDD in conducting national surveys in resource-limited settings. The methodological innovations presented offer a replicable model for researchers and policymakers aiming to adopt phone-based survey techniques in similar contexts.

Keywords: Random Digit Dialing, health system performance, methodology, phone surveys

3.9.4 Implementation of routine data quality assessment in Nepal: Status of and associations with health information systems

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Abstract

Background: The quality of routine health data is essential for evidence-based decision-making, policy formulation, and health system strengthening. Nepal's Ministry of Health and Population introduced the Routine Data Quality Assessment (RDQA) tool in 2014. Despite its adoption, there is limited evidence on the extent of RDQA implementation. This study aims to assess the implementation of RDQA across Nepal's health facilities and examine how it varies by facility characteristics. Additionally, it explores the association between RDQA implementation and key health information system performance indicators.

Methodology: Secondary data from the 2021 Nepal Health Facility Survey (NHFS) used for this study. RDQA implementation was assessed across 1,148 public health facilities. Status of RDQA implementation was assessed using frequency distribution. The association between RDQA implementation status and HIS performance indicators were examined using chi-square test, followed by logistic regression.

Results: RDQA was implemented in 51% of surveyed health facilities, with notable provincial disparities with the highest implementation in Lumbini and lowest in Gandaki. Out of the 12 HIS performance indicators assessed in both RDQA-implemented and non-implemented health facilities, 11 indicators showed improved results in RDQA-implemented facilities, with six showing statistically significant differences. The RDQA implementation was significantly associated with the availability of a designated health statistics officer (aOR= 1.48, 95% CI: 1.15 – 1.90), HMIS user manual (aOR= 1.52, 95% CI: 1.16 – 1.97), HMIS indicator book (aOR= 1.73, 95% CI: 1.30 – 2.30), updated monthly monitoring sheets (aOR= 1.45, 95% CI: 1.15 – 1.83), and the display of health service data (aOR= 1.65, 95% CI: 1.25 – 2.19).

Conclusion: The study highlights the uneven implementation of RDQA across Nepal. Its implementation had a significant positive association with key HIS performance indicators. Further efforts are required to standardize its application and assess its long-term impact on data quality and decision-making processes.

Keywords:

3.10 Theme: Health Inequalities and Social Determinants of Health

3.10.1 Older people's challenges accessing health services in central Nepal: A qualitative study using the domain of access framework

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Abstract

Background: Low- and middle-income countries face rapid population aging. However, the health system has remained largely unprepared to deliver health services to an aging population. As the population is rapidly aging in Nepal, their challenges

and experience should be the focus for health care providers to address these issues. The aim of this study was to investigate the challenges that older people experience while accessing health services in central Nepal.

Methods: This qualitative study was conducted between April and June 2023. In-depth interviews were conducted among older people of a municipality in central Nepal, which were analyzed thematically using a deductive-inductive approach based on the theory of access.

Results: Hypertension and diabetes were the most common health problems among the participants. The affordability of health services was a major issue, although there is a health insurance scheme and a major focus on universal health coverage from the Government of Nepal. Other issues included poor acceptability, poor communication between older people and health staff, and poor accommodation due to a lack of elderly-friendly services, including long wait times in the clinic. Living with family was a major facilitator of access to health care services and was interrelated with multiple domains of access.

Conclusions: This study identified barriers to accessing health care services for older adults in Nepal. We found that the affordability of health services, poor acceptability, poor communication between older people and doctors, and a lack of elderly-friendly services are the key challenges experienced by older people.

3.10.2 Health disparities among urban poor and rural poor: A further analysis of results from NDHS 2022

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Abstract

Background: With the increasing pace of urbanization and rural-to-urban migration, a gap has been created in health services availability, access and utilization. Economic status and place of residency are one of the key factors contributing to health disparities. The objective of this study is to compare health disparities among under-five children belonging to poor households living in urban and poor.

Methodology: This study used data from the National Demographic and Health Survey (NDHS), 2022, which included 1,213 children under 59 months of age residing in poor households and 694 pregnant women for further analysis.

Results: Nearly half (48.6%) of rural poor children had their height measured in the past three months compared to 33.7% of urban poor children, with similar trends for weight. A significantly greater proportion of rural poor children had their height ($p<0.001$), weight ($p<0.05$), and mid-upper arm circumference (MUAC) ($p<0.001$) measured. Regarding recent illness, 9% of rural poor children experienced diarrhea in

the last two weeks, compared to urban poor children (9.9%). Home deliveries were slightly more common among rural poor women (50.9%) than in urban (49.1%, $p < 0.05$). Among children aged 12-23 months who were fully vaccinated, 59.6% belonged to the rural poor group, while 40.4% were from the urban poor. The minimum Dietary Diversity of children was higher in the urban poor (20.4%).

Conclusion: The study findings suggest that poor rural households have better health-related indicators for children while the nutrition status of children is better in urban poor. Addressing these disparities requires targeted policies to improve healthcare accessibility and utilization among the urban poor.

Keywords: Health disparity, Place of residency, Economic Status, Access to health services

3.11 Theme: Infectious Disease and Epidemic Preparedness

3.11.1 Stigma and its associated factors among tuberculosis patients of Directly-Observed Therapy, Short-Course (DOTS) centers in Tulsipur Sub-Metropolitan, Dang, Nepal

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Abstract

Background: Tuberculosis (TB) is infectious disease caused by *Mycobacterium tuberculosis*, mostly affects the lungs and spreads by airborne droplets from infected patients. Social stigma surrounding tuberculosis exacerbates the disease's impact, since patients frequently experience stigma in their families, workplace, and communities, worsening mental health and treatment adherence. This study aims to assess stigma and its associated factors among tuberculosis patients of Directly-Observed Therapy, Short-Course (DOTS) centres in Tulsipur sub-metropolitan, Dang, Nepal.

Methodology: A cross-sectional study was conducted among 145 Tuberculosis patients receiving the treatment from DOTS centres of the Tulsipur sub-metropolitan, Dang, Nepal. The probability proportionate to size technique was used to calculate the sample size for each DOTS center and data was collected using Explanatory Model Interview Catalogue (EMIC) stigma scale. All DOTS centres operating under Tulsipur sub-metropolitan were selected. The pretest was done among 20 patients receiving treatment under DOTS centre. Relevant descriptive statistics were computed for all variables and the association was computed using the Chi-square test.

Result: In this study, 69(47.6%) Tuberculosis patients receiving DOTS therapy were found to have experienced stigma. Gender disparities were significant, with females (64.6%) experiencing more stigma than males (33.8%) ($p = 0.001$). Stigma prevalence was higher among older patients (51-60 years, 59.4%; $p = 0.007$), housewife (71.8%; $p = 0.011$), and those with lower education ($p = 0.027$). Pulmonary TB patients (54.5%)

and relapse cases (80%) also faced stigma ($p=0.014$, $p=0.024$). Additionally, 29% hidden their condition due to stigma, with 17.9% feeling socially isolated.

Conclusion: Almost half of the Tuberculosis patients (47.6%) receiving DOTS therapy were found to experienced stigma regarding Tuberculosis and the associated factors of stigma regarding tuberculosis were found to be age, gender, occupation, marital status, education, type of tuberculosis and category of patients. This result highlighted the need of targeted intervention to mitigate the stigma associated with Tuberculosis.

Keywords: Tuberculosis, Tuberculosis Patients, DOTS, Stigma, Associated Factors

3.11.2 Bacteriophage as antibiofilm agent against *pseudomonas aeruginosa* from wound infection

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Abstract

Background: *Pseudomonas aeruginosa*, an opportunistic pathogen associated with wound infections, exhibits high resistance to antibiotics and forms biofilms, making infections difficult to treat. Biofilm-associated infections necessitate alternative therapeutic strategies. This study aimed to evaluate the ability of bacteriophages to degrade *P. Aeruginosa* biofilms in vitro.

A hospital-based cross-sectional study was conducted in a tertiary care hospital in Nepal over six months. *P. Aeruginosa* isolates from wound infections were identified using standard microbiological and biochemical methods. Antibiotic susceptibility was determined using the modified Kirby-Bauer disc diffusion method. Bacteriophages were isolated using the double-layer agar method and characterized based on plaque morphology and host range. Biofilm formation and phage-mediated biofilm reduction were assessed using the tissue culture plate assay.

Out of 647 wound samples, 96 (14.8%) *P. Aeruginosa* isolates were identified, of which 86 (89.6%) were multidrug-resistant (MDR) and 69 (71.9%) were biofilm producers. Among biofilm producers, 19 (19.8%), 21 (21.9%), and 29 (30.2%) were strong, moderate, and weak biofilm producers, respectively. A total of three phages were isolated from sewage sample of which phage vb_paep_PS2 covering 22.9% (22/96) of isolates, including 14 MDR and 21 biofilm-producing strains. Phage vb_paep_PS2 demonstrated a 58% reduction in biofilm after 6 hours of treatment. This study highlights the potential of bacteriophage therapy in reducing *P. Aeruginosa* biofilms, suggesting its possible application as an alternative treatment strategy for biofilm-associated infections.

Keywords: P. Aeruginosa, Wound infection, Biofilm, Bacteriophage, Biofilm reduction

3.11.3 Avoid fluoroquinolones as empiric therapy, reserve for tuberculosis

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Abstract

Fluoroquinolones (Levofloxacin & Moxifloxacin) is one of the empiric antibiotics commonly used for Community-Acquired Pneumonia, Hospital-acquired or Ventilator-associated Pneumonia, as recommended by IDSA & ATS guidelines. Fluoroquinolone (FQ) is also a major component of the drug regimen for the newly recommended 4-month course of drug-sensitive Pulmonary Tuberculosis & one of the most effective drugs used in multi-drug-resistant Tuberculosis. There are different mechanisms of resistance, but even a single point mutation in DNA gyrase can render a gram-negative bacteria acquire resistance to the FQ drug class; hence, FQ is considered to have a low barrier to resistance.

In areas where there is a big burden of AMR, there is also a co-existent burden of Tuberculosis (TB). TB can present as typical bacterial pneumonia as evident in one of the studies done in the USA, where 48 % of diagnosed TB cases had initially received FQ for presumed bacterial pneumonia, thus delaying diagnosis & treatment of TB. TB can also present as sterile pyuria resembling bacterial UTI. Since FQ is very effective against drug-sensitive TB, there is a high chance that FQ inadvertently used as monotherapy (instead of multi-drug regimen) in such missed TB cases, will actually result in some clinical improvement for a few weeks before ultimate clinical deterioration & potential selection of FQ resistance. This will further complicate the treatment regimen if the TB happens to be multi-drug resistant TB when eventually diagnosed.

Therefore, it makes more sense to avoid FQ as empiric antibiotic in Pneumonia (and even other infections like UTI), as long as there are other options since FQ is one of the most effective drugs available for TB & needs to be preserved. Guidelines need to address this issue as soon as possible.

3.11.4 Community stakeholders perspectives on dengue outbreak management in urban Nepal: Navigational insights and challenges

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Abstract

Introduction: Dengue outbreaks are a recurring public health challenge in urban areas of Nepal, necessitating proactive engagement of community stakeholders to ensure effective prevention and control measures. However, there is limited evidence of community engagement in dengue management in urban settings in Nepal. This study aimed to assess the community stakeholders' perceptions and experiences on dengue outbreak management in urban settings in Nepal.

Method: A qualitative study was conducted among community leaders and female community health volunteers (FCHVs) who were directly involved in the prevention and control of Dengue outbreaks in Lalitpur Metropolitan City. Twenty face-to-face, in-depth interviews were conducted with the local community stakeholders. Data were analysed using a thematic analysis approach.

Results: The study identified perceived severity and susceptibility, driven by recurrent dengue outbreaks, as key motivators for stakeholder engagement and actions in dengue outbreak management. Community-based initiatives, such as awareness programs and home-to-home visits, were considered effective in increasing public engagement. However, challenges such as delayed actions, the community's limited knowledge of dengue prevention and control, reluctance for consistent source reduction, inadequate water supply, and adverse sociocultural practices posed significant barriers to dengue management. Despite these obstacles, stakeholders expressed strong self-efficacy and commitment to the prevention and control of potential dengue outbreaks in future.

Conclusion: Local stakeholder engagement was considered crucial in dengue outbreak prevention and control. However, proactive, timely planning, continuous dissemination of dengue education, improved health infrastructures, and enhanced collaboration and coordination among community members and authorities are essential for the effective management of dengue outbreaks.

Keywords:

3.11.5 Multiple gastrointestinal bezoars leading to perforation peritonitis: a case report

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Abstract

Introduction: Metal bezoars are a rare form of bezoars that are commonly found in the stomach and may also be found on other parts of the gastrointestinal tract. This condition is mostly associated with psychiatric patients which is a challenging task for diagnosis and treatment. Patients usually present as perforation peritonitis. Only a few cases of large metal bezoars are documented till date.

Case Presentation: We report a case of an 18-year-old male who presented to the emergency department with symptoms of hollow viscus perforation peritonitis after intentionally ingestion of multiple metal bezoars. He had a history of psychiatric illness since 2 years back after a head injury. Radiographic findings revealed multiple metallic objects, a dilated stomach and free air under diaphragm bilaterally. An emergency exploratory laparotomy was done, involving gastrotomy and primary repair of gastric perforation. The postoperative course was uneventful.

Clinical Discussion: Ingestion of metal bezoars in psychiatric patients presents both diagnostic and therapeutic challenges. The presence of air under diaphragm and metallic object on radiograph imaging confirm the diagnosis of perforation peritonitis. Emergency exploratory laparotomy remains the treatment choice for management of gastric perforation caused by metallic bezoars. For long-term management, medication and behavioural therapy are the essential preventive measures.

Conclusion: This case emphasizes the importance of recognizing metal bezoars as a potential cause of gastrointestinal emergencies in psychiatric patients. Timely surgical intervention, along with comprehensive psychiatric care, is essential for successful outcomes.

Keywords: bezoar, laparotomy, peritonitis, traumatic brain injury

3.11.6 Intention to Accept Covid-19 vaccines and influencing factors among nursing students of Bagmati Province, Nepal

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Abstract

Background: COVID-19 pandemic had resulted in over one million infected with thousands of deaths worldwide. COVID-19 had resulted in severity of critical illness. Experiencing with COVID-19 pandemic, safe and effective vaccination coverage globally would be a great achievement. Universities and colleges are considered high risk places for COVID-19 outbreaks with the crowded environment in campuses and in the hospitals with high mobility and limited space. Health experts link the uninterrupted cross-border movement with variant change is a major risk for the rise in COVID-19 cases again in all over the world.

Methods: Institute based cross-sectional analytical study was conducted among nursing students of nursing Colleges of Bagmati Province, Nepal. Semi-structured self-administered questionnaire was developed to assess intention to accept covid-19 vaccines and influencing factors among nursing students. Proportionate random sampling technique was used to obtain 1142 sample from students of nursing colleges. Data was analyzed by using descriptive and inferential (chi-square and binary logistic regression) statistical tools. P-value <0.05 was consider as statistically significant.

Results: Nursing students who were not willing to vaccinate against COVID-19 is 2.8%. There is statistically significant between intend to get a COVID-19 vaccination and knowledge level ($p < 0.001$), perceived barriers of COVID-19 vaccination ($p = 0.028$). There is statistically significant between students' fear of COVID-19 and ethnicity ($p = 0.004$), Family income ($p = 0.012$), academic year of the respondents ($p < 0.001$). Regarding the fear on COVID-19, the odds of having intend to get COVID-19 is 1.214 (with 95% CI = 0.590 to 2.500) times higher as compared to those students who don't have fear.

Conclusion: Nursing students COVID-19 vaccination acceptance is related to knowledge on COVID-19, perceived barrier of COVID-19, and students' fear of COVID-19. So, Targeted vaccination campaigns are needed for the booster doses of COVID-19 that improve nursing student's vaccination knowledge in order to minimize the risk of COVID-19.

Keywords:

3.11.7 Escalating threat of antifungal drug resistance in Nepal: A one health perspective

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Abstract

Background: Antimicrobial resistance (AMR) is a significant global health threat, exacerbated by rampant and irrational antimicrobial use across One Health (OH) interface, encompassing humans, animals, agriculture/food/feed, and the environment. In Nepal, fungal pathogens remain understudied compared to bacteria and viruses, despite their key role in secondary infections among immunocompromised patients, food security issues and feed contamination by mycotoxins. Research on fungal

infections (mycosis) is limited, with existing studies primarily focusing on treatment rather than resistance patterns.

Objectives and Methodology: To assess the prevalence of mycosis, identify their etiological agents, and analyze resistance trends from a OH perspective. A systematic analysis was conducted using databases including PubMed, Scopus, Web of Science, Publons, and Medline, covering scientific literature published between January 2000 and December 2023. Studies excluded from the analysis included systematic reviews, meta-analyses, designated laboratory research, and studies conducted outside Nepal.

Results: A systematic analysis of research studies was conducted, including 78 studies focused on human health, 9 on veterinary, and 30 on agriculture. *Aspergillus* spp. and *Candida* spp. were identified as the predominant fungal pathogens in humans, isolated from various infection sites, while *Trichophyton* spp. was the most frequently reported dermatophyte. Drug susceptibility analysis revealed that amphotericin B exhibited the highest resistance antifungal drug, followed by fluconazole and ketoconazole. In animals, *Aspergillus* spp. was the most prevalent fungal pathogen, followed by *Penicillium* spp. Key mycotoxins producers are *Aspergillus*, *Penicillium* and *Fusarium*. Additionally, some studies reported use of anti-degnala drugs for managing mycotoxicosis in veterinary.

Conclusion: Despite diagnosis relying on culture-based (KOH mount, morphological analysis) techniques, escalating antifungal drug resistance in Nepal remains largely unexplored at molecular level, necessitating urgent mechanistic and genetic research. Multisectoral collaboration and actionable policies within a OH framework are urgent to containing exacerbating health threat of antifungal resistance, food security and mycotoxin contamination.

Keywords:

3.12 Theme: Maternal and Child Health

3.12.1 Complementary feeding practices and growth monitoring knowledge among mothers of under two-year children in Kirtipur municipality, Kathmandu, Nepal

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Abstract

Background: Globally, infant and young child feeding practices (IYCF) and growth monitoring are the two most cost-effective interventions for tackling childhood malnutrition. Maternal knowledge of the utilization of growth monitoring services ensures the promotion of the growth of the child. Similarly, optimal IYCF practices determine the survival, growth, and development of children. This study, therefore, aims to assess the IYCF practices and factors associated with knowledge of growth monitoring among mothers of under 2-year children in Kritipur Municipality, Kathmandu, Nepal.

Methods: A community-based cross-sectional study was conducted among 343 mothers selected through probability proportionate to sample (PPS). A pre-tested structured questionnaire was used to collect data through face-to-face interviews. Categorical variables were presented as frequency and percentage, while continuous variables were summarized as mean and standard deviation. The chi-square test was, then applied to identify factors associated with maternal knowledge of growth monitoring. A p-value less than 0.05 was considered statistically significant.

Results: The children were, on average, 14 months old and more than half of them were male (58.3%). 69.1% of the mothers breastfeed their child within 1 hour of birth, 51.9% of children were exclusively breastfed, and 40.2% of children started complementary feeding at 6 months. Similarly, nearly two-thirds (64.7%) of the mothers had adequate knowledge of growth monitoring. Age of mother (p-value: <0.001), family type (0.014), religion (p-value: 0.002), maternal education (p-value: <0.001), occupation (p-value: 0.023), household income (p-value: <0.001) were significantly associated with maternal knowledge of growth monitoring.

Conclusion: From this study, IYCF practices were not optimal and a significant proportion of mothers do not have adequate knowledge of growth monitoring. While designing interventions for growth monitoring family type, maternal education, income, and household income should be considered.

Keywords: Knowledge, Complementary Feeding, Growth Monitoring, Nepal, Child Nutrition

3.12.2 Maternal satisfaction and its associated factors on institutional delivery services among mothers of infants in Pokhara Metropolitan

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Abstract

Background: Maternal satisfaction with institutional delivery services is crucial for improving maternal and infant health outcomes. This study focuses on assessing maternal satisfaction and identifying associated factors among mothers in Pokhara Metropolitan, Nepal, who have utilized health institutions for delivery services.

Methodology: A community-based cross-sectional analytical study was carried out among randomly selected 161 mothers of infants aged 15-49 years of Pokhara Metropolitan. The study duration was 6 months, from April to September 2024. Data was collected by using a structured questionnaire with face-to-face interview technique. Data were entered in epidata and analyzed by SPSS. Ethical approval was obtained from the Institutional Review Committee at Pokhara University, and informed consent was obtained from each participant before data collection.

Results: The study shows that the majority (88.2%) of the mothers were satisfied with the delivery service. The level of satisfaction was higher in good coordination of health workers during delivery (89.5%) and lowest satisfaction in accessibility and sanitation of toilets (32.9%). There was a significant association between types of family (p -value = 0.014), duration of labor (p -value = 0.022) and availability of laboratory services (p -value = 0.006). This study showed that the illiterate mothers were 1.259 times more likely to be satisfied with delivery service than the literate mothers ($p=0.592$: OR=1.259: CI=0.143-11.06) and those mothers who hadn't faced obstetric complications were 2.574 times more likely to be satisfied with delivery service than complications faced by mothers ($p=0.407$: OR=2.574: CI=0.254-26.084).

Conclusion: The majority of the respondents were satisfied with the institutional delivery services. Although proper accessibility and sanitation of toilets, a hygienic environment in the labor room, and an adequate number of visitors should be available in every health institution to increase maternal satisfaction.

Keywords: maternal satisfaction, institutional delivery, Nepal, and mothers of infants.

3.12.3 Screen time among under-five children in Nepal: A mixed-methods study on parental perspectives and associated factors

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Abstract

Background: Excessive screen time in early childhood is a global public health concern due to its potential adverse effects on cognitive, social, and physical development. This study examines the prevalence, associated factors, and parental perceptions of screen time among under-five children in Nepal.

Methods: A mixed-methods cross-sectional study was conducted among 235 parents of preschool children in Madhyapur Thimi. Quantitative data were analyzed using descriptive statistics, Pearson's chi-square test, and multivariable logistic regression to assess factors associated with excessive screen time, with statistical significance set at $p < 0.05$. Qualitative data from 15 in-depth interviews (idis) with mothers were thematically analyzed using Braun and Clarke's six-step framework, integrating

inductive and deductive coding. The study adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines for rigor.

Results: The mean daily screen time among children was 1.83 ± 0.99 hours, with 62.6% (95% CI: 56.4%–68.8%) exceeding WHO recommendations of ≤ 1 hour per day. Excessive screen time was significantly associated with fathers' screen time ≥ 5 hours/day (aor: 3.27, 95% CI: 1.53–6.98), fathers' alcohol consumption (aor: 1.86, 95% CI: 1.01–3.44), and child ownership of an electronic device (aor: 3.74, 95% CI: 1.22–11.43). Thematic analysis identified screen time patterns, parental influences, perceived impacts, and management strategies as key themes. Qualitative findings revealed that parents initially introduced screens for engagement but later struggled with regulation. Parents expressed concerns about reduced attention spans, hyperactivity, and disrupted family interactions, though screens were also perceived as educational tools.

Conclusion: The high prevalence of excessive screen time among under-five children underscores the need for parent-focused interventions that address digital parenting practices, and alternative engagement strategies to promote healthy screen behaviors.

3.12.4 Utilization of free maternal healthcare services among women residing in the selected community of Birgunj, Parsa: A descriptive cross-sectional study

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Abstract

Background: Maternal mortality remains a significant global health challenge, particularly in low-and-middle income countries like Nepal. Government of Nepal introduced “Aama Surakshya Program” in 2005 to enhance maternal health outcomes through preventive and promotive interventions, including financial incentive packages. Despite widespread implementation, evidence indicates that reductions in maternal mortality have been suboptimal. Effective utilization of free maternal services is crucial to addressing this issue. Hence, this study aimed to assess utilization of free maternal-healthcare services and identify factors influencing their uptake among women residing in Birgunj, Parsa.

Methods: A descriptive cross-sectional study design was adopted to conduct study among 95 women residing in Birgunj, Parsa. Non-probability convenience sampling technique was used to select the participants. Data was collected through face-to-face

interviews using pretested structured questionnaire. The obtained data was entered in SPSS version-26 and analyzed using descriptive and inferential statistics.

Results: The study found that 75.8% of the respondents were aged between 21 and 50 years, with mean age 28.8 years. Majority (75.8%) identified as Hindu, and more than half (57.9%) of the respondents belonged to Madhesi ethnic group. 50.5% of women had completed more than four ANC visits, while 11% had not attended any ANC visits. Only 10.5% of respondents had completed the government-recommended PNC visits, whereas 46.3% had not attended any PNC visits. The mean utilization score was 5.96 ± 4.14 , with 50.5% showing poor utilization. The primary source of information on free maternal healthcare services was health-professionals (37.9%), followed by mass media (6.3%) whereas 35.8% of respondents did not have any information about these free services.

Conclusion: The study highlights the critical role of information in utilization of free maternal-healthcare services, emphasizing the necessity for targeted and tailored awareness programs. These results are valuable for policymakers to optimize services and inform further research/ interventions aimed at improving access and outcomes.

Keywords: Free maternal healthcare services, service utilization, antenatal services, postnatal services, institutional delivery

3.12.5 Trends in contact, continuous, and quality-adjusted antenatal care (ANC) coverage in Nepal: Insights from demographic and health surveys (2006–2022)

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Abstract

Background: Nepal faces high maternal and neonatal mortality rates, largely due to preventable causes. The government has prioritized maternal health services, including antenatal care (ANC), in various policies. As Nepal striving to achieve Sustainable Development Goals (SDGs) on maternal and newborn health, ensuring equitable access to quality ANC services is critical. This study examines trends and determinants of contact, continuous and quality-adjusted ANC (Q-ANC) coverage from 2006 to 2022.

Methodology: We analyzed Nepal Demographic and Health Survey data (2006–2022), aligning it with Nepal's federal structure for province-level analysis. GPS coordinates were used to assign provinces for the 2006 and 2011 surveys, ensuring consistent trend analysis and determination of factors within the current provincial framework. Contact, continuous and quality-adjusted ANC (Q-ANC) coverage were dependent variables in

the study. Weighted univariate, bivariate, and multivariable analyses were conducted, accounting for the complex survey design. Results include prevalence, crude odds ratios (COR), and adjusted odds ratios (AOR) with 95% confidence intervals.

Results: Nationally, ANC contact coverage increased from 45.31% (2006) to 94.33% (2022), continuous ANC from 30.87% to 80.68%, and Q-ANC from 3.38% to 31.12%. From 2006 to 2022, Q-ANC coverage increased from 0.35% to 23.15% in poorest, and from 6.03% to 41.58% among richest wealth quintile participants. Wealth quantity consistently influenced ANC contact, continuous coverage, and Q-ANC across all years. In 2022, Q-ANC was associated with age at delivery, wealth quintile, education, birth order, and media exposure.

Conclusion: Despite improvements in ANC coverage, a significant gap persists in Q-ANC. Targeted strategies and investments, especially for underserved populations, are needed to accelerate progress in continuous coverage and Q-ANC. Quality improvement initiatives, including regular monitoring and supervision, are crucial to ensure users receive all recommended interventions for effective coverage and impact.

Keywords:

3.12.6 Factors associated with overweight among recently delivered women in Dhulikhel municipality

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Abstract

Background: The prevalence of overweight and obesity among women of reproductive age is considered a public health concern. Most research on post-pregnancy weight retention is conducted in Western countries. This study aimed to determine the factors associated with overweight among recently delivered women in Dhulikhel municipality.

Methodology: A cross-sectional study was conducted to recruit a total of 301 recently delivered women aged all age groups. Interviews were carried out among women to collect socio-demographic information, obstetrics information, physical activity and diet quality. Anthropometric measurements height and weight were conducted with women. Body mass index (BMI) was computed to determine the prevalence of overweight and obesity. Multivariable logistic regression was used to examine the associated factors of overweight and obesity. We performed statistical analysis using STATA-10.

Results: The combined prevalence of overweight and obesity among recently delivered women was (32%). The result of multivariate logistic regression showed the risk of overweight and obesity increased with age, the highest risk being overweight in increased age (OR: 1.22, 95% CI: 1.0- 1.5) compared to women lower aged. Moreover, recently delivered women with an increase in each pregnancy had lower risk of being overweight (OR= 0.48, 95% CI: 0.2-0.8). Greater GDR-score was positively associated

with being overweight. Recently delivered women with lower physical activity were more likely to be overweight women (OR= 1.93, 95% C.I. 1.1- 3.2).

Conclusions: Our study showed that at least a third of RDW in the Dhulikhel municipality are overweight. Overall, our findings suggest that postpartum intervention programs that improve dietary practices and promote behavior change regarding improved consumption of fruits/vegetables and physical activity among RDW may be beneficial in the reduction of overweight among RDW in Dhulikhel.

Keywords: Recently Delivered Women, Body Mass Index, Overweight, Obesity

3.12.7 Determinants of a resilient maternal health system: Key insights from Kapilvastu district

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Abstract

Background: Lumbini Province has the highest maternal mortality accounting to 25% of the total maternal deaths in Nepal, with Kapilvastu district having the second highest mortality, exceeding the national average. In this context, this study aims to strengthen maternal health outcomes through targeted interventions at the system, health facility and community levels in a selected municipality and improve coordination mechanisms between municipalities in Kapilvastu.

Methodology: We adopted an implementation research design. We conducted formative research using mixed methods to assess the resilience capacity of a selected local government. This study presents findings from this formative research, which includes data from household survey (N=1120), health facility readiness assessment (N=7), key-informant interviews (N=16) and group discussions (N=6).

Results: The household survey revealed that 16.9% of deliveries in the past two years preceding the survey occurred out health facilities, 43% of which happened on the way to a health facility. Only 36.8% of women knew they should receive 8 ANC visits, while fewer (31.5%) completed them. At the system level, only 3.5% of the total unconditional budget was allocated to health in FY2080/81, which is inadequate even to ensure the routine drug availability. Birthing centers lack essential equipment, adequate rooms and delivery beds, and nearly 50% of health facilities reported stock-out of iron-folic acid. While Wards hold significant budgets, health remains a low priority, limiting investment in need-based programmes.

Conclusion: The limited use of local evidence in planning and implementation, capacity gaps, and resource constraints hinder improvements in maternal health services. Poor health facility readiness and insufficient community-level programmes further worsen maternal health outcomes. Hence, local governments including wards should be supported to strategically plan resources and prioritize health as a development agenda to strengthen maternal health services and wider health systems.

Keywords: Decentralization, Evidence-based planning, Health Systems, Maternal Health

3.12.8 Health care seeking behavior for common childhood illnesses among caretakers of under-five years children living in Pokhara metropolitan, Nepal

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Abstract

Background: Health care seeking behavior is crucial in reducing child mortality and ensuring timely medical intervention for childhood illnesses. However, delays or inappropriate health care-seeking practices among caretakers of under-five children remain a concern in many communities. According to the World Health Organization, delay in seeking care accounts for 70% of child mortality. This study aims to assess the healthcare seeking behavior of caretakers for common childhood illnesses in Pokhara Metropolitan, Nepal, and identify associated factors.

A community-based cross-sectional study was conducted among 331 caretakers of under-five children in Pokhara Metropolitan. Data were collected using face-to-face interviews with a structured questionnaire. Data was entered in Epi-data and statistical analysis was performed using SPSS version 25, with descriptive statistics and logistic regression to determine factors influencing health care-seeking behavior.

The study found that 77.3% of caretakers sought treatment for their child's illness, but only 33.5% sought care from a health facility as their first choice, indicating appropriate healthcare-seeking behavior. More than half (61.3%) sought care within 24 hours of symptom onset. Factors significantly associated with appropriate healthcare-seeking behavior included the child's age, ethnicity, family income, duration of illness, perceived severity of illness, and time to reach the nearest health facility by usual means of transportation. Many caretakers initially sought treatment from pharmacies (45.7%) rather than visiting health facilities.

Despite a large proportion of caretakers seeking treatment, a few choose to use health facilities. Interventions like health education and behavioral change communication initiatives are required to encourage timely and appropriate healthcare-seeking behavior of caretakers. Regarding the preference for visiting pharmacies over health facilities, it is crucial to conduct larger studies in various parts of the country to understand the specific factors influencing healthcare seeking behaviors.

Keywords: Caretakers, Childhood Illness, Health Care Seeking Behavior, Under-Five Children

3.13 Theme: Mental Health and Well-being

3.13.1 Sleep quality and stress experienced with quality of life among nurses working in private hospitals in Kathmandu, Nepal: A cross-sectional study

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Abstract

Background: Sleep and stress significantly impact emotions, productivity, and overall quality of life, crucial for optimal health and performance. Yet, little research explores how Nepalese nurses' quality of life relates to their sleep patterns and stress levels. Thus, this study attempted to assess the association of sleep quality, perceived stress, with Quality of life (qol) in Nepalese nurses working in private hospitals.

Methods: This study recruited 199 nurses aged 20–50, employed in private hospitals in Kathmandu, and without pre-existing self-declared psychiatric or diagnosed sleep disorders. Self-administered questionnaires were used, including the Pittsburgh Sleep Quality Index (PSQI), Insomnia Severity Index (ISI), Perceived Stress Scale-10 (PSS-10), and WHO Quality of Life-BREF (whoqol-BREF). IBM SPSS 16 was used to compute chi-square tests and logistic regression, with significance set at $p < 0.05$.

Results: The study found an inflated prevalence of poor sleep quality (83.9%) and moderate stress levels (87%). Around 69.3% of participants had low qol scores. In adjusted analyses, significant predictors of higher qol included having a bachelor's degree (AOR = 2.025, $p = 0.044$), absence of insomnia (AOR = 2.66, $p = 0.010$), and low perceived stress levels (AOR = 8.15, $p = 0.01$). While sleep quality and tobacco use showed associations in unadjusted models, they did not remain significant after adjustment.

Conclusion: Stress, insomnia severity, and education level are significant predictors of qol among Nepalese nurses in private hospitals, with stress showing the strongest association. Interventions targeting stress reduction, insomnia management, and educational support could enhance qol for nurses in this context, potentially improving patient care quality.

Keywords: Hospitals, Nurses, Quality of Life, Sleep Quality

3.13.2 Status and factors associated with depression, anxiety and stress of management students inside Kathmandu valley

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Abstract

Background: The commonness of psychological illness occurring within the university curriculum, along with the socioeconomic or behavioral status of students, is growing with the development of the deteriorating education system. It is gradually developing into a mental health issue among undergraduate students in Nepal and poses a significant challenge for public health globally. This research study aims to assess the Depression, Anxiety and Stress levels and its associated factors among undergraduate management students of Pokhara University in Kathmandu.

Methods: Out of 366 sample sizes, 354 students participated in the descriptive cross-sectional study carried out among undergraduate management students of Pokhara University in Kathmandu. Depression, anxiety, and stress were measured using the DASS21 (depression, anxiety, and stress scale 21) tool, designed for self-administered data. The questionnaire comprises sub sections: socio-demographic, academic and contextual information, depression, anxiety, and stress, to measure the different emotional states of the student.

Findings: In comparison to stress, depression and stress are correspondingly more common among undergraduate students in this study, the prevalence of depression (57.1 %), anxiety (66.1 %), and stress (35.6 %), with currently study year, experience academic stress, who broke up loved once and who receive any kind of bullying are commonly associated with depression, anxiety and stress. Failed in previous examination only associated with depression who smoke more than 2 times per week associated with depression and anxiety. Study program and Gender associated with anxiety and stress.

Conclusion: This study found that undergraduate management students of Pokhara University in Kathmandu had high rates of anxiety, depression and stress. Special attention and necessary psychological health interventions from their respective colleges/universities are highly recommended.

Keywords: Depression, Anxiety, Stress, DASS 21

3.13.3 The associations of physical activity and sleep quality on mental health among medical undergraduate students in tertiary center, Nepal

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Abstract

Background: Undergraduate medical students (UGMS) are always in a stressed environment, facing academic and parental pressures due to study and examinations, which can adversely affect their mental health. Although physical activity and sleep influence mental well-being, research on their specific impact is limited. This study aimed to explore the associations between physical activity, sleep quality, and mental health to provide empirical insights, enhancing understanding of UGMS well-being.

Methodology: This cross-sectional study collected data from a convenience sample of 216 MBBS students studying at Kathmandu Medical College and Teaching Hospital, Nepal. A self-administered questionnaire through google form was distributed to assess socio-demographic characteristics, the sleep quality using Pittsburgh Sleep Quality Index, depression, anxiety, and stress level by using DASS-21; and the physical activity level by using Global Physical Activity Questionnaire. Analysis was performed with the help of the IBM Statistical Package for Social Sciences (SPSS version 27). Multiple logistic regression analysis was performed to examine the odds ratios (ors) and 95% confidence intervals (cis) of the independent and interactive relationships of physical activity and sleep quality with depression, anxiety, and stress.

Results: Among the participants, 139 (64.35%) were males and 77 (35.65%) were females. There was a significant positive association between poor sleep and reported depressive (OR = 3.142, 95%CI = 1.689-5.845), anxiety (OR = 3.089, 95% CI = 1.655-5.763), and stress (OR = 3.668, 95%CI = 1.760-7.645), while no significant relationship was seen between sleep and physical activity. A significant association was observed between lower physical activity and anxiety (OR = 1.790, 95% CI = 0.985-3.254).

Conclusion: Poor sleep and physical inactivity were common in medical students. Poor sleep quality was significantly associated with depression, anxiety, and stress, while lower physical activity was linked to anxiety. Promoting physical activity may help improve sleep and mental well-being.

Keywords: Anxiety, Depression, Exercise, Medical students, Mental health, Sleep

3.13.4 Psychological distress among parents of emigrant children in Nepal: A mixed-methods study

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Abstract

Background: The growing trend of international migration has significant socio-emotional implications for families left behind, particularly elderly parents. While much research focuses on the well-being of migrants, limited studies explore the psychological distress experienced by left-behind parents. This study assesses the prevalence and determinants of psychological distress among parents with emigrant offspring in Changuarayan Municipality, Nepal.

Methods: A mixed-methods cross-sectional study was conducted among 218 parents whose children had emigrated for at least six months. The quantitative phase involved a structured survey, where psychological distress was assessed using the Kessler Psychological Distress Scale (K10). Pearson chi-square tests and multivariable logistic regression were performed to identify associated factors at a 5% level of significance. The qualitative phase included 16 in-depth interviews to explore emotional experiences

and coping strategies. Thematic analysis, following Braun and Clarke's six-step framework, was used to identify key qualitative insights.

Results: The prevalence of psychological distress was 18.8%, with 8.3% experiencing mild distress, 5.0% moderate distress, and 5.5% severe distress. Multivariable analysis revealed that parents with multiple morbidities (aor: 4.168, 95% CI: 1.691–10.274), those whose children were employed in labor-intensive jobs (aor: 8.169, 95% CI: 1.351–49.403), and those perceiving low support from emigrant children (aor: 3.797, 95% CI: 1.169–12.333) had significantly higher odds of psychological distress. Qualitative findings highlighted loneliness, parental worries, and uncertainty regarding children's return as key concerns. Social support, regular communication, and engagement in community activities were identified as coping strategies.

Conclusion: A significant proportion of parents with emigrant children experience psychological distress, influenced by health conditions, migrant employment status, and perceived social support. Strengthening intergenerational communication, enhancing mental health services, and developing targeted support programs for left-behind parents are crucial in mitigating their distress.

Keywords: Psychological distress, left-behind parents, international migration, mental health, social support

3.13.5 Depressive symptoms and its associated factors among senior citizens of Baijanath rural municipality, Nepal: A community-based study

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Abstract

Background: Depression is a significant yet often overlooked public health issue among older adults, particularly in low- and middle-income countries (lmics). This study aimed to assess the prevalence of depression and its associated factors among community-dwelling elderly individuals in Baijanath Rural Municipality, Banke District, Nepal.

Methods: A community-based cross-sectional study was conducted among 205 elderly individuals (≥ 60 years) from three randomly selected wards of Baijanath Rural Municipality. Data were collected through face-to-face interviews using a semi-structured questionnaire. Depression was assessed using the validated Geriatric Depression Scale-15 (GDS-15). Bivariate and multivariable logistic regression analyses were performed to determine factors associated with depression, adjusting for potential confounders at a 5% significance level.

Results: The overall prevalence of depression was 52.7%. Multivariable analysis identified significant associations between depression and ethnicity, economic status, morbidity status, and physical dependency. Belonging to Janajati ethnicity had lower

odds of depression (aor: 0.410; 95% CI: 0.182–0.927) as compared to Brahmin and Chhetri ethnicity. Elderly individuals from lower economic backgrounds, particularly those in the poor and ultra-poor household had thrice the odds of experience depression than those from wealthier backgrounds. Additionally, participants with multimorbidity (aor: 6.442; 95% CI: 2.510–16.530), and physical dependency (aor: 3.246; 95% CI: 1.098–9.600) had significantly higher odds of depression.

Conclusion: Depression is highly prevalent among elderly individuals in rural Nepal, with socioeconomic and health-related factors playing a critical role. Targeted interventions, including early mental health screening, improved healthcare accessibility, and community-based support programs, are essential to addressing geriatric depression in resource-limited settings.

Keywords: Aging, Geriatric Depression, Elderly Depression, Nepal

3.13.6 Mental health literacy among basic health care service providers and community health volunteers of Lalitpur metropolitan city, Nepal

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Abstract

Background: Mental health literacy (MHL) is essential for the early recognition and management of mental disorders, particularly among primary healthcare providers. In Nepal, mid-level healthcare workers and Female Community Health Volunteers (fchvs) play a vital role in community-based mental health services, yet their MHL remains inadequately explored. This study assesses MHL among basic healthcare service providers and health volunteers in Lalitpur Metropolitan City and identifies associated factors.

Methods: A cross-sectional study was conducted among 233 healthcare workers, including mid-level health providers, fchvs, and other community health volunteers. Participants were selected through simple random sampling. MHL was measured using the Mental Health Literacy Assessment Scale (MHLAS), with scores dichotomized at the median (≥ 75 = high MHL, < 75 = low MHL). Descriptive statistics summarized key variables, while Pearson's chi-square test and odds ratios (OR) with 95% confidence intervals (CI) were used to identify associations.

Results: The mean MHLAS score was 76 ± 9.27 (range: 45–98), with 55% (95% CI: 49%–62%) of the participants classified as having high MHL. Higher education levels (OR=9.77, $p<0.001$) and mid-level healthcare provider status (OR=2.44, $p=0.020$) were significantly associated with higher MHL. Participants with 5–10 years of experience (OR=4.50, $p=0.029$) and those who received mental health training during academic courses (OR=1.99, $p=0.022$) or on the job (OR=1.90, $p=0.036$) had significantly higher

MHL. However, factors such as gender, marital status, and work experience beyond 10 years were not significantly associated with MHL.

Conclusion: Despite their critical role in community mental health, nearly half of the primary healthcare providers in Nepal had low MHL. This study highlights the urgent need to strengthen MHL training among frontline healthcare workers in Nepal. Targeted training programs, and continued professional education are essential for strengthening MHL among this workforce.

3.13.7 Suicidality and its associated factors among sexual and gender minority people in Kathmandu valley: A mixed method study

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Abstract

Background: Sexual and gender minority (SGM) population are vulnerable with higher rates of suicidality due to discrimination, stigma, family rejection, abuse, and low social support, and less attention is given on the issues of SGM in Nepal. The objective of the study was to determine suicidality (suicidal ideation, plan and attempt) and its associated factors among sexual and gender minority people in Kathmandu Valley.

Methodology: A cross sectional study with concurrent triangulation mixed method design was conducted among 185 SGM participants residing within Kathmandu Valley. In depth interviews were conducted among 12 participants with positive response to suicidality till saturation. Non probability purposive sampling technique was used. Data analysis was done in STATA and EZR software with multivariate logistic regression carried out to identify the independent correlates of suicidality. Interviews were transcribed, translated and analyzed using six steps of Braun and Clarke's thematic analysis.

Results: The lifetime suicidal ideation, plan, and attempt among SGM participants were 47.57%, 29.19%, and 20%, respectively. Suicidal ideation was significantly associated with participants with basic and secondary education (aor=3.06, 95% CI=1.13-8.32) and depressive symptoms (aor=13.4, 95% CI=4.13-43.2). Compared to low perceived social support from friends, moderate (aor=0.25, 95% CI=0.07-0.88) and high support (aor=0.23, 95% CI=0.06-0.83) were significantly associated with lower suicidal ideation. Depressive symptoms were significantly associated with suicidal plan (aor=5.85, 95% CI=2.35-14.5) and attempt (aor=2.54, 95% CI=1.02-6.34). Disclosure of gender identity or sexual orientation to family (aor=3.71, 95% CI=1.22-11.3) was significantly associated with suicidal attempt. 'Mental health consequences, lack of affirmation and support, and partner relationship issues' were explored as factors contributing to suicidality from qualitative findings.

Conclusion: There is an increasing suicidal behavior among SGM population, so focus on the early assessment of suicidal behaviors is needed to mitigate mental health challenges and foster social support, promoting resilience within the community.

Keywords: Sexual minority, Suicidality, Ideation, Plan, Attempt

3.13.8 The influence of parenting styles on adolescent self-esteem: A cross-sectional study in urban Nepal

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Abstract

Background: Adolescence is a crucial developmental phase where self-esteem significantly impacts mental health and life outcomes. Low self-esteem is associated with depression, academic struggles, and risky behaviors, while parenting style plays a key role, varying across cultures. Despite extensive global research, studies in Nepal remain limited in this area. This study examines the correlation between perceived parenting styles and adolescent self-esteem while also analyzing the association of Sociodemographic factors with self-esteem in urban Nepal.

Methods: A cross-sectional study was conducted among 343 adolescents of grades 9 and 10 in schools of Tokha Municipality using multistage cluster sampling. Self-esteem and perceived parenting styles were assessed using the Rosenberg Self-Esteem Scale and the Perceived Parenting Style Scale by Divya and Manikandan. Data were analyzed using descriptive statistics, univariate and multivariate regression, and Spearman correlation at a significance level of 0.05. Ethical approval was obtained from the IRB of the Institute of Medicine.

Results: The mean age (\pm S.D.) of the respondents was 15.3 (\pm 1.0) years. One in six adolescents (16.3%) had low self-esteem. Authoritative parenting was positively correlated with self-esteem ($r = 0.33$, $p < 0.01$), whereas authoritarian ($r = -0.32$, $p < 0.01$) and permissive ($r = -0.25$, $p < 0.01$) parenting showed negative correlations. Older students had lower odds of low self-esteem (AOR: 0.7; 95% CI: 0.5–0.9). Conversely, students from private schools (AOR: 2.1; 95% CI: 1.1–4.2) and those whose fathers had less than a secondary education (AOR: 3.8; 95% CI: 1.9–7.4) had higher odds of low self-esteem.

Discussion/Conclusion: Our findings suggest that authoritative parenting fosters higher self-esteem in adolescents, while authoritarian and permissive styles have negative effects. Interventions should target younger adolescents, students from private

schools, and those with fathers with lower educational attainment to promote healthy self-esteem development.

Keywords: Self-esteem, Parenting styles, Adolescents, Nepal

3.13.9 Generalized anxiety disorder and its associated factors among undergraduate health students of Chitwan district, Nepal

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Abstract

Background: GAD is a prevalent anxiety disorder causing fear, worry, and a persistent sense of being overwhelmed. In Nepal, undergraduate health students experience higher GAD rates than the general population, affecting academic performance and increasing economic burdens. Many cases remain undiagnosed, particularly in academic settings. This study aimed to assess GAD prevalence and associated factors among undergraduate health students in Chitwan District.

Methodology: A cross-sectional study was conducted among 274 undergraduate health students using stratified random sampling. A self-administered GAD-7 questionnaire collected data, analyzed using SPSS Version 25. Multivariate logistic regression determined associated factors. The Hosmer-Lemeshow Test and Nagelkerke R-square assessed model fitness. A 95% Confidence Interval (CI) was set, with p-values <0.05 considered statistically significant.

Results: The mean age of participants was 21.17±2.11 years. GAD prevalence was 52%, with 64.7% experiencing mild, 22.6% moderate, and 12.5% severe anxiety. Major student concerns included academic difficulties (17.9%), bullying (10.6%), and physical abuse (8.1%). Significant factors associated with GAD included family type (AOR=0.28, CI: 0.11-0.71), perceived family stress (AOR=2.20, CI: 1.10-4.41), stressful life events (AOR=2.40, CI: 1.16-2.97), psychosocial risk factors (AOR=0.18, CI: 0.09-0.37), smoking (AOR=0.25, CI: 0.07-0.89), and low physical activity (AOR=2.92, CI: 1.25-6.84).

Conclusion: A significant prevalence of GAD was observed, influenced by academic stress, smoking, physical activity, financial pressure, family stress, and psychosocial factors. Universities should implement early screening, mental health counseling, and stress management programs. Encouraging peer support, financial aid, and a balanced academic environment can help reduce GAD risks and improve student well-being.

3.13.10 Physical activity, sleep pattern and screen usage in undergraduate health science students of Nepal – A cross-sectional study

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Abstract

Background: College students' unhealthy habits of sleep and physical activity can adversely impact their overall well-being. Excessive internet usage has been linked to conditions like problematic internet use (PIU). However, there is less evidence on these issues and its correlates in Nepal. This study aims to investigate the patterns of computer usage, sleep habits, and physical activity among undergraduate health science students in Nepal, along with the frequency of PIU.

Methodology: A cross-sectional study was conducted among Nepali undergraduate health-science students. Their sleep patterns (sleep score), physical activity levels (weekly MET value), computer usage habits, and problematic internet use (PIU score) were assessed through online questionnaire. Data were analyzed using descriptive and analytical statistics.

Results: The study included 362 students (206 females), median age 21 (IQR 20-23) years. A significant proportion of students exhibited inadequate sleep duration of <7 hours (30.45%) and experienced sleep disturbances frequently, such as early morning waking (23.48%) and racing thoughts in bed (23.38%). Most students reported minimal engagement in heavy exercise, with more than half (55.8%) classified as minimally active. Females were significantly less active than males (Chi Square 57.6, $p < 0.001$). Screen usage were prevalent among students in smartphone and computer. PIU was observed in 56.94% students; the score was significantly associated with poor sleep quality (Spearman Rho 0.27, $p < 0.001$), MET value (Rho -0.237, $p < 0.001$), daily duration of device and internet use ($p < 0.001$). Regression analysis revealed sex ($p = 0.009$), sleep score ($p < 0.001$), MET value ($p = 0.001$) and knowledge of computer technology ($p = 0.014$) as significant predictors of PIU ($R^2 = 0.14$).

Conclusion: Poor sleep, low physical activity, and excessive PIU are common among the students, and are closely interrelated. These issues can have consequences for academic performance, mental health, and overall well-being, making it essential to develop interventions to encourage healthy habits among undergraduate health-science students in Nepal.

3.13.11 Occupational stress and psychological wellbeing among secondary school teachers in Beni Municipality, Nepal: A cross-sectional study

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Abstract

Background: The teaching profession, while rewarding, presents numerous challenges that can adversely affect teachers' psychological well-being and occupational stress. This cross-sectional study aimed to assess the psychological well-being and occupational stress among secondary school teachers in Beni Municipality, Nepal, and identify its associated factors.

Methods: A total of 231 secondary school teachers were included through a census approach. Data were collected via face-to-face interviews using structured questionnaires, including the General Health Questionnaire-12 (GHQ-12) and Teacher Stress Scale (TSS). Bivariate analyses and multivariable logistic regression were performed to identify factors associated with psychological well-being and stress at a 5% level of significance.

Results: The study found that 60.2% of the teachers experienced psychological distress, while 51.1% reported occupational stress. Factors significantly associated with better psychological well-being included designated teaching level at the secondary level (aor = 2.30, 95% CI: 1.15–4.56), satisfaction with job description and responsibilities (aor = 2.37, 95% CI: 1.33–4.24), and occupational stress (aor = 2.09, 95% CI: 1.16–3.78). In regards to occupational stress, teachers aged 50 and above (aor = 3.04, 95% CI: 1.15–8.01), dissatisfaction with salary (aor = 2.78, 95% CI: 1.10–7.02), and perceiving their job as highly demanding (aor = 6.50, 95% CI: 2.14–19.76) were significantly associated with higher levels of occupational stress.

Conclusion: The findings highlight the high prevalence of psychological distress and occupational stress among secondary school teachers. The teaching profession, while rewarding, presents numerous challenges that can adversely affect teachers' psychological well-being.

Keywords: psychological wellbeing, occupational stress, school teachers

3.13.12 Factors associated with perinatal anxiety and depression among pregnant and postpartum mothers visiting Mechi provincial hospital, Bhadrapur, Jhapa, Nepal

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Abstract

Introduction: Pregnancy is associated with a range of physiological and psychological changes. As a result, the perinatal period is associated with a considerably greater risk

of experiencing mental distress among expectant mothers. It is crucial to comprehend the factors that elevate the risk of experiencing depressive symptoms and anxiety in pregnant and postpartum mothers. This study aims to assess the prevalence of perinatal anxiety and depression and its associated factors among perinatal mothers visiting Mechi Provincial Hospital, Bhadrapur, Jhapa.

Methods: A hospital-based cross-sectional study was conducted among 426 perinatal mothers through a sample survey method. Generalized Anxiety Disorder (GAD-7) was used to measure anxiety, and depression was measured by the Patient Health Questionnaire (PHQ-9) through interviews. Descriptive statistics were computed using frequency, percentage, mean, and standard deviation. The chi-square test was applied to identify factors associated with perinatal anxiety and depression.

Results: The prevalence of perinatal anxiety and depression was 31.2 % and 25.1% respectively. Occupation (p-value: 0.035), relationship quality with family (p-value: <0.001), history of abuse from family members (p-value: <0.001), privacy status (p-value: <0.001), communication with family members (p-value: <0.001), intergenerational support (p-value: <0.001), spousal support (p-value: <0.001), adequate rest during pregnancy (p-value: 0.015), obstetric complications (p-value: 0.001), history of abortion (p-value: 0.003) were significantly associated with perinatal anxiety. Similarly, ethnicity (p-value: 0.001), religion (p-value: 0.024), occupation (p-value: 0.018), relationship quality with family (p-value: <0.001), history of abuse from family (p-value: <0.001), privacy status (p-value: 0.001), communication with family members (p-value: <0.001), intergenerational support (p-value: <0.001), spousal support (p-value: <0.001), type of pregnancy (p-value: 0.023), obstetric complications (p-value: 0.032) were associated with perinatal depression.

Conclusion: A significant proportion of pregnant and postpartum mothers had perinatal anxiety and depression. A supportive family environment and quality maternal health services will help to reduce anxiety and depression among perinatal mothers.

Keywords: Perinatal, Anxiety, Depression, Women, Nepal

3.13.13 Posttraumatic stress disorder and associated factors in the aftermath of the 2015 earthquake in Nepal: A systematic review and meta-analysis

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Abstract

Background: This study aimed to estimate the pooled incidence of posttraumatic stress disorder (PTSD) among survivors of the 2015 Nepal earthquake based on available literature. It highlights the psychological impact of natural disasters, which may hinder recovery and well-being. PTSD can lead to emotional distress, impairing social and daily functioning, and reducing overall quality of life for individuals affected by traumatic events.

Methodology: The study protocol was registered on PROSPERO (CRD42024576444). A systematic search of PubMed and Google Scholar was conducted for observational studies in English assessing PTSD at least one month after the earthquake using a validated tool (April 2015–August 2024). References of included studies were reviewed. High-quality articles were selected based on risk of bias assessment. A random-effects model was used to calculate the pooled PTSD incidence with a 95% confidence interval, including subgroup analyses based on demographic and psychosocial factors.

Results: Analysis of 25 studies revealed a pooled PTSD incidence of 22.6% (range: 17.6%–27.5%). A high degree of heterogeneity ($I^2 = 97.56\%$, $p < 0.001$) was observed, with incidences ranging from 3% to 51%. Subgroup analyses revealed variations based on time of assessment, sex, age, marital status, education, disease history, bereavement, injury, witnessing death, social support, and property loss.

Conclusion: The high PTSD incidence highlights the need for psychological support among survivors. Psychosocial counseling and mental health services are essential to help individuals cope with trauma and rebuild resilience.

Keywords: Posttraumatic Stress Disorder (PTSD), Nepal Earthquake 2015, Mental Health Impact, Disaster Psychosocial Support

3.14 Theme: Migration and Health

3.14.1 A call for equitable and resilient border health system: an implementation research on malaria screening services to cross border migrants in Lumbini province of Nepal

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Abstract

Background: Given both the country i.e., Nepal and India aiming for eliminating malaria by 2026 and 2027, respectively, a weak and ineffective cross-border strategy is posing hindrance to achieving malaria elimination targets. Evidence suggest that malaria risk increases due to return migration of migrants from India's malaria endemic areas. With this concept, this study has analyzed the barriers of health desks in the Lumbini Province of Nepal, which provides screening services to these return migrants in cross borders settings.

Methodology: A mixed method implementation research was carried out at health system level in Lumbini's cross borders in Nepal. Quantitative data was collected and analyzed from Health Information System (HIS), and using observation checklist on availability of resources in laboratory, service provisioning, and medication. Qualitative data were collected through three in-depth interviews with health desks staff

members, four key informant interviews and three focus groups with migrants. A thematic analysis was performed to identify the barriers in malaria screening service in health desks.

Results: The findings of this study revealed many challenges hindering the functioning of the health desks leading to ineffective and inefficient delivery of screening services including malaria screening. The primary challenges affecting the functioning of health desks were (i) the poor governance of health desks and (ii) weak cross border health strategy. The implementation barriers identified were (i) lack of malaria screening protocol (ii) border dynamics weakening prioritizing health and malaria screening (iii) inadequate human resources, unclear roles and responsibilities of service providers affecting screening (iv) lack of sufficient material resources for screening and (v) operational challenges.

Conclusion: The barriers identified in this study suggest that there may be challenges in fully aligning the Nepal-India border practices with International Health Regulations. Addressing these barriers in malaria screening could offer significant potential to reduce imported malaria cases in Nepal and enhance the effectiveness of the vector-borne disease surveillance system in cross-border settings.

Keywords: Malaria, Implementation Research, Cross-border Screening

3.15 Theme: Non Communicable Disease

3.15.1 Depression among wives of migrant workers in Shuklagandaki municipality, Tanahun

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Abstract

Background: Nepal is a developing country in which migration of Nepali workers abroad is increasing every year. Migration offers opportunities for personal, social, and economic growth for migrant workers but, results an increase in household and outdoor responsibilities among left-behind wives in their home country. While handling all those responsibilities alone, these women feel isolated and may become victims of depression. This study aims to assess the prevalence of depression and factors associated with depression among wives of migrant workers.

Methodology: A cross-sectional study was conducted among 255 wives of migrant workers in Shuklagandaki municipality, Tanahun. Multistage sampling method was adopted, and face-to-face interviews were administered for data collection. The Center for Epidemiologic Studies Depression (CES-D) Scale was used to assess the prevalence of depression. Bivariate analysis using Chi-square and Binary Logistic Regression was done to explore the association between depression and individual characteristics. Multivariate logistic regression analysis determined the factors associated with the

prevalence of depression. All the tests were performed at a 95% Confidence Interval and variables with a p-value < 0.05 were considered statistically significant.

Results: The mean \pm SD of the participants was 33.4 \pm 6.9 years. Nearly one-fourth (23.5%) of the wives of migrant workers had a prevalence of depression. Family type (AOR: 1.65, 95% CI: 1.21–2.01), family debt (AOR: 2.23, 95% CI: 1.19–5.89), alcohol consumption (AOR: 1.76, 95% CI: 1.15–5.56) and emotional family support (AOR: 1.51, 95% CI: 1.12–1.96) were statistically significant with the prevalence of depression.

Conclusion: The study identified a significant burden of depression among the participants and was strongly linked with factors such as family type, family debt, alcohol consumption, and emotional family support. These findings highlight the need for targeted mental health interventions for wives of migrant workers, particularly in high-migration areas.

Keywords: Depression, wives of migrant workers, women, Nepal

3.15.2 Clinico-demographic, thyroid, and lipid biomarkers in patients with and without type 2 diabetes mellitus

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Abstract

Background: Diabetes disrupts the hypothalamic regulation of thyroid-releasing hormone and impacts the synthesis of triiodothyronine (T3) and thyroxine (T4), leading to disrupted lipid biomarker levels.

Objective: This case-control study explored how hba1c correlates with body mass index (BMI) and thyroid and lipid biomarkers in patients with and without type 2 diabetes mellitus (T2DM).

Method: This study included 202 T2DM patients diagnosed at the Nepal Armed Police Force Hospital between July 2023 and June 2024, along with 211 controls. Data on clinico-demographic and anthropometric variables were collected. Fasting venous blood samples were analyzed for hba1c, thyroid, and lipid profiles. Correlational analyses were conducted using SPSS-17.00, with significance set at p<0.05.

Result: The prevalence of T2DM among hospital visitors was 8.12% (202/2,488) [males: 60.40% (122/202); age Median: 51 years; Bimedian: 25.68 kg/m²]. Among T2DM patients, 18.81% (38/202) had dysthyroid, predominantly hypothyroidism (17.82%, 36/202), especially in females (100.00%, 11/11) and those who were overweight. Additionally, 54.95% (111/202) of T2DM patients had dyslipidemia, with hypertriglyceridemia (50.99%, 103/202) being the most common, particularly among males (94.52%, 69/73) and overweight patients. T2DM patients had significantly higher BMI, triglycerides, and thyroid-stimulating hormone (TSH) levels compared to

non-T2DM patients. HbA1c was positively correlated with total cholesterol ($p=0.041$) and triglycerides ($p=0.004$), HDL with T3 ($p=0.005$), and BMI with age ($p=0.048$).

Conclusion: T2DM affected less than one-tenth of hospital-visiting patients, primarily males and those aged 50–59. Dyslipidemia was common among T2DM patients, with dyslipidemia and hypothyroidism being most prevalent in overweight males and females, respectively. Regular testing of triglycerides, TSH, and T4 in T2DM patients can help reduce morbidity.

Keywords: Clinic-demographics, correlations, dyslipidemia, dysthyroid, type 2 diabetes mellitus

3.15.3 Cardiovascular risk assessment among middle-aged and elderly pilgrims visiting Gosaikunda (4380m)

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Abstract

Background: Thousands of pilgrims ascend rapidly from Dhunche (1960 m) to Gosainkunda (4380 m) within 1–2 days during festivals. This rapid ascent and behavioral cardiovascular disease (CVD) risk factors heighten health risks. Compared to trekkers, pilgrims are often elderly, have inadequate fitness, and suffer from multiple comorbidities.

Methods: A cross-sectional study was conducted over three days among pilgrims aged ≥ 40 years in Gosainkunda. Demographic data, pre-existing conditions, and Framingham Ten-Year General Cardiovascular Disease Risk scores were assessed.

Results: Among 100 pilgrims, 64% were male, with a mean age of 51.7 years. Middle-aged individuals comprised 73%, while 27% were elderly. Pre-existing conditions were present in 59%, including hypertension (32%), diabetes (20%), hypothyroidism (3%), asthma (3%), and chronic obstructive pulmonary disease (3%). Coronary artery disease (CAD) was found in 3%, with 27% having a family history of CAD. Only 11% sought pre-travel consultation. Risky behaviors included smoking (24%) and alcohol use (33%). Physical inactivity was noted in 13%, while 56% were insufficiently active. Risk assessment categorized 45% as low risk, 25% as moderate, 12% as high, and 18% as very high. Elderly pilgrims had significantly higher proportions in high and very high-risk categories ($p<0.001$).

Discussion: Older age and female sex were key risk factors for high-altitude cardiovascular risks. Similar patterns were observed in the Shri Amarnath Yatra and Solukhumbu, where inadequate preparation and medical conditions led to hospitalizations.

Conclusions: Unprepared pilgrims face significant cardiovascular risks at high altitudes. Pre-travel consultations and preventive strategies should be prioritized by government officials, emphasizing risk factor reduction to prevent adverse events.

3.15.4 Lipid profile in type 2 diabetes mellitus: fasting versus nonfasting

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Abstract

Introduction: Lipid profile test consists of total cholesterol (TC), high density lipoprotein cholesterol (HDL-C), triglyceride (TG) and low-density lipoprotein cholesterol (LDL-C). Deranged lipid profile is seen in type 2 diabetes mellitus and it causes many cardiovascular diseases. Fasting blood samples are preferred for lipid profile testing. However, fasting blood testing requires visiting next day to give sample causing loss of time, energy and resources. Additionally, in diabetic patients, non-fasting lipemic state is masked in case of fasting. This study aimed to compare the lipid profile parameters in fasting and non-fasting state in type 2 diabetes.

Method: This study is single centered, observational analytical cross-sectional study conducted in Department of Pathology and Laboratory Medicine, Patan Hospital, Patan Academy of Health Sciences. Lipid profile test of 104 diabetic patients were measured at fasting and non-fasting state by chemistry analyzer. Paired t-test and Pearson correlation were used for TC, HDL-C and LDL-C whereas Wilcoxon signed ranks test and spearman correlation were used for TG. Ethical clearance was obtained from institutional review committee.

Result: A total of 48 male and 56 female were included with mean age of 58.7 ± 12.0 and 55.6 ± 13.8 years respectively. There was strong correlation between respective fasting and nonfasting lipid parameters. The study showed the mean differences of 9.4 mg/dl, 2.3 mg/dl and 5 mg/dl between fasting and nonfasting sample in TC, HDL-C and LDL-C respectively. Meanwhile, the median difference of TG was 29.5 mg/dl between fasting and nonfasting sample. There were significant differences between the fasting and non-fasting state in all the lipid parameters with p value < 0.001 .

Conclusion: Although there was statistical difference in the lipid test parameters between fasting and non-fasting state, clinically its significance is less except for triglycerides. Therefore, non-fasting sample can be used for the lipid profile testing with adjustments.

3.15.5 Non-communicable diseases (NCD) risk factors among school going adolescents of Bagmati municipality, Sarlahi

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Abstract

Introduction: Non-communicable diseases (NCD), responsible for 71% of total deaths in Nepal in 2019, are primarily driven by modifiable risk factors such as tobacco use, alcohol consumption, unhealthy diets, and insufficient physical activity. Adolescents commonly engage in a spectrum of detrimental behaviors and adopt unhealthy lifestyles, thereby predisposing them to adverse health outcomes in adulthood. This study aims to assess the risk factors of NCD among school-going adolescents in Bagmati Municipality, Sarlahi, Nepal.

Methods: A cross-sectional study was conducted among 300 school-going adolescents in Bagmati Municipality using a multistage sampling technique. A self-administered Global School Health Survey (GSHS) questionnaire was used to collect data. Frequency and percentage were calculated for categorical variables, while the mean and standard deviation were computed for continuous variables. The chi-square test was used to determine the association between independent and dependent variables.

Result: The prevalence of unhealthy diet consumption, alcohol consumption, tobacco use, and physical inactivity among adolescents was found to be 54%, 15%, 17%, and 70% respectively. More than half of the participants had co-occurrence of two risk factors. From the chi-square test, we found a significant association between gender (p-value: 0.001) and parental drinking alcohol (p-value: <0.001) with alcohol consumption. Similarly, gender (p-value: 0.027), father's education (p-value: 0.018), and parental smoking (p-value: 0.02) were associated with tobacco use. In addition, the school's environment (p-value: 0.024) was associated with physical inactivity.

Conclusion: A higher proportion of adolescents were consuming unhealthy diets and were physically inactive, while tobacco users and alcohol consumers were also notable. Parental alcohol consumption and smoking should be discouraged and a supportive school environment should be built to reduce NCD risk factors among adolescents.

3.15.6 Assessment of knowledge on self-management and level of asthma control among patients attending a tertiary care center in Nepal: A cross sectional study

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Abstract

Background: Asthma is one of the most common chronic respiratory disease in children and adults characterized by variable respiratory symptoms and variable airflow

limitation. According to the Global Burden of Disease (GBD) Study 2019, an estimated 262 million people worldwide were affected by asthma, resulting in approximately 21.6 million disability adjusted life years (dalys). Alongside the meticulously updated pharmacological asthma management protocols, appropriate self-management practice is a crucial component for disease control. This study aims to assess the knowledge on self-management of asthma and examine its association with asthma control levels and sociodemographic factors.

Methodology: A cross sectional study was conducted with convenience sampling among 145 patients diagnosed with bronchial asthma for at least 6 months, aged 18 years and above. The participants were surveyed through a closed question interview using a questionnaire that included sociodemographic details, the Asthma Self-Management Questionnaire (ASMQ), and the Asthma Control Test (ACT), all translated into the Nepali language.

Results: The mean transformed ASMQ score was 26.22 out of maximum 100. Based on the ACT scores, asthma control levels were classified as uncontrolled (40%), partially controlled (54.5%), and controlled (5.5%). The Asthma self-management knowledge scores differed significantly across education levels ($p=0.047$), occupations ($p=0.015$), and asthma control subgroups ($p=0.011$). Individuals with partially controlled asthma demonstrated significantly higher self-management knowledge compared to those with uncontrolled asthma ($p=0.010$).

Conclusion: The findings of our study suggest that asthma self-management knowledge is suboptimal and correlates with asthma control levels, emphasizing the critical importance of effective patient education and assessment in achieving optimal disease management.

Keywords: chronic respiratory disease, asthma, asthma control, patient education, self-management

3.15.7 Impact of low lying pubic tubercle on development of indirect inguinal hernia: A case-control study

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Abstract

Introduction: Indirect hernias are protrusions of abdominal contents via the weakness in the anterior abdominal wall at the deep inguinal ring, lateral to the inferior epigastric vessels. Among various anatomical factors that lead to hernia, recent studies suggest that a low-lying pubic tubercle may predispose individuals to this condition by altering the structural integrity of the inguinal canal. A lower pubic tubercle results in a longer and more vertical inguinal canal, reducing the effectiveness of protective mechanisms

such as the shutter action of the internal oblique muscle. This study investigates the association between pubic tubercle position and the risk of indirect inguinal hernia.

Methods: A case-control study was conducted, including 43 male patients with indirect inguinal hernia and 43 controls. External pelvic measurements, including distance between two Anterior Superior Iliac Spine (SS) and vertical distance from SS plane to pubic tubercle (ST), height and weight were recorded. SS, ST, SS/ST, Height/ST, Weight/ST were compared between the two groups using unpaired t-test while ROC curve analysis was performed to determine optimal cut-off values.

Results: Hernia cases had significantly greater SS (23.64 ± 0.94 cm vs. 22.53 ± 0.97 cm, $p < 0.001$) and ST (7.26 ± 0.39 cm vs. 6.73 ± 0.39 cm, $p < 0.001$) than controls. The SS/ST ratio was significantly lower in cases ($p = 0.043$). ROC analysis found ST (AUC=0.82, $p < 0.001$) and SS (AUC=0.76, $p < 0.001$) with optimal cut off at 7.05 cm and 22.95 cm as strong predictors of hernia risk.

Conclusion: This study validates the association between a low-lying pubic tubercle and indirect inguinal hernia. External pelvic measurements offer a simple, non-invasive screening tool for identifying at-risk individuals. Future studies should explore broader populations to improve risk stratification.

3.15.8 Factors influencing substance abuse among adolescents of Pokhara, Nepal; Finding from cross-sectional study

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Abstract

Background: Substance abuse is a major issue that is destroying the lives of millions of individuals worldwide, including adolescents and the general public. The majority of young people worldwide unknowingly rely on substances/drugs of one kind or another for their daily activities. This study assessed the prevalence of substance abuse and its influencing factors among adolescents in Pokhara, Nepal.

Methods: A cross-sectional study was carried out among 235 students of grades 11 and 12 of secondary schools in Pokhara metropolitan city through a multi-stage sampling technique. Data were collected using a self-administered questionnaire. Categorical variables were presented as frequency and percentage, while continuous variables were summarized as mean and standard deviation. The chi-square test was applied to identify factors associated with substance abuse.

Results: The mean age of the participants was 16.8 years and more than half (54.9%) were male. The prevalence of substance abuse was found to be 16.2%. From the chi-square test, gender (p -value: 0.011), and family migration within 12 months (p -value: 0.033) were significantly associated with substance abuse among adolescents.

Conclusion: Nearly one in six adolescents were having substance abuse. The gender of adolescents and migration status should be considered while designing interventions to address substance abuse.

Keywords: Factors, Substance abuse, adolescents

3.15.9 Knowledge and practice of Pap smear among reproductive-age women in Kushma municipality, Parbat: A cross-sectional study

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Abstract

Introduction: The Pap smear test, or cervical screening, detects early signs of cervical cancer and precancerous changes, allowing for timely prevention and effective treatment through regular screening. However, it is often neglected due to a lack of understanding and access. Cervical cancer is the fourth most common disease in women worldwide, and it continues to be a major public health concern in low- and middle-income nations such as Nepal. The study aims to assess the Knowledge and Practice of Pap Smear Test among Reproductive Age Group Women in Kushma Municipality, Parbat.

Methodology: A community-based cross-sectional study was conducted in Kushma Municipality with 268 reproductive-age women (30-49 years). Data were collected by face-to-face interviews with a semi-structured questionnaire. The acquired data was analyzed using SPSS version 25, which used descriptive and inferential statistics to evaluate associations between socio-demographic characteristics, knowledge levels, and Pap smear test use.

Results: Over half (54.5%) of respondents had heard of the Pap smear test, but only 44.5% had adequate knowledge, while 55.5% lacked sufficient understanding. Among those aware, 30.8% had undergone the test. Key reasons for not utilizing the test included the lack of reproductive health problems (100%) and neglect despite awareness (22.8%). Factors such as ethnicity, age at marriage, number of children, and age at first delivery were significantly associated with knowledge levels ($p < 0.05$). Additionally, knowledge level strongly associations with Pap smear test practice ($p = 0.004$).

Conclusion: Over half of respondents aware about the Pap smear test, but only 40% had adequate knowledge. While 55% had taken the test, many had never utilized it. Targeted health education, improved access to screening, and community-based interventions are crucial to empower women, promote health initiatives, and increase participation in cervical cancer screening programs.

3.15.10 Liver function parameters and health related quality of life assessment of β -thalassemia cases at a tertiary care hospital, Lumbini province Nepal: A pilot study

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Abstract

Background: B-thalassemia patients experience several disease-related acute and chronic complications, such as hepatic fibrosis due to frequent blood transfusion, which can lead to iron overload and impact health-related quality of life (hrqol) and should be considered in healthcare plans.

A cross-sectional study was conducted on 40 β -Thalassemia subjects in the Department of Biochemistry and Internal Medicine, Universal College of Medical Sciences (UCMS) Bhairahawa, Lumbini Province, Nepal. B-Thalassemia was evaluated by Gazelle automated Hb electrophoresis bands percentage, CBC by Sysmex hematological analyzer, peripheral blood smear microscopy, and serum liver function parameters by spectrophotometry. Hrql was assessed using 36 short-form survey instruments (SF-36) items to reveal vitality, physical, mental, emotional, pain, general health, and social functioning. To check the internal consistency of the Nepali version of SF-36, Cronbach's alpha was calculated from the recoded value of every response. The SF-36 Nepali version mobile application was developed for the first time to get the outcome of the hrql.

The present study shows the frequency of the β -Thalassemia Trait (60%) was higher than β -Thalassemia Major (30%). The ethnic groups Muslim (32.5%) was the highest followed by Terai indigenous-Tharu (30%) and Madheshi (27.5%). The comparison of the LFT parameters shows transfusion-dependent cases presented with relatively high mean \pm SD in Total bilirubin, Direct bilirubin, Indirect bilirubin, and ALP levels than transfusion-independent cases p-values <0.001. Hrql of transfusion-dependent β -Thalassemia cases were significantly lower than transfusion-independent cases p<0.001. Pearson's correlation coefficients between the variables show a significant correlation between LFT and SF-36 domains p-value<0.05 except between health change and hba2 band.

The LFT parameters are significantly increased in mostly β -Thalassemia major and Thalassemia intermedia undergoing frequent blood transfusions. The hrql of transfusion-dependent patients is lower in physical, mental, social, emotional, and general health aspects compared to non-transfusion-dependent cases despite iron chelation therapy.

3.15.11 Intention to perform cervical cancer screening among married women of Harinas rural municipality, Syangja

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Abstract

Background: Cervical cancer is a significant public health concern, particularly in low- and middle-income countries (lmics), where limited access to screening and preventative care leads to high morbidity and death. In Nepal, it is the biggest cause of cancer-related fatalities among women, with a low screening rate (16%) despite available facilities. This study explores married women's intention to undertake cervical cancer screening in Harinas Rural Municipality, Syangja, utilizing the Health Belief Model (HBM) and the Transtheoretical Model (TTM) for identifying significant behavioral and psychosocial variables. The findings aim to inform targeted strategies to increase screening uptake and reduce the cervical cancer burden in Nepal.

Methodology: Cross-sectional descriptive study was conducted with 227 women aged 21-65 years in Syangja Harinas Rural Municipality. Respondents were selected using simple random sampling. Women's intentions were assessed using structured self-developed questionnaire based on a transtheoretical model. Collected data was analyzed using SPSS Version 28 by using descriptive and inferential statistics as per the nature of the data.

Results: The study found that 96.5% of participants had low knowledge, only 12.8% of women had a high intention to perform cervical cancer screening and 46.3 % of the respondents had been screened for cervical cancer in previous years. Statistically significant difference was observed between the level of intention with age, ethnicity, income of family, history of vaginal infection, perceived susceptibility, perceived benefit, and cues to action($p < 0.05$). There was significant relation observed between practice and perceived self-efficacy, cues to action, and intention($p < 0.05$).

Conclusion: This study indicated, women's intention to undergo screening and engage in preventive measures for cervical cancer was minimal. Considering women's views, infection history, susceptibility, advantages and prompts for action is crucial for implementation and enhancement of cervical cancer screening programs. Strategies to encourage women in cervical cancer screening practice should be done.

3.15.12 Non-communicable disease and mental health status among adolescents living in orphanages of Kathmandu valley: A knowledge, attitude and practice study

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Abstract

Background: Non-communicable diseases (ncds), or chronic conditions, are not contagious but account for 74% of global deaths, mainly due to unhealthy habits such as poor diet, inactivity, and substance use. With 80% of these deaths preventable if addressed as early as in adolescence, this study aims to assess the KAP of NCD risk factors and mental health among adolescents in Kathmandu Valley orphanages, where emotional distress, social challenges, and limited healthcare access contribute to poor health behaviors.

Methodology: This descriptive cross-sectional study was conducted among 422 adolescents (10-18 years) from seven different orphanages of Kathmandu Valley, selected through non-probability sampling. Data were collected through face-to-face interview using Global School based student Health Survey, GPAQ and strength and difficulties questionnaire (sdqs) tools. We estimated KAP of behavioral risk factors of NCD, their prevalence and mental health problems. Binary Logistic Regression was performed using SPSS version 25 to analyze associated factors between sociodemographic profile with KAP and mental health problems.

Results: Among 422 respondents aged 10-18, median age was 13 years. The median KAP scores were 16 for knowledge, 38 for attitude and 6 for practice. The prevalence of NCD behavioral risk factors was high, with inadequate fruits and vegetables intake (99.3%), insufficient physical activity (32%), alcohol consumption (11.6%), smoking (5%), use of smokeless tobacco (3.1%). Among current users, 4.5% consumed alcohol, 3.1% smoked, 1.9% used smokeless tobacco. The 29.4% adolescents had abnormal sdqs scores, 34.5% borderline and 36.3% normal. Among the domain of SDQ, conduct problem (36.3%) was most common followed by peer problem (26.8%), hyperactivity (14.2%), emotional symptoms and prosocial problem (5%). Mental health problems were significantly associated with schooling type and the reason for orphanage stay.

Conclusion: The study identifies gaps in knowledge, attitudes, and practices regarding NCD risk factors, highlighting high risks and mental health concerns, urging targeted interventions.

3.15.13 Which office-based cardiovascular risk score is applicable for Pokhareli Nepalese: Globorisk, WHO CVD, or Framingham?

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Abstract

Background: Cardiovascular diseases (cvds) are the leading cause of death. In resource-limited settings, office-based methods offer cost-effective alternatives to laboratory-based methods for primary prevention. Although the WHO Charts are used in the PEN program, their predictability is limited. In Pokhara Metropolitan, Nepal, this study compared the risk scores and agreement levels of three office-based CVD risk prediction models—WHO CVD, Globo risk, and Framingham Risk Score (FRS).

Methods: A community-based, cross-sectional study was conducted among 532 individuals aged 30 years and above from Pokhara. Sociodemographic data and risk factors were collected through interviews, and anthropometric measurements followed standard protocols. Descriptive statistics, t-tests, ANOVA, and Cohen's kappa were used to compare risk categories and agreement levels, while linear regression analyzed trends across algorithms. Ethical approval was obtained from the Institutional Review Committee (IRC), Pokhara University.

Results: CVD risk estimates differed significantly: WHO CVD (4.51 ± 3.46), Globo risk (7.35 ± 7.14), and FRS (9.59 ± 8.34), (F-statistics = 78.037, $p < .01$). Globo risk (85%) and the FRS (90%) showed very good model fits, whereas the WHO CVD showed an excellent model-fit (94%), doubting overfitting. Agreement levels were fair between Globorisk and WHO (Kappa = 0.327), the slight between WHO and FRS (Kappa = 0.192), and moderate between Globorisk and FRS (Kappa = 0.475). Risk was linked to ethnicity, education, marital status, and occupation but not income.

Conclusion: CVD risk predictions varied, with FRS predicting the highest risk and WHO CVD the lowest; with a difference of more than 5% point. Screening should consider socio-economic and demographic factors.

Keywords: Cardiovascular Diseases, Algorithms, Risk Assessment, Epidemiologic Methods.

3.15.14 Factors associated with high blood pressure among men and women aged 18 and older, findings from may measure month 2024

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Abstract

Introduction: Hypertension prevalence in Nepal has risen significantly, from 17.3% in 2016 to 24.5% in 2019, signaling the need for preventive measures. This study, part of the MMM 2024 campaign, aimed to assess blood pressure (BP) levels and related risk factors in adults.

Methodology: A cross-sectional study was conducted in Nepal, with 10,371 participants aged 18 and older recruited via home visits and community settings. BP measurements were taken using Omron digital BP monitors, and trained volunteers administered structured questionnaires. Data were analyzed using Stata version 21, with

hypertension defined by elevated BP readings ($\geq 140/90$ mmHg) or antihypertensive medication. Ethical approval for the study was obtained from the Nepal Health Research Council (Ref 1980).

Results: The overall prevalence of hypertension was 21.6%, with males exhibiting a higher rate (26.7%) than females (16.9%). Significant factors influencing BP included age, sex, tobacco use, and alcohol consumption. Males had higher systolic and diastolic BP than females. Multivariate analysis showed age, alcohol consumption, and tobacco use as significant predictors of hypertension, with females having lower odds of hypertension (OR: 0.67).

Discussion/ Conclusion: Males demonstrated higher BP, likely due to greater alcohol and tobacco consumption, both of which were independently linked to higher hypertension risk. These findings emphasize the importance of addressing modifiable lifestyle factors in hypertension prevention. Targeted interventions focusing on reducing alcohol and tobacco use, particularly among males, and age-stratified screening programs are essential to control the growing hypertension prevalence in Nepal. Further research is needed to explore protective factors in males despite their higher BP levels.

Acknowledgment: We thank all volunteers and community members who participated in this study, which the Nepal Development Society, Nepal Health Corps and Mrigendra Samjhana Medical Trust supported.

3.15.15 Non-HDL cholesterol and triglycerides-glucose index as indicators of cardiovascular risk in myocardial infarction patients with and without diabetes: A cross-sectional study at a university hospital

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Abstract

Background: Myocardial infarction (MI) is a leading cause of morbidity and mortality worldwide. Early identification of cardiovascular risk factors is essential for preventing adverse outcomes. While serum total cholesterol (TC) and low-density lipoprotein cholesterol (LDL-C) are widely used for cardiovascular risk assessment, Non-HDL cholesterol (Non-HDL-C) and the Triglyceride-Glucose (tyg) Index have emerged as promising markers for risk stratification. Limited data exist on their combined predictive value in the Nepalese population.

Methods: A cross-sectional study was conducted at Dhulikhel Hospital, Nepal, from January 2024 to January 2025, involving 34 MI patients (20 males and 14 females). Lipid profiles, including TC, HDL-C, LDL-C, triglycerides, and fasting glucose, were measured. Non-HDL-C was calculated by subtracting HDL-C from TC, and the tyg Index was determined using the formula: Napierian logarithm (ln) of [fasting triglycerides (mg/dl) \times fasting blood glucose (mg/dl)/2]. Descriptive statistics, correlation analysis, and subgroup comparisons (diabetic vs. Non-diabetic) were performed.

Results: The mean Non-HDL-C level was 127.50 ± 44.61 mg/dl, and the mean tyg Index was 8.81 ± 0.70 . Significant correlations were observed between the tyg Index and Non-HDL-C ($r = 0.514$, $p = 0.002$) and LDL-C ($r = 0.395$, $p = 0.021$). A strong positive correlation was found between Non-HDL-C and LDL-C ($r = 0.917$, $p < 0.001$). Diabetic patients had higher tyg Index levels (9.38 ± 0.73) compared to non-diabetics (8.57 ± 0.53 , $p < 0.01$).

Conclusion: Non-HDL-C and the tyg Index are significantly associated with cardiovascular risk markers in MI patients. Their combined use may enhance cardiovascular risk stratification, particularly in populations with high diabetes prevalence. Further large-scale studies are warranted to validate their predictive value in diverse settings.

3.15.16 Prevalence of hypertension and its risk factors among the elected representatives of the Kathmandu metropolitan city

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Abstract

Introduction: The combination of high stress levels, long working hours, and poor dietary habits, lack of exercise, sleep disturbances, and potentially unhealthy coping mechanisms can make the elected representatives vulnerable to hypertension. This study will figure out the magnitude and distribution of hypertension and analyze the lifestyle practices that are directly or indirectly responsible for it so that possible interventions can be implemented to promote health and well-being and to reduce the risk factor.

Method: Cross Sectional Descriptive Study was carried out for the completion of research whereby data was gathered from the elected representatives of Kathmandu Metropolitan City representing their status at a particular ward.

Result: The prevalence of hypertension among elected representatives was 45.23%. Among the hypertensive population, 58.6% were males and 28.6% were females. Prevalence of hypertension was associated with duration of sleep (AOR=0.004, CI 1.770-21.188), and history of high blood pressure (AOR=0.006, CI 1.719-25.414). Similarly, respondents having an annual income equal to or more than 5 lakhs were more likely to have hypertension (COR=2.787, CI 1.123-6.916) than respondents having an annual income less than 5 lakhs. Also, alcohol consumers were more likely to have hypertension (COR=4.090, CI 1.321-12.667) than non-consumers.

Discussion: According to this study, nearly half of the participants reported having hypertension. The study found that hypertension was significantly associated with several different factors, including sleep duration and history of high blood pressure. Hence, these factors need to be focused for addressing hypertension.

Keywords: Hypertension, Elected Representatives, Nepal

3.15.17 Impact of diabetes and gender on coronary artery disease severity: Evidence from Nepal

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Abstract

Background: Coronary artery disease (CAD) stands as a prominent contributor to morbidity and mortality worldwide, ranking the primary cause of disability-adjusted life years (dalys). Identifying predictors of CAD severity is crucial for effective prevention and management. Diabetes and gender have been widely implicated as critical determinants of CAD severity in different countries, but evidence from Nepal remains limited. This study explores the role of diabetes, gender, and other risk factors in determining the severity of CAD in a Nepalese population.

Methodology: A hospital-based observational cross-sectional study was conducted among angiographically confirmed 300 CAD patients at four tertiary care centers in Nepal such as Dhulikhel Hospital, Sahid Gangalal National Heart Centre, Manipal Hospital, and Nobel Hospital. CAD severity was categorized into mild, moderate, and severe based on Gensini score. An ordered logistic regression model was employed to evaluate the association of diabetes, gender, and other variables with CAD severity. Adjusted odds ratios with 95% confidence intervals were calculated to determine the association of risk factors and significant predictors of CAD severity.

Result: In this study, ordered logistic regression analysis was conducted to examine factors associated with CAD severity among 300 patients. Diabetes (AOR=2.1, 95% CI: 1.02–4.3, p=0.045), male gender (AOR=2.13, 95% CI: 1.22–3.7, p=0.007) and total cholesterol (AOR=1.02, 95% CI: 1.01–1.03, p=0.003) were significant predictors of severe CAD, with individuals with diabetes and males having higher odds of experiencing severe CAD, after adjusting for age, smoking, BMI, hypertension and dyslipidemia.

Conclusion: Diabetes plays a key determinant of CAD severity in the Nepalese population, with diabetic patients twice as likely to develop severe CAD compared to non-diabetics. Male gender and total cholesterol level also significantly increase the risk of severe CAD. These findings underscore the importance of prioritizing diabetes and dyslipidemia management in CAD prevention strategies.

3.15.18 Metformin prevents Anti-Microbial Resistance (AMR) and promotes wound healing in diabetes

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Abstract

Background: Hyperglycemia induces the growth of microorganisms and promotes biofilm formation, which enhances antimicrobial resistance (AMR) in diabetes. Thus, our study aims to explore the effect of exogenous glucose on biofilm formation, the potential role of metformin, and its therapeutic potential in addressing AMR in non-healing diabetic wounds.

Methods: This study was laboratory-based experimental study carried out in Manmohan Memorial Institute of Health Sciences, Kathmandu, Nepal. The common pathogen including *Staphylococcus aureus* and *Proteus mirabilis* isolated from diabetic wound and *Staphylococcus aureus* ATCC 29213 are used in study. TO measure AMR, biofilm production was detected by Tissue Culture Plate method and the crystal violet absorbance was measured by ELISA reader at 578nm. Minimum inhibitory concentration of metformin was determined by broth dilution method and absorbance was measured at 600nm. Statistical analysis was done using descriptive statistics, paired t-test and ANOVA.

Result: The amount of biofilm formation increased significantly with increasing concentration of glucose (100-500mg/dl) (p-value<0.001). The antimicrobial effect of metformin was also demonstrated as decrease in bacterial growth under the therapeutic range between 0 and 1mg/ml (p-value<0.01) and in minimum inhibitory concentration range (1-9mg/ml) (p-value<0.001). Also, the amount of Biofilm production under hyperglycemia reduced significantly after treatment with metformin (8mg/ml) (p-value<0.01), Metformin (1mg/ml) (p-value<0.05) and with Ascorbic acid(1000mg/L) (p-value<0.01).

Conclusion: Our study reveals that high glucose exposure leads to biofilm formation of organisms leading to AMR. Treatment of metformin in vitro shows antimicrobial property in parallel with ascorbic acid. In addition to the anti-hyperglycemic effect, the anti-microbial effect of metformin helps reduce the amount of biofilm formation under hyperglycemia which may help promote proper wound healing in diabetic patients.

Keywords: Hyperglycemia, Biofilm, Metformin, Ascorbic Acid, AMR

3.15.19 Beneficial effect of metformin against smoking-induced erythrocyte fragility in hyperglycemia

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Abstract

Background: Hyperglycemia alters erythrocyte membrane fragility and membrane phospholipid alteration due to increased oxidative stress which may be enhanced by smoking in diabetes. The aim of our study is to investigate the potential role of metformin in erythrocytes osmotic fragility caused by major smoking ingredients including nicotine and carbon monoxide (CO) in hyperglycemia.

Methods: This study was laboratory analytical cross-sectional study carried out in Manmohan Memorial Institute of Health Sciences, Kathmandu. Fresh blood samples from healthy individuals and smokers were collected, heparinized and after estimation of plasma glucose, blood cells were made in vitro hyperglycemia by the treatment of D-glucose against L-glucose as a control. Erythrocyte membrane stability measured by osmotic fragility of erythrocyte using decreasing concentration of phosphate buffered normal saline. Statistical analysis is done using descriptive statistics, paired t-test and ANOVA.

Result: High glucose increased osmotic fragility of erythrocyte significantly in dose-dependent manner at 0.5% of NaCl ($p < 0.001$). In-vitro treatment of major smoking ingredients CO and nicotine significantly increased osmotic fragility of erythrocyte in high glucose ($p < 0.001$). However, treatment of metformin and ascorbic acid significantly prevented CO- and Nicotine-induced osmotic fragility of erythrocyte in hyperglycemic condition ($p = 0.001$). Moreover, high glucose treatment increased osmotic fragility of erythrocyte from smokers in comparison with that of non-smokers. And pre-treatment of metformin and ascorbic acid prevented high glucose-induced osmotic fragility of erythrocytes from smokers. The results showed that ascorbic acid-mimetic anti-oxidant role of metformin may prevent erythrocytes osmotic fragility hyperglycemia.

Conclusion: In this study, we revealed the significant role of smoking ingredients CO and nicotine in increasing osmotic fragility of erythrocyte in hyperglycemia. And, anti-oxidant mechanism of metformin prevents smoking-induced erythrocyte fragility and potential hemolysis leading to anemia in diabetic patients.

Keywords: Hyperglycaemia, Diabetes, Osmotic Fragility, Metformin, Anti-oxidant, Carbon monoxide, Nicotine.

3.15.20 If I had known earlier, I would have done the test: Improving cervical cancer screening uptake in Nepal through insights from a mixed-methods study

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Abstract

Background: Cervical cancer remains the leading cause of cancer-related deaths among Nepalese women, despite being preventable through primary and secondary interventions. The lack of a national screening program has resulted in strikingly low screening uptake. This study explores patients' perceptions of barriers and facilitators to increasing participation.

Methodology: A mixed-method study was conducted in Bharatpur, Nepal. Patients were recruited by convenience sampling at B. P. Koirala Memorial Cancer Hospital and through a registry list to participate in a concurrent structured questionnaire and semi-structured interview. Quantitative data on demographics, clinical variables, screening practices, and behaviours were analysed using descriptive statistics and χ^2 -tests. Qualitative data on knowledge, cultural influences, and barriers to screening were analysed thematically and triangulated with quantitative findings.

Results: A total of 100 women were recruited for the questionnaire. The mean age was 54 and 14% had participated in screening. Participants with prior screening attendance were significantly more likely to receive earlier diagnosis and those who went to regular check-ups were significantly more likely to participate in screening, as well receiving early diagnosis. Twelve women were interviewed, uncovering barriers related to limited knowledge, self-perceived health, reliance on traditional practices, and financial and logistical challenges.

Conclusion: Cervical cancer remains a significant public health issue in Nepal, driven by low screening uptake. This study highlights the importance of community-based education and gender-sensitive, localized and affordable healthcare services. Leveraging family support, traditional healers, and Female Community Health Volunteers could strengthen efforts to improve screening participation and reduce its high incidence.

Keywords: Cervical Cancer Screening, Global Health, Mixed-Methods study, Nepal, Women's Health

3.15.21 Effect of school-based health education program on behavioral risk factors of non-communicable diseases among school-going adolescents in Kageshwori-Manahara municipality of Nepal

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Abstract

Background: Non-communicable diseases (NCDs), responsible for 71% of total deaths in Nepal in 2019, are primarily driven by modifiable behavioral risk factors such as tobacco use, alcohol consumption, unhealthy diets, and insufficient physical activity. There is limited evidence on the effectiveness of educational interventions targeting adolescents in Nepal. Therefore, this study aims to evaluate the impact of a school-based health education program on reducing behavioral risk factors for NCDs among school-going adolescents in Kageshwori-Manahara Municipality, Nepal.

Methods: This study employed a pre-experimental (pre-post) design, involving 218 adolescents aged 10–19 years from selected schools in the Kageshwori-Manahara Municipality of Kathmandu, Nepal. The outcome variables were NCD-related knowledge and Global Dietary Recommendation (GDR) score. The school-based educational intervention was delivered by trained volunteers, with end-line data collected six months post-intervention. Descriptive statistics, including frequency, percentage, mean, and standard deviation (SD), were computed and the paired t-test was used to assess the effectiveness of the intervention.

Results: The average age of participants was 14.15 years, with females comprising more than two-thirds (68.8%). The mean NCD knowledge score significantly improved from 23.75 at baseline to 27.94 at the end-line (mean difference = 3.90; 95% CI: 1.51–6.29; $p = 0.002$). Similarly, the mean NCD protection score increased from 2.99 to 3.85 (mean difference = 0.71; 95% CI: 0.37–1.05; $p < 0.001$). However, the mean NCD risk score slightly increased from 2.71 to 3.16. Furthermore, the mean GDR marginally increased from 9.2 to 9.66, with no statistically significant change observed for dietary quality.

Conclusion: The school-based health education program significantly improved NCD-related knowledge, however, the short duration of the intervention was insufficient to achieve meaningful improvements in dietary habits. Future studies should explore comprehensive interventions coupled with extended follow-up periods to achieve sustainable behavioral changes.

Keywords: Adolescents, Educational intervention, NCD, Nepal, Risk factors

3.15.22 Accelerometer measured movement behaviour and sleeping pattern in semi urban areas of Nepal

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Abstract

Background: National data shows that 7% of people in Nepal are insufficiently active, while the rate is 43.1% for individuals in semi-urban areas. These individuals engage in less leisure-time physical activity (PA) and exhibit high levels of sedentary behaviour, despite moderate to vigorous PA (MVPA) being beneficial for health. The true extent of insufficient PA might be higher due to potential under-reporting in the subjective assessments used in these surveys.

Purpose: We aim to evaluate movement behaviour and sleeping patterns using accelerometers.

Methods: We conducted a cross-sectional descriptive study to investigate the prevalence of insufficient physical activity in the semi-urban areas of Pokhara Metropolitan City, Nepal. Using random sampling, we systematically recruited 436 adults aged 18 to 69 from the study site. We used the wrist-worn Axivity AX3 accelerometer to measure movement behaviour, set at 100 Hz with a dynamic range of $\pm 8g$.

Results: Out of 436 participants, 425 have valid data. Male participants constituted about one-third of the population (30.8%). The mean (SD) minutes of MVPA per day was 29.0 (31.2), with males averaging higher at 37.8 minutes compared to females at 25.0 minutes. More than half of the participants (56.9%) did not meet the WHO recommendation of at least 150 minutes of MVPA per week. The mean reported duration of sleep was 6.6 hours per day, while the actual sleep duration was only 5.6 hours per day, resulting in a sleep efficiency of just 79.9%.

Conclusions: Objectively measured physical activity in this population was surprisingly lower than the national average. Additionally, sleep efficiency was also below normal.

Keywords:

3.15.23 Health literacy and factors associated with type 2 diabetes among people visiting specialised diabetic centers in Rupandehi, Nepal

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Abstract

Introduction: Diabetes is a growing public health challenge in Nepal, exacerbated by rapid urbanisation, sedentary lifestyles, and dietary shifts. Effective management depends on health literacy (HL), which supports informed decision making, treatment adherence and self-care. Limited evidence exists on HL among people with Type 2 Diabetes Mellitus (T2DM) in Nepal. Understanding HL and its determinants is crucial for targeted public health strategies, particularly in urban hub settings like Rupandehi. This study assessed HL and its association with socio-demographic, family-related and health related factors among people with T2DM attending specialized diabetic centers in Rupandehi, Lumbini Province.

Methods: A cross-sectional study was conducted among 298 individuals diagnosed with T2DM for at least six months and receiving care at specialized diabetic centers in Rupandehi. Systematic random sampling was used taking the hospital sampling frame, and data were collected using the Nepali version validated tool, Health Literacy Questionnaire (HLQ). Descriptive statistics, independent t-tests and one-way ANOVA were applied in SPSS Version 21.

Results: The highest health literacy (HL) scores were observed in feeling understood and supported by healthcare providers (Mean = 2.79, SD = 0.50, range: 1–4) and actively engaging with them (Mean = 3.49, SD = 0.75, range: 1–5). The lowest scores were in actively managing health (Mean = 2.60, SD = 0.56, range: 1–4) and understanding what to do (Mean = 3.21, SD = 0.86, range: 1–5), indicating gaps in self-management skills among participants. Significant associations were found for gender ($p < 0.05$), education ($p < 0.001$), occupation ($p < 0.001$), marital status ($p < 0.001$) and monthly income ($p < 0.05$) highlighting disparities in HL.

Conclusion: While people with T2DM engage well with healthcare providers, their limited self-management skills signal a need for targeted HL interventions. Integrating health literacy into local health planning, strengthening community-based education, improving health communication and addressing socio-economic barriers can enhance diabetes care and outcomes.

3.15.24 Barriers and facilitators for engagement of community health workers in prevention and control of non-communicable diseases, Morang, Nepal

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Background: Non-communicable diseases (NCDs) are a major emerging public health problem and the leading cause of death worldwide. Community health workers provide services at the grassroots level and are engaged in delivering preventive and promotive services. This study aims to explore the barriers and facilitators for the engagement of community health workers in the prevention and control of non-communicable diseases.

Methodology: A qualitative study was conducted among 24 community health workers working in health facilities (PHCs, HP, Urban Health centers), 8 public health officers in 4 municipalities and 4 rural municipalities, and 1 chief public health officer in Morang district. Multi-stage sampling technique was adopted to obtain the desired sample size. Data was collected using a semi-structured interview guide and key informant interview guide through face-to-face in-depth interviews and key informant interviews with managers. The collected data was transcribed in detail. Data analysis was done by coding, sorting, and summarizing the information into common themes, and report writing was done.

Results: The findings showed that the barriers to engagement of community health workers in the prevention and control of NCDs include inadequate medicine and supplies, inadequate human resources, budget constraints and lack of advanced technology, lack of follow-up, and non-compliance, insufficient training, inadequate screening, multitasking, lack of promotion and incentives, lack of awareness and satisfaction and facilitators were service availabilities, training opportunities, available technologies job satisfaction, effective supervision and monitoring, collaborative efforts, dedication, and motivation.

Conclusion: The study showed several barriers and facilitators to CHWs' potential engagement in providing NCD-related services. The health system should be strengthened to deliver NCD-related services. The primary healthcare system must effectively integrate CHWs to tackle the increasing burden of non-communicable diseases. Capacity building of community health workers by adopting an integrated approach is required to deliver efficient prevention and control programs in Nepal.

3.15.25 Linking private sector and public health system: NCD service management in Pokhara Metropolitan city

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Abstract

Introduction: The accelerating urbanization in low- and middle-income countries is impacting lives and contributing to non-communicable diseases (NCDs) like diabetes and hypertension. Nepal, to reduce premature mortality from NCDs, adopted the WHO PEN implementation plan. The Nepal Multi-Sectoral Action Plan for Prevention and Control of NCDs emphasizes a whole-of-government and society approach citing the need for public-private partnerships since public sector efforts alone are insufficient. This study explores the feasibility of linking private health facilities with the public health system in managing hypertension and diabetes services in Pokhara Metropolitan City (PMC).

Methodology: This implementation study employs a sequential mixed-method design within the RE-AIM framework. This study involving the need assessment and co-designing phase at 6 public health facilities and 11 pharmacies has identified four key implementation strategies for improving the management of diabetes and hypertension services: strengthening the PMC-health division, training pharmacies in implementing customized PEN protocol, establishing referral mechanisms, and strengthening the capacity of public health facilities. For evaluating the feasibility and effectiveness of the model, quantitative and qualitative data is collected at baseline, midline, endline, and post-endline alongside periodic visits to health facilities throughout.

Preliminary Results: The preliminary intervention results show that pharmacies are appropriately screening, providing health information, and referring clients. Brochures in the local language have been effective in explaining hypertension and diabetes. Clients receiving health information adopting lifestyle changes. Pharmacies have started recording data, screening for hypertension and diabetes cases based on protocol, and using referral slips instead of verbal referrals. A few challenges surrounding time constraints, limited staff, and the client's skepticism regarding sharing personal information have been identified in implementing the model.

Conclusion: The study explores the possibility of linking private pharmacies with public health through a co-designing approach. Successful implementation in a resource-limited setting requires policy support and engagement of the stakeholders.

3.16 Theme: Nutrition and Food Security

3.16.1 Nutritional status and its associated factors among adolescents of public schools in Vyas municipality, Tanahun

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Abstract

Background: Adolescent is a critical growth period in the human lifecycle. Nutrition is an essential component of human life as it provides energy to the body in order to perform functional activities. Nutrition is very important for everyone, but it is

especially important for children because it is directly linked to all aspects of their growth and development. Good nutrition leads to good health of the adolescent.

Methods: A cross-sectional study was conducted in Public schools of Vyas municipality among 313 adolescents (12-16 years of age). Data were collected using pre-tested structured self-administered questionnaire. Data was entered in Epi-data software and transferred into SPSS for analysis. The nutritional status was assessed by anthropometric methods (height, weight). WHO anthroplus Software was used to convert anthropometry data into z-score. Binary logistic regression was applied to identify the factors associated with nutritional status. Ethical approval was taken from Institutional Review Committee of Pokhara University and written informed consent was taken from each participant.

Results: The prevalence of stunting and thinness were found to be 8% and 8.9% respectively. Findings from multivariate logistic regression showed that middle adolescents (AOR= 4.227, 95% CI= 1.423-12.551), roti consumption 4-7 days per week (AOR= 4.554, 95% CI= 1.289-16.089) were associated with stunting. Similarly, milk and milk products consumption 1-3 days per week (AOR= 6.978, 95% CI= 1.965-24.780) was associated with thinness.

Conclusion: Stunting and thinness were common among school adolescents in the study area. Age, father's education, roti consumption per week and means to come school were the factors associated with stunting. Similarly, factors like father's occupation, fish consumption and milk and milk products consumption per week were associated with thinness. Strategies to improve nutritional status of adolescents should be given much attention. Further large-scale research should be conducted for determining the situation all over country.

Keywords: Adolescents, Nutritional status, associated factors, Nepal

3.16.2 A descriptive cross-sectional study on nutritional status and its associated factors among under 5 children in Madhesi Dalit residing in Birgunj metropolitan city

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Abstract

Background: The present burden of malnutrition across the globe and in Nepal is huge making it a public health burden. This study aimed to find out the status of nutrition and factors associated like demographic and economic with the nutritional status among under-5 children in Madhesi Dalit residing in Birgunj Metropolitan City.

Methods: A descriptive cross-sectional study was conducted among 227 under 5 Madhesi Dalit children. Purposive sampling was used to select wards of Birgunj. Face-to-face semi-structured interviews with mothers and anthropometric measurements of 6-59-month-old children were used to collect data. Data entry and analysis were done using IBM SPSS version 20 software. Descriptive statistical analysis was performed as

well as chi-square and Fisher's exact tests to analyze data and assess the association between variables.

Results: This study showed that 95.2% of children were well-nourished and 4.8% were malnourished. It shows that the nutritional status of Madhesi Dalit children of Birgunj Metropolitan City is well-nourished. Factors associated with nutritional status were the age of children (CI= 95%, $\chi^2 = 4.740$, p-value= 0.029 and df= 1) and sex of children (CI= 95%, $\chi^2 = 6.2$, p-value= 0.045 and df= 2). Similarly, factors such as educational status and occupation of parents and economic status of the family, have no significant association.

Conclusions: The study provided evidence of well-nutrition present in children of Birgunj. The study concluded that the age and sex of a child have a significant association with the nutritional status of children.

Keywords: Factors affecting nutritional status, Prevalence of malnutrition, Madhesi Dalit children

3.16.3 Prevalence and associated factors of overweight and obesity among reproductive-aged women (15-49 years) in Ratnanagar municipality, Chitwan district

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Abstract

Background: Overweight and obesity is a rising public health threat both in developed and developing countries including Nepal. Nepal is undergoing rapid urbanization, accompanied by significant changes in lifestyle, dietary practices, and behavioral patterns. This study aimed to explore the prevalence of overweight and obesity and their associated factors among reproductive-age women of Ratnanagar Municipality, Chitwan.

Methodology: A cross-sectional study was conducted in selected wards of Ratnanagar Municipality, Chitwan district. A multistage sampling method was followed for the selection of participants. Face-to-face interview was conducted using a structured questionnaire. Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 25.0 (IBM). Descriptive results were presented using the frequencies, percentages, mean, and standard deviation. Bivariate analysis was performed using Chi-square and bivariate binary logistic regression. The factors associated with the prevalence of overweight and obesity were determined using a multivariate regression analysis.

Results: A total of 318 individuals participated in this study. More than half of the participants (51.2%) were overweight and obese. This study demonstrated that participant's socio-demographic and behavioral characteristics such as age (AOR=0.3, CI: 0.1-0.7), religion (AOR=2.3, CI: 1.2-3.1), ethnicity (AOR=2.3, CI:1.2-4.3), higher education (AOR=2.6 CI:1.8-5.8), family type (AOR=0.4, CI:0.1-0.8) and low physical activity (AOR=3.0, CI: 1.2-7.4) were statistically significant with the prevalence of overweight and obesity.

Conclusion: This study concludes a significant burden of overweight and obesity (51.1%) among reproductive-age women, with socio-demographic, lifestyle, and behavioral factors playing a key role. Factors such as age, religion, education, occupation, physical activity, and screen time were linked to overweight and obesity. The findings highlight the need for targeted interventions to combat obesity, emphasizing the importance of behavioral changes, public health awareness, and community-based campaigns to promote healthy eating, and reduced sedentary behavior.

Keywords: overweight, obesity, reproductive aged-women

3.16.4 Characterizing the microbiomes of Nepali fermented foods: Implications of the kikha microbiome project for health, nutrition, and food security

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Abstract

Background: Nepal has a rich history of fermenting foods, but the microbiomes of these foods and their impact on gut health remain underexplored. In the kikha Microbiome Project, we aim to collect and characterize the microbiomes of over 1,000 Nepali fermented food samples using a multi-omics approach. In a pilot study, 64 samples were analyzed using 16s rRNA and ITS2 sequencing, identifying an interconnected network of approximately 200 bacteria and fungi, including well-known fermenters like Lactic Acid Bacteria (LABs), Bacillales, yeasts, and filamentous fungi, along with microbes whose roles are not yet understood.

Methodology: Diverse samples from traditional and commercial sources were used to isolate microbial strains, which were assessed for in-vitro functional characteristics, including acid tolerance (pH 2.5), bile salt tolerance (0.3%), salt tolerance (6%), antimicrobial activity against E. Coli and Methicillin-resistant S. Aureus (MRSA), and bile salt hydrolase activity.

Results: Over 300 microbial strains, including LABs, Bacillus, and yeasts, were isolated from diverse fermented food types such as achhar, tama, gundruk, jand, mohi, dahi, and sukako saag. Preliminary screening showed that 150 strains were acid-tolerant, 54 demonstrated bile salt hydrolase activity, and 90 exhibited antimicrobial activity. Strains M31, M35, M87, M102, and M105 demonstrated significantly high bile salt hydrolase activity, along with strong resistance to acid, bile, salt, and pathogens.

Conclusion: These findings indicate that Nepali fermented foods harbor microbes with significant probiotic qualities. This research offers a valuable opportunity to develop functional foods incorporating these beneficial microbes to improve health, nutrition, and food security in Nepal.

Keywords: Microbiome, Nepali Fermented Food, Probiotics, Lactic acid bacteria

3.16.5 Exploring bacillus strains from Nepali fermented foods for gut health and food security

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Abstract

Background: Fermented foods are integral to Nepali cuisine, offering unique flavors and potential health benefits. However, the functional properties of microbial communities, particularly *Bacillus* species, in these foods remain underexplored. *Bacillus* species, capable of forming spores, can endure harsh conditions and exhibit antimicrobial activity. This makes them promising probiotics for improving human health, especially in combating malnutrition and food insecurity. The kikha Microbiome Project aims to characterize the microbial diversity of traditional Nepali fermented foods and explore their potential health benefits.

Methodology: We isolated and cultured 42 *Bacillus* strains from a variety of Nepali fermented foods collected in the kikha repository. The isolates were characterized using techniques outlined in Bergey's Manual of Determinative Bacteriology, including Gram staining, endospore staining, and biochemical assays. The antimicrobial activities of the isolates were tested against both Gram-positive and Gram-negative pathogens, such as *Escherichia coli* and methicillin-resistant *Staphylococcus aureus* (MRSA).

Results: Eight *Bacillus* strains exhibited significant antimicrobial activity, with inhibition zones greater than 10 mm against both Gram-positive and Gram-negative bacteria. Notably, isolate P15 demonstrated the highest antimicrobial efficacy, with consistent results in both heated and non-heated cultures, suggesting the presence of heat-stable antimicrobial compounds that could be further explored.

Conclusion: The *Bacillus* strains isolated from Nepali fermented foods show promising antimicrobial properties and metabolic versatility. These strains may help improve gut health, outcompete harmful pathogens, and provide a sustainable approach to enhancing the nutritional quality of fermented foods. Further investigation into heat-stable compounds could lead to the development of novel probiotics, contributing to malnutrition prevention and food security.

Keywords: *Bacillus*, Antimicrobial activity, Probiotics, Gut health, Malnutrition

3.16.6 Maternal employment and child health and development in the first five years of life in Dhulikhel municipality: A mixed method study

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Abstract

Background: Malnutrition affects 43.0% of children under five (U-5) in Nepal, influencing their health, growth, development, and academic performance. Considering the dual role of women in earning a living and caring for others, the relationship between maternal employment and child nutritional outcomes is crucial. This study aims to assess the impact of maternal employment on the nutritional and health status of children U-5 in Dhulikhel Municipality.

Methodology: We conducted a community-based mixed-method, cross-sectional study involving 336 participants. Quantitative data were collected through face-to-face interviews, and qualitative data were gathered through eight in-depth interviews. Nepali-translated questionnaires were used, and statistical analysis was performed using multivariate logistic regression models, controlling for potential confounders. Statistical analysis was conducted using STATA-13, while qualitative data were analyzed using Taguette.

Results: Results indicated a higher incidence of overweight among children of unemployed mothers (Crude OR: 0.4, 95% CI: 0.2 - 0.9, p-value: 0.03; Adjusted OR: 0.4, 95% CI: 0.2 - 0.9, p-value: 0.03). However, there was no significant differences in stunting, wasting, or underweight between children of employed and unemployed mothers. This study shows that children of non-working mothers are more likely to be overweight, even though these mothers understand health and nutrition well. Qualitative findings suggest that the sedentary lifestyles and the extra time unemployed mothers spend with their children contribute to weight gain. Interventions promoting nutritional education (healthy feeding practices) and diverse, affordable, and accessible food options over junk foods should be designed for families, particularly those with unemployed mothers.

Conclusion: Creating a supportive environment for employed mothers, including affordable childcare services, could help address the challenges associated with balancing work and childcare responsibilities.

3.16.7 Central obesity among Tharu women of reproductive age in Joshipur rural municipality, Kailali district

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Abstract

Background: Malnutrition, including underweight, overweight, obesity, and micronutrient deficiencies, is a major public health concern, especially in developing countries like Nepal, facing a rising triple burden. Tharu women of reproductive age in the Terai region are highly vulnerable due to low socioeconomic status, poor decision-making power, food insecurity, and inadequate dietary intake. This study aimed to assess the nutritional status and associated factors among Tharu women in Joshipur Rural Municipality, highlighting the challenges faced by disadvantaged communities.

Methodology: This community-based cross-sectional study was conducted in 4 randomly selected wards of Joshipur Rural Municipality, Kailali. A total of 207 samples were estimated using Cochran's formula, which was drawn following a systematic random sampling in July 2022. Data was collected through face-to-face interviews and anthropometric measurements to assess waist-to-hip ratio, weight, and height. Minimum dietary diversity and household Food Insecurity were also evaluated. The Chi-square test was used to identify the association between variables at a 5% level of significance.

Results: A majority of women (67.1%) had central obesity (waist-to-hip ratio ≥ 0.85), while 12.6% were underweight, 22.2% pre-obese, and 2.9% were obese. About 72.9% had a Minimum Dietary Diversity Score, and 27.1% had a Low Dietary Diversity Score, consuming fewer than five food types. Food security was reported in 71.5% of households, while mild, moderate, and severe food insecurity were 13%, 7.7%, and 7.7%, respectively. Central obesity was significantly associated with education status ($p=0.048$), employment status ($p=0.01$), and alcohol consumption ($p=0.024$) among Tharu women.

Conclusion: The prevalence of overweight and obesity was found to be lower in this population as compared to NDHS's general prevalence. However, a high prevalence of central obesity was observed despite the majority of Tharu women having diverse consumption of food groups. Promoting nutritional education, addressing alcohol consumption, and enhancing dietary diversity through targeted programs are crucial.

3.16.8 Nutritional status and its associated factors in school-going adolescent girls:

Cross-sectional study

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Abstract

Background: Malnutrition, encompassing underweight, overweight/obesity, and anemia, remains a significant public health issue among teenage girls, especially in low- and middle-income nations such as Nepal. This study aim to determine the prevalence and risk factors for underweight, overweight/obesity, and anemia among adolescent girls attending school in Annapurna Rural Municipality, Kaski, Nepal.

Methodology: A school-based cross-sectional study was conducted among 501 adolescent girls aged 10 to 19 years in public schools of Annapurna Rural Municipality, Kaski, Nepal using a census approach. Data were collected through face-to-face interviews using a semi-structured questionnaire, along with anthropometric measurements and blood sample collection to assess iron deficiency anemia. Serum iron, hemoglobin (Hb), and ferritin levels were measured to evaluate iron deficiency anemia. Nutritional status was assessed using the WHO Anthro-Plus software (Version 1.0.4) to calculate BMI-for-age z-scores. Descriptive statistics were used to summarize the data, while inferential statistical methods were applied to examine associations between nutritional status and socio-demographic, dietary, and health-related factors.

Results: The prevalence of abnormal nutritional status was 20.4% in the 10-14 age group and 17.2% in the 15-19 age group, with no significant association between age and nutritional status ($p=0.355$). Ethnicity and family type were significantly associated with nutritional status, with disadvantaged ethnic groups and those from joint/extended families showing higher rates of abnormal nutritional status ($p=0.044$ and $p=0.010$, respectively). Maternal education was significantly associated with iron deficiency ($p=0.011$), but not with overall nutritional status. Hemoglobin levels were normal in 97.1% of participants, while 67.6% had low ferritin levels, indicating iron deficiency.

Conclusion: This study noted a concerning prevalence of malnutrition and anemia among adolescent girls in rural Nepal. To address these concerns, priority school-based nutrition interventions and anemia prevention initiatives. Future studies must focus on longitudinal trends and intervention effectiveness.

3.16.9 Complementary feeding practices and nutritional status among 6-23 months' children in Bajura district

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Abstract

Introduction: Complementary feeding practice is the timely initiation of soft, semi-solid, and solid food to six months and above children while continuing breast milk for long-term health impact. Nutritional status is a body condition determined by the intake of a balanced diet. The primary objective of this study is to explore complementary

feeding practices and measure the nutritional status among 6- to 23-month-old children in the Bajura district.

Methodology: A cross-sectional analytical study. The study area includes one rural municipality (Khaptad Chhededaha) and three municipalities (Badimalika, Budiganga, and Tribeni) of Bajura district. The sample size was 380, with a prevalence of 57% at 5% margin of error. The study used a semi-structured questionnaire. It used Shakir's tape, a stadiometer, and a digital weighing machine for Anthropometrics. The study used IBM SPSS Statistics version 20 and WHO-Anthro for descriptive analysis. The study received ethical approval from NHRC (# 485/2018) and written consent from each participant.

Result: The study found stunting a serious (56.6%) problem in Bajura, similar to the FY 2011/2012 report. In the last seven days, only 38.9% and 23.7% had meat and eggs. The NDHS reports from 2001 to 2016/3 found stunting higher among poor households and children from the hill region. Inadequate food, poor socio-economic conditions, large family size, and early marriage⁴ are barriers to poor nutritional status, as observed in the study.

Conclusion: The majority of children consumed carbohydrate-rich foods. Parents hardly included protein-rich (meat, eggs, and milk products) in their children's daily diet. The poor socioeconomic and traditional agriculture practices were enabling factors for poor nutritional status, especially stunting followed by being underweight and wasting.

Keywords: Complementary Feeding Practices, Nutritional Status, Children, Foods

3.17 Theme: Occupational Health and Safety

3.17.1 Understanding burnout syndrome and resilience strategies among Kathmandu valley traffic police: A mixed-methods analysis

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Abstract

Background: Kathmandu Valley's traffic has surged by 115% since 2015, causing increased stress among traffic police, and leading to burnout syndrome. This study assesses burnout levels, its contributing factors, and resilience strategies while qualitatively exploring officers' lived experiences and systemic challenges in implementing coping mechanisms.

Methods: This study was based on a mixed-method design of quantitative and qualitative approaches. A quantitative study was conducted among 146 traffic police officers using quota sampling, from 07/09/2024 to 07/15/2024. Quantitative data on burnout, sleep quality, job satisfaction, and resilience were collected via structured questionnaires. Qualitative data were gathered through 3 key informant interviews with

a Senior Superintendent of Police, an Assistant Sub-Inspector, and a psychiatrist. Data collection occurred on 14-15/07/2024. Quantitative data were analyzed using SPSS 25 (chi-square tests), while qualitative data underwent thematic analysis.

Results: Moderate burnout was prevalent. Poor sleep, heavy workloads, and limited resilience knowledge were key factors. Further, this study portrayed mental exhaustion among senior officers while heightened physical exhaustion among the juniors.

Conclusions: Awareness of burnout was lacking. Effective resilience strategies require personal, governmental, and public support.

Keywords: Burnout syndrome, Traffic police officers, Government of Nepal, resilience strategies.

3.17.2 Quality of sleep and associated factors among night-shift healthcare workers in Lamjung district

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Abstract

Background: Sleep quality is a crucial factor affecting the well-being and efficiency of healthcare workers, particularly those working night shifts. Disruptions in sleep due to demanding work schedules can lead to stress, impaired performance, and decreased overall health. This study assesses sleep quality and its associated factors among night-shift healthcare workers in Lamjung District, addressing a research gap in Nepal.

Methods: A cross-sectional study employing a census sampling method was conducted among all 117 night-shift healthcare workers in the government and community hospitals of Lamjung district. Data was collected using Pittsburgh Sleep Quality Index (PSQI), Perceived Stress Scale (PSS), socio-demographic and hospital-related factors. Chi-square tests were used to examine associations between sleep quality and key variables.

Results: Poor sleep quality was found in 51.3% of participants and good sleep quality in 48.7%, based on the PSQI cutoff score, where a global score above 5 indicates poor sleep quality. A significant association was found between perceived stress and sleep quality ($p < 0.01$), with 73.3% of those experiencing moderate stress reporting poor sleep. Hospital type also played a role, as healthcare workers in government hospitals had better sleep quality (54.5%) than those in community hospitals (16.7%) ($p < 0.01$). Additionally, those working fewer than 42 hours per week had significantly better sleep quality than those exceeding this threshold ($p < 0.01$). However, no significant association was found between sleep quality and socio demographic variables.

Conclusion: These findings highlight the need for institutional interventions, including stress management programs, reducing the working hours per week, shift schedule revisions, and mandatory breaks to improve sleep health and work efficiency. Future research should explore longitudinal assessments and targeted interventions to enhance healthcare workers' well-being.

Keywords: Sleep Quality, Night Shift, Healthcare Workers, PSQI, Perceived Stress

3.17.3 Knowledge on occupational health hazards and safety practices among the hydropower construction workers in Nepal: A cross-sectional study

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Abstract

Background: In recent years, the construction sector in Nepal has expanded considerably, accompanied by various occupational health risks due to inadequate knowledge and safety protocols. This study evaluated the knowledge and safety practices of construction workers currently working at a hydropower construction site in Tanahun district.

Methodology: A cross-sectional study was carried out at the Tanahun hydropower construction site in Tanahun among 316 participants by using simple random sampling in 2024. Data was collected through face-to-face interview by using the structured questionnaire. The descriptive and inferential statistics were performed through SPSS version 20. Binary logistic regression was used to assess the association between variables, where variables with variance inflation factor less than 2 were included in multivariable analysis. The variables with p-values < 0.05 considered statistically significant at 95% confidence interval.

Results: The study showed that 65% and 64% of the participants exhibited adequate knowledge and good practice of safety protocols, respectively. The prevalence of various health issues such as skin infections (27.8%), musculoskeletal problems (21.5%) and electric shocks (14.6%), were notably high among workers. Adequate knowledge and good practices were significantly correlated with a higher level of educational attainment (AOR=4.729, 95% CI, 1.784- 12.408, 0.002), and an absence of a history of musculoskeletal disorders (AOR=9.59, 95%, CI, 3.329-27.622, 0.001). Furthermore, adequate knowledge was related to extended working hours (AOR=2.951, 95% CI, 1.28-6.806, 0.011) whereas good practices were related to reduced working hours (AOR = 1.86, 95% CI, 1.628-3.409, 0.037) and married marital status (AOR=16.406, 95%, CI, 4.273-62.988, 0.001).

Conclusion: The study reveals that only two-thirds of participants in hydropower construction have adequate knowledge and safety practices, emphasizing the need for special attention to employees with musculoskeletal issues, longer shifts and lower education in order to safeguard the health of workforce.

3.17.4 Knowledge on disaster risk reduction among secondary level students of public schools of Pokhara metropolitan city of Nepal

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Abstract

Background: Nepal's complicated topography and tectonic activity leads to extreme vulnerability to earthquakes, floods and landslides which especially poses significant risks to its population, especially school children. This study aims to identify the knowledge of Disaster Risk Reduction (DRR) among secondary school students in Pokhara Metropolitan, Nepal. Despite their susceptibility, there is limited understanding of DRR knowledge among students, who are key in disseminating preparedness information within communities.

Methods: A cross-sectional study among 342 students from grades 9 and 10 across six public schools of Pokhara Metropolitan city were involved. A Stratified random sampling was used. Data were gathered through a standardized questionnaire designed to assess students' disaster-related knowledge, preparedness, adaptation, and risk perception related to DRR issues. The quantitative methods including both descriptive and inferential statistics were used.

Results: Most students (92.7%) recognized disasters as unforeseen events requiring assistance. However, significant gaps were identified in disaster preparedness and adaptation knowledge, with 42.1% of students unaware of disaster-related facts. While 86.8% had experienced disasters, predominantly earthquakes (90.2%), no significant differences were observed in DRR knowledge between grades. Significant associations were found between DRR knowledge and institutional sources of information, such as teachers and the Nepal Junior Red Cross ($p = 0.014$), as well as prior disaster experiences ($p = 0.045$). Positive risk perception was strongly associated with information from digital media ($p < 0.001$) and institutional education ($p < 0.000$).

Conclusion: This study highlights a critical knowledge gap in DRR among students in disaster-prone regions. Findings underscore the urgency of integrating DRR education into school curricula, complemented by practical training, drills, and collaboration with disaster management organizations to enhance preparedness and community resilience.

Keywords: Disaster Risk Reduction, Knowledge, Disaster Preparedness, Risk Perception, Secondary School Students

3.17.5 Prevalence and factors associated with musculoskeletal disorders among school teachers in Nepal

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Abstract

Background: Musculoskeletal Disorders (msds) are significant health concerns among working population worldwide. This study aims to assess the prevalence of musculoskeletal disorders and their associated factors among school teachers in Nepal. **Methodology:** A cross-sectional study was conducted among 309 school teachers in Baglung Municipality, Nepal. The standardized Nordic Musculoskeletal Questionnaire was used to assess prevalence of msds. Pearson's chi-square test and multivariable logistic regression analysis was performed to determine factors associated with msds at the 5 % level of significance.

Results: The prevalence of spinal musculoskeletal disorders (SMSD), upper musculoskeletal disorders (UMSD), and lower musculoskeletal disorders (LMSD) was found to be 58.9%, 22.3% and 41.4% respectively. SMSD was found to be associated with higher age (>30 years) (aor: 2.234; 95% CI: 1.017-4.90), female gender (aor: 1.694; 95% CI: 1.040-2.819) and uncomfortable standing (aor: 2.632; 95% CI: 1.431-4.842). Being female (aor: 2.632; 95% CI: 1.431-4.842) and overweight (aor: 2.048; 95% CI: 1.132-3.706) were associated with UMSD. LMSD was associated to sitting on wooden chair (aor: 2.855; 95% CI: 1.018-8.001), uncomfortable chairs (aor: 1.961; 95% CI: 1.121-3.431) and uncomfortable standing (aor: 2.984; 95% CI: 1.762-5.055).

Conclusion: The study revealed the concerning prevalence of msds among Nepali school teachers. These findings highlight the need for effective prevention and intervention strategies, including ergonomic training, regular breaks, proper posture education, early medical assessments, physical therapy, and workplace modifications to reduce the risk of msds

Keywords: Musculoskeletal disorders, Nordic questionnaire, School Teachers

3.17.6 Prevalence and risk factors of voice problems among school teachers in Madhyapur-Thimi municipality, Bhaktapur, Nepal

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Abstract

Background: Voice is the audible sound which involves the interaction of several characteristics such as pitch, loudness and quality. Voice problem known as dysphonia is the disability due to deviation in the structure or operation of the vocal mechanism. Teachers are at high risk for developing voice problem as they use it more than that of other professions. Teachers' voice is the most precious instrument and the demand of it is high which might develop voice problem easier in them.

Objective: To assess the prevalence and risk factors of voice problems among school teachers in Madhyapur-Thimi Municipality.

Methodology: Descriptive cross-sectional study was conducted among 211 school teachers in Madhyapur Thimi Municipality. Quantitative method was used. Both government and private schools were involved in this study where part time teachers were excluded. The pretest was done among 21 teachers in Shankhadhar Memorial School. Stratified sampling based on the proportionate allocation techniques was used and Voice Handicap Index questionnaire was used as a survey tool.

Results: A total of 211 teachers were enrolled in the study. The mean age of the participants was 36.96. Most of the participants 143 (67.8%) were female and from the private schools. Among those having some degree of voice problem, participants were reported to have more mild voice problem. Years of experience, number of students in class, teaching hour/day, noise level in the classroom lesson, tobacco use, regular exercise, tonsil problem, thyroid disease were associated with the various degree of voice problem.

Conclusion: This shows the prevalence of voice problem and understanding of voice problem among teachers emphasizing various factors involved in increasing its risk. The factors involves both modifiable and non-modifiable factors. Some modifiable factors involve number of students in the class, tobacco use, and regular exercise and so on.

Keywords: Voice problems, Teachers, Prevalence, Risk Factors

3.17.7 Prevalence and factors associated with musculoskeletal disorders among handloom weavers in Myanglung municipality of Terhathum district

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Abstract

Background: Musculoskeletal Disorders (MSDs) are one of the most common work-related issues faced by workers. Handloom weaving, a traditional practice, is associated with a high prevalence of work related MSDs among the handloom weavers. This study aimed to assess the prevalence and associated factors of MSDs among handloom weavers in Myanglung Municipality, Tehrathum District.

Methodology: A cross-sectional study was conducted among the handloom weavers of Myanglung Municipality of Tehrathum District. Standardized Nordic questionnaire was used to assess the prevalence of MSDs among the handloom weavers. Chi-square test was used to examine associations between the variables, and statistically significant variables were further analyzed using logistic regression analysis.

Results: The overall prevalence of musculoskeletal disorders (MSDs) among handloom weavers was 92.5%. MSDs were most commonly reported in the lower back (81.1%), followed by the shoulder (64.5%), while the least reported cases were in the upper back (10.1%) and hips/thighs (10.5%). Workers who were female (AOR = 4.267, CI: 1.077–16.908), relied on handloom weaving as their main source of income (AOR = 2.197, CI: 1.146–4.210), belonged to the Dalit or Janajati ethnic groups (AOR = 2.374, CI: 1.039–5.426), worked for more than six hours a day (AOR = 3.360, CI: 1.341–8.415), had more than seven years of work experience (AOR = 3.207, CI: 1.525–6.743), or were physically active for more than 60 minutes a day (AOR = 3.309, CI: 1.262–8.677) were more likely to develop MSDs.

Conclusion: A high prevalence of MSDs was found among handloom weavers, particularly in the lower back, shoulders, and knees, highlighting the need for targeted ergonomic interventions.

Keywords: Handloom Weavers, Musculoskeletal Disorder, Nepal, Occupational Health

3.18 Theme: Oral Health

3.18.1 Prevalence of dentinal hypersensitivity among dental patients visiting tertiary care center: An observational study

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Abstract

Introduction: Dentinal hypersensitivity is a widespread condition characterized by a brief, sharp pain arising from exposed dentin in response to external stimuli, which cannot be linked to any other dental conditions. This study aimed to estimate the prevalence of dentinal hypersensitivity among patients attending a tertiary health care center.

Methods: An observational cross-section study was conducted, involving 376 patients aged 10-70 years who visited a tertiary care center. Convenience sampling was employed to select participants, and the prevalence of dentinal hypersensitivity was assessed through a questionnaire. Data were collected from the Department of Oral Medicine and Radiology after obtaining ethical approval Institutional Review

Committee (Reference number: 385 (6-11) E2 079/80). The analysis was performed using Microsoft Excel, and descriptive statistics were reported.

Results: There were 376 patients in the study and the prevalence of dentin hypersensitivity was a 236 (62.77%; CI 95%: 57.66%-67.67%). Among those diagnosed, 138 (73.02%) were male, and 98 (52.41%) were female. The age-specific prevalence was found to be 30 (50.85%) in patients aged 10-19 years, 73 (63.48%) in those aged 20-29 years, 42 (53.16%) in patients aged 30-39 years, 23 (51.11%) in those aged 40-49 years.

Conclusion: This study identified a high prevalence of dentin hypersensitivity among the patient population, with variations observed across different age and sex groups.

3.19 Theme: Pharmaceuticals and Access to Medicines

3.19.1 Knowledge attitude and practice of self-medication among undergraduate nursing students of Purbanchal University affiliated colleges in Kathmandu district

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Abstract

Background: Paederus dermatitis, a toxin-mediated skin condition caused by rove beetles (Paederus) species, is increasingly reported in Nepal, with emerging evidence linking its rising incidence to climate change. Warmer, wetter rainy seasons create favorable breeding conditions for these beetles, heightening exposure risks in rural agricultural communities. However, diagnosis remains challenging in remote areas lacking dermatological services. Tele dermatology has the potential to bridge this gap, yet its effectiveness for Paederus dermatitis remains underexplored.

Objectives: To analyze the clinical profile, management outcomes, and role of tele dermatology in diagnosing Paederus dermatitis in rural Nepal.

Methods: A retrospective cross-sectional study of 54 patients diagnosed via tele dermatology at Dhulikhel Hospital (June–August 2024). Data included demographics, symptoms, lesion characteristics, and treatment. Statistical analysis assessed correlations between variables. Ethical approval was obtained from Kathmandu University's Institutional Review Committee (Ref: 289/24).

Results: Participants (mean age: 28.4±6.6 years; 59.26% male) primarily presented with itching and burning (35.2%), pain (24.1%), and linear erythematous plaques (42.6%). Most cases occurred in Sindhuli (22.6%) and farming communities (16.67%). Only 20.4% reported insect contact. Treatment with topical steroids resolved symptoms in 94.4% of cases, with improvement within 5.98±0.84 days. Symptom duration (mean: 3.43±1.59 days) showed no significant correlation with age ($r=0.078$, $p=0.564$) or lesion count ($r=0.040$, $p=0.744$). Regression analysis confirmed no association between age/lesion count and symptom duration ($p>0.05$).

Conclusion: Tele dermatology effectively addresses Paederus dermatitis in climate-vulnerable rural Nepal, enabling prompt diagnosis and low-cost management. The surge in cases, likely exacerbated by climate-driven beetle proliferation, underscores the need for integrating telemedicine with community education on prevention. Tele dermatology effectively bridges diagnostic gaps for Paederus dermatitis in rural Nepal, enabling timely management. The condition's self-limiting nature and lack of direct insect contact reports underscore the need for community education on preventive measures. Expanding tele dermatology could transform care for other skin conditions in underserved regions.

3.20 Theme: Sexual and Reproductive Health and Rights

3.20.1 Knowledge on uterine prolapse among the married women in Banepa municipality, Kavrepalanchowk

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Abstract

Background: Uterine prolapse is a prevalent issue among women, particularly in low- and middle-income countries like Nepal, significantly impacting their quality of life. Despite its impact, there is a lack of comprehensive knowledge and awareness about this condition among the affected population, leading to delayed interventions and suboptimal healthcare-seeking behaviors. This study aimed to assess the knowledge about uterine prolapse among married women of reproductive age group in Banepa, Kavrepalanchowk.

Methods: A cross-sectional study was conducted in Banepa Municipality, Nepal, from July to September 2019 after obtaining ethical approval from the Chitwan Medical College Institutional Review Committee. Face-to-face interviews with a total of 251 married women of the reproductive age group were done using a semi-structured questionnaire. Descriptive statistics, Chi-square tests, and multivariate logistic regression models were performed.

Results: The study revealed that among all the respondents 86.3% had heard about uterine prolapse, with 42.5% demonstrating satisfactory knowledge. Religious affiliation, education, average monthly income of the family and prime source of knowledge on uterine prolapse were found to be significantly associated in bivariate logistic regression while taking them to the multivariate analysis education status (AOR=6.342, p=0.010) and religious affiliation (AOR=6.138, p=0.003) were found significantly influencing the knowledge level.

Conclusions: The study revealed significant knowledge gaps on uterine prolapse among married women in Banepa Municipality, Nepal, highlighting the imperative for targeted educational interventions. Socioeconomic factors and healthcare access influence awareness, emphasizing the need for culturally sensitive initiatives.

3.20.2 Prevalence and associated factors of child maltreatment at home among secondary school students in Pokhara metropolitan, Nepal

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Abstract

Background: Child maltreatment is a significant public health issue that is often neglected, underreported, and inadequately addressed, especially in resource-limited settings like Nepal. While global data highlight its prevalence, studies in Nepal remain scarce. This study aimed to assess the prevalence and associated factors of child maltreatment at home among secondary school students in Pokhara Metropolitan, which was chosen for its relevance to my undergraduate thesis at Pokhara University and to ensure timely completion. Building on prior research in another metropolitan city in Nepal, this study aimed to provide insights into child maltreatment in a large urban context like Pokhara. A cross-sectional study design was utilized, sampling 443 grade 9 and 10 students through multistage sampling. 12 wards were randomly selected from the 33 in Pokhara Metropolitan. From each ward, one public and one private school were chosen randomly, and students from grades 9 and 10 were randomly selected from these schools. Data were collected using the structured ICAST-C tool through a self-administered method and analyzed using SPSS. Descriptive and inferential statistics were employed. Results revealed psychological abuse as the most prevalent form (within 1 year: 68.8%, lifetime: 72.5%), whereas sexual abuse was the least reported (within 1 year: 14.1%, lifetime: 18.1%) with gender, religion, and family factors as significant predictors. A key policy implication is the need to strengthen family-oriented counseling programs to mitigate risk. Logistic regression analysis indicated higher exposure to violence among girls (Lifetime: aor 1.647, 95% CI 1.109–2.445; within 1 year: aor 1.562, 95% CI 1.048–2.328) and higher risk of physical abuse in students of non-Hindu religions (Lifetime: aor 2.022, 95% CI 1.041–3.926). This study underscores the urgent need for implementing school-based counseling services, community awareness campaigns, and child protection mechanisms to address child maltreatment and its determinants in Nepal.

Keywords: Child maltreatment, Cross-sectional, ICAST, Prevalence, Neglect

3.20.3 Menstrual hygiene practice among adolescents at Maharshi School Samakhushi, Kathmandu

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Abstract

Background: Menstruation is referred to as the cyclic process in which the uterus sheds blood and tissues (lining of uterus and remnants of unfertilized eggs) through the vagina. Even though menstruation is a natural process, it is associated with misconceptions, malpractice and challenges among girls in developing countries. The objective of the study was to assess practice regarding menstrual hygiene among the adolescents.

Method: This cross-sectional descriptive study was conducted on 11th Mangsir 2080 at Maharshi School Samakhushi, Kathmandu. This study was done among 70 students from grade 7, 8 and 9. Self-administered, semi-structured questionnaire was used to obtain information from school students. Descriptive analysis was done to analyze the practice of adolescents on menstrual hygiene using SPSS.

Results: The result of the study revealed, out of 67 respondents, all of them used disposable sanitary pads as absorbent. As for frequency of changing absorbents, the majority of them i.e., 58(86.57%) changes absorbent in every 4-6 hours and majority of them 64(95.52%) has good hand hygiene practice.

Discussion: In this study, the mean age of menarche is 12.09 whereas in a study conducted in Kalikot, the mean age at menarche was 14 years. Furthermore, in this study, the majority of respondents follow traditional practices as supported by the study conducted by Singh N, et. Al. Which revealed that, the majority of respondents were not allowed to enter the kitchen while all of them were restricted to go to temples.

Conclusions: This study reveals that the majority of respondents has satisfactory hygiene practice during menstruation but traditional practices still persist. However, it is important to provide the students with classes on proper menstrual hygiene practice to prevent from the consequences such as infections, pelvic pain.

3.20.4 Prevalence of sexual harassment and its associated factors among adolescent school girls of Pokhara Metropolitan

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Abstract

Introduction: Any unwanted sexual act or behavior that interferes with the student's life is Sexual Harassment. It can be manifested in three ways: verbal, nonverbal and

physical. This study aims to explore prevalence of sexual harassment and factors associated with it among the adolescent school girls of Pokhara Metropolitan.

Methodology: A cross-sectional study was conducted among 400 adolescent school girls from private schools in Pokhara Metropolitan. The sampling technique used was multistage sampling technique. One-third of Pokhara Metropolitan's wards were randomly selected, followed by the random selection of one school from each chosen ward. Within each selected school, classes were also chosen randomly. Semi-structured questionnaire and self-administration technique was used for data collection. Chi-square test was performed to assess the association between independent variables and sexual harassment. Ethical approval was obtained from IRC of Pokhara University and the education section of Pokhara Metropolitan, with permission granted by each constituent school. Written informed consent was obtained from participants and their parents before data collection.

Results: The lifetime experience of sexual harassment among adolescent girls was found to be 57.8%. Non-verbal harassment was experienced by 88.7% of the girls followed by verbal (89.2%) and physical harassment (52.3%). In public places, 46.8% of girls were harassed followed by 30.7% of harassment in public transportation. The most common perpetrators were strangers (51.9%). Prevalence of sexual harassment was associated with education status, father's occupation and living arrangement of participants ($p < 0.05$).

Conclusion: More than half of the participants were sexually harassed. Non-verbal harassment was the most common form of harassment. The majority of harassers were strangers, and the majority of the incidents took place in public areas. Hence, certain programs need to be conducted in different areas to reduce sexual harassment among adolescent girls.

Keywords: Sexual Harassment, Adolescent girls, associated factors, Prevalence, Nepal

3.20.5 Sexual and Reproductive Health (SRH) utilization among adolescents of pokhara, Nepal: Findings from cross-sectional study

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Abstract

Background: Adolescence is a critical phase marked by limited knowledge of safe sexual practices, exposing young people to risks such as sexually transmitted infections and unplanned pregnancies. Despite the importance of SRH services, utilization among adolescents in Nepal remains low. This study examines the use of SRH services and associated factors among adolescents in Pokhara Metropolitan City (PMC).

Methods: A community-based cross-sectional study was conducted among 240 adolescents aged 15-19 years in Pokhara Metropolitan. Study participants were selected using a multi-stage sampling technique. Data were collected via a semi-structured, self-

administered questionnaire. Descriptive statistics (frequency, percentage, mean, standard deviation) and chi-square tests were used to analyze factors associated with SRH service utilization.

Results: The average age of participants was 16 years, with slightly more males (50.4%). While 40% of participants had adequate knowledge of SRH, only 26.7% had used SRH services in the past year. Factors significantly associated with service utilization included age ($p < 0.001$), gender ($p = 0.001$), discussion with parents about SRH ($p < 0.001$), sexual activity history ($p < 0.001$), community perception ($p < 0.001$), participation in SRH programs ($p < 0.001$), and ward-level access to SRH services ($p = 0.002$).

Conclusion: SRH service utilization among adolescents is low, with only one in four using such services. Improving parental discussions, promoting adolescent participation in SRH programs, addressing negative community perceptions, and enhancing access to SRH services at the ward level could improve utilization.

3.20.6 I lost my family and my household; that can't just be a mistreatment: A qualitative study on HIV stigma in Nepal

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Abstract

HIV stigma refers to unreasonable or unfavorable beliefs, acts, and attitude towards People Living with HIV or at risk for the virus. HIV stigma drives acts of discrimination in all sectors of society. HIV and discrimination limit access to services, hindering HIV response at every level. This qualitative study was done to explore stigma experienced by People Living with HIV in Kathmandu district. Face-to-face in-depth interviews were conducted among 26 respondents, 16 women and 14 men living with HIV, using semi-structured questionnaires. The data was transcribed, translated, converted to text file, and uploaded to RQDA of EZR software for further coding and analysis. Three themes were generated: individual, community and interpersonal, and structural stigma factors. Additionally, recommendations regarding improving services for PLHIV were also taken from the respondents. First, individual stigma factors showed emotional challenges during the initial phase of diagnosis. Disclosure of HIV status was rarely extended beyond their family. Secondly, community stigma was more often perceived than directly experienced. Participants who were diagnosed for a longer period commonly reported an improvement in community attitudes regarding HIV, with increased family member acceptance, including relatives previously exhibiting discriminatory behavior. Experiences of discrimination in healthcare settings were a shared experience among many PLHIV. One form of systemic stigma that was commonly reported was the travel ban imposed by some countries on them. There were

also concerns over the sustainability of free medication if international funding were to cease, raising questions of the long-term viability of such programs. Lastly, it wasn't possible to address all aspects of structural stigma factors within the study.

3.20.7 Knowledge, screening and reporting practices of healthcare workers towards gender-based violence cases.

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Abstract

Background: Gender-based violence (GBV) is a global public health issue with adverse effects on the health and well-being of women. Healthcare professionals play a major role in determining survivors' access to justice and health outcomes. There is no sufficient data regarding the knowledge, screening, and reporting practices of healthcare workers regarding GBV. Thus, this study aims to assess the knowledge, perception, screening, and reporting practices of healthcare providers (hcps) towards gender-based violence in tertiary care hospitals in Nepal.

Methods: This is a cross-sectional study conducted among health care providers (hcps), at Dhulikhel Hospital, Kathmandu University Hospital, from January 1, 2022, to January 1, 2023. A total of 232 healthcare workers aged 18 years or older were recruited for the study using stratified random sampling. Data were collected through a self-developed questionnaire, and associations between variables were analyzed using the chi-square test and the Mann-Whitney U test.

Result: The findings of this study revealed most of the healthcare providers knew the basic GBV terminology "gender-based violence" (94.8%) and "one-stop crisis management center" (74.6%), while fewer people understood the critical aspect like prioritizing medical needs over the medicolegal examination. Only 30.2% of participants had screened for GBV, mostly due to suspicion (40.9%) with only 5.6% screening often. Furthermore, (50.4%) had never reported GBV cases, and only a small fraction reported voluntarily (9.9%).

Conclusion: This study identified significant gaps in the understanding of GBV and OCMC, along with inadequate screening and reporting practices among healthcare workers in Nepal. This highlights the need for regular targeted training on GBV management and the implementation of clearer guidelines and ongoing supervision to improve provider's skills in GBV management.

3.20.8 Prevalence of intimate partner violence and its associated factors among health workers of Kanchapur district, Sudurpaschim Province, Nepal

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Abstract

Introduction: Intimate Partner Violence (IPV) involves physical, sexual, and psychological harm perpetrated by partners, predominantly affecting women but also impacting men. While IPV is globally recognized as a public health concern, research and preventive strategies have mainly focused on women. Factors contributing to IPV risk include education levels, alcohol consumption, economic disparities, and societal norms. Although healthcare systems play crucial role in addressing IPV, healthcare professionals themselves are vulnerable. Prevention efforts, including awareness campaigns and legal reforms, aim to challenge societal norms and empower all genders. The WHO stresses engaging men in primary prevention strategies to effectively combat IPV.

Methods: A cross-sectional study, utilizing a simple random sampling technique, was conducted among 184 health workers at local health institutions in Kanchapur. Data were collected using a semi-structured questionnaire for quantitative data and in-depth interview for qualitative data. Analysis involved SPSS for descriptive and inferential statistics.

Result: Among the 184 participants, 8.2% reported experiencing IPV, where prevalence was higher among women with 6% compared to men with 2.2%. Instances of physical, sexual, emotional violence and controlling behavior were reported by 3.8%, 3.2%, 3.8% and 4.3% of health workers, respectively. Significant association was found between IPV and factors like age, respondents' living arrangements and their partners' substance or tobacco use.

Discussion: The study in Kanchapur district revealed a significant prevalence of IPV among health sector employees, particularly impacting females. This gender disparity emphasizes the need for targeted interventions. Influential factors identified include age, marital status, partner's substance addiction, and family structure. Tailored interventions within the healthcare sector are necessary, considering specific demographics when assessing IPV prevalence. Addressing IPV among health professionals is vital for their well-being and the quality of healthcare services. Further research and targeted interventions are essential to mitigate IPV.

Keywords: Prevalence, Intimate Partner Violence, Health Workers, Associated Factors, Kanchapur

3.21 Theme: Substances Abuse Addiction and Recovery

3.21.1 Impact of smokeless tobacco products on smoking cessation and health outcomes: a systematic review

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Abstract

Background: Alternative smokeless tobacco (SLT) products viz. electronic cigarettes (ECs), tobacco heating system, and snus are presently assessed as options for tobacco harm reduction. This systematic review aims to evaluate the available evidence on the impact of alternative SLT products versus combustible cigarettes (CCs) on health outcomes and smoking cessation.

Methodology: The systematic review was conducted with published literature on MedLine (PubMed) database, from 7th February 2020 to 7th February 2025 (PROSPERO Registration No: CRD42025628551). The risk of bias in the included studies was assessed through grading of recommendations, assessment, development, and evaluations. Narrative evidence was used to describe the results.

Results: From 530 retrieved publications, 65 studies (13 systematic reviews, 12 systematic reviews and meta-analysis, 1 meta-analysis, 2 intervention review, 1 scoping review, 30 randomized controlled trials, 2 analysis studies, 3 prospective studies and 1 pilot study) were included. Overall results suggested more positive health outcomes and fewer adverse events with alternative SLT products compared to CCs and introduced high potentiality for smoking cessation.

Conclusion: Alternative SLT products play a prominent role in smoking cessation. Heterogeneity regarding cardiovascular outcomes with alternative SLT usage exists, still improved pulmonary health and lower incidence of adverse events support the harm reduction claim of alternative SLT products. However, the allure of ECs leading to the initiation of smoking in non-smokers should not be neglected.

Keywords: electronic cigarettes, heated tobacco products, alternative smokeless tobacco products, tobacco smoking cessation, tobacco harm reduction

3.22 Theme: Veterinary Public Health and Zoonotic Disease

3.22.1 Molecular detection of tetA, tetB, qnrS and bla-TEM genes among E. coli isolated from litter and soil of poultry farms of Kathmandu valley.

Padam Shrestha

Abstract

Antimicrobial resistance (AMR), major global health problem is currently approached from a “One Health” perspective. This study aims to detect the prevalence of multidrug resistant *E. coli* and their AMR genes from litter and soil of poultry farms of Kathmandu

Valley. The study was a descriptive cross-sectional type, carried out at the Center for Health and Disease Studies- Nepal. Samples collected from 15 poultry farms were subjected to serial dilution and spread plate to isolate and identify *E. coli*. A total of 27 *E. coli* were isolated out of which sixteen isolates (59.2 %) were identified as multi-drug resistant strains. The antibiotic susceptibility testing was carried out by using a modified Kirby-Bauer disc diffusion method followed by DNA extraction and polymerase chain reaction to identify *tetA*, *tetB*, *qnrS*, and *bla*TEM genes responsible for drug resistance of these isolates. The antibiotic resistance pattern revealed that 70.8% (17/24) of *E. coli* isolates from litter and 66.6% (2/3) from soil were resistant to Tetracycline. Among 24 *tetA* positive isolates, 21 (87.5%) and 3 (12.5%) isolates were from litter and soil samples respectively. Similarly, 5 (20.8%) isolates from litter carried *tetB* whereas none of the isolates from soil expressed *tetB*. Among 22 *qnrS* positive isolates, 19 (79.2%) isolates from litter and 3 (100%) isolates from soil expressed *qnrS* gene. Similarly, out of 17 *bla*-TEM positive isolates, 16 (66.7%) isolates from litter and one (33.3%) isolate from soil expressed *bla*-TEM gene. There is no statistically significant difference between AMR genes and source of bacteria. The prevalence of antibiotic resistance among *E. coli* isolated from poultry farms raises public health threats as these resistant genes could easily be spread to other bacteria and also to human through the food chain.

3.23 Theme: Primary healthcare and Universal Health Coverage

3.23.1 The Role of home-and community-based health practices in primary health care in Nepal

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Abstract

Despite their significant contributions, home- and community-based health practices receive little policy attention. Drawing on ethnographic research conducted in an urbanizing village in Dang and building on existing literature, this paper argues for recognizing these practices as a valuable component of primary health care.

The World Health Organization (WHO) defines primary health care as a whole-of-society approach centered on the needs of individuals, families, and communities. This aligns closely with home- and community-based practices, which encompass home remedies, herbal medicine, spiritual healing, dietary regimens, and experiential knowledge passed down through generations. In communities with limited formal healthcare services, these practices often serve as the first line of care.

Though professional healthcare consultations increase in subsequent recourses, people often take recourse to home- and community-based care first. Even in the study village, nearly two-thirds (61 out of 96) of chronic patients initially sought home- and community-based care before consulting professional healthcare providers. Parents and

grandparents played a crucial role in home-based care, while traditional healers provided care at the community level.

Despite their relevance, home- and community-based health practices remain an underutilized resource in primary health care. Recognizing and integrating these practices into health policy can help bridge the gap in healthcare access, particularly in underserved areas. This also contributes to the broader effort of reclaiming traditional health knowledge as an important component of well-being. Inclusion of such practices is not just about preserving the past but about giving community knowledge a due space to contribute to comprehensive primary health care.

Keywords:

3.23.2 Factors associated with enrollment in national health insurance program among households in Bajura district: A concurrent mixed method study

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Abstract

Sustainable development goals(SDG) place strong emphasis on universal health coverage as condition for both human security and health and for many nations health insurance is in integral component of SDG. Studies conducted globally on health insurance addressed information on insurance, perceived health status and health seeking behavior are determinants of health insurance enrollment. National health insurance program is a priority program of government but still enrollment increased slower with significant regional differences.

This study was a concurrent mixed method study with cross sectional design conducted in two municipalities of Bajura district. Two stage cluster sampling was conducted with PPS sampling to select 10 wards at first stage and SRS to select household from each ward. 270 structured interviews for quantitative method and 22 IDI and KII with household heads and stakeholders was conducted sample size was calculated using G*power. Quantitative analysis was done with EZR and STATA and qualitative with Braun and clerk thematic analysis and findings were triangulated.

Bivariate analysis shows source of income and expenditure, chronic illness in family, information on health insurance, choice of health care, perception on health status, communication media, discussion and program regarding health insurance are associated to health insurance and in multivariate analysis shows having lakshit barg in family, chronic illness and information regarding health insurance are associated to enrollment in health insurance adjusting other variables. And supporting these findings qualitative findings suggests that,

"The main reason people don't enroll in health insurance is lack of awareness on health insurance" : K72_not-enrolled

"People with chronic disease are enrolled. Those who need regular treatment have enrolled" : T9_enrollment_assistant

"Yes, economic condition are a major barrier, additionally there is lack of awareness" : T_representative

Keywords: enrollment, factors, health, insurance

3.23.3 Identifying public health issues and targeting interventions to improve municipal health system in Bhimad municipality: A review of secondary data for evidence-based public health advocacy

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Abstract

Introduction: Bhimad, one of the 85 local levels in Gandaki Province, has a population of 29,248, with a sex ratio of 84.37 males per 100 females and a literacy rate of 79.7% (Census 2021). The municipality provides services to its residents in nine wards through one Primary Health Care Center, four Health Posts, four Basic Health Service Centers, and three Community Health Units. Despite the availability of data from various routine sources, it is often underutilized in management decision-making and advocacy. This analysis aims to utilize publicly available data to identify and disseminate public health priorities in Bhimad Municipality of Tanahun District, Gandaki Province.

Methods: Data from sources such as Family Health Profile, Health Management Information System, and Census 2021 were recorded and analyzed using Microsoft PowerBI and displayed on the Health Directorate's website. The data was filtered for Bhimad Municipality to identify public health program issues. Ethical clearance was not necessary, as the secondary data used is publicly available and lacks individual identifiers.

Findings: The data reveals a significant drop between first and fourth antenatal care visits (343 vs 207), indicating potential issues in quality of care and counseling. Only 174 children received BCG vaccines, possibly due to deliveries occurring outside Bhimad. The sex ratio for ages 0-5 is 93, and for ages 6-10 is 85 boys per 100 girls, highlighting a distorted sex ratio. This could be due to sex-selective abortions and higher vulnerability of girls. There were 70 dengue cases, nine animal bite cases, 324 tuberculosis cases, and five HIV-positive cases, indicating the importance of integrated service delivery.

Conclusion: Routine health data provides valuable insights into public health achievements and challenges. Public access to this data promotes transparency and enables its use in management decision-making. Digital tools like PowerBI facilitate automated analysis for informed decision-making.

Keywords: Bhimad, Health data, Health equity, Reaching the unreached