

# **Abstract Book**

**Tenth National Summit of Health and Population**

**Scientists in Nepal**

**10-12 April 2024**

**“Advancing Health and Population Research and Innovations: Achieving SDGs”**

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# Welcome Letter

Dear Summit Delegates,

Nepal Health Research Council (NHRC) together with the Steering Committee, Scientific Committee and Organizing Committee warmly welcome in the Tenth National Summit of Health and Population Scientists in Nepal, which is part of their ongoing efforts to promote a research culture in the country. The primary goal of this summit is to provide opportunities to researchers and academicians, a forum to communicate recent and pertinent health evidence as well as for policymakers to interact with them to discover such evidences. In addition, the summit will provide a platform for a diverse range of stakeholders to explore novel ways to apply research findings to improve the wellbeing of the Nepalese people. The theme of the summit is “Advancing Health and Population Research and Innovations: Achieving SDGs”.

The theme of the summit encapsulates the urgent need to prioritize scientific advancements and collaborative efforts to address the multifaceted challenges impeding the achievement of the Sustainable Development Goals (SDGs). By focusing on enhancing healthcare accessibility, promoting gender equality, and leveraging innovative solutions, this theme underscores the critical role of research and innovation in fostering sustainable development. Through interdisciplinary cooperation and inclusive policies, we can catalyze progress towards universal health coverage, equitable social outcomes, and a more resilient global community, ultimately realizing the transformative potential of the SDGs for generations to come.

During the course of the summit, various sessions such as, plenary sessions, panel discussion and parallel sessions will be held. These sessions will focus on discussing the available evidences on national health priorities through oral and poster presentations of selected abstracts, as well as invited presentations. The summit aims to generate evidence that will provide insight into the need for quality research in the country within the context of research for health. It is expected that the summit will make a significant contribution towards achieving this goal.

As the summit is expected to have participants from various sectors including academia, research institutes, government, NGO/INGOs, and health sector developmental partners, it is believed that the summit will facilitate the creation of lasting partnerships for innovation in research and policymaking in Nepal. The organizers express their gratitude to all those who have supported the summit, including researchers, policymakers, external development partners, and related stakeholders. We also look forward to the active engagement of all participants in the summit. Thank you.

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# EFFICIENT AND RESPONSIVE HEALTH SYSTEM QUALITY AND EQUITABLE HEALTH

## ORAL PRESENTATIONS

### **Public health competencies in Nepal: Current status and way forward**

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### **Background**

In Nepal, public health education has developed over the past three decades with institutions offering academic programs and regulatory bodies ensuring quality standards. Challenges persist, including limited job opportunities for graduates and lacking core public health competencies among graduates. This study aims to assess public health competency through curriculum review and find perceived public health competencies being acquired and utilized by public health graduates in Nepal.

### **Methodology**

We conducted a cross sectional mixed method study in all the 7 provinces of Nepal. We reviewed the public health curriculum of the major public health institutions followed by

qualitative interviews with the public health professionals of government, non-government and academia sector and a quantitative survey among the recent public health graduates.

### **Results**

The core competencies required for public health professionals include coordination, collaboration, communication, leadership, management, and data management skills. Identified competency gaps are limited proficiency in digital technologies, under-utilization of research skills, and gaps in education and training. Participants suggested emphasizing practical experiences, internships, and collaboration with organizations in public health education. The 8 core competencies of the recent public health graduates were assessed including: data analytics and assessment skills; policy and program planning skills; communication skills; health equity skills; community partnership skills; public health science skills; management and finance skills; and leadership and system thinking skills. More number of public health graduates were engaged in private jobs followed by government job. More than 18% of the surveyed graduates were unemployed. Around 40% of the employed graduates were dissatisfied with their current job due to low salary, lack of autonomy, poor working environment and job insecurity.

### **Conclusion**

This study underscores core public health competencies, education gaps, and the importance of practical experiences, collaboration, digital proficiency, and research utilization for competent professionals and job satisfaction in the public health field.

### **Keywords**

Public health competencies, public health graduates, academia, Nepal

### **Risk Factors associated with High Altitude Sickness: A Case-Control Study**

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### **Background**

At high elevations, reduced barometric pressure leads to hypobaric hypoxia, causing altitude illnesses like acute mountain sickness (AMS), high-altitude cerebral edema (HACE), or high-altitude pulmonary edema (HAPE). AMS emerges 4–12 hours after ascent to altitudes  $\geq 2500$  m, progressing to HACE within 24 hours if untreated. The Mustang district, known for Thorong La Pass (5416m) and Muktinath Temple (3800m), sees high visitor flow, raising altitude sickness concerns. This study aims to identify risk factors associated with high altitude sickness among visitors to Mustang.

### **Methodology**

A health-facility-based, age-sex matched 1:1 case-control study was conducted in Mustang district, from July 2024 to November 2023. Cases (Altitude Sickness patients) and controls (non-Altitude Sickness patients) were matched based on sex and age. Measurements included AMS/HACE/HAPE assessment via LLS questionnaire, demographics, medical history, ascent rate, and prophylactic medicine intake. Data was collected via a structured questionnaire administered by trained medical officers in English or Nepali, and analyzed using SPSS version 25. Ethical approval was obtained from the NHRC, and written informed consent was obtained from all participants.

### **Results**

A total of 63 cases (individuals with altitude sickness) and 63 controls (without) were matched for age and sex. Cases had a mean age of 48.46 years (SD = 16.57), similar to controls (mean age 48 years, SD = 16.94). 38 were rapid ascenders, and 88 were slow ascenders. Awareness of altitude sickness was reported by 65 individuals, with 36 taking prophylactic medication (Acetazolamide 125/250mg). Among cases, 8 experienced HACE, 42 had AMS, and 13 had HAPE. Altitude sickness was significantly associated with rapid ascent (AOR: 6.410, 95% CI: 2.364-17.544), whereas individuals without a previous history were less likely to develop it (AOR: 0.098, 95% CI: 0.026-0.371). Prophylactic medication showed a significant protective effect (AOR: 10.0, 95% CI: 2.703-37.037).

### **Conclusion**

Our study highlights the critical role of ascent speed, previous history, and prophylactic measures in preventing altitude sickness.

### **Keywords**

Hypoxia; Altitude Sickness; Risk Factors; Acetazolamide

## **Participatory action research to address gender norms and power dynamics of female community health volunteers in Nepal.**

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### **Background**

Female community health volunteers (FCHVs) provides close-to-community health services in Nepal. The effects of gender norms on their work and experiences are context-embedded and dynamic. This study aims to explore how participatory action research can support FCHVs in addressing the issues related to gender norms and values.

### **Methods**

We adopted a participatory action research approach, engaging 12 FCHVs and municipal official of Chandragiri municipality. A series of participatory workshops were conducted to plan and prioritize gender-related problems and co-create a participatory video. The entire process was evaluated using observations, reflective meetings, focus group discussions, and interviews.

### **Findings**

During the prioritization process, guided by problem tree analysis, FCHVs highlighted lack of acknowledgment of their work by stakeholders, community, and family members due to limited understanding as a priority issue. To address this concern, FCHVs co-created a short video reflecting their engagement, experiences, and challenges, further influenced by gender norms and values. During community showcasing events, the participants expressed appreciation to FCHVs for their services and acknowledged their contributions. Some stakeholders praised the video as an innovative approach to communicating FCHVs' dual responsibilities in balancing gender roles. Similarly, FCHVs found the video development to be a novel experience. They reflected that the video helped to acknowledge gender issues at different levels, perceiving recognition from the community and health facilities for their work, along with receiving support from their families, leading to an increased understanding of their work and dual responsibility. Additionally, they mentioned capacity development in self-confidence, speaking ability, and technical skills in using cameras and sound systems.

## **Conclusion**

The co-created video was considered an innovative and effective way to communicate and an impactful way to express and show their work which also helped in addressing gender norms encountered by FCHVs. However, a comprehensive, long-term evaluation is necessary to assess the impact on the community.

## **Keywords**

Female community health volunteers, Gender norms, Participatory action research, Participatory video

## **Medicines registration and marketing authorization in Nepal: comparative study for benchmarking best practices**

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## **Background**

National medicines regulatory authorities of various low- and middle-income countries including department of drug administration (DDA) of Nepal remain at lower maturity level as evaluated by the world health organization (WHO) global benchmarking tool. Registration and marketing authorization (MA) is one of the key regulatory functions under by the GBT to ensure availability of safe, quality, and effective medicines in the market. This study aims to identify the gaps in medicines registration and marketing authorization function adapted by DDA in comparison with the regulatory processes with some stringent regulatory authorities (SRA), higher maturity level, and WHO listed authorities (WLA).

## **Methods**

Various sub indicators under MA function were assessed with structured questionnaire related to legal provision, organization and governance, regulatory processes, resources, and information management system including details on dossier submission, review and granting of license process. The MA function adopted by three SRAs and two WLAs and two higher maturity level (3 and 4) were compared with DDA for benchmarking.

## **Results**

DDA has adopted three tier review mechanism for domestic and import submission by the manufacturers. Considering generic submission and review, the duration for granting of MA by DDA is comparable and rapid. The reliance and recognition mechanism practiced for issuance of MA for SRA approved products is yet to be implemented for WLA countries. DDA has limited resources and gaps in legal provisions to implement common technical document and other areas related to MA function such as post approval changes, bioequivalence studies requirement, implementation of good review practices as compared with SRA, WLA and higher maturity level authorities.

## **Conclusion**

This study identified the strengths and gaps in MA functions in DDA that requires improvement to attain higher maturity level to ensure availability of quality, safety, and efficacy medical products in Nepal.

## **Keywords**

Global benchmarking tool, low- and middle- income countries, maturity level, marketing authorization, stringent regulatory authority, WHO listed authority

## **Health System Resilience Capacity in Federal Context of Nepal: Findings from a Mixed Method Study**

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## **Background**

While Nepal is struggling to provide quality healthcare, wide range of shocks and stressors such as economic crisis, disease epidemics, natural disasters, political conflict/instability, and sudden changes in the ways health system is organized, pose significant challenges to the health system. This study analyzes the health system resilience capacity in federalized context of Nepal.

## **Methodology**

It is a mixed method study. Quantitative component involved analysis of secondary data including disaster records from 2017 to 2023 and Nepal Health Facility Survey 2021 (1565 health facilities). The qualitative component of the study involved qualitative interview of 13 key informants and four stakeholder consultative workshops in Lumbini province. Quantitative analysis involved descriptive analysis as well as application of regression model whereas thematic analysis approach was adopted for qualitative data.

## **Results**

In the study, data from 1565 facilities were analyzed, with 47% categorized as moderate risk, 29% as high risk, and 11.1% as moderate risk. Regarding disaster preparedness, 7.3% of federal hospitals, 3.8% of private facilities, and none of the local-level facilities scored fully on a 10-point scale. External supervision, monthly health facility meetings, and disaster risk levels were statistically linked to preparedness scores. The qualitative component of the study identified vulnerabilities within health system, including gaps in functional assignment and response mechanisms, medical supply and infrastructure inadequacies, unreliable information systems, power dynamics, and human resource limitations. Implementing coordinated strategies, restructuring and enhancing capacities to streamline tasks, increasing financial flexibility and transparency, fortifying regular information and surveillance systems, and embedding evidence-based decision-making could enhance the resilience of the health system in Nepal.

## **Conclusion**

The study uncovered a wide range of vulnerabilities that weaken the ability of Nepal's health system to handle shocks and stressors and undermine the resilience capacity which can be addressed through clarity in functional assignments and coordinated efforts.

## **Keywords**

Health System, Resilience, Nepal, Shocks, Stressors

## **Hamro Swasthya: Development of a mobile-phone health application for use by pregnant women and their healthcare providers in rural Nepal**

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### **Background**

Smartphones can be a valuable tool for healthcare in Nepal with millions of users and extensive network penetration. Currently, healthcare applications (apps) are commercial, may not address the needs of the local or rural population, are not integrated with the existing healthcare system of the country and do not allow personalized use. A carefully developed application integrated into the local health system which can be used by pregnant women and their healthcare providers can fulfill a great need in Nepal. We report on the development of such a mobile-health application.

### **Methods**

We have developed a freely available android application '*Hamro Swasthya*' for use by pregnant women and their healthcare providers. Pregnant women presenting at their health centres can be registered to use the app with the help of their providers. This application is being deployed among 180 pregnant women and their providers from eight Health Posts and one Palika-level Hospital in southern Lalitpur and evaluated in a cluster randomized controlled trial (cRCT).

### **Results**

Information on the pregnant women's profile and previous pregnancies can be entered into the app. Women can obtain pertinent written, audio and video messages related to pregnancy and childcare. The symptoms interface allows pregnant women to record their symptoms at any time. Healthcare providers can use the app to observe the reported symptoms and record the history, examination, investigation related to the respective service-seekers. This information can be shared in real-time between pregnant women and providers and can be shared with doctors at Patan or Prashuti Griha Hospitals to provide necessary advice or intervention upon emergencies.

### **Conclusion**

The effectiveness of the developed mHealth system is being evaluated through a cRCT along with the facilitators and barriers to its use. Improvement in the system will be based on user feedback from the perspective of both the healthcare provider and service-seekers.

## **Keywords**

Maternal health, neonatal health, mhealth, smart phones, rural health

## **Competency in using district health information system among health workers in Nepal**

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## **Background**

Nepal introduced District Health Information System (DHIS2) in 2016 to support existing health management information systems and to improve data quality and its utilization. Competency in human resources is one of the core components of DHIS2. Therefore, this study aims to assess the core competency in DHIS2 operation among health workers of Dang district, Nepal.

## **Methodology**

This paper was prepared based on part of quantitative data obtained from convergent parallel mixed-methods design conducted to assess the perceived usefulness, competency and associated factors in using DHIS2. A total of 95 health workers, one from each eligible health facilities of Dang district, were included in the study. A self-administered web-based questionnaire was developed, pre-tested and sent the link to the study population via email. SPSS (trial version 28; IBM Corporation) was used for data analysis.

## **Results**

Of the total 95 respondents, majority (68.4%) of them were male, nearly half (44.2%) had more than 11 years of work experience, more than half (54.7%) hold 6th level positions, only 34.7 % had university degree, majority were permanent (76.8%) staffs and from paramedical background (91.6%). Based on self-rated computer skill, about 70% rated as basic skill but 8.4% rated as no computer skill. It is reported that 78.9% health worker have received training on DHIS2. The assessment of respondents' competencies in using DHIS2 was conducted through self-rated questions. More than half (60%) reported that they have basic skills for data entry and only 12.6% reported the advanced skill. Similarly, 57.9% have basic ability to prepare and use pivot tables whereas 18.9% have advance skill on it. Conclusion

About one out of four health facility still do not have trained health worker on DHIS2. The health workers who are trained and using DHIS2 do not feel confidence in their competency. Refreshment training and onsite coaching is recommended.

### **Keywords**

Competency; Health workers; DHIS2; Nepal

## **Readiness of Health System to Provide Disability Inclusive Health Services in Karnali Province of Nepal: Perspective from Service Providers and Women with Disabilities**

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### **Introduction**

Women with disabilities particularly from hard-to-reach areas of Nepal have highlighted the multiple social and institutional barriers in accessing sexual & reproductive health (SRH) services. Thus, it is important to understand the service readiness of health institutions and identify needs to provide disability inclusive and gender sensitive SRH services and identify the needs of health facilities. Thus, this study explores the readiness of health institutions from Karnali province of Nepal to provide disability inclusive SRH services to women with disabilities.

### **Methodology**

A qualitative research methodology involved interviewing 28 healthcare providers through In-depth Interviews, Key Informant Interviews, and Focus Group Discussions and observation of 10 health facilities in Karnali province, Nepal. Data collection in the month of December 2023 continued until reaching data saturation. Ethical approval was obtained from the Nepal Health Research Council (311/2023). Interviews were transcribed in Nepali & translated verbatim into English. Inductive coding was performed using Dedoose, and thematic analysis was conducted to analyze the data, presented in a codebook with subthemes and themes.

### **Result**

Total of four themes and nine subthemes were developed from the qualitative data. The majority of women with disabilities identify need of adequate access to information, disability-inclusive infrastructure, and empathetic behavior of service providers as key factors to enhance uptake of services. Healthcare providers have limited knowledge and skills for disability management and service provision, highlighting the need for education and training. Furthermore, observation of health facilities showcased a lack of essential amenities (such as lack of elevators, ramps, toilet, parking space, notice boards, wheelchairs, and hydraulic beds) thus showcasing lack of service readiness among health institutions.

### **Conclusion**

The study highlights the need for improvement in health institution to provide disability inclusive infrastructure, trainings to the health care providers on gender sensitive disability case management to ensure disability inclusive SRH service readiness among health institution of Karnali province.

### **Keywords**

Women with disabilities, Sexual and Reproductive Health, Barriers, Healthcare providers, disability inclusive

## **Improving health system efficiency in Nepal: imperative for accelerating health gains in federal context**

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### **Background**

Efficiency measures the use of resources to optimize the desired outcomes. Health system efficiency is a priority concern for policy makers to achieve universal health coverage. This paper aims to explore the health system efficiency in Nepal.

## **Methodology**

We conducted secondary data from the existing data sources of the Ministry of Health and Population (MoHP). We reviewed the past three-year health sector progress report of MoHP. Health expenditure budget figures were used from the National Health Account report.

## **Results**

In the federal government system, the MoHP was the largest agency for managing government health expenditure followed by local governments and provincial governments. Curative care accounted for the largest share of government health expenditure followed by preventive care. Provincial Public Service Commissions started to recruit staff as per the approved new organograms. Minimum Service Standard (MSS) has developed for different levels of health facilities ranging from health post to super-specialized hospitals and rolled out across the country to assess health facility readiness to deliver quality health services. Laboratory services have been expanded. Various public health programs were implemented throughout the country. Program guidelines and directives were prepared to implement the different programs. The MoHP, Provincial health ministries and Local Levels use LMBIS and P-LMBIS and SuTRA respectively for planning and entering health activities to be implemented. Two major guiding documents viz National Health Financing Strategy (2023-33) and Nepal Health Sector Strategic Plan (NHS-SP) were endorsed in 2023. Routine health information systems, periodic surveys and research are in place to generate data for the evidence based decision-making process.

## **Conclusion**

This paper attempted to provide the information regarding the efficiency of health system in Nepal. A notable research gap exists concerning the rigorous measurement of efficiency, particularly through methodologies such as cost-efficiency analysis, data envelopment analysis (DEA), and Cost-Effectiveness Analysis of interventions and programs.

## **Keywords**

Efficiency, Health system, Federalization, Nepal

## **Health Facilities Readiness to Implement Standard Precautions for Infection Prevention and Control in Nepal: A secondary analysis of Nepal Health Facility Survey 2021**

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### **Objective**

This study aims to assess the readiness of health facilities (HFs) to implement standard precautions for infection prevention and control (IPC) in Nepal.

### **Methods**

We conducted the secondary analysis of the nationally representative Nepal Health Facility Survey (NHFS) 2021 data and used the Service Availability and Readiness Assessment Manual from the World Health Organization to examine the HF's readiness to implement standard precautions for IPC. The readiness score for IPC was calculated for eight service delivery domains based on the availability of eight tracer items: guidelines for standard precautions, latex gloves, soap and running water or alcohol-based hand rub, single use of standard disposal or auto-disable syringes, disinfectant, safe final disposal of sharps, safe final disposal of infectious wastes, and appropriate storage of infectious waste. We used simple and multiple linear regression and quantile regression models to examine the association of HF's readiness with their characteristics.

### **Results**

The overall readiness score of all HFs, federal/provincial hospitals, local HFs, and private hospitals were  $59.8 \pm 15.7$ ,  $66.6 \pm 14.6$ ,  $59.4 \pm 15.7$ , and  $62.4 \pm 15.5$  respectively. Across all eight health service delivery domains, the HFs' readiness for tuberculosis services was the least ( $55.5 \pm 19.6$ ) and highest for delivery and newborn care services ( $67.1 \pm 15.6$ ). The HFs performing quality assurance activities (Beta=3.51; 95% CI: 1.67, 5.36), reviewing clients' opinions (Beta= 6.70; 95% CI: 2.57, 10.84), and HFs with monthly meeting (Beta=3.20;95%CI: 1.0, 5.42) had higher readiness scores. The HFs from Bagmati, Gandaki, Lumbini, Karnali and Sudurpaschim had readiness score higher by 7.79 (95%CI: 5.22,

10.37), 7.71 (95%CI: 4.80, 10.62), 4.79 (95%CI: 2.02, 7.57), 9.48 (95%CI: 6.17, 12.78), and 3.62 (95%CI: 0.64, 6.60) compared to Koshi.

### **Conclusion**

The readiness of HFs to implement standard precautions was higher in HFs with quality assurance activities and mechanisms of reviewing clients' opinions. Study results can support policymakers in making informed decisions to improve infection prevention and control in health facilities.

### **Keywords**

standard precaution; infection control; infection prevention; readiness; health facilities

## **Effectiveness of Proximal Massage and Palm Fisting Exercise in Preventing Thrombophlebitis among Intravenous Cannulated Patients in a Teaching Hospital**

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### **Background**

Peripheral intravenous cannula insertion is a commonly performed invasive nursing procedure which is a life saving procedure, but it also carries potential risks, from slight discomfort to serious thrombophlebitis. These complications are preventable and the prevention is crucially dependent on nurses. Various efforts have been made to prevent thrombophlebitis through both pharmacological and non-pharmacological approaches. The purpose of this study was to find out the effectiveness of proximal massage and palm fisting exercise in preventing thrombophlebitis among intravenous cannulated patients.

### **Methodology**

A quasi-experimental post-test only control group design was used in this study. Forty- six intravenous cannulated patients (23 in experimental group who received proximal massage and palm fisting exercise and 23 in control group who did not receive these interventions) were recruited using non-probability purposive sampling followed by simple random

sampling for group allocation. The intervention was provided for three days as per the interventional protocol which was validated by the three subject matter experts and cannula site observation was done using visual infusion phlebitis scale. Data were analyzed by Statistical Package for Social Science (SPSS), version 16 using descriptive and inferential statistics (Mann-Whitney U test).

### **Results**

The visual infusion phlebitis scores in the experimental group (mean=0.61±0.72, median=0, IQR=1) were lower than in the control group (mean=1.17±0.88, median=1, IQR=2). There was statistically significant difference in visual infusion phlebitis score between experimental and control group (U=170.5,  $p=0.028$ ) which indicated effectiveness of these interventions in preventing thrombophlebitis. Additionally, there was statistically significant difference in grades of thrombophlebitis between experimental and control group ( $\chi^2=6.58$ ,  $p=0.037$ ).

### **Conclusion**

Proximal massage and palm fisting exercise is simple, non-pharmacological and non-invasive method which could be performed by nurses to prevent intravenous cannula related thrombophlebitis.

### **Keywords**

Intravenous cannulation, Palm fisting exercise, Proximal massage, Thrombophlebitis prevention, visual infusion phlebitis scale

## **Comprehensive Assessment of Pharmacist-Driven Interventions on Pain Outcomes: An Umbrella Review of Systematic Reviews and Meta-Analyses**

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## **Introduction**

Pain poses a significant challenge in healthcare, affecting millions worldwide. Pharmacists are increasingly assuming expanded responsibilities in pain management, particularly in primary and ambulatory care settings. This umbrella review aims to systematically assess published systematic reviews (SRs) examining the impact of pharmacist-led interventions on clinical, humanistic, and economic outcomes associated with pain.

## **Methods**

A systematic search across six electronic databases, including Ovid Embase, MEDLINE, CINAHL, Scopus, CENTRAL, APA PsycINFO, and DARE, was conducted from inception until June 2023. Two independent reviewers evaluated study titles and abstracts for inclusion. A methodological quality assessment of the included studies was performed using AMSTAR 2.

## **Results**

Among 2055 retrieved titles, 11 SRs were included, with 5 being meta-analyses. These SRs covered a range of pharmacist-led interventions such as education, medication reviews, and multi-component strategies targeting various aspects of pain management. The findings indicated favourable clinical outcomes, including reduced pain intensity, improved medication management, enhanced overall physical and mental well-being, and shortened hospitalization durations. Pharmacists' interventions significantly reduced pain intensity. Positive humanistic outcomes, including enhanced healthcare provider confidence, patient satisfaction, and quality of life (QoL), were evident. Three SRs examined the impact of pharmacist interventions on pain-related economic outcomes, highlighting varied cost implications and the necessity for robust research methodologies.

## **Conclusion**

This umbrella review underscores the effectiveness of pharmacist-led interventions in enhancing clinical, humanistic, and economic outcomes associated with pain management. The existing evidence advocates for integrating pharmacists into multidisciplinary teams for pain management. Further exploration of innovative care models, such as pharmacist-

independent prescribing initiatives within collaborative pain management clinics, is warranted.

### **Keywords**

Cancer pain; Pharmacist; Pharmaceutical services; Umbrella review

## **Assessing Capacity of Health Policy and System Research Institutions (HPSRIs) in Nepal: Framework, Lesson Learned and Future Directions**

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### **Background**

There's growing recognition of the importance of Health Policy and Systems Research (HPSR) in shaping policies and programs. However, the existing evidence gap complicates decision-making for high-impact, low-cost interventions. There is limited research capacity among HPSR institutions (HPSRIs) and lack of comprehensive capacity assessment framework hinders the tailored capacity development initiatives. In this context, this study was undertaken to assess the landscape of HPSR in Nepal and to co-create a capacity assessment framework for HPSRIs.

### **Methodology**

We conducted a thorough literature review to pinpoint the essential characteristics of robust HPSRIs, followed by mapping HPSRIs in Nepal and delineating their scope. Through a series of 21 Key Informant Interviews (KIIs), we expanded on the identified key attributes of robust HPSRIs from the literature review and identified domains for capacity assessment. Two in-country consultative sessions were organized to co-create a capacity assessment framework. Subsequently, a joint workshop with the Philippines HPSR team was held to develop a framework adaptable to various settings with diverse health system contexts.

### **Results**

The capacity of HPSRIs can be evaluated across four crucial domains: organizational management, technical competency, networking, collaboration, and co-creation capacity, and

the ability to translate evidence into policy. A two-pronged approach is necessary, involving the simultaneous assessment of current research practices and a self-assessment of capacity on a three-point scale basic, medium, and advanced to comprehensively evaluate HPSR capacity in any institution. However, given the diversity of institutions in terms of nature, scope, and funding status, there may be a need for multiple versions of assessment tools.

### **Conclusion**

Assessing an institution's capacity for HPSR involves four domains: organizational management, technical competency, networking, collaboration, co-creation, and evidence translation. This is done through a two-pronged approach, simultaneously evaluating current practices and existing capacity in these areas.

### **Keywords**

Assessment, Health System Research Capacity, Nepal

## POSTER PRESENTATIONS

### **A study on m health (mobile health) readiness and its determinants among women of reproductive age group of rural municipalities of Lalitpur**

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#### **Background**

The WHO's Global Observatory for eHealth (electronic health) defined mHealth as medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants, and other wireless devices. The use of mobile phones and the internet has also been increasing in recent years in Nepal. According to Digital Report 2023, 139.2% of cellular connection users, 51.5% of internet users, and 41% of people are active in social media. Despite health potential benefits, for effective and efficient use of mHealth (mobile health), it is important to assess the readiness of mHealth in specific population groups. Thus, this study was conducted to find out mHealth readiness and its determinants among women of reproductive age group of rural municipalities of Lalitpur Nepal.

#### **Methods**

A quantitative study was conducted in rural municipalities of Lalitpur district i.e. Mahankal Rural Municipality, Konjyosom Rural Municipality, and Bagmati Rural Municipality. Two-stage stratified cluster sampling was used to select sabik wards and census was done in the selected wards. A structured questionnaire was developed in Nepali language and used to evaluate the socio-demographic factors as well as phone possession, facility, knowledge, skills, practice, infrastructure and motivational factors related to mobile phone. Based on the respondents' answer, readiness score was calculated and cutoff value was obtain using ROC curve to define readiness. Ethical approval was obtained from IRC-PAHS.

## **Results**

Total of 478 participants were interviewed during the process. Only 61% of participants were ready for mHealth services. Similarly, from the multivariate logistic analysis, age groups, educational status [AOR=8.6 (95% CI 4.28 – 17.3),  $p<0.01$ ], family type [AOR= 0.44 (95% CI 0.22-0.8),  $p<0.5$ ], Socio-economic status [AOR=2.53, (95% CI 1.31 – 4.86)  $p<0.01$ ] and Knowledge about health message available through mobile phones [AOR=5.31, (95% CI 2.7 – 10.4)  $p<0.01$ ] were significantly associated with mHealth readiness.

## **Conclusion**

Increasing the use of mobile phones could be meant to combat the looming threats of disease, address the shortage of healthcare staff, address the quality of services, etc. in rural and remote settings like Nepal. This study found education status, marital status, socio-economic status as the major predictor for mhealth service readiness.

## **Keywords**

mHealth, Readiness, Digital Health, Rural Municipality, Nepal

## **Unveiling Parents' Lived Experience with Care and Support in Neonatal Care Units of Nepal: A Phenomenological Inquiry**

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## **Background**

Preterm infants (PTISs) require hospitalization in different levels of neonatal care units (NCUs) for their survival and developmental need. The quality of care provided at NCUs significantly influences infant and parental outcomes. Parents' experience of received care is one of the indicators for determining quality of care at NCUs. The study aims to investigate parents' perspectives on the care and support received in NCUs.

## **Methodology**

A descriptive phenomenological study was conducted within the NCUs of three public tertiary hospitals in Kathmandu, Nepal. In-depth interviews were undertaken among 25

parents, (both mothers and fathers) of preterm and low birth weight infants admitted to the NCUs. The data were meticulously analyzed using the Colaizzi method.

### **Results**

The exploration of parents' experiences identified three themes (1) Care and support, (2) Transition to parenting roles, and (3) Care involvement in NCUs. Parents appreciated competent and affectionate infant care as well as informational support. However, they had varied experiences with communication, emotional support, and opportunities for infant-parent attachment. Guidance and support for PTI care from nurses and peer-parents proved instrumental in mitigating uncertainties during parenting roles transition. Parents' involvement for hands on care of their PTIs boosted infant-parent attachment, empowered for care giving, and provided emotional solace.

### **Conclusion**

Parents have positive experience with PTI care provided by nurses and their involvement in hands on care of their PTIs. However, there is a gap in parental support expectation of the parents including communication, emotional support and care guidance. Evidence might be worthwhile for the concerned clinicians, policymakers for enhancement of the neonatal care practice incorporating parental support components including parental involvement in PTI care in neonatal care units.

### **Keywords**

Parents, lived experience, care and support, neonatal care units, phenomenological study

## **Assessing drug utilization in the emergency medicine department at a tertiary care teaching hospital using WHO drug use indicators**

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## **Background**

Patients might need urgent care in critical cases. Very few studies have been conducted on drug utilization in the emergency department in Nepal. The objective of this study was to find out the drug utilization pattern and the cost of medicines in the emergency medicine department as per WHO drug use indicators.

## **Methodology**

This was a retrospective cross-sectional study done among patients visiting the emergency department of KIST Medical College Lalitpur, Nepal. The data was collected during the period from Baisakh to Ashad 2080. Data was collected for first month from each quarter for the year 2079 from the medical records of the patients. A structured proforma was used for the data collection process. Census sampling method was used.

## **Results**

Maximum patients, 257 (25.1%) were from age group 21-30 years. Females were more than males, 537 (50.5%). The top three diagnosis were soft tissue injury, 148 (13.9%), dengue fever, 138 (12.9%) and viral fever, 51 (4.7%). Maximum patients, 346 (32.5%) were given two therapeutic classes of drugs, followed by only one for 251 (23.6%) patients. The common classes of drugs prescribed for the patients were analgesics, 639 (60.1%) followed by intravenous fluids, 410 (38.5%) and antiulcer drugs, 377 (35.4%). The total cost of drugs used was calculated as Rs. 305126.4 (2280.99 USD) and the average cost per patient was Rs. 297.97 NPR; 2.23 USD. The WHO drug prescribing indicators showed maximum percentage, (85.4%) of encounters with injection prescribed followed by the percentage of drugs prescribed from the Nepalese National List of Essential Medicines 81.71%.

## **Conclusion**

Injection prescribing and the number of drugs prescribed per encounter showed considerable deviation from the standards recommended by the WHO. Hence, it is important for the hospital to design and implement a system to promote judicious prescribing and injection medication administration.

## **Keywords**

Drug utilization, emergency department, WHO core drug use indicators, Nepal

## **Ethical Dilemma Faced by Health Care Professionals amid Covid-19 Pandemic in a Tertiary Level Hospital of Kathmandu Valley**

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### **Background**

The global impact of COVID-19 has led to significant challenges for healthcare professionals, resulting in unprecedented ethical dilemmas. Ethics stands as a critically vital component of health and medical care. Positioned on the front lines of the disease fight during the pandemic situation, health care professionals are compelled to balance their safety with patient welfare. As all clinical decisions are guided by the ethical values, the COVID-19 pandemic makes clinicians to deviate from these traditional ethical values. This study aims to identify major ethical dilemmas, associated factors, and find steps and solutions to mitigate those dilemmas.

### **Methodology**

The study employed a cross-sectional descriptive design with a mixed-method approach. Quantitative data were collected through a self-administered semi-structured questionnaire, while qualitative data were obtained from key informant interviews. Bivariate analysis included chi-square tests, odds ratios and a 95% CI to test significance of association. Significant variables were incorporated into multivariate binary logistic regression, calculating adjusted odds ratios for net effect size. Qualitative data, translated and anonymized, underwent thematic analysis with manual coding, yielding five major themes and subthemes, which were correlated with quantitative findings.

### **Results**

Approximately 40.7% faced ethical dilemmas in COVID-19 care, mainly concerning patient prioritization (79.7%). Qualitative findings contradicted this, as national triage protocols were followed. Other dilemmas included preferring non-COVID patients and desiring a ward change (31.3% and 38.5%). The highest odds of ethical dilemmas were associated with perceived infection risk (4.8; 95% CI 1.60-14.65,  $p=0.005^*$ ), followed by increased workload. Positive hospital perceptions reduced the likelihood of ethical dilemmas by 77% (0.23; 95% CI 0.11-0.46,  $p=0.001^*$ ).

### **Conclusion**

Despite apparent control, new outbreaks are possible. The study's findings are valuable for immediate decisions and long-term policies in future pandemics for health institutions and governments.

### **Keywords**

Ethical Dilemma, COVID-19, Health Care Professionals

## **Investigating the Role and Contribution of Professional Organizations in Establishing Routine Oral Health Care Within Standard Ante-natal Care in Nepal**

Pratiksha Dhungana

### **Introduction**

Maternal oral health care remains a pressing global public health concern, with significant implications for maternal and neonatal outcomes. Despite the recognized associations between maternal periodontal infection during pregnancy and adverse obstetric outcomes such as preterm birth and low birth weight, preeclampsia, gestational diabetes, and miscarriage, the integration of oral health into routine Maternal Newborn Health (MNH) services is largely ignored, particularly in low-resource settings such as Nepal. This study addressed the gap in policy and practice regarding the inclusion of oral health care, specifically the diagnosis, treatment, and prevention of Maternal Periodontal Disease (MPD), within standard Antenatal Care (ANC) programs in Nepal.

### **Method**

Through semi-structured key informant interviews with 14 stakeholders representing professional bodies such as the Nepal Dental Association, Nepal Medical Association, Perinatal Society Association of Nepal, and General Practitioner Association of Nepal to assess the level of awareness, engagement, and support for incorporating MPD into routine ANC programs.

### **Findings**

The study revealed a dearth of data and policy initiatives concerning maternal periodontal diseases within ANC, emphasizing the need for evidence-based policy development and collaborative efforts among dental and medical professionals. Challenges identified include outdated dental curricula, inadequate education and training in oral health care among medical and dental students, limited interprofessional collaboration, and scarcity of surveillance, reporting systems, and research focusing on maternal periodontal diseases. Despite isolated efforts by certain dental institutions to introduce oral health screenings

during ANC, the absence of data sharing and interprofessional coordination has hindered progress.

### **Conclusion**

Addressing these gaps necessitates evidence-based policies and guidelines based on extensive data on MPD prevalence and impact. Improved collaboration between dental and medical experts, as well as an enhanced surveillance and reporting system, alongside curriculum reform and increased research focus, are required to raise the position of oral health in MNH services. By identifying and addressing these problems, this study aimed to facilitate the effective integration of oral health care, including MPD diagnosis, treatment, and prevention, into Nepal's routine ANC programs, thereby improving mother and newborn health.

### **Unlocking Potential Through Crafting Tailored Municipal Health Policies in Nepal.**

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### **Background**

In the evolving federal structure of Nepal post the constitutional promulgation, numerous municipalities are actively developing health policies to enhance their health system readiness. Health system readiness is the ability of a health system to promptly and sustainably adapt its policies, infrastructure, and processes to support the integration of innovative approaches to care. Ensuring high-quality health policies aligned with national and international standards is important to address local healthcare needs. This study examined the health policies development process including analyzing formulation, evaluating stakeholder participation, and assessing alignment with global health objectives in two municipalities (Rolpa and Sandhikharka) of Nepal.

### **Methodology**

Utilizing a qualitative approach, the study conducted a desk review of existing health policies, engaged over 120 participants in participatory stakeholder consultations, and facilitated collaborative workshops with key stakeholders. This multifaceted methodology aimed to provide a holistic understanding of the policy landscape, ensuring the active involvement of diverse community segments, healthcare providers, and development partners.

## **Results**

The study unveils substantial progress in health policy development, emphasizing achievements in stakeholder engagement, strategic planning, and alignment with global health initiatives. Stakeholder consultations played a pivotal role in harnessing diverse perspectives, contributing significantly to the formulation of inclusive tailored health policies in both municipalities. Collaborative workshops further underscored the commitment of municipalities to address healthcare challenges and enhance health system readiness.

## **Conclusion**

The study emphasizes the importance of local-level health policy initiatives and collaborative partnerships in advancing public health objectives, with policies designed through a participatory and evidence-based approach. Internal and external collaboration is encouraged to facilitate the exchange of insights and extend successful support models to other municipalities, contributing to national efforts in strengthening health systems. Recommendations arising from the study advocate for the development and implementation of long-term health sector strategic plans, building upon the formulated policies.

## **Keywords**

Health Policy, Stakeholder Engagement, Strategic Planning, Global Health Initiatives

## **Determinants of Work Motivation Among Female Community Health Volunteers in the Rural Municipalities of Kaski District**

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## **Background**

Female Community Health Volunteers are fundamental to Nepal's community-based primary healthcare. They are serving as vital referral links between health services and communities with strong community ties. Despite their positive impact, program sustainability is threatened by low motivation and inadequate national-level support, leading to attrition. This study aims to analyze the determinants of work motivation among Female Community Health

Volunteers in the rural municipalities of Kaski district and, explore barriers and facilitators on the level of motivation.

### **Methodology**

A descriptive and analytical research design was adopted in this study. Data was collected through cross-sectional. A multistage sampling technique was adopted, first selecting three rural municipalities (Rupa, Annapurna, Machhapuchhre) of Kaski district purposively, followed by data collection from all 149 actively engaged Female Community Health Volunteers. Additional qualitative insights were gained through two focus group discussions. Quantitative data were collected through a structured questionnaire assessing motivation level with 26 items. Binary logistic regression identified socio-economic and job-related determinants, Individual Mean Score (IMS) measured motivation levels, and percentages of agreed and strongly agreed in each item identified barriers and facilitators.

### **Results**

This study reveals that over half of respondents exhibit low motivation levels. Significant determinants include age, number of children, and alternative job engagement. Self-efficacy, social commitment to serve the community, satisfaction in accomplishing worthwhile for the community, and intrinsic satisfaction are the key facilitators of motivation. Conversely, barriers include pay differences, lack of social respect and recognition, limited career development, inadequate remuneration, and insufficient governmental support.

### **Conclusion**

There's no one-size-fits-all solution; a balanced approach using both cash and non-cash incentives may be more effective in sustaining motivation. Community health workers, like Female Community Health Volunteers, are vital for addressing healthcare shortages in Nepal. Recognition and support from stakeholders, communities, and policymakers are essential to prevent undervaluation and sustain motivation through targeted policies and incentives.

### **Keywords**

Work motivation, FCHVs, Volunteers, incentives, Health System, Community Health

## **Health literacy and associated factors among adults in Rasuwa, Nepal; A cross-sectional study**

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## **Introduction**

Health literacy plays a crucial role in maintaining good health and well-being. However, a significant gap exists in health literacy among adults, leading to adverse health outcomes. This study aimed to assess health literacy and associated factors among adults in Rasuwa, Nepal.

## **Methodology**

A descriptive cross-sectional design was done among adults residing in Kalika Rural Municipality, Rasuwa. One-to-one interviews were carried out utilizing the HLS-EU-Q16 questionnaire. Bivariate and multivariable logistic regression was used to evaluate independent correlates.

## **Results**

Among 253 participants, the mean age was 46.3 years ( $\pm 16$  SD). Only 23.3% of the adults had adequate health literacy. The participants aged  $\leq 45$  (aOR: 1.9, 95% CI: 1.0-3.6), perceived their health status as satisfactory (aOR: 3.1, 95% CI: 1.5-6.3), had good financial status (AOR: 2.9, 95% CI: 1.5-5.5), had satisfactory level of self-related esteem status (aOR=2.7, 95% CI: 1.2-6.2), had sustainable income (aOR = 1.9, 95% CI: 1.0-3.5) were more likely to have adequate health literacy than their counterparts. Illiterate participants (aOR: 0.1, 95% CI: 0.04-0.4), engaged in agriculture (aOR: 0.49, 95% CI: 0.2-0.9) were at lesser odds of having adequate health literacy as compared to their counterparts.

## **Conclusion**

This study highlights the health literacy and associated factors among adults in Rasuwa. Factors such as age, perception of health status, financial stability, self-esteem, and income play crucial roles in determining health literacy levels. These findings underscore the importance of addressing socio-economic and individual factors in promoting health literacy initiatives, particularly targeting vulnerable populations, to improve overall health outcomes and healthcare utilization.

## **Keywords**

Health literacy, adults, Rasuwa, Nepal

## **Factors associated with digital health literacy and attitude towards use of digital health technology among health workers of kapilvastu district: a mixed method study**

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### **Background**

Digital health literacy is an individual's ability to search, understand, and evaluate health information on digital media, and use the acquired information for problem-solving. There is huge gap in digital health literacy which is rising to create digital gap in context of Nepal which prevents everyone from having access to and capacity to experiences the advantages of digital health. As a result, this study aimed to assess health professionals' digital health literacy level, attitude towards use of digital health technology and associated factors in Kapilvastu District, Nepal.

### **Method**

A Cross-sectional study with a concurrent triangulation mixed-method design was used among 319 health professionals working in primary level health facilities in Kapilvastu district, Nepal. Proportionate Stratified sampling method for quantitative study while purposive sampling method was used for qualitative study. Quantitative data was collected using a semi-structured & self-administered questionnaire while Key interview technique was used for qualitative data collection. Descriptive, bivariate & multivariate logistic regression analysis techniques were used to describe and identify its associated factor while thematic analysis was conducted for qualitative data.

### **Results**

Out of 319 participants, 77.12% of health professionals had high digital health literacy and only 26.96% of health professionals had good attitude towards use of digital health technology. Factors such as Access to digital technology [AOR=5.49, p=0.031], Workplace as a source of access of internet [AOR=0.404, p=0.036], important to access health resources in internet [AOR=8.1, p=0.00085], motivation to use digital technology [AOR=5.39, p=0.035], attitude of use of digital technology [AOR=3.52, p=0.004] were found as a significant predictors for digital health literacy while income for greater than 97,451 [AOR=3.61, p=0.003] and access of digital device such as laptop [AOR=2.29, p=0.007] were

found to be significant factors associated with health professionals attitude towards use of digital technology which was triangulated with qualitative results.

### **Conclusion**

Digital health literacy was significantly influenced by technology. To boost the adoption of health technology, it is recommended to make computers more accessible, training program on digital health technology, and encourage a positive attitude toward this technology.

### **Keywords**

Digital Health Literacy, Digital literacy, Health Literacy, Attitude towards use of digital health technology, Health Workers, Community Health Workers, Factors associated, Determinants, Nepal

## **Developing Robust Health Policy and System Research Ecosystem in Nepal: Challenges and Opportunities**

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### **Background**

While there is increasing acknowledgment of Health Policy and Systems Research (HPSR)'s significance in shaping policies and programs, existing evidence gap has been complicating decision-making for impactful, cost-effective interventions. Understanding the existing landscape of HPSR and developing tailored strategies to strengthen the HPSR ecosystem could help generate high quality evidence. Study aims to assess Nepal's HPSR landscape and identify strategies for developing robust HPSR ecosystem.

### **Methodology**

We conducted 21 Key Informant Interviews (KIIs), encompassing policy makers from federal, provincial, and local levels, researchers, and academicians. The findings from KII were enriched through three consultative workshops, each attended by 40-50 participants representing academic institutions, research organizations, and policy-making bodies. The interviews were recorded, transcribed into Nepali, translated into English, and analyzed using thematic analysis. Notes from the consultative workshop were used to further refine the findings from KII.

## **Results**

Participants presented varied understanding of the HPSR and its attributes. Lack of domestic funding for HPSR, discordance between international funding and national priorities, poor linkage between policy making bodies and researchers, methodological complexities involving diverse stakeholders and thus diverse interests, limited platform for knowledge exchange, misalignment between evidence sharing and planning cycle were the key challenges encountered in developing robust HPSR ecosystem in Nepal. Enhancing engagement of policy makers from the outset, capacitating researchers to generate high-quality evidence, fostering networking among research institutions, aligning research with national evidence gaps, promoting regular interaction between policy makers and researchers, and synchronizing dissemination sessions with planning cycles could fortify the HPSR ecosystem.

## **Conclusion**

Resource scarcity, capacity constraints, divergence in priorities and research focus areas, and inadequate collaboration and networking have posed challenges to the robust HPSR ecosystem in the country. Enhanced collaboration between researchers and policymakers, strengthening research institutions, and securing additional resources could foster the development of a robust HPSR ecosystem.

## **Keywords**

Health Policy and System Research, Research Ecosystem, Nepal

## **Challenges in the Implementation of COVID 19 Vaccination in Makwanpur District-A qualitative study**

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## **Background**

After the advent of federalization, COVID 19 vaccination, was Nepal government's first vaccination campaign throughout the country. Since, federal system is a new concept in Nepal and many roles are yet to be figured out, the system must have experienced many challenges in the process of overall implementation of the program. This research tries to explore those challenges in order to address the needs and gaps in the current health system for effective management of such large-scale programs in the future.

## **Methods**

We collected a total of eight key informant interviews who were involved in the management and conduction of vaccination program to study the challenges faced by them and the system overall in the implementation of the program.

## **Results**

The challenges that were perceived by the key informants were insufficient logistics planning, coordination among local and higher levels, inadequate awareness regarding the vaccination campaign among the public, vaccine hesitancy and lack of a proper system and channel for data management.

## **Conclusion**

This study identifies the challenges regarding the implementation of Covid 19 vaccination in Makwanpur district. These challenges could be faced by governments in other districts as well.

## **Keywords**

Covid-19 Vaccination, Vaccination program challenges, health system of Nepal, Covid 19 in Nepal

## **Development and Validation of Rapid Diagnostic Test kits for Different Infectious Diseases Prevalent in Nepal**

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## **Background**

Nepal primarily relies on imported healthcare supplies including Rapid Diagnostic Test (RDT) kits. This has contributed to higher costs and interruption of testing services due to periodic shortage of testing supplies. The benefit of SARS-CoV2-antigen RDT kits during the Covid-19 pandemic management motivated us to develop RDT kits in Nepal so that it will help manage such kind of future pandemics and bridge the gap between demand and the supply chain. To this end, our objectives are to develop and validate both antigen and antibody RDT kits for different infectious diseases to develop human pregnancy rapid test kit to determine whether a female is pregnant or not

Antigen-RDT kits detect antigen (viral or bacterial) and antibody-RDT kits detect antibodies specific to the particular virus or bacteria. The test results of both antigen and antibody RDT can be interpreted without specialized instruments and become available within 20 min.

## **Methodology**

RDT kits were developed based on the principle of lateral flow assay. The internal validation of RDT kits was performed using recombinant proteins and antibodies. Hospital or Lab based 60 to 100 clinical samples for each disease were collected by Central Diagnostic Laboratory (CDL) and Province Public Health Lab (PPHL), Janakpur to validate our test kits. Depending on the type of disease, the samples were Nasal swab, blood, urine or stool samples. Validation of our kits was performed using CE/FDA approved RDT kits and gold standard RT-PCR and CLIA/ELISA.

## **Results**

We successfully developed and validated Dengue virus antigen RDT, Hepatitis B surface antigen (HbsAg) RDT and human pregnancy test kit. Validation of other test kits like HIV antibody RDT, HCV antibody RDT and Syphilis antibody RDT are going on at PPHL, Janakpur.

## **Conclusions**

The locally developed and manufactured antigen or antibody RDT for qualitative determination of antigen or antibody allows faster identification of patients and allows the quick application of infection prevention and control measures.

## **Keywords**

RDT, antigen, antibody, infection, pandemic

## **Unveiling health system resilience capacity: An Assessment of Urban Infrastructure in Kapilvastu Municipality**

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### **Background**

Rapid urbanization in Kapilvastu Municipality has led to inadequate infrastructure and heightened environmental health risks, highlighting the critical intersection between urban development, public health, and resilience. The study aims to address these challenges from a public health perspective, emphasizing the need for sustainable and resilient infrastructure solutions to safeguard the well-being of the municipality's residents.

### **Methodology**

The mixed methods approach integrated UAV technology and Physical assessments of health infrastructure were conducted using tablets equipped with the KOBO toolbox. UAV captured high-resolution imagery of topographic data, road furniture details, drainage systems, and low-lying areas precisely. Structure from Motion (SfM) processing generated GIS-ready outputs, validated through ground truthing. GIS software enabled detailed mapping and analysis, including road safety risk maps and spatial mapping of hazards, exposure, vulnerability, and risk. This approach ensured comprehensive data collection and robust analysis for informed decision-making.

### **Results**

The survey revealed critical deficiencies in Kapilvastu Municipality's urban infrastructure, notably road safety issues and drainage problems, especially in low-lying areas. Additionally, a significant risk zone prone to water inundation was identified, closely linked to the periodic occurrence of vector-borne diseases like dengue, and water-borne and foodborne diseases such as diarrhea and cholera. Addressing these infrastructure shortcomings is crucial to protect community health. Urgent repair and maintenance of health facilities, along with necessary upgrades, are imperative to meet the increasing demand for healthcare services and enhance resilience against environmental challenges.

### **Conclusion**

The study underscores the imperative of integrating public health considerations into urban infrastructure planning. Leveraging UAV technology, this research underscores a pragmatic approach to assessing the nexus between public health and urban infrastructure, empowering stakeholders to steer evidence-based initiatives for sustainable urban development. The insights gleaned advocate for concerted efforts towards nurturing healthier and more resilient urban environments in Kapilvastu Municipality.

### **Keywords**

Public health, Urban infrastructure, UAV technology, Spatial data, health system

### **Building health systems resilience: unveiling experiential learnings from embedded learning site**

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### **Background**

While the delivery of basic health services is one of the devolved functions of the local governments in the post-federalization, capacity gaps persist at system, organization and individual levels, with limited basic understanding of health system resilience. In this study, we aim to understand highlight achievements and lessons learned from the implementation of embedded participatory research for building a resilient local health system in Nepal.

### **Methods**

Our study design is embedded participatory action research (PAR) approach, which followed cycle of planning, acting, reflecting, and adapting, where researchers worked with the local health system stakeholders in a municipality of Lumbini province. We used mixed-methods approach for data collection, including document analysis, qualitative interviews, focused group discussions, workshops, and researchers' notes.

### **Results**

Our findings highlighted significant improvements in the quality, comprehension and utilization of evidence, as a result of various capacity building initiatives. Establishment of committees at municipal and health facility levels, along with the development of policy documents facilitated streamlining of health system functions. However, challenges persisted

in the operationalization of these structures and functions due to capacity gaps at individual and institutional levels. Achieving resilience and sustainability of interventions is a complex phenomenon driven by various challenges. A longer-term vision, financial security and flexibility, decision space, strong multisectoral coordination, responsive health system towards population needs, and preparedness to shocks and stresses require a long-term investment, which are yet to be fully realized and acted upon.

### **Conclusion**

This study highlights the potential of embedded and participatory approaches in strengthening the resilience of health systems. The findings present some critical learnings from the process of building resilient capacity of local health system. It was noted that achieving resilience is a complex phenomenon, driven by political interest, individual capacity and motivation, system's ability and flexibility and community willingness.

### **Keywords**

health system, resilience, health policy and system, learning site, embedded research

## **Patients' Experiences Regarding Communication of Health Care Personnel in Teaching Hospital: Descriptive Qualitative Study**

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### **Introduction**

Effective communication in healthcare settings increases patient satisfaction and increases treatment adherence. Whereas, ineffective communication has negative consequences such as increased medical violence, decreased follow-up to the treatment process, and lack of treatment adherence. Thus, non-adherence to treatment results to premature mortality of the patient. So, the study aimed to explore the patient's experiences, views, perspectives, and barriers regarding healthcare communication.

### **Method**

This study assumed the descriptive qualitative method as an effective method for explaining experiences regarding healthcare communication under naturalistic research inquiry. The in-depth interview guide was used to collect data with audio recording. About twelve participants were enrolled in the study till data saturation. Thematic analysis techniques were used to analyze the data.

### **Results**

In this study, four themes have emerged. 'Information sharing', 'Feelings regarding health care communication', 'Communication barriers', and 'Expectations' were the themes identified from this research. Participants experienced initial interaction with healthcare personnel in the emergency ward. During ongoing interaction, participants experienced a lack of detail sharing from health care personnel. The main barriers to ineffective communication were workload, noisy environment, crowds in wards, and fearful emotions. Although, participants experienced dissatisfaction with insufficient information sharing; participants experienced satisfaction from care, reassurance, and positive attitudes of health care personnel.

### **Conclusion**

This study concluded that participants experienced sufficient information sharing by health care personnel about the disease but minimal information sharing on disease progress, test results, medicines given, and health education on modifying lifestyle. So, healthcare personnel must provide clear information on test results, medicines given, and food to be taken. Health care organizations should focus on training programs for increasing skills in effective communication; and decreasing workload and noisy environment.

### **Keywords**

Communication, Doctors, Experiences and Health care personnel

## **Digital health literacy among middle-aged adults in Tokha, Kathmandu: a cross-sectional study**

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## **Introduction**

Digital Health Literacy (DHL) is critical for middle-aged adults as they often serve as primary health information seekers for their families in the digital age. Despite significant internet penetration in Nepal, disparities persist. This study aimed to DHL among middle-aged adults in Tokha, Kathmandu.

## **Methodology**

A descriptive cross-sectional design was employed, interviewing middle-aged adults residing in five wards within Tokha, Kathmandu. A 21-item Digital Health Literacy Instrument (DHLI) was used. Demographic features, chronic disease status, frequency of Internet use, digital skills, digital competence, and health literacy were also measured. The data was collected from January to February 2024. Bivariate regression and independent t-tests assessed DHL correlations.

## **Results**

Among 350 participants aged 40-60, the mean age was 47.67 years ( $\pm 7.8$  SD). The average score of DHL was 48.38 ( $\pm 15.68$  SD). Navigation skills and health information reliability assessment were notable weaknesses, while privacy protection proficiency was higher. Various factors, including age, gender, income, self-rated health satisfaction, degree of health concern, presence of family members working in the health sector, internet availability at home, assistance received for internet usage, presence of chronic diseases, interest in accessing health information via digital devices, and previous use of the internet for health-related purposes all, significantly correlated with DHL levels.

## **Conclusion**

Low DHL level demands targeted interventions such as specialized education programs, community-based initiatives, and digital literacy support. It is important to advocate for policies that support digital inclusion and infrastructure development to ensure equitable access to digital health resources. DHL is a multifaceted issue and there are significant associations between various factors that affect it. By addressing these factors, we can enhance DHL levels and promote better health outcomes.

## **Keywords**

Digital health literacy (DHL), middle-aged adults, disparities, Tokha, Kathmandu

# **Factors associated with digital health literacy and attitude towards use of digital health technology among health workers of kapilvastu district, nepal: a mixed method study**

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## **Background**

Digital health literacy is an individual's ability to search, understand, and evaluate health information on digital media, and use the acquired information for health problem-solving. There is huge gap in digital health literacy in context of Nepal which prevents everyone from having access to and capacity to experiences the advantages of digital health. As a result, this study aimed to assess health professionals' digital health literacy level, attitude towards use of digital health technology and associated factors in Kapilvastu District, Nepal.

## **Method**

A Cross-sectional study with a concurrent triangulation mixed-method design was used among 319 health professionals working in primary level health facilities. The sampling method was Proportionate Stratified sampling method while purposive sampling method was used for qualitative study. Quantitative data was collected using a semi-structured, self-administered questionnaire while Key interview technique was used for qualitative method. Descriptive, bivariate & multivariate logistic regression analysis techniques were used for quantitative data while thematic analysis was conducted for qualitative data. The data were triangulated and convergent, divergent and expansive findings were identified.

## **Results**

Out of 319 participants, 77.12% of health professionals had high digital health literacy and only 26.96% had good attitude towards use of digital health technology. Factors such as Access to digital technology [AOR=5.49, p=0.031], Workplace as a source of access of internet [AOR=0.404, p=0.036], important to access health resources in internet [AOR=8.1, p=0.00085], motivation to use digital technology [AOR=5.39, p=0.035], attitude of use of digital technology [AOR=3.52, p=0.004] were found as a significant predictors for digital health literacy while income for greater than 97,451 [AOR=3.61, p=0.003] and access of digital device such as laptop [AOR=2.29, p=0.007] were found to be significant factors for

attitude towards use of digital technology which was triangulated with qualitative results. Trainings, age, access to digital technology and motivation were found to be converging and diverging factors.

### **Conclusion**

The mix-method approach has provided a comprehensive understanding of the complexities surrounding digital health literacy and the integration of digital technology into healthcare practices.

### **Keywords**

Digital Health Literacy, Digital literacy, Health Literacy, Attitude towards use of digital health technology, Health Workers, Community Health Workers, Factors associated, Determinants, Nepal

## **Factors associated with utilization of Adolescent friendly services in Pokhara Metropolitan City**

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### **Background**

Adolescent Friendly Health Services is considered as a key to address the sexual and reproductive health problems of the adolescent. Since 2009 Nepal has been integrating AFHS into its public health facilities. Despite much attention and attempt to scale up AFHS, studies revealed that utilization remains suboptimal and also alarming in Nepal. So this study assesses the factors associated with utilization of adolescent friendly services in Pokhara Metropolitan City.

### **Method**

A cross-sectional analytical study design was conducted in Pokhara Metropolitan with quantitative sample size of 569, selected through proportionate sampling and collected through self-administered questionnaire. The data was entered in Epi-data and exported to

SPSS (version 20) for analysis. Association was tested using Pearson's Chi-Square test and relationship was observed by multivariate logistic regression at 95% confidence interval.

### **Result**

Only a little more than one third (37.1%) of the respondents have utilized the adolescent-friendly services. Factors positively associated with the utilization of the services include knowledge about AFHS, perceived health need, health facility visit after perceived need, first point of treatment, pay for the services, perceived need of AFHS, service time feasibility, counselling service, good water supply and barriers for using the services.

### **Conclusion**

More than two third of the participants have not utilized the adolescent-friendly services. The local government should make arrangement for infrastructure, specific training to the health worker and should play vital role in coordination between schools and health institutions to promote adolescent friendly health services.

### **Keywords**

Adolescent-friendly Health services, Utilization, Pokhara

## **Detection of intestinal parasites in fresh raw vegetables sold in Kathmandu Valley, Nepal**

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### **Background**

Food-borne parasitic illnesses, especially those associated with consuming fresh raw vegetables lacking proper sanitation, are a significant public health concern. The porous nature of vegetables creates an ideal environment for parasitic organisms to contaminate them. Due to regional changes in environmental and human factors, the severity of contamination and species of contaminating parasites varies. Therefore, gathering local community data on contamination levels and risk factors is vital for effective parasite infection management.

## **Methodology**

A cross-sectional study was conducted on vegetables obtained from specific markets in the Kathmandu Valley between August 2023 and February 2024. Selected vegetables including carrots, radishes, cabbage, coriander, and tomatoes were procured and examined for parasitic contamination using normal saline sedimentation technique and iodine wet mount following standardized protocols.

## **Results**

Among the 250 vegetable samples analyzed, 123 (49.2%) were found to be contaminated with at least one species of parasite. Coriander exhibited the highest contamination rate at 75.51%, while tomatoes showed the lowest at 33.33%. Protozoan parasites such as *Balantidium coli*, *Entamoeba coli*, *Cryptosporidium spp.*, *Giardia duodenalis*, *Eimeria spp.*, and *Isospora belli*, as well as helminthic parasites like *Strongyloides spp.*, hookworms, *Ascaris lumbricoides*, *Trichuris spp.*, *Hymenolepis spp.*, and *Toxocara spp.*, were detected as contaminants.

Notably, *Strongyloides spp.* were the most detected parasites at 27.2%, followed by *Balantidium coli* (18%), *Entamoeba coli* (16.8%), hookworms (9.2%), *Ascaris lumbricoides* (6.4%), and *Giardia duodenalis* (5.6%).

## **Conclusion**

The high rate of parasitic contamination in marketed vegetables underscores the urgent need for a sustainable monitoring system established by the local public health department. This system would safeguard public health by facilitating targeted interventions based on our research findings.

## **Keywords**

Raw vegetables, Intestinal parasites, Kathmandu Valley, Contamination

## **Motivation, Factors Associated with It and Expectations of Female Community Health Volunteers in a Metropolitan City of Nepal**

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## **Background**

The Female Community Health Volunteer Program was initiated in Nepal in 2045/46 BS and plays a vital role in implementing a wide range of preventive, promotional, and curative health programs at the community level. This study aims to find out the proportion of motivated FCHVs, associated factors, and expectations related to their work in Kathmandu Metropolitan City of Nepal.

## **Methodology**

A cross-sectional study with a multi-method design was used with 299 respondents who were selected using simple random sampling. Bivariate and multivariate logistic regression was used to identify the factors associated with the motivation of FCHVs and thematic analysis was done to identify the expectations of FCHV. For quantitative data analysis, Epi info, STATA MP 13, and EZR version 3.5.2 were used whereas for qualitative data Ms. Excel was used.

## **Results**

This study revealed that 90.30% of FCHVs were motivated in Kathmandu metropolitan city. Our study found that respondents who were willing to spend more time as FCHVs were 5.83 times (p-value:0.003, CI:1.84-18.40) more likely to be motivated as compared to those who were willing to spend the same/less time. Moreover, FCHVs who knew about the presence of an active network/association were 6.77 times (p-value: 0.003, CI:1.96-23.40) more likely to be motivated as compared to those who didn't know about the presence of any active network/association. As a qualitative study was done to explore the expectations, there was only one theme i.e. expectations which includes five subthemes includes i.e. i) expectations from community people, ii) expectations from supervisors, iii) expectations from local government, iv) expectations from the provincial government and v) expectations from the federal government.

## **Conclusion**

Most of the FCHVs of Kathmandu metropolitan city were motivated and also revealed that willingness to spend more/same/less time and active network/association in the district were independent predictors of motivations among FCHVs and had various expectations from people, their supervisors, local, provincial and federal government.

## **Keywords**

Female community health volunteers, motivations, expectations, Kathmandu Metropolitan City

## **Outcome of Referred in Obstetrics Patients to Paropakar Maternity and Women's Hospital**

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### **Background**

Lack of a structured referral system is a challenging hurdle in developing countries like Nepal that delays in management. Identification causes of delays and their timely management is of immense importance to improve maternal and fetal outcomes. The study aimed to assess the maternal and fetal outcome of referred-in obstetrics patients and to identify various maternal determinants of obstetrics referrals to Paropakar Maternity and Women's Hospital (PMWH).

### **Methods**

A prospective observational study was conducted enrolling 47 undelivered obstetric cases who were referred to PMWH. Study excluded self-referrals, without referral slips and postpartum patients. Maternal determinants, Mode of management, maternal and fetal outcomes were documented.

### **Results**

Most common diagnosis of referral was hypertensive disorder accounting 19.14% followed by IUGR comprising 10.6%. The mean age of the patients was 26.68years, 42.5% were illiterate, 51.1% were multigravida and 55.3% referred were from the district hospitals. Of total, 78.7% cases were referred by ambulances and 10.6% were rescued by helicopter. About 12.7% of the referred cases required intensive care management. Live birth was 86.3%, still birth 4.5% and 9.1% of IUFD.

### **Conclusions**

Among the varied high-risk cases, most common diagnosis at the time of referral was hypertensive disorders followed by cases requiring critical care and surgical management. This highlights the need and scope of strengthening emergency obstetric care centres and early identification and treatment of high-risk cases antenatally at every level of health centres.

### **Keywords**

High Risks, Hospitals, Obstetrics, Outcome, Referrals

# **Study on Predictors of Potentially Inappropriate Medications and Adverse Drug Reactions among Hospitalized Elderly Patients in a Tertiary Care Hospital: An Observational Cross-sectional Study**

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## **Background**

Older adults often have multiple chronic conditions and take many medications, which can increase the risk of Potentially Inappropriate Medications (PIM) and Adverse Drug Reactions (ADR). PIM and ADR are major causes of poor health outcomes and reduced quality of life among the elderly. Therefore, it is important to identify and address the factors that influence PIM and ADR in this population, to prevent and manage drug-related problems.

## **Methodology**

An observational cross-sectional study was carried out in 100 older adults ( $\geq 65$  years) admitted to internal medicine ward of a tertiary care hospital from April to June 2023 where each patient was followed up daily from admission to discharge. WHO definition of ADR and the Naranjo ADR Causality Scale was employed. Beer's criteria and Medscape was used to determine PIMs, and drug interactions, respectively. Bivariant logistic regression using Statistical Package for the Social Science (SPSS) Version 16 was used to identify the predictors of ADRs and PIMs.

## **Result**

Out of 100 participants with median (Interquartile Range) age of 70 (65-91) years 15 experienced ADRs. There was no significant effect of any predictors on PIM. A significant positive correlation between PIM and ADR ( $p$  value = 0.004) was observed. Independent predictors of occurrence of ADRs included No. of DDI ( $B = 0.331$ ,  $p = 0.009$ ,  $OR = 1.393$ , 95% CI: 1.086-1.787), number of prescribed drugs ( $B = -0.550$ ,  $p = 0.028$ ,  $OR = 0.577$ , 95% CI: 0.353-0.944), PIM ( $B = 1.488$ ,  $p = 0.010$ ,  $OR = 4.429$ , 95% CI: 1.438-13.645) and diabetes ( $B = -2.153$ ,  $p = 0.030$ ,  $OR = 0.116$ , 95% CI: 0.017-0.812).

## **Conclusion**

Drug related factors such as drug-drug interaction, number of prescribed drugs, PIM and disease related factor like diabetes were shown to be most important predictors for ADR in elderly population. PIM used showed strongest association with ADR.

## **Keywords**

Potentially Inappropriate Medication, Adverse Drug Reaction, PIMs, ADR, Older Adults

## **Association between patient ethnicity, health literacy, socioeconomic status, and the incidence of medication errors in healthcare settings: a systematic review**

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## **Background**

Medication errors are key contributors to healthcare related patient harm and mortality. While socioeconomic disadvantage has been linked to higher incidence of patient safety incidents in healthcare settings, specific focus on medication errors is currently lacking.<sup>1</sup> This study aimed to investigate the correlation between patient socioeconomic, demographic characteristics, health literacy and incidence of medication errors in healthcare settings.

## **Methodology**

A systematic review was undertaken using literature databases- EMBASE, MEDLINE, and PsycINFO. Studies published from 2010 to October 2023 in English language were included. The Joanna Briggs Institute (JBI) critical appraisal checklists<sup>2,3</sup> was used to analyse the quality of the included studies. Data on the association between health literacy, patient demographic, socioeconomic characteristics and incidence of medication errors were extracted and synthesized descriptively.

**Results**

Thirteen studies were included in this review of which majority originated from the US (n=10). Minority ethnic patients, those with low socioeconomic status, low health literacy and limited English proficiency faced disproportionality higher rates of medication incidents including higher incidence of dosing errors and missed episodes of medication monitoring in healthcare settings. Lower educational attainment was also linked to medication administration errors- particularly when parents administering to children. In addition, patients with low health literacy were significantly more prone to unintentional non-adherence compared to those with higher health literacy.

**Conclusion**

Ethnic minority patients and those from lower socioeconomic background and low health literacy are at an elevated risk of medication errors. Awareness and education regarding such disparities targeted to healthcare professionals and patients is key to mitigating inequalities. Further research is needed in the context of Low and Middle Income (LMIC) countries.

**Keywords**

Health disparity, health literacy, patient safety, medication errors

**HEALTH FINANCING AND SOCIAL PROTECTION IN HEALTH**

## ORAL PRESENTATIONS

### **Impacts of Public Health Insurance on Prevention of Economic Burden and Health Service Utilization among People with Non-Communicable Diseases in Low-and Middle-income Countries: A Systematic Review**

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#### **Background**

Non-communicable diseases (NCDs) are a leading cause of global mortality, particularly in low- and middle-income countries. They impose a significant financial burden on families by high out-of-pocket expenditures. Public health insurance has been utilized to prevent the economic burden of NCDs and to improve access to healthcare services. This study aims to investigate the impacts of public health insurance on the prevention of economic burden and health service utilization of people with NCDs.

#### **Methods**

This study involved systematic searches from PubMed, Scopus, and Embase databases. The PRISMA framework was used for searching and screening literature. Data were synthesized in groups based on specific NCDs and their outcomes. The study identified 3,992 articles for title and abstract screening and included 15 studies.

#### **Results**

Socioeconomic status was found to be the most prevalent factor determining the economic burden of NCDs. Additionally, other notable determinants included health service utilization, the presence of multiple morbidities, employment, family size, and education. Enrollment in health insurance was the strong factor determining health service utilization for NCDs while multiple morbidities, socioeconomic status, family physician, and educational level were other significant factors.

Public health insurance demonstrated mixed effects on the economic burden. Half of the studies (7 out of 14 studies) indicated that public health insurance was not protective against

the economic burden of NCD management. Neither compulsory nor voluntary types of health insurance were found to be protective against the economic burden. However, across all studies, health insurance emerged as a significant predictor of health service utilization for NCDs.

### **Conclusion**

Public health insurance is a key factor determining both economic burden and health service utilization for NCDs. Public health insurance exhibits a positive impact on health service utilization for NCDs but their impact on preventing the economic burden varies. This emphasizes the need for further research to develop an insurance system that is more protective against economic burdens.

### **Keywords**

Public Health Insurance, Health Service Utilization, Economic Burden, Non-Communicable Diseases

## **Choice of sustainable health financing reform options for attaining Universal Health Coverage in Nepal: Stakeholders' perspectives**

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### **Background**

The Government of Nepal is dedicated to attaining Universal Health Coverage (UHC) by 2030. Health financing is a critical component of health-care systems that facilitate progress towards UHC. In Nepal, many health-financing schemes coexist without sufficient evidence of progress towards UHC. The aim of the study is to determine stakeholders' perspectives in selection of sustainable health financing reform options related to revenue generation, pooling, purchasing and benefit package design and assess feasibility and challenges in adopting these initiatives in Nepal.

## **Methodology**

28 In-depth key informant interviews were conducted between 25 January- 30 September 2022 with representatives from ministries and government agencies, federal hospitals, development partners, and academia, engaged in developing the Health Financing Strategy. The content analysis was performed based on identified themes from interviews.

## **Results**

In the realm of revenue raising for health financing reforms, allocating 10% of the overall budget to the health sector emerges as the most crucial and achievable strategy, garnering substantial support from stakeholders. Similarly, pooling strategies prioritize the merger of Health Insurance and Free health services, while purchasing strategies emphasize the purchaser-provider split and pay-for-performance mechanisms. Benefit package strategies focus on improving quality through accreditation systems for service providers, with copayment also seen as crucial for resource management.

Adopting health financing reform options entails numerous challenges and recommendations. Challenges include budget and financing issues, policy resistance, administrative complexities, political instability, and resource constraints. Recommendations entail enhancing coordination, governance, and advocacy efforts, investing in health, implementing taxation measures, merging schemes, clarifying roles and responsibilities, strengthening regulatory mechanisms, and improving quality monitoring to ensure successful implementation of health financing reforms.

## **Conclusion**

Allocating 10% of the budget to the health sector and implementing mandatory earmarked funds emerge as pivotal strategies, supported by stakeholders for their feasibility and effectiveness. However, the landscape is marked by nuanced challenges, from budget constraints to political resistance, requiring coordinated efforts and tailored approaches.

## **Keywords**

Health Financing, Universal Health Coverage, Nepal, stakeholders' perspectives

## **POSTER PRESENTATION**

### **Old age allowance in hill settings utilization and implications**

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#### **Background**

Social security is the protection that a society provides to individuals and households to ensure access to basic things for living. The purpose of the study was to determine the utilization patterns and implications of old age allowance among old age allowance receivers of Dharmadevi municipality.

#### **Method**

A descriptive cross-sectional study design was carried out in Dharmadevi Municipality Sankhuwasabha District. Implications were measured as social and economic towards senior citizen's life. The sample comprised 235 Old age allowance receivers. Convenience sampling technique was used to select district and municipality. Among the existing 9 wards, 3 wards were selected by lottery methods of Probability sampling technique and census was done for all the respondents from 3 wards and interviewed face to face using semi structured questionnaires.

Data was entered and analyses in SPSS version 23.

#### **Results**

The findings of the study reveal that all respondents utilized money for personal expenditure. Most of which is health and medicine followed by household expenditure, provision for grandchildren, religious activities, and others. Regarding Implication, Social was the first one, nearly 92 percent of respondents perceived that allowance helps to increase number of friends, nearly 77 percent felt that allowance helps to increase relationship and prestige in society. One fourth (20%) of the respondents felt that allowance helps in upgrading social life. Another implication of old age allowance was economics. The role of allowance on decreasing financial dependency towards other is the most frequent response which was 83.4 percent followed by helps to improve living condition 39 percent. The role of allowance on maintaining daily expenditure and future saving was insignificant.

## **Conclusion**

This study shows that most of the respondents utilized old age allowance for personal expenditure. Increase numbers of friends and decrease financial dependency was major socio-economic implications.

## **Keywords**

Social Security, Utilization, Implications

## **Out of Pocket Expenditure, its Determinants and Coping Mechanisms of Individuals with Type II Diabetes Mellitus in a Peri-Urban Area of Kathmandu, Nepal**

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## **Background**

Diabetes mellitus, a long-term disorder that manifests as elevated blood glucose levels, affects the economically productive age group. National health accounts show that 57.4% of current health expenditure is out-of-pocket expenditure (OOPE). The study aims to estimate the OOPE of individuals with type-2 diabetes mellitus, its associated factors and coping mechanisms at the community level.

## **Method**

It is a cross-sectional study conducted Nagarjun Municipality-4, Kathmandu. Pre-determined sample of 199 T2DM individuals were selected randomly. A structured-validated questionnaire was used for estimation of OOPE, identification of associated factors and various coping mechanisms. Bivariate and multiple linear regression was fitted on log-transformed OOPE variable. Ethical approval was taken from IRC-PAHS and informed written consent was taken from all the study participants.

## **Findings**

Household listing found 685 households with 3,472 individuals aged 18 years and above. It included 258 individuals with T2DM giving prevalence of 7.43% (95% CI: 6.58 – 8.35). The median OOPE of 199 T2DM individuals was NRs. 22,040 with an interquartile range of NRs.

21590. Emotion-focused, problem-focused, avoidance-focused coping and taking leave due to T2DM in past year were not correlated with OOPE but spending savings i.e., financial coping for T2DM management was significantly correlated with it. Admission to the hospital (AOR=1.98, p=0.002), presence of multi-morbidities (AOR=1.63, p=0.008), consuming DPP4 inhibitor (AOR=1.62, p<0.0001), taking insulin (AOR=1.35, p=0.0343), spending savings for the management of diabetes (AOR=1.41, p=0.0025) and enrollment in any insurance scheme (AOR=0.02, p<0.0001), were independently associated with OOPE.

### **Conclusion**

OOPE due to T2DM was higher among individuals requiring admission, presence of multi-morbidities, use of gliptin group of medicines and taking insulin leading to the spending of savings. It also showed that enrollment in any insurance scheme reduced the OOPE significantly. Thus, financial safety nets like insurance with prepayment schemes need to be advocated for individuals with T2DM to reduce their OOPE.

### **Keywords**

Out-of-pocket expenditure, Diabetes Mellitus, Coping-mechanism, Community

## **Status of enrollment in health insurance program and its determining factors in selected ward of Birendranagar Municipality, Surkhet**

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### **Background**

Promoting well-being by ensuring healthy lives remains one of the key agendas in the Sustainable Development Goals (SDG), with the main target of achieving universal health coverage, including financial risk protection; health insurance is a means to do so. Despite a long history of the introduction of health insurance and its high priority, health insurance has not been able to rapidly reach the majority population in Nepal. Thus, this study aims to assess the status of enrollment in the Health Insurance Program and its determining factors.

## **Methodology**

A cross-sectional study was carried out in Birendranagar Municipality of Surkhet by using Systematic Random Sampling technique, a total 250 sample were collected by structured questionnaire with face to face interview technique. The data analysis was performed in SPSS 20 version software. The Chi-square test was used ( $p < 0.05$ ) to find a significant association. Ethical approval was taken from the institutional review committee of Karnali Academy of Health Sciences.

## **Results**

Out of 250 households, (63.2%) were enrolled in the health insurance program, determining factors significantly associated were education of household heads ( $p=0.004$ ), family type ( $p=0.001$ ), presence of member with secondary education ( $p=0.003$ ), ethnicity ( $p=0.029$ ), economic status ( $p=0.024$ ), information about annual premium amount ( $p < 0.001$ ), annual benefit ceiling ( $p < 0.001$ ) and renewal period ( $p < 0.001$ ).

## **Conclusion**

The findings underscore the importance of targeted educational campaigns to enhance awareness of the enrollment scheme, particularly among households with lower education levels. Addressing socio-economic disparities and ensuring inclusivity in health insurance programs is crucial for achieving Universal Health Coverage (UHC). The study suggests conducting longitudinal studies that track changes in enrollment patterns over time.

## **Keywords**

Health Insurance, Enrollment, Health Financing, Universal Health Coverage

**HEALTH SYSTEM AND RESEARCH**

## ORAL PRESENTATIONS

### **Co-Creation of capacity assessment framework for health policy and system research institutions: Experience and lessons learnt from a multi-country study**

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#### **Background**

Health Policy and Systems Research (HPSR) is vital in shaping effective healthcare systems globally, including in Nepal. Health Policy and System Research Institutions (HPSRIs) face several capacity gaps, prompting the establishment of the FAB-HPSRIs initiative aiming to capacitate research institutions and develop a robust HPSR ecosystem. In this regard, our project aimed to co-create a capacity assessment framework to identify capacity gaps and plan for capacity development of individual HPSRIs to enhance the overall HPSR ecosystem.

#### **Methodology**

The study involves a mix of document review and qualitative method. Document review included reviews of existing literature, reports and pre-existing frameworks. In terms of qualitative methods, we conducted 20 key informant interviews along with four national and one international workshops for the development, revision and piloting of capacity assessment framework. Using document reviews and co-creation approaches we identified key domains for capacity assessment of HPSRIs.

#### **Results**

Despite diverse context of the health system in Nepal and the Philippines, both countries came up with a similar domain for assessing the capacity of HSPRIs i.e. research and management capacity, current practices, policy environment, and evidence use. Moreover, both Nepal and the Philippines encountered similar challenges, including complexities in stakeholder engagement, difference in type of HPSRIs and similar resource constraints. Two potential approaches to developing a capacity assessment framework include defining robust

HPSRI attributes and assessing organizational alignment or defining capacity domains and identifying specific metrics within each domain.

### **Conclusion**

Co-creation is an effective approach for strengthening capacity of HPSRIs in Nepal and promoting a sustainable research ecosystem. Adherence to the co-creation approach allowed active engagement, collaboration, and dialogue among stakeholders to ensure the relevance, ownership applicability, and effectiveness of the framework. The diverse nature of HPSRIs in Nepal necessitates a flexible approach to capacity assessment and development, accommodating varied institutional contexts and priorities.

### **Keywords**

Health Policy and System Research, Health Policy and Systems Research Institutions, research ecosystem, framework, co-creation, capacity assessment, capacity strengthening

## **Anthropological approaches to health systems research: A scoping review**

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### **Introduction**

Anthropological approaches to health systems research are increasingly receiving renewed attention in low-and middle-income countries. Evidence suggests that a holistic understanding of social, cultural, economic, psychological and political contexts can shape the health outcomes. Conceptualizing health systems as a field, this scoping review aims to explore how the ethnography of health systems is theoretically informed and can provide deeper insights on power structures, relationships, and inclusive governance.

### **Methodology**

The methodological approach is desk and scoping review of both published and grey literatures on health systems research in the anthropological scholarship that primarily aims to explore the scope and relevance in terms of significant contributions of ethnography in health systems research.

### **Results**

The ethnography of health systems largely helps explore and gain deeper insights on how people produce, engage and use local policies, services, programs, and systems to shape and enact and resist health agenda. Anthropological approaches can provide important insights on the economies, politics and governance of health systems.

### **Conclusion**

Anthropological approaches offer more deeper insights on people-centred views of health systems, its actors and complexities. While health systems are social systems where people have a range of relationships grounded with power and politics, and are shaped by history. There is an emerging need to raise anthropological voice in the health systems research.

### **Keywords**

Power structures, politics, social systems, people-centred views, ethnography of health systems, anthropological voice

### **Federalism and the health system in Nepal: identifying five key priority areas for action**

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### **Background**

Federalism in Nepal represents a fundamental shift towards decentralisation and inclusivity in governance, with increased autonomy at the local level. The Nepali health system has been impacted by federalism, which has been ongoing since 2015, with both improvements as well as new challenges. Understanding and enhancing opportunities for positive impacts of federalism will help address its current shortfalls. Here, we present priority areas for action, stemming from our research project ‘The impact of federalisation on Nepal's health system: a longitudinal analysis’, which ran from 2020-2024.

### **Method**

Drawing on findings from this study that involved use of qualitative and participatory methods, we held a 2-day “final” multi-level participatory workshop in January 2024. Workshop participants included health system stakeholders from local, provincial, and federal levels. During the workshop, we co-produced recommendations for policy and practice, which were duly shared with the Ministry of Health and Population.

### **Findings/Recommendations**

Through including a vast range of stakeholder perspectives - from Federal-level government officials to village-level Female Community Health Volunteers - we gathered and compared opinions and experiences from across the health system. Five key priority areas for action were discussed and agreed upon, as follows: 1. Building capacities for health system planning and management at the local level. 2. Improving the management, development, distribution, and retention of human resources for health. 3. Enhancing coordination and communication between different levels of government 4. Collecting, sharing, and utilizing high-quality data to inform decision-making. 5. Making and implementing new legislation, regulations and policies

### **Conclusion**

Federalisation of the Nepali health system remains in a transition phase, with some components or functions federalised and others still somewhat centralised. Unlocking the full potential of federalism will require concrete action in the short, medium and long term. Our participatory research helped identify important entry points for post-federalization health system strengthening efforts in Nepal.

### **Keywords**

Federalism, Decentralisation, Stakeholder engagement, Health system strengthening

## **Research Regulation and Governance in Nepal: Opportunities and Challenges**

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The health research environment landscape is undergoing a crucial development phase with the balance between science and ethical norms. The Constitution of Nepal 2015 emphasizes the foundations for establishing good governance in research activities, which include transparency, accountability, and producing quality information.

The Nepal Health Research Council (NHRC) Act, 1991 demonstrates legislation, specifically focusing on research regulations and governance which encourages the researcher for ethical conduct and promotes ethical research practices throughout the research eco-system. The NHRC serves as the primary body overseeing health research in the country. The Council has made significant progress and developments in various areas, including publishing ethical guidelines for regulations of health research to ensure the protection of participants' rights and welfare. Collaboration with national and international organizations to strengthen research capacity, facilitate knowledge exchange, and conduction of high-quality research. NHRC also conducts the research which is demanded by the country. The NHRC are providing funding support to researchers and institutions to foster research culture. Promoting the use of evidence, the NHRC encourages for dissemination and utilization of research findings through conferences, publications, and policy advocacy. Additionally, the NHRC conducts regular monitoring visits of the approved study and ethics committee to ensure compliance with research regulations and ethical standards.

The NHRC has initiated different activities and programs which include conduction of policy influencing research, the NHRC digital library, Nepal Clinical Trial Registry, National Summit of Health and Population Scientists in Nepal, Ethical Review Online System, and The Journal of the Nepal Health Research Council (JNHRC). NHRC has approved 60 Institutional Review Committees (IRCs) to date. As part of its efforts to broaden global collaborations, the NHRC joined the Forum for Ethical Review Committees in the Asia-

Pacific Region (FERCAP) in 2019. Since NHRC's establishment, it has approved more than 7,466 proposals, while IRCs approved around 4000 proposals among them NHRC also conducted more than 400 impactful research since its establishment.

Realizing the need to strengthen the capacity of the country, the NHRC has been investing in training since its establishment and has conducted more than 200 training workshops training to more than 6000 participants related to research ethics, research methodology scientific publications among students, researchers, reviewers, Ethics committee members.

This thematic paper aims to highlight the health research governance and regulations practices of the country. Furthermore, the thematic paper seeks to explain the potential future steps or areas for health research investigation.

**Keywords:** NHRC, Research, Ethics, Regulation, Governance, IRCs, FERCAP

## POSTER PRESENTATIONS

### Health-promoting lifestyle of adolescents residing in a community of Kathmandu

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#### Background

Health promotion is the positive behavior that motivates people to enhance their well-being and realize their full potential in their health. Adolescence is a period of rapid growth and development, so the fundamental requirements of health promotion are best to established as early as possible. Thus, this study aimed to identify the health-promoting lifestyle of adolescents in a community of Kathmandu.

#### Methodology

A quantitative descriptive cross-sectional analytical study design was conducted among 380 adolescents residing in a community selected by convenience sampling technique. Data were collected from 13<sup>th</sup> August to 23<sup>rd</sup> September 2023, through interview techniques using a structured interview schedule (a standard tool AHP scale). Data were analyzed by using Statistical Package of Social Sciences (SPSS) version 16. Descriptive and inferential statistics was done for data analysis at significance level 0.05.

#### Results

The overall mean score of Adolescent Health Promoting Lifestyle was  $139.28 \pm 18.96$  and the mean score percentage was (69.6%). Additionally, the higher mean score percentage was obtained in life appreciation (80.6%), minimum score in exercise (58.4%). There was a significant association found in age and nutrition ( $p=0.000$ ), education status and nutrition ( $p= 0.03$ ), gender and stress management ( $p=0.008$ ), gender and exercise( $p=0.010$ ), father occupation status and social support ( $p=0.026$ ), mother occupation status and stress management ( $p=0.011$ ) as well as parental education with nutrition and health responsibility.

#### Conclusion

This study concludes that less than half of the adolescents had a good health-promoting lifestyle. The female adolescents were significantly more successful in managing stress, whereas the male adolescents were more physically active. Furthermore, the findings suggest

that both adolescents' and parents' awareness of healthy lifestyles is crucial to improving their health.

### **Keywords**

Adolescents, Community, Health-promoting lifestyle, Kathmandu

### **Hospital anxiety among admitted patients in a teaching hospital**

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### **Background**

Hospital anxiety is an apprehensive reaction and an unusual preoccupation over harmful outcomes that could arise from getting medical treatment in a hospital. The characteristics were subjective feelings of unease, worry, and/or fear that result from hospital admission among inpatients. Thus, this study aims to find the level of hospital anxiety among admitted patients in Patan Hospital.

### **Methodology**

A cross-sectional analytical study was conducted among 165 admitted patients at Patan Hospital. A non-probability-convenient sampling technique was used for the study. The data was collected by using a self-structured questionnaire through a face-to-face interview technique using a structured interview schedule. Descriptive statistics, inferential statistics, and multiple regression analysis were used for data analysis. The significance value was considered  $<0.05$  for data analysis.

### **Results**

Overall prevalence rate of hospital anxiety was 97.58%. The findings show that 72.73% of admitted patients had mild anxiety, whereas 23.64% had moderate anxiety and 2.42% had severe anxiety. There was a statistically significant relationship between gender ( $\chi^2=5.531$ ,  $p=0.019$ ) and anxiety. However, there was no statistically significant relationship between anxiety and age, marital status, or educational status, employment status, the current length of hospital stay, and type of admitted patients. According to the findings of this study, only 3% of patients have a family history of anxiety.

## **Conclusion**

Based on the findings of this study, it can be concluded that hospital anxiety is highly prevalent in admitted patients. Also, hospital anxiety is significantly associated with gender. Thus, this result may provide a baseline for further research. It is recommended to plan for psychoeducation and interventions for health personnel, patients, and families.

## **Keywords**

Hospital Anxiety, Prevalence of Anxiety, Hospital Anxiety in Inpatients

## **Improvements in the Quality of Reported Health Data from Selected Districts in Karnali Province**

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## **Background**

Since 2018/19, reporting into HMIS is done through DHIS2 in all 753 municipalities of Nepal. During this time, SSBH has been providing technical assistance to provincial and local governments to address data quality issues. This study aims to assess the improvements in data quality over a five-year period in four districts of Karnali Province, focusing on four dimensions of data quality: completeness, timeliness, consistency, and discrepancy.

## **Methodology**

A quantitative research design was used in this study, with secondary data from DHIS2. Integrated Management of Newborn and Childhood Illnesses (IMNCI) reports from all health facilities registered in DHIS2 in Dailekh, Jajarkot, Salyan, and Surkhet from 2018/19 to 2022/23 were studied. Completeness and timeliness dimensions were extracted using the pivot table application in DHIS2, and consistency and discrepancy were analyzed using validation rule analysis and standard deviation outlier analysis functions in DHIS2. R Studio was used to compute the fisher p value.

## **Results**

The reporting rate of IMNCI reports across five years was 100%. There was a significant improvement (p-value <.0001\*) in the timeliness of reporting from 22.7% in 2018/19 to 89.9% in 2022/23. Similarly, validation rule analysis showed a significant improvement (p-value <.0001\*) in the consistency of IMNCI reports, from 9.77% in 2018–2019 to 1.17% in 2022–2023. The percentage of outliers per reporting unit also decreased from 20.06% in 2018/19 to 4.377% in 2022/23, showing significant reductions (p-value <.0001\*) in discrepancies of IMNCI reports.

## **Conclusion**

The study highlights significant improvements in data quality within routine health information systems in Karnali Province over the past five years. Moving forward, sustained support and vigilance are necessary to maintain and build upon these gains.

## **Keywords**

Health data, completeness, timeliness, consistency, discrepancy, health information systems, DHIS2

## **Job Satisfaction Among Local Government Health Employees of Sudurpashchim Province, Nepal**

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## **Introduction**

After federal restructuring, 26,612 health employees were redistributed across federal, provincial, and local levels under the Employee Adjustment Act 2075, with 82.9% deployed locally. After this, numerous grievances emerged, resulting in over seven thousand cases being filed. Despite its importance, job satisfaction among local health employees remains understudied. This study aims to assess job satisfaction and its associated factors among local health employees in Sudurpashchim province.

## **Method**

A web-based analytical cross-sectional study was conducted among 444 local health employees in Sudurpaschim province using convenience sampling. Job satisfaction was measured using a five-point Likert scale with 31 items across three domains: working conditions, employment adjustment process and policy, and local governance. Bivariate analysis and multivariable logistic regression (at  $p < 0.05$ ) were performed to identify factors associated with job dissatisfaction.

## **Results**

Out of 444 participants, 85.1% of local health employees expressed job dissatisfaction. The lowest satisfaction was found in employee adjustment policies and procedures, with only a mere 4.3% satisfaction. Officer-level employees had higher odds of dissatisfaction (aOR: 2.1; 95% CI: 1.2–3.7), while those with a master's degree or higher (aOR: 2.6; 95% CI: 1.1-6.1) were more dissatisfied with working conditions. Conversely, health employees in the health section showed lower odds of dissatisfaction regarding local health governance (aOR: 0.5; 95% CI: 0.3-0.98).

## **Conclusion**

The study revealed widespread job dissatisfaction among local health employees in Sudurpaschim province, particularly regarding employee adjustment policies and procedures. This underscores the need for improvements to ensure fairness and transparency. Efforts should focus on addressing the concerns of officer-level employees through enhanced support and communication channels. Additionally, measures should be taken to enhance working conditions, especially for those with higher education levels, by providing adequate resources, support, and responsibilities. Moreover, local governments must prioritize addressing the demands of health workers at the peripheral level.

## **Keywords**

Job satisfaction, local health employee, health governance, employment adjustment

## **Factors associated with self-reported physical health problems among industrial workers in a community of Lalitpur, Nepal**

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## **Background**

Self-reported health problems include all the health problems (physical or mental health problems, illnesses, disabilities) of workers on being exposed to risk factors at work place that might endanger their physical health or might have an impact on their mental well-being. The most common health problems at work place are musculoskeletal and respiratory problems. Thus, this study aimed to identify the factors associated with self-reported physical health problems among industrial workers in a community of Lalitpur.

## **Methodology**

A quantitative descriptive cross-sectional analytical study design was conducted among 217 industrial workers working in Metal and Handicraft and Textiles industries at Patan Industrial Estate, Lalitpur by Consecutive (total enumerative) sampling technique. Data were collected from 13 August to 23<sup>rd</sup> September 2023, through interview technique using a structured interview schedule. Data were analyzed using descriptive and inferential statistics.

## **Results**

In this study, 68.20% reported musculoskeletal problems. The most common sites affected were the back (58.9%), leg (24.4%), shoulder (23.9%), Neck (5.5%), and (26.3%). Similarly, (35.02% reported respiratory problems. The common symptoms were Sneezing due to allergy (24.9%), cough (17.0%), chest pain (4.1%), shortness of breath (4.1%) and others (0.5%). Working environment (Ventilation) is significantly associated with respiratory problems and uncomfortable position is significantly associated with musculoskeletal problems.

## **Conclusion**

This study concludes that the majority of the respondents reported musculoskeletal problems and one-fourth reported respiratory problems. Furthermore, the working environment (ventilation) is statistically significant for respiratory problems and an uncomfortable position is statistically significant for musculoskeletal problems. Thus, the findings highlight the importance of prevention of health problems among industrial workers might be one of the areas of public health concern.

## **Keywords**

Industrial workers, Self –reported physical health problems, Musculoskeletal problems, Respiratory problems, Metal and handicraft industry, Textiles industry, Factors, Prevalence

## **Comparison and evaluation of different phenotypic methods for the detection of biofilm in clinical isolates of *Acinetobacter* species**

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### **Introduction**

Members of the genus *Acinetobacter* are widely distributed in nature and can be isolated from soil and fresh-water samples, as well as from humans and animals. Ease of survival, and ability to form biofilms on the surface of various implants and in the environment with possession of resistance to many antimicrobials have made *Acinetobacter* a successful opportunistic pathogen in healthcare settings. *Acinetobacter* species play a significant role in healthcare-associated infection. MDR and the ability to form biofilm made this organism a successful hospital pathogen and pose a challenge to clinicians and microbiologists for management. Knowledge about the biofilm formation of *Acinetobacter* species including the status of antimicrobial resistance is crucial for the optimization of therapy and the infection control perspective.

### **Methods**

Various clinical samples were included in this study which was submitted for the bacterial c/s to the clinical laboratory of the Department of Microbiology. Isolation, identification of microorganisms, antimicrobial susceptibility, and detection of biofilm formation are done by standard microbiological techniques.

### **Results**

A total of 500 isolates of *Acinetobacter* species were obtained from the various clinical specimens, 255 (51%) were identified as *Acb complex*, and 49% non-*Acb complex* were identified by phenotypic methods. The biofilm production was detected 185(37%) by Microtiter plate method. Congo Red agar detected biofilm in 12% of isolates, while 52% of isolates showed positive biofilm by tube adherence method and the major species forming the biofilm was *Acb complex* (77%). 60% of the bacteria with the ability to form biofilms were MDR.

## **Conclusion**

*Acinetobacter* has emerged worldwide as an important pathogen causing serious and sometimes fatal infections. Its ability to infect hosts and its propensity to develop biofilm formation and antimicrobial resistance is a cause for concern among infectious diseases specialty. Increased antimicrobial resistance has effectively eliminated many treatment alternatives, raising concerns about optimum therapeutic regimens. Therefore, improved surveillance for this organism is necessary at unit-specific, institutional, and national levels.

## **Keywords**

MDR, Biofilm, Antimicrobial resistant, Infection control, surveillances

## **Problems faced by parents of children with autism spectrum-disorder: an auto/ethnography inquiry**

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The literature covers the challenges of parenting a child with autism spectrum disorder (ASD) and the impact on emotional and psychosocial well-being in general, as well as in the context of Nepal. The goal of this study was to share my own experiences as well as those of a few other parents' struggles with raising their children. Parenting a child with autism involves a unique set of problems that have a profound influence on families' lives. This abstract dives into the varied experiences of parents raising autistic children, giving light to the emotional, economic, and societal challenges they confront. Key themes emerge from a review of relevant literature, including early detection and intervention, access to appropriate resources, coping with behavioural challenges, regulating daily routines, and developing social contacts. The emotional toll of watching a child's developmental disparities, as well as the never-ending obligations of parenting, lead to increased stress and emotional tiredness. Financial limits resulting from therapeutic charges, medical bills, and educational resources exacerbate the difficulties. The social isolation that these parents frequently experience is a result of societal prejudices and the scarcity of inclusive community places. Despite these difficulties, parents show incredible resilience, frequently becoming strong advocates for their children

and fighting to enhance support systems and resources. The necessity of raising awareness, expanding access to specialized services, and building comprehensive support networks is emphasized in this abstract. By addressing the different challenges that parents of autistic children face, society may foster an environment of understanding, empathy, and empowerment, thus increasing the well-being of both parents and their autistic children.

### **Keywords**

Key words: Autism, Therapy, Awareness, Empowerment

### **Assessing gaps in midwifery-related education in Nepal: A comparative analysis with reference to the International Confederation of Midwives' global education standards**

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### **Background**

Despite obstacles, Nepal has achieved noteworthy strides in improving maternal and newborn health, yet questions about the capacity of preservice midwifery education continue to be raised. The purpose of this research is to determine where midwifery-related education in Nepal falls short of the global education criteria set by the International Confederation of Midwives (ICM) for high-quality maternal-newborn health care.

## **Methods**

A comprehensive review was conducted, comparing the education standards of the Proficiency Certificate Level (PCL) nursing program, the PCL midwifery program, and Nepal Nursing Council standards to ICM global education standards.

## **Results**

Significant disparities were found in curricula, with PCL Midwifery covering 44.7% of required standards, surpassing PCL Nursing's, which covers 15% standards. Governance, faculty, student, resource, and quality improvement gaps were evident in both PCL Midwifery and Nursing programs. Governance challenges, notably the lack of clarity in defining the roles of faculties, were prominent. Faculty-related deficiencies, particularly in PCL nursing, highlighted the urgent need for development. Suboptimal student engagement and inadequate financial and infrastructure-related resources further exacerbated the challenges. The absence of structured quality improvement measures revealed a systemic deficit in program evaluation and enhancement strategies.

## **Conclusions**

This study underscores significant disparities between PCL midwifery and PCL nursing curricula in Nepal. While midwifery shows closer alignment with global benchmarks, the nursing curriculum requires urgent improvement if nurses continue to take on the role of midwives. The persistence of issues with faculty, governance, and insufficient funding emphasizes the need for broad development programs and stakeholder collaboration to optimize midwifery education. Improving maternal and newborn health requires raising the standard of midwifery education.

## **Keywords**

curriculum, ICM global education standards, midwifery, nursing, pre-service education

## **Experiences of Healthcare Workers Who Faced Physical Workplace Violence from Patients or their Relatives in Nepal: A Qualitative Study**

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## **Introduction**

Workplace violence (WPV) against healthcare workers (HCWs) has emerged as a global concern. We aimed to investigate the first-hand experience of healthcare workers (HCWs) who faced physical workplace violence (WPV) from the patient or their relatives in Nepal and to identify the factors that contribute to WPV, its consequences, as well as recommendations from HCWs on preventing and managing WPV in healthcare settings.

## **Methods**

We conducted a cross-sectional qualitative study among twelve HCWs who faced physical WPV from patients or their relatives in the last three years (2019-2022) in Nepal. We recruited participants by announcing volunteer participation on social media and approaching HCWs who had experienced WPV through a review of national news archives. Semi-structured in-depth interviews of HCWs were conducted from August to October 2022. We analyzed the data using a hybrid thematic approach. In three domains, we generated nine themes: proximal factors, distal factors, personal response, response from hospital administration, police, and others, and recommendations at personal, organizational, and policy levels.

## **Results**

Most participants were male (9/12). The average age of participants was 31.6 years with an average experience of 8.3 years. We found that physical WPV against HCWs is multifactorial. Most HCWs reported that patients or near relatives who were affiliated with political parties or had a linkage with authorities were more likely to commit WPV compared to those who were not. Further, most HCWs did not receive the expected support from hospital and police administration. They had several recommendations at personal, organizational, and policy levels. The most important recommendation was to ensure the safety and security of HCWs.

## **Conclusions**

This qualitative study showed that the experience of HCWs who faced physical WPV in Nepal was traumatic. The concerned stakeholders should carefully consider the

recommendations from HCWs to establish a safe, secure, and supportive working environment.

### **Keywords**

Workplace Violence, Healthcare worker, Health System, Health Policy, Nepal

## **Self-Stigma and Self Esteem among Patients with Alcohol Use Disorder in Selected Hospitals**

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### **Background**

Self-stigma occurs when people internalize public attitudes and suffer numerous negative consequences as a result. The severe negative consequences of self-stigma are low self-esteem, an increase in the severity of symptoms, low treatment adherence, and decreased quality of life. Thus, this study aimed to find the prevalence of self-stigma and its effect on the self-esteem of patients with alcohol use disorder (AUD).

### **Methods**

A cross-sectional study was conducted among 132 patients with AUD attending the psychiatric outpatient department (OPD) of Patan Hospital and Mental Hospital, Lagankhel, Lalitpur. Non-probability purposive sampling technique was used for selecting the sample. The data was collected by face-to-face interview technique using a structured interview schedule. Descriptive statistics and inferential statistics (Pearson chi-square and Pearson correlation) were used for analyzing the data.

### **Results**

Among AUD patients, 129(97.8%) had self-stigma. Among them 29(22%) experienced mild, 60(45.5%) moderate, and 40(30.3%) severe self-stigma respectively. Among the five components of self-stigma, alienation had highest mean score followed by discrimination experience and lowest in stigma resistance. Regarding self-esteem, 88.6% had low, 5.3% had moderate and only 6.1% had high self-esteem. There was a significant negative correlation ( $r$  between self-stigma and self-esteem).

## **Conclusion**

Based on the study findings it is concluded that almost all of the patients with AUD had experienced self-stigma. More than three-fourths of patients had low self-esteem and self-stigma is negatively correlated with self-esteem. To enhance self-esteem and reduce self-stigma OPD OPD-based health education and awareness programs in the community can be conducted as social stigma is one of the sources of self-stigma.

## **Keywords**

alcohol use disorder, self-stigma, self-esteem

## **Successful Task Shifting: Cross-Sectional Study of an Emergency Obstetric Care Program in an LMIC Setting**

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## **Background**

In Nepal, 12% of all deaths for women of reproductive age are due to preventable obstetric complications. However, the distribution of human resources (HR) and availability of healthcare workers capable of providing CSs in LMICs is a significant limiting factor to reducing MMR globally. To address this disparity, the Advanced Skilled Birth Attendant (ASBA) task-shifting initiative was developed to train medical officers to perform Cesarean sections (CSs) and manage obstetric emergencies.

## **Methods**

A survey targeting all 234 ASBA graduates resulted in 93 usable surveys. Additionally, 7 rural CEONC government hospitals with working ASBA graduates were selected for 13 in-depth interviews and 6 focus group discussions with Operation Theater (OT) staff. Results were then triangulated.

## **Results**

Immediately after the training, 92.7% of ASBA graduates reported performing CSs at their health facility posting with the majority (65.6%) continuing to perform CSs today. Of the ASBAs not performing CSs, 51.7% could be explained by the lack of a functional operating theater, underscoring the need for a holistic approach to clinical service provision in low-resource settings. ASBAs were significantly more likely to be performing CSs if a family physician or another ASBA was present at their current health facility ( $p < 0.001$ ;  $p < 0.001$ ). Their work was perceived to increase the use of services by the community, facilitate a positive working environment, reduce referrals, and reduce the burden of CSs on any one staff member. Hospital staff were motivated to provide life-saving CSs when they otherwise might not have been able to and perceived the hospital to be in better standing with the community because of these services.

## **Conclusion**

The ASBA program is a successful task-shifting initiative that reduces human resource shortages. The program should be continued to further increase access to CSs in rural hospitals with a functioning operating theater and a stationed family physician to reduce maternal and infant mortality.

## **Keywords**

Maternal Health, Advanced Skilled Birth Attendant, ASBA

## **Adherence to Antipsychotic and Quality of Life among Patient with Schizophrenia at Selected Tertiary Level Hospital**

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## **Background**

Schizophrenia is a severe mental condition where a complex phenomenon of non-adherence is present in patients so that relapse, rehospitalization, and treatment resistance can occur. Quality of life is severely impaired in patients with schizophrenia.

## **Objectives**

To identify the level of adherence to antipsychotics, and quality of life among patients with schizophrenia and to find out the correlation between adherence to antipsychotics with quality of life among schizophrenic patients.

## **Materials and method**

A descriptive cross-sectional study design was adopted for the study. Sample size was 422 and purposive sampling technique was used to select the sample. Data was collected during March, April, May 2023. Questionnaire related to Socio-demographic information, Standard valid tool Drug Attitude Inventory (DAI-10) and The Schizophrenia Quality of Life Questionnaire (SQoL-18) was used as instrument. Ethical Clearance was obtained from NHRC. Data was analyzed using SPSS version 20.

## **Results**

The mean age of the respondents was 41.02 and standard deviation 12.77. More than half 52 (12.3%) of respondents were taking antipsychotics from more than 15 years. Majority of respondents 342 (81.0%) were using atypical antipsychotic. Only 220 (52.1%) of respondents has a moderate level of adherence towards antipsychotic medicine. There was a significant association found between the duration of illness where  $p=0.006$ . The statistically significant association was found with all dimensions of quality of life where  $p\text{-value} > 0.05$ . There is a significance mean difference found  $p < 0.001$  from nonadherent group to moderate adherent and adherent group and from moderate adherent to adherent group.

## **Conclusion**

Non-adherence was found important factor low Quality of life among schizophrenia patients. Implementation of community mental health programs may reduce treatment groups decrease non-adherence and make better quality of life among schizophrenia patients.

## **Keywords**

Schizophrenia, non-adherence, schizophrenia quality of life

## **Determinants of infant and young child feeding practices and nutritional status of 6 to 23 months children of DUNGESHWOR rural municipality, Dailekh**

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## **Background**

Optimal Infant and Young Child Feeding practices play a vital role in the nutritional status of young children. According to WHO and UNICEF, IYCF practices include early initiation of breastfeeding, exclusive breastfeeding, timely initiation of complementary feeding and continued breastfeeding until 2 years. Undernutrition is a major public health problem for children. Appropriate IYCF practices help to reduce undernutrition. However, there were limited studies on IYCF practices and the nutritional status of 6 -23 months' children in Dailekh

## **Objective**

To determine the infant and young child feeding practices and nutritional status of 6 to 23-months children of DUNGESHWOR Rural Municipality, Dailekh.

## **Methodology**

A cross-sectional study design was done in DUNGESHWOR Rural Municipality, Dailekh. The sample size was 190 mothers and 6-23-month child dyads. A semi-structured questionnaire was used to collect demographic variables and anthropometric measurements for measuring the height and weight of children. Data entry was done in the Kobo toolbox and analysis was done in SPSS version 22. Descriptive analysis (Frequency, percentage, median) and inferential analysis (chi-square) were done. Ethical approval for the study was taken from IRC KAHS.

## **Results**

Stunting, wasting and underweight were found in 43.2%, 3.1% and 38.9% of the children respectively. The rate of early initiation of breastfeeding was 86.8%. Exclusive breastfeeding was 94.7%, and extended breastfeeding was 98.9%. The minimum dietary diversity was 96.8%, minimum meal frequency was 85.3% and minimum acceptable diet was 84.2%. Appropriate IYCF practices was 24.7% and positive cultural practices was 44%. Mother's occupations, father education level, age of child, number of ANC visits, and total number of children in family and negative cultural practices were found as the main determinants of IYCF practices and nutritional status of children.

## **Conclusion**

Stunting, wasting and underweight were significant public health problem in DUNGESHWOR Rural municipality. Similarly, inappropriate IYCF practice was also the serious matter in Dailekh.

## **Keywords**

Determinants, Infant young child feeding, Nutrition status, Children

## **Research involvement among undergraduate students of a medical college in Kathmandu, Nepal: A descriptive cross-sectional study**

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## **Background**

With the development of medical science, it is essential to prime medical students with knowledge of evidence-based medicine. Our study aimed to calculate the prevalence of research involvement among medical students and determine their perceived motivational factors and barriers to research involvement.

## **Methodology**

A descriptive cross-sectional study was conducted among first to final-year students, including interns at a medical college in Kathmandu from 15th March to 4th May 2023. Ethical approval was obtained from the Institutional Review Committee of the institute on 6th March 2023 (Registration number: 826). A stratified random sampling technique was used and the calculated sample size was 255. Data were collected using a pre-tested self-administered questionnaire that was entered and analyzed using Statistical Package for Social Sciences version 16.

## **Results**

233 students participated in the study, with a mean age of  $22.57 \pm 2.18$  years, and the male majority (158, 67.8%). Around one-fourth (58, 24.9%) of the participants were involved in the research activity, where involvement in data collection (38, 65.5%) was the most common way of research involvement. Among those involved in research, the majority agreed that improvement in curriculum vitae (57, 98.3%) and help in postgraduate thesis (57, 98.3%) were the common motivating factors for research involvement. Likewise, among those not involved in research, lack of training in proposal writing (156, 89.2%) and a knowledge gap in research methodology (126, 72%) were the major barriers to research involvement.

## **Conclusion**

As only one-quarter of the respondents were involved in research activities, the study highlights the need for adequate training of students in medical research to help them practice evidence-based medicine in the future.

## **Keywords**

Cross-sectional study; medical students; research; Nepal

## **Associated Factors of Postpartum Depression among Mothers delivering/visiting in Paropakar Maternity and Women's Hospital, Kathmandu, Nepal: A Cross-sectional Study**

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## **Background**

Postpartum Depression is one of the most prevalent mental disorders all over the world. Postpartum Depression cases also rise in Nepal after the pandemic. There is an increased prevalence of postpartum depression across the globe due to busy lifestyle practices. Symptoms of postpartum depression include depression or extreme mood swings, too much crying, difficulty bonding with your infant, isolation from family and friends, appetite loss or binge eating, insomnia, sleeping too much, inability to sleep, etc. The objective of the research is to study the associated factors of Postpartum Depression among Mothers delivering at Paropakar Maternity and Women's Hospital.

## **Methods**

A mixed approach study was conducted among 271 mothers delivering Paropakar Maternity and Women's Hospital. Consecutive enumerative sampling was done on 271 mothers delivering Postnatal and Out-patient Ward of Paropakar Maternity and Women's Hospital within the data collection duration of ten days. An in-depth interview method for qualitative among six respondents and a Self-administrative questionnaire done for quantitative among all study respondents were used for the data collection. The association between variables was evaluated using bivariate and multivariate logistic regression.

## Results

The prevalence of postpartum depression was found to be 12.2%. No significant association was found with socio-demographic factors. A slightly significant association was found with vaginal tear (P-value: <0.001) and gestational diabetes (P-value: 0.031). Compromised social support, family and husband support, unawareness of postpartum maternal care and postpartum depression, limited knowledge regarding newborn care, difficulty in handling and managing the phase along with newborn baby were found in the qualitative part of this study.

## Conclusion

Mother should provide awareness regarding postpartum care and depression. Planned pregnancy, Pre-pain assessment, and Depression screening should be prioritized in the early postpartum period. Social support, husband, and family support were strongly linked with postpartum depression in the respondents of this study.

## Keywords

Women, Mother, Postpartum Depression, Risk Factors, Paropakar Maternity and Women's Hospital

## Improving Emergency Care in Low-Resource Settings: A Mixed-Methods Evaluation of a Primary Emergency Care Training Program in Nepal

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## Background

Prompt attention to patients experiencing acute injury can be the difference between life, disability, and death. Yet despite its importance, and the rise of such situations in Low- and Middle-Income Countries, emergency care is often neglected. This mixed-methods evaluation evaluates the effectiveness and utilization of the Primary Emergency Care (PEC) Training program at enhancing emergency care in Nepal. The curriculum, launched in 2019,

covers Basic Life Support, Common Medical Emergencies, Primary Trauma Care, Mass Casualty Management, and Common Orthopedic Emergencies, with 295 health workers trained across 15 batches by January 2023.

### **Method**

Utilizing the Kirkpatrick Model for assessing training programs, the study analyzed reaction, learning, behavior, and results through retrospective data, surveys, and hospital assessments.

### **Result**

Findings indicate significant improvements in participants' knowledge and skills post-training, with mean test scores increasing by 35.9%, indicating effective learning. Graduates praised the training for its relevance and the confidence it instilled in them for managing emergencies. However, challenges such as variations in practical training experiences, language barriers, and the need for more specialized content tailored to different healthcare roles were identified. Participants suggested more real-life, hospital-based simulations to better prepare them for practical challenges. The training's impact extended beyond individual learning to enhance overall emergency service delivery, evidenced by positive feedback from both participants and non-participants. Yet, limitations in equipment, human resources, and infrastructure have been barriers to fully applying the acquired skills.

### **Conclusion**

The study concludes that while PEC training is a valuable asset in strengthening emergency care, ongoing support, including refresher training, monitoring, and resource management, is essential for sustaining its effectiveness. Recommendations for future training include revisiting participant selection criteria, revising training content to match participant backgrounds, addressing resource limitations, and incorporating advanced components to enhance emergency care services comprehensively.

### **Keywords**

Primary Emergency Care, PEC, Training

**INFECTIOUS DISEASE AND BIOMEDICAL RESEARCH**

## ORAL PRESENTATIONS

### **Association between human leukocyte antigen HLA-B\*13:01 and dapsone-induced hypersensitivity reactions in Nepalese leprosy patients**

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#### **Background**

About 2-3% of Nepalese leprosy patients develop a serious life-threatening dapsone-induced hypersensitivity/allergy (DHS) reactions after starting daily dapsone as a part of routine leprosy therapy. Various studies have confirmed a human leukocyte antigen allele HLA-B\*13:01 as an important risk factor for development of DHS. We probed to study similar association in Nepalese population. Additionally, cost-friendly endpoint PCR and LAMP technique-based genetic tests are being developed.

#### **Methods**

HLA-B\*13:01 was identified by a qPCR-based test (Nalagenetics, Singapore) by extracting blood from patient blood. Case and control (not developing allergy) were retrospectively enrolled. All new leprosy cases diagnosed from June 2022 were also tested for the allele and all allele positive patients were denied dapsone. Primers for developing PCR and LAMP techniques were designed based on sequences available at IPD-IMGT HLA database at European Bioinformatics Institute.

#### **Results**

Until the end of February 2024, 37 known DHS cases and 68 dapsone-tolerant controls were enrolled. Provisional analyses show 67.6% of cases (25/37) and 5.9% of controls (4/68) were

allele positive (Odds Ratio: 33.3 95% CI: 9.8 to 113.2). Considering 2.5% DHS prevalence, the positive predictive value was 22.8 and negative predictive value was 99.1. During the same time, 287 new cases have been enrolled and 9.4% were HLA-B\*13:01 positive. Validation in clinical samples found 100% sensitivity and 100% specificity in all samples tested until now (Knowns: 5 positives and 20 negatives for PCR; 2 positives and 20 negatives for LAMP).

### **Conclusion**

Presence of the allele in DHS cases proves to be a high-risk association. High prevalence of HLA-B\*13:01 (~10%) than reported prevalence of DHS could hint yet another undiscovered factor precipitating DHS. Development of cost-effective tests can help increase implementation of genetic tests to screen patients before dapsone administration.

### **Keywords**

Dapsone hypersensitivity, Leprosy, HLA-B\*13:01

### **Laboratory and field evaluation of bio-larvicide *Bacillus thuringiensis* isolate of Nepal against *Aedes aegypti***

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### **Background**

Increasing climate change and dengue diseases in Nepal require additional interventions to achieve sustainable development goals to control the burden of mosquito-borne diseases in the future. Vector control by bio-larvicide *Bacillus thuringiensis* for larval source management in domestic containers to hinder the development of adult mosquitoes, break the transmission chain in urban areas, and reduce the disease rate is more effective and safer than chemical pesticides towards the anthropophilic *Aedes* vector. Search and destroy campaign effectiveness will be enhanced by integrating the bio-larvicide in Nepal. The study aims to

determine the efficacy and residual effect of the newly formulated bio-larvicide through laboratory and field trials.

### **Methodology**

Larvicidal Bt-14P2A isolated from soil samples of Nepal was formulated as a liquid bio-larvicide. The newly formulated Bt-14P2A was evaluated by laboratory bioassay, stimulated, and open field trials in domestic containers and tires on outdoor and indoor premises in Kathmandu and Lalitpur during the monsoon season against *Aedes aegypti* and field-collected larva, the lethal concentration dose, residual effects, and mortality rates were estimated based on the standard guidelines of the World Health Organization.

### **Results**

Bt-14P2A bio-larvicide demonstrated 100% larvicidal activity against mosquito larvae. Bt-14P2A's LC<sub>50</sub> and LC<sub>90</sub> dosages against *Aedes aegypti* larvae were 6.45 ppm and 37.15 ppm respectively. Simulated field testing revealed a residual impact of seven weeks for the liquid formulation, with 100% mortality for 6 weeks. Open-field experiments also showed efficacy, with very modest doses delivering 100% mortality for up to 14 days and residual effects lasting up to 6 weeks in household containers. The larvicidal *Bacillus thuringiensis* strain was found to be genetically identical to standard strain *Bacillus thuringiensis* var *israelensis*.

### **Conclusion**

Finally, the efficient isolation procedure produced *Bacillus thuringiensis* strains that have 100% larvicidal activity against *Aedes aegypti* larvae. These isolates show promise as future strategies for managing larval sources and combating mosquito-borne illnesses in Nepal.

### **Keywords**

Keywords *Aedes aegypti*, bio larvicide, Bt-14P2A, field trial, Nepal

### **Leprosy in Lalitpur District: concern for active case finding**

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## **Background**

Nepal achieved the elimination target for Leprosy in 2009 and declared elimination in 2010. However, elimination in the district level is still questionable when the indicators are reflecting active transmission in the community.

## **Methodology**

A retrospective medical chart review of Leprosy Patients at Anandaban Hospital. Records were reviewed from 2000 to 2023.

## **Results**

A total of 147 new Leprosy cases from Lalitpur District were confirmed at Anandaban Hospital between 2000 to 2023. Data were classified into pre-elimination (before 2010) and post elimination era (2010 and onwards). In the pre-elimination era, 98 leprosy cases were confirmed of which 67.3% were multibacillary (MB) leprosy and 21.4% had either grade 1 or 2 disability. In the post-elimination era, 49 leprosy cases were confirmed of which 77.5% were MB leprosy and 28.6% had either grade 1 or 2 disability. Two child cases were reported in the past 5 years (2019-2023). One of the child cases was pure neuritic and had household leprosy contact.

## **Conclusion**

Leprosy cases are seen in decreasing trend in the post-elimination era. However, high MB percentage and disability during diagnosis resembles delay in diagnosis. Child case is an indication of active transmission and reported child cases from Lalitpur district is an indicative of ongoing active transmission in the community. Results of this study advocate the need of strategy for early diagnosis and active case finding.

## **Keywords**

Leprosy, transmission, diagnosis, child cases

## **Seroprevalence, Geospatial Distribution and Risk factors associated with Hepatitis E infection in Nepal**

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## **Background**

Hepatitis-E virus (HEV) causes acute jaundice and presents a significant public health concern in low- and middle-income countries. Inadequate surveillance capabilities and insufficient access to diagnostic tools contribute to the underreporting of HEV infections in affected regions, including Nepal. The detection of serum antibodies serves as an indication of previous infection. Therefore, utilizing samples from a nationally representative serosurvey, we examined the geographical spread and factors associated with HEV seropositivity in Nepal.

## **Methodology**

A nationally representative cross-sectional serosurvey of individuals  $\geq 2$  years old from 975 households spread across 65 wards throughout Nepal was conducted between November 2021 and January 2022. The samples were tested for anti-HEV IgG. Seroprevalence and its 95% confidence interval were estimated and mixed-effects logistic-regression models were used to identify risk factors associated with HEV seropositivity. Bayesian-geostatistical models were fitted to observe seroprevalence data and to generate high-resolution maps of seropositivity across Nepal.

## **Results**

For this study, samples available from 3,707 participants were tested for anti-HEV IgG, and 3,703 were used for final analysis. We found 20.8% (95% CI: 19.5-22.2) of participants had evidence of prior HEV infection, with seroprevalence increasing with age and higher in male population. Seroprevalence in hilly (28.9%, 95% CI: 26.6-31.2) and mountain (24.6%, 95%

CI: 18.8-30.5) regions were statistically higher than in terai (14.2%, 95% CI: 12.7-15.8). However, no significant difference was observed between urban and rural populations. Geospatial modelling estimated that more than 9 million people in Nepal have previously been infected with HEV, with the highest seroprevalence in Kathmandu.

### **Conclusion**

The findings of this study provide population-based serological evidence that HEV is endemic in Nepal, with Kathmandu showing the highest risk of infection. To address this, it is crucial to implement water sanitation and hygiene interventions, along with considering the appropriate administration of the HEV vaccine, particularly in densely populated urban regions.

### **Keywords**

geospatial, HEV, Nepal, risk factors, seroprevalence

### **Application of Lytic Bacteriophage Against Carbapenem Resistant *Klebsiella pneumoniae* biofilms and Cloning of Holin Gene Responsible for Bacterial Lysis**

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### **Background**

Carbapenem-resistant *Klebsiella pneumoniae* (CRKP) is a major challenge for infection control and clinical management. It forms biofilms on various medical devices and makes the use of antibiotics ineffective. Alternative therapies to antibiotics are urgently needed and phage therapy are the new possibilities to treat. In this investigation, lytic phage (ØKp\_NEP) was used to control CRKP biofilms *in vitro* and the holin gene was cloned.

### **Methodology**

Bacteria were identified by 16SrRNA gene sequencing. Phage was isolated using a double layer agar assay. The burst size and latent period of phage were determined by a one-step growth curve. Phage physiochemical properties were analyzed. Phage protein was analyzed

using SDS-PAGE. Whole genome sequencing of lytic phage was done using Illumina MiSeq. Biofilm elimination capacity was observed under SEM against phage. Holin was cloned using the following host and vector e.g. pET-21, DH5 $\alpha$ , BL21, T-vector, and *pUC19*.

## Results

Next-generation sequencing and genome analysis revealed that phage had a linear double stranded genome with a length of 45288 base pairs and G+C content of 53.92%. 90 putative open reading frames were identified using *Silico* sequence manipulation suite (Stothard,2000). BLASTn analysis revealed that phage had the highest sequence similarity with *Klebsiella* phage myPSH1235 with genome coverage of 79%. Based on TEM, phage belongs to the family myoviridae of the order Caudovirales. It was shown that latent period of the phage was 20 minute and burst size 119 virion per bacterium. The optimum temperature and pH for the phage was 37°C and 7 respectively and is highly specific to host strain. It reveals that bacteriophage can effectively disrupt *Klebsiella pneumoniae* biofilms.

## Conclusion

Phage therapy may be a promising alternative candidate to antibiotics for preventing and controlling infections caused by CRKP biofilms. Phage holin protein can be next generation antibacterial agent to treat MDR pathogen if further research is carried out in clinical trial.

## Keywords

Carbapenem resistant *Klebsiella pneumoniae* (CRKP); Holin; Biofilm

## Schools as a Platform for Rapid Typhoid Seroepidemiological Assessments

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## **Background**

Typhoid fever continues to impose a significant health burden worldwide, particularly in low- and middle-income countries (LMIC). Blood culture surveillance is expensive, logistically intensive. So, serologic surveys are an alternative approach to generate accurate typhoid incidence estimates. We approach schools are a potential alternative population to quickly estimate typhoid burden. We determine the feasibility of using a school-based sampling frame for typhoid sero-epidemiology, evaluating participation rates and resource requirements.

## **Methodology**

The cross-sectional serological study was conducted between 2021 and 2022 in Kavre and Dolakha districts involving 1338 school going children. Dried Blood Spot collected from age between 4-18 years from 8 and 10 private or government school in the Kavrepalanchok and Dolakha district respectively. The HlyE IgG and IgA antibody was determined by kinetic ELISA to determine the seroincidence rate.

## **Result**

The median age of participants in Kavrepalanchok and Dolakha District was 11 and 9 years, respectively. The seroincidence rates were 27 (95% CI 23.5-30.9) and 18 (95% CI 14.5-22.4) per 1000-person year in Kavre and Dolakha, respectively. These results were compared with seroincidence rates observed in Kavrepalanchok in 2019 within the same catchment area. In the high endemicity area, the seroincidence rate was 105 (95% CI 94-117) per 1000 person-years, while in the low endemicity area, it was 122 (95% CI 109-136) per 1000 person-years.

## Conclusion

Seroincidence estimates derived from school-based sampling were lower to those derived from household surveys, whereas participation rates were higher in school based surveys compared with household surveys.

## Keywords

Typhoid, Seroincidence

## **Azithromycin and Cefixime Combination Versus Azithromycin Alone for Uncomplicated Typhoid Fever in South Asia; A Randomized Controlled Trial**

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## Background

Enteric fever is a common cause of nonspecific febrile illness in adults and children in low- and middle-income settings. Azithromycin is mainly active against intracellular bacteria and cefixime has greater activity against extracellular bacteria in typhoid. As activity against both intracellular and extracellular bacteria is thought important in typhoid, we hypothesize that the combination of azithromycin and cefixime will be more effective, with fewer treatment failures, than azithromycin alone.

## Methods

The Study is comparative participant-and observer blind, 1:1 randomized clinical trial, Phase IV. This study is multi-center, multi-country. Nepal, Bangladesh and Pakistan are the countries participating for the with total sample size of 1500. Patients with suspected uncomplicated typhoid fever will be randomized into Arm A: azithromycin 20mg/kg/day oral dose once daily and cefixime 20mg/kg/day oral dose in two divided doses for 7 days, Arm B: azithromycin 20mg/kg/day oral dose once daily for 7 days and cefixime-matched placebo for

7 days. At the end of the study, the team will analyze and assess whether treatment outcomes are better with the combination of azithromycin and cefixime, after seven days course of treatment and at various day 7, 14 and 28 along with (day 90 for culture positive case) follow-up.

### **Study Progress**

The study was delayed by COVID-19, but eventually started recruitment in May 2021. Till date we have successfully enrolled more than 1200 patients from all study sites. We have recently completed an interim safety and efficacy analysis. The study aims to recruit >1500 patients from Nepal, Pakistan and Bangladesh by September 2024.

### **Discussion**

Azithromycin and cefixime are widely used and safe antimicrobials. But there is uncertainty whether we should use both together, rather than a single drug on its own, for treating typhoid fever. This study will determine if using both azithromycin and cefixime together is better than azithromycin alone for treating confirmed or suspected typhoid fever.

### **Keywords**

Enteric fever, Nepal, Bangladesh, Pakistan, Undifferentiated febrile illness

## POSTER PRESENTATIONS

### **Comparative efficacy of various histological staining methods for demonstration of *Helicobacter Pylori* in gastric biopsies.**

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#### **Background**

*Helicobacter pylori* is a spiral, flagellated bacterium having abundant urease production capacity. *H. pylori* bacterium has been implicated in various gastrointestinal disorders including gastritis, gastroduodenal ulcers, mucosa associated lymphoid tissue lymphoma and gastric cancer. Histology is a gold standard technique for the detection of *H. pylori*. This study aims to evaluate various histological staining methods used for the demonstration of *H. pylori* in gastric biopsies.

#### **Method**

This study was conducted in the laboratory department of Histocytopathology, Tribhuvan University Teaching Hospital (TUTH), Maharajgunj, Kathmandu, Nepal. A total of 100 gastric biopsies were analyzed for the presence of *H. pylori* with the use of three different histological stains. The Sensitivity, Specificity, Negative predictive value, Positive predictive value, and Diagnostic accuracy of each stain were calculated.

#### **Results**

*H. pylori* was detected in a total of 32 gastric biopsies. Males were found to be affected more than females. Middle-aged group people were found to be highly susceptible. Higher cases of *H. pylori* were detected by Giemsa stain followed by Gimenez stain and H and E stain. The result of the Gimenez stain was superior to the H and E stain and comparable to the Giemsa stain.

#### **Conclusion**

The result of this study concludes that Giemsa stain is best as compared to the other two stains for its consistent result, excellent sensitivity, and reproducibility.

#### **Keywords**

*Helicobacter Pylori*, Hematoxylin and Eosin stain, Giemsa stain, Gimenez stain.

## **Serotyping of Dengue Viruses Circulating During the 2022 Outbreak in the Febrile Patients of Madhesh Province, Nepal**

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### **Background**

Dengue virus (DENV) has four serotypes: DENV-1, DENV-2, DENV-3, and DENV-4 and all can cause classical dengue fever (DF) as well as dengue shock syndrome/dengue hemorrhagic fever (DSS/DHF), that can be fatal in as many as 5% of the cases. In dengue-endemic countries, changes in DENV serotypes, genotypes, and lineages have been reported. Multiple serotypes have been known to cause dengue outbreaks in Nepal including Madhesh Province. However, no studies have elucidated the diversity of serotypes in the province and if co-infection of DENV exists in dengue patients. Hence, this study was conducted to identify DENV serotypes circulating during and following the 2022 outbreak in the febrile patients of the province.

### **Methodology**

A retrospective study was carried out at the Madhesh Province Public Health Laboratory (PPHL), Janakpurdham, Nepal. Serum samples collected from acute febrile patients from September 2022 to February 2023 were tested for NS1 antigen, IgM, and IgG antibodies. The serologically confirmed dengue serum samples were further serotyped by real-time RT-PCR.

### **Results**

A total of 588 acute febrile patients were tested for dengue infection, among them 17.6%, 9.4%, and 3.9% were dengue positive with NS1, IgM, and IgG, respectively. Serum samples from a total of 85 confirmed dengue patients were tested for DENV serotypes. The serotypes involved in 2022 dengue outbreak were DENV-1, 2 and 3, in which DENV-1 only was detected in 44.7% patients, DENV-2 only in 11.8%, DENV-3 only in 14.1%, and DENV-1 and DENV-2 co-infection in 10.6% patients. No DENV-3 patients had co-infection with other serotypes and all the patients belonged to the Madhesh Province.

### **Conclusion**

This study identified multiple serotypes of DENV among febrile patients of Madhesh Province during 2022 outbreak with detection of co-infection of DENV serotypes among the local residents. The study highlighted the need of continued need of surveillance of serotypes of DENV and implement interventions to control and prevent future mono or co-infection of DENV serotypes.

### **Keywords**

Dengue virus, Madhesh Province, Nepal, Outbreaks, Serotypes.

### **Inducible and Constitutive Clindamycin-resistant *Staphylococcus* species in patients visiting TUTH**

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### **Background**

*Staphylococcus* species is mainly associated with skin and soft tissue infections. Methicillin-resistant *strain* is the major causative agent for morbidity and mortality worldwide. Clindamycin, a widely used effective drug for staphylococcal infection is found to be resistant in many isolates leading to treatment failure. Hence it is necessary to detect inducible clindamycin-resistant strains of *Staphylococcus* species for optimum treatment of patients which could be done by simple D-zone test.

### **Objective**

The study was carried out to determine the susceptibility pattern of Erythromycin and Clindamycin (ICR and MLSBc) in *Staphylococcus* species along with Methicillin resistance.

### **Methods**

It was a cross-sectional study conducted from September 2023- February 2024 at Bacteriology laboratory of TUTH. A total of 300 isolates identified as *S. aureus* and CONS were taken from inpatients and outpatients visiting TUTH. The specimens were collected and processed according to the standard methodology. Cefoxitin disk was used for the detection of methicillin resistance while D-zone test was performed to detect inducible clindamycin resistant *Staphylococcus* species.

## Results

Out of 300 isolate of *Staphylococcus* species majority of them were CONS 63.33% and 36.66% were *S. aureus*. The *S. aureus* was predominant in pus/swab and the CONS in blood cultures. The prevalence of MRSA and MR-CONS was 28.18% and 63.15 % respectively. The overall prevalence of the ICR strains of *Staphylococcus* species was 5.6% whereas the constitutive clindamycin resistance was 38.33.%. Penicillin was found to be highly resistant while chloramphenicol and teicoplanin were effective drugs.

## Conclusion

Methicillin resistant *Staphylococcus* species were relatively higher. The MLSBi strains of *Staphylococcus* was lower than the MLSBc strains, which suggests for wise use of clindamycin. Further studies should be conducted to generalize this study and to find out the different genes responsible for drug resistance.

## Keywords

*S. aureus*, CONS, Clindamycin, MLSBi and MLSBc

## Inhibition of biofilm formation by multidrug-resistant *Acinetobacter baumannii*

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## **Background**

The global crisis of antibiotic resistance increases the demand for the novel promising alternative drugs to treat infections caused by multidrug-resistant (MDR) *Acinetobacter baumannii*. These pathogens can form biofilms on biotic and abiotic surfaces, which is one of their mechanisms for becoming resistant/tolerant to antimicrobials. This study determined the effect of essential oils to act as anti- *A. baumannii* biofilm agents.

## **Methodology**

Antibiotic sensitivity of *A. baumannii* isolates from clinical specimens was performed following American Society for Microbiology guidelines. Strains were screened for their ability to form biofilms in a microtiter plate assay. The ability of cinnamaldehyde and natural plant extracts to inhibit biofilm formation was also tested. The chemical constituents in the essential oils (EOs) of turmeric, ginger, garlic and *Ageratina adenophora* were analyzed by gas chromatography-mass spectrometry (GC-MS).

## **Results**

Out of the total 200 *A. baumannii* isolates, 195 were MDR and 192 produced biofilms. Among the biofilm producers, 83.1% were classified as strong biofilm producers, 14.4% as moderate producers and 1.0% as weak producers. The major compounds identified in EO of ginger were  $\beta$ -Curcumene (14.86%),  $\beta$ -Sesquiphellandrene (10.28%), allitridin (35.8%), trisulfide allyl methyl (18.6%) were the major constituents of EO of garlic. The major compound of turmeric was Z- $\gamma$ -Atlantone (29.0%), ar-Tumerone (19.9%).  $\alpha$ -Muurolol (12.0%),  $\alpha$ -Bisabolol (8.3%) were main constituents found in EO of *Ageratina adenophora*. Cinnamaldehyde was the most effective compound, inhibiting biofilm formation by 77.3%. This was followed by the ethanolic extract of onion (77.2%), EO of ginger (70.8%), garlic (68.6%), ethanolic extract of chili pepper (68.0%), EO of *Ageratina adenophora* (67.6%), and EO of turmeric (51.9%).

## **Conclusion**

The majority of *A. baumannii* strains were able to produce large biofilms, but plant extracts were able to inhibit this biofilm formation. Future studies should be performed to identify their safety, and ability to be used to control *A. baumannii* infections.

## **Keywords**

A. baumannii, multidrug-resistant (MDR), biofilm production, biofilm inhibition, essential oils

## **Assessing the burden of Tuberculosis and readiness of healthcare facilities to provide TB care in Nepal: A Comprehensive Analysis**

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## **Background**

Tuberculosis (TB) is significant public health problem in Nepal. Evaluating the burden of TB and the effectiveness of the healthcare system in addressing this disease is essential for implementing effective control and prevention measures. This study aimed to analyze the data from three different national sources to assess the burden of TB in Nepal and the readiness of the healthcare system in addressing TB.

## **Design/Methods**

This study analyzed data from National TB Prevalence Survey conducted in 2018-2019, the Nepal Health Facility Survey conducted in 2020, and Integrated Health Management System (2017-2020). Weighted logistic regression analysis was performed to examine the effects of social determinants (gender, age, residence, education, occupation, and wealth quantile) with TB and assessed the readiness of health facilities to provide TB services. Statistical model was used for assessing TB morbidity, mortality, success rate and its determinants were performed using multiple linear regression.

## **Results**

The National TB Prevalence Survey revealed that the prevalence of TB was 416 cases per 100,000 population. Older age groups, male gender, lower education status, and low wealth quintile were determinants for TB. The Nepal Health Facility Survey identified gaps in TB staffs and guidelines (25.16), medicine (31.9), and diagnostics (36.03), with overall readiness score of 32.41. Bagmati and Sudurpashchim provinces had higher odds of readiness score

compared to the Koshi province. Hospitals had higher odds of readiness score than peripheral health facilities. Trends of TB morbidity, mortality and treatment success rate increased in recent years. There were marked variations by location with higher rates occurring in the Terai region and urban areas.

### **Conclusions**

The study emphasizes the need for continued efforts to improve TB diagnosis, treatment, and prevention in Nepal, among vulnerable populations. Using multiple data sources and appropriate statistical methods is essential for evaluating the burden of TB and assessing the effectiveness in addressing this disease.

### **Keywords**

Tuberculosis, Comprehensive analysis, Burden, Prevalence, Nepal

### **Assessment of baseline knowledge, attitude, practice, and adherence toward antimicrobials among women from two municipalities of Lalitpur district**

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### **Introduction**

The burden of AMR is significant in the developing and low- and middle-income countries like Nepal. Community engagement can be an important way towards understanding the problem of AMR and the ways to prevent it. The objective of this study was to collect data on knowledge, attitude, practice and compliance of the women regarding antimicrobials.

### **Methods**

This quasi-experimental study was conducted in two urban municipalities of Lalitpur district i.e., Mahalaxmi (intervention) and Godavari (comparison). The study population was women

belonging to the mother's group of 45 female community health volunteers (FCHVs) each of these municipalities. Baseline study was done from September 2023 to January 2024 before the educational intervention. The sample size of baseline survey was 1177, 572 in Mahalaxmi and 605 in Godawari. Data on demographics, knowledge, attitude, practice and adherence was collected using a pre-validated structured questionnaire.

### **Results**

There were 572 women from Mahalaxmi and 605 women from Godavari municipality who completed the questionnaire. The average age, educational status, monthly income, occupation, presence of respiratory disease, and communicable diseases were found to be not different among the two municipalities. The presence of chronic illness and the presence of health workers in the family were also not different. Work experience, presence of respiratory disease, and health workers in the household were different in the baseline survey among the two locations. Knowledge and attitude scores were higher in Mahalaxmi (p values <0.0001), and adherence scores in Godawari (p=0.003) but no significant difference was seen in attitude scores. The scores were low compared to the maximum possible scores.

### **Conclusion**

At baseline, the two study sites were broadly comparable in terms of participants' demographic characteristics. The knowledge, attitude, practice, and adherence scores were low, and we expect these to improve after the educational intervention.

### **Keywords**

Antimicrobial resistance, Female community healthcare volunteers, mothers' group, community

### **Biofilm formation and plasmid-mediated quinolone resistance genes at varying quinolone inhibitory concentrations in quinolone-resistant bacteria superinfecting COVID-19 inpatients**

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## **Background**

The likelihood of treatment failure in COVID-19 patients with bacterial superinfection stems from phenotypic, viz., biofilms, and genotypic mechanisms. This cross-sectional study aimed to determine the inhibitory concentrations of quinolones—nalidixic acid, norfloxacin, ciprofloxacin, ofloxacin, and levofloxacin—in biofilm formers [minimum biofilm inhibitory concentration (MBIC)] and non-formers [minimum inhibitory concentration (MIC)] as well as correlate the quinolones' folds with the presence of plasmid-mediated quinolone-resistance (PMQR) genes in quinolone-resistant bacteria isolated from COVID-19 inpatients.

## **Methodology**

Quinolone-resistant isolates (n=193), verified through disc diffusion, were tested for quinolone inhibitory concentrations and biofilm formation with broth microdilution and microtiter plate methods, respectively. Polymerase chain reaction was used to detect PMQR genes. Ethical approval was obtained from the Shi-Gan Health Foundation (Registration Number: 2078/03/03), Narayangopal Chowk, Kathmandu, Nepal.

## **Results**

The prevalence of quinolone-resistant bacteria in COVID-19 patients was 15.80% (103/652) (18.59–13.01, 95% confidence interval). There were 56 (54.37%) patients infected with a single bacterial strain and 47 (45.63%) with  $\geq 2$  strains. The majority of infections were caused by fermentative-gram-negative bacilli (F-GNB) (n=126), followed by gram-positive cocci (GPC) (n=43) and non-fermentative-gram-negative bacilli (NF-GNB) (n=24). MIC to MBIC median increase in folds for ciprofloxacin, ofloxacin, and levofloxacin was 128 (2-8,192), 64 (4-1,024), and 32 (4-512) in GPC, respectively, while it was 32 (4-8,192), 32 (4-2,048), and 16 (2-1,024) in F-GNB, and 16 (4-4,096), 64 (2-64), and 16 (8-512) in NF-GNB. Biofilm-forming F-GNB (32/126) and NF-GNB (10/24) harbored *qnrB* [11/32 versus (vs.) 3/10], *aac(6')-Ib-cr* (10/32 vs. 4/10), and *qnrS* (9/32 vs. 0/10) genes, respectively. A 32-fold median increase in ciprofloxacin was significantly associated with *qnrA* and *qnrS* in F-GNB and NF-GNB, respectively. F-GNB and NF-GNB biofilms were significantly associated with *aac(6')-Ib-cr* and *qnrS* genes, respectively.

## **Conclusion**

Nearly one-third of the superinfecting bacteria in COVID-19 patients formed biofilms and had at least one PMQR gene, increasing the need for quinolone inhibitory concentrations.

## **Keywords**

Bacteria, biofilm, COVID-19, PMQR, inhibitory concentrations, quinolones, superinfection

## **Adherence towards use of antimicrobials and its associated factors in selected community of Madhyapur Thimi Municipality: A mixed method study**

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## **Background**

Antimicrobial resistance is one of the top ten global public health threats. One of the main causes of this is patient non-adherence to antibiotics. Most patients fail to follow a full course of treatment and usually stop taking medicines after 2–3 days when symptoms start to subside. This study is carried to find out adherence towards use of antimicrobials and factors associated with it in the community of Madhyapur Thimi Municipality using both qualitative and quantitative method.

## **Methodology**

A concurrent triangulation mixed method design was used. One of the wards was randomly selected and household listing of ward was done to include only those who have taken antimicrobials in past two years. 384 participants were selected randomly from the sampling frame. Medication Adherence Reporting Scale was used to measure adherence. 19 participants were selected using judgmental sampling for qualitative study. Descriptive analysis, bivariate regression followed by multivariate logistic regression was carried out to find the association between study variables. Braun and Clarke's six steps of thematic analysis were followed for qualitative data analysis.

## **Results**

Adherence to the use of antimicrobials was 51.04% (CI: 45.92-56.15). Education ( $p=0.025$ ), socio-economic status ( $p=0.0251$ ), prescription ( $p\leq 0.01$ ), marital status ( $p=0.0421$ ), reuse of medication ( $p\leq 0.01$ ), side effect ( $p=0.042$ ), belief that antimicrobials are strong medicines ( $p\leq 0.01$ ) and high nutrition are needed after taking them ( $p=0.019$ ) were the factors

associated. Qualitative analysis pointed out five major themes: Low knowledge on antibiotics, resistance and rational use, perception of disease and side effect, Factors for non-adherence, leftover medication use and adherence. Major identified factors were lack of knowledge, economic factors, availability and perception of side effect and disease.

### **Conclusion**

The study shows that adherence to use of antimicrobials is low in the community and main reason being low education and awareness of antimicrobials, resistance and its proper use.

### **Keywords**

Adherence, Antimicrobial resistance, Community, adherence scale, education

### **Antimicrobial resistance in bacterial isolates from cancer patients**

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Bacterial infections are the most frequent complication in patients with malignancy, and the epidemiology of nosocomial infections among cancer patients has changed over time. There is increasing evidence of antimicrobial resistance in cancer patients globally. The prevalence of infections varies depending on the infection prevention and control practices in healthcare facilities, the hygienic and socio-economic status practices of the patients. This study aims to detect and characterize the antimicrobial resistance in patients receiving treatment at Nepal Cancer Hospital and Research Center (NCHRC), Lalitpur, Nepal.

A hospital-based, cross-sectional observational study was conducted during June 2023 to February 2024, with specimens from cancer patients. Out of 3357 samples analyzed for bacterial culture and susceptibility testing using 25 different antibiotics, following CLSI guideline (2021), bacterial growth was observed in 24% (790) of samples with 820 isolates. Among the total 820 isolates, the most common were *E.coli* 33%(274), *Klebsiella pneumoniae* 27%(220), *Pseudomonas aeruginosa* 13%(108). *Citrobacter freundii* 8% (64),

*Acinetobacter baumannii* 5% (38) and *Staphylococcus aureus* 3% (25). 72% of the bacterial isolates were found resistant to Amoyclav while it was 68% to Cefotaxime and Ceftazidime, 67% to Nitrofurantoin and 65% to Ciprofloxacin were common antibiotics used in treating cancer patients, empirically in the absence of culture and susceptibility results. 70% of the bacterial isolates were susceptible to Amikacin, while it was 68% to Doxycycline, 67% to meropenem and 63% to piperacillin/tazobactam. 74% of the bacterial isolates exhibited multiple drug resistance. The findings alert for urgent need for effective antibiotic stewardship in hospital settings, including awareness in patients and pharmacies in restricting over-the-counter use of antibiotics.

### **Keywords**

Nosocomial infections, Antimicrobial Resistance, Cancer

### **Guillain–Barre syndrome following COVID-19 vaccination: a study of 70 case reports**

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### **Background**

Guillain–Barre syndrome (GBS) has been found to have some interesting association with vaccinations. This paper mainly focuses on exploring different associations between COVID-19 vaccination and GBS.

### **Methods**

Electronic databases such as PubMed, Google Scholar, Cochrane, and Embase were searched using MESH terms for case reports published till 1 August 2023 from which 70 case reports were documented involving 103 individuals from 23 different countries.

### **Result and discussion**

The case reports were from a wide range of individuals aged from 13 to 87 years with an average age of  $53 \pm 20$  interquartile range years along with male predominance. The average time between receiving the vaccine and the onset of symptoms was  $13.08 \pm 2.14$  days. Prominent clinical features included back pain, facial diplegia, weakness, and paraesthesia whereas the main diagnostic studies were cerebrospinal fluid (CSF) analysis and electromagnetic studies. The principal diagnostic clue was albumin-cytological dissociation in CSF while being negative for anti-ganglioside antibodies or SARS-CoV-2. Available treatment options consisted of intravenous immunoglobulin and Plasmapheresis. Patients with comorbidities such as diabetes AQ1 mellitus, hypertension, dyslipidemia, permanent atrial fibrillation, hypothyroidism, Hashimoto's thyroiditis, COPD, asthma, osteoporosis, migraine, rheumatoid arthritis, osteoarthritis, ulcerative colitis, coeliac disease, seizures, bipolar disorder, endometriosis, multiple sclerosis, bell's palsy, squamous cell carcinoma, prostate cancer were included in our study.

### **Conclusion**

Overall, this review evaluated innovative and clinically relevant associations between COVID-19 vaccination and GBS. Understanding of this uncommon potential side effect of COVID-19 vaccination is crucial for prompt diagnosis and appropriate treatment. Importantly, GBS should not be considered a contraindication to vaccination. This underscores the importance of ongoing research to enhance the safety and efficacy of COVID-19 vaccination efforts.

### **Keywords**

Case reports, COVID-19, Guillain–Barre Syndrome, Vaccine

### **Healthcare providers and community stakeholders' perception of using drones for tuberculosis diagnosis in Nepal: An exploratory qualitative study**

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### **Background**

Lack of effective transport infrastructure, poor road networks, and few testing laboratories impede tuberculosis (TB) diagnosis in rural Nepal. Drones integrated with advanced molecular TB diagnostic GeneXpert MTB/RIF machines were piloted in Pyuthan district to transport sputum samples and facilitate diagnosis to support the national TB program commitment to end TB by 2030. This study explored perceptions among community stakeholders, female community health volunteers (FCHVs), and healthcare providers (HCPs) on using drones for TB diagnosis in communities with and without drone programs.

### **Methods**

In December 2019, focus group discussions (FGDs) were conducted: two in communities using drones and three without drones. We purposively selected 40 participants, including FCHVs (n=16), community stakeholders (n=18), and HCPs (n=6). FGDs used semi-structured questions to explore perceptions regarding using drones for TB diagnosis. FGDs were audio-recorded, transcribed, and translated into English. Codebook thematic analysis was performed using NVivo-12 using three levels of socioecological model: individual, community, and health system.

### **Results**

FGDs reported perceived benefits of using drones at a) individual level, where people with TB benefit by reduced distance, transportation costs, and travel time for TB diagnosis; b) community level, where using drones creates opportunities to improve the skill of local people in handling drone operation and indicates development; c) health system, where drones transport increases efficient sputum sample delivery by retaining the quality and provide opportunities to transport other biomedical samples. Perceived challenges of using

drones were high rainfall and windy conditions, limited human expertise, and financial resources to operate drones sustainably.

### **Conclusions**

The study provided evidence regarding the potential benefits, opportunities, and impediments of using drones in TB diagnosis. Drones in TB diagnosis and treatment can improve equity of access to advanced diagnostic testing, with potential application to address other health challenges. Large-scale feasibility and acceptability studies are required for the optimum use of drones in Nepal.

### **Keywords**

Drones, TB diagnosis, sample transportation, rural, Nepal

### **Interleukin6 Level in Patients Admitted with Fever for Evaluation in A Tertiary Infectious Disease Hospital**

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### **Background**

There is a greater percentage of patients who could not be diagnosed for the cause of fever. Viruses might be the most probable cause and cause remains unknown as there are not many batteries of diagnostic tools for identifying viral etiology. Its still worthwhile to understand the inflammatory status of the patients and patient's acute phase response for the morbidity and mortality outcome. Interleukin6 is such marker which is independent of the status of the WBC and platelet counts.

### **Methods**

Interleukin 6 level was analyzed by immunofluorescence method [Biotime IL6 rapid quantitative test kit] in the serum of 126 patients admitted with fever for evaluation for the severity of the inflammation during the period of Nov 2021 to Aug 2023 in Sukraraj Tropical and Infectious Disease Hospital, Nepal. CRP and Procalcitonin were assayed in hospital laboratory with BA400(Bio Systems) and Access2(Beckman Coulter) respectively. WBC and platelets were analysed on Horiba coulter Counter.

## Results

Sixty-eight patients had interleukin6 [IL6] level more than 50pg/ml that constituted 54% of the total patients enrolled indicating severity of inflammation for the admission. Thirteen [19%] of them had deranged liver enzymes. Six patients had IL6 less than 10pg/ml which showed they had low inflammatory condition. Remaining patients had IL6 level between 10 and 50pg/ml indicating moderate severity of inflammation. We found moderate correlation of Interleukin 6 with serum C-Reactive Protein level ( $r=0.428$ ,  $p=0.047$ ). We did not find any correlation of IL6 with WBC count, platelet count and procalcitonin. Furthermore, diagnosis (typhoid, dengue, HIV, Tuberculosis) could be established in only eighteen (14.2%) patients while 85.8 % of cases remained undiagnosed.

## Conclusion

Interleukin6 is an independent marker to recognize the immune status of the patient with unexplained fever etiology.

## Keywords

interleukin 6, fever for evaluation, inflammation

## Prevalence of inducible clindamycin resistance among staphylococcus aureus isolates from clinical specimens

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## Background

*Staphylococcus aureus* poses a significant global health concern in both community and hospital settings. Managing infections caused by methicillin-resistant *S. aureus* (MRSA) is challenging due to its resistance to numerous antibiotics. Macrolide-lincosamide-streptogramin B (MLSB) antibiotics such as erythromycin, clindamycin, quinopristin and dalbapristin are frequently employed to address MRSA infections. In the light of the restricted antibiotic range available for the treatment of *S. aureus* infections, clindamycin should be used carefully. Clindamycin should not be used in patients with infections caused by inducible resistant staphylococcal isolates. Therapeutic failures may thus be avoided. This research aimed to assess the prevalence of inducible clindamycin resistance among *S. aureus* at a tertiary care hospital in Kathmandu, Nepal.

## Methods

A descriptive cross-sectional study was carried out in the Clinical Microbiology laboratory of NMCTH, from September 2021 to June 2023. Ethical approval was received from the Institutional Review Committee (IRC). Following established laboratory protocols, a total of 13694 clinical samples were processed. Isolation and identification of *S. aureus* isolates were conducted based on its microscopic and morphological characteristics followed by catalase and coagulase test.

Antibiotic susceptibility test (AST) was done using Mueller Hinton agar (MHA) by Kirby-Bauer disc diffusion method. Phenotypic detection of MRSA strains was accomplished using the cefoxitin disc while phenotypic inducible clindamycin resistance was detected by Disk diffusion test (D test). Statistical analysis was done by SPSS-16.

## Results

Out of 13694 samples, 2000 (14.6%) yielded positive cultures, with 230 (11.5%) being identified as *S. aureus*. Among the *S. aureus* isolates, 27 (11.7%) exhibited multidrug resistance. Similarly, 52 (22.6%) of the *S. aureus* isolates displayed MRSA characteristics, and 78 (33.9%) were found to be phenotypically inducible clindamycin-resistant.

## Conclusion

The prevalence of inducible clindamycin resistance among MRSA is noteworthy. Antibiotics which has not developed resistance should be cautiously used only in MRSA cases. This highlights the importance of incorporating D-zone testing into routine antibiotic susceptibility assessments within hospital settings.

## Keywords

*S. aureus*, MRSA, mrMRSA, inducible clindamycin resistance, D test

## Impact assessment of an educational intervention on community pharmacists' knowledge, awareness and practice towards antimicrobial use and resistance: an interventional study in the Kathmandu valley

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## **Introduction**

Educating community pharmacists (CPs) regarding antimicrobials is an important step in promoting their rational use. The current study assesses the impact of an educational intervention on knowledge, awareness and practice (KAP) related to antibiotic use and antibiotic resistance (AMR) among the community pharmacists of Kathmandu Valley and obtained their qualitative feedback on the intervention.

## **Methods**

A sequential explanatory mixed method design was applied. Pretest, posttest and follow-up tests were done using a pre-validated tool among the participants. The quantitative data were analyzed using bivariate (dependent tests) and multivariate (regression) models. Qualitative study was done after the retention tests to explain the findings. Ethical approval was obtained from Nepal Health Research Council.

## **Results**

A total of 162 community pharmacists participated and the majority (n=118; 75.2% had a "Diploma in Pharmacy" qualification. The median (IQR) knowledge scores were 9 (1), 9 (2), and 10 (0) during the pretest, post-test, and retention respectively. Similarly, the attitude score improved from the pretest to the posttest 25(5.25) to 27(5.25) (maximum score 35),  $p < 0.001$ . The intervention also brought changes in practice scores. The assessments of individual statements/questions showed positive KAP outcomes. The qualitative assessments among 6 CPs showed participants believed the intervention program was useful. One CP mentioned "Before *this program I used to dispense whatever antibiotics as per the patient's demand and my knowledge. Now, I have learned that that practice was not good and I have stopped doing that.*" (P1). Heavy competition, the presence of many community pharmacies, and pharmacy shopping by patients were mentioned in the challenges.

## **Conclusion**

A positive outcome on the knowledge, attitude, and practice scores along with the positive qualitative feedback suggests the potential benefits of a future nationwide program on educational intervention on AMR.

## **Keywords**

antimicrobials, educational intervention, Kathmandu Valley, resistance

## **Knowledge and practice of personal hygiene among primary level government school students in Sundarharaincha municipality**

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### **Background**

Good practice of hygiene helps to prevent the development and spread of infections, illnesses and bad odours while improper personal hygiene increases the risk of various diseases. School children are frequently affected by poor personal hygiene, which has been determined to be a severe public health issue. These have been linked to inadequate knowledge of personal hygiene and its practices. This study aims to assess the existing knowledge and practices of personal hygiene among primary-level government school students in Sundarharaincha Municipality.

### **Methodology**

A descriptive cross-sectional study was conducted from 2079 Mangsir- 2080 Asar among 362 primary-level government school students of classes 3, 4, and 5 selected by multistage sampling. Face-to-face interviews and observation were done using self-constructed pre-tested semi-structured questionnaires and observation checklists respectively for data collection. Data was entered in Epidata and analyzed using SPSS (version 16.0). Pearson chi-square was used to find the association.

### **Result**

The study shows that the majority of respondents (81.2%) belong to the age group 9-12 (mean age  $\pm$  SD:  $9.9 \pm 1.4$ ) and more than half (53%) were female. More than half (59.4%) had good knowledge whereas good practice was found only among 46.4%. Female (63.8%) were more knowledgeable compared to male (54.4%). Teachers (58.5%) were reported as the major source of information. Respondents with good knowledge had good practice (61.3%), while respondents with poor knowledge had poorer practice (74.5%). This shows a significant association between knowledge and practice of personal hygiene ( $p < 0.05$ ).

### **Conclusion**

Primary level students of Sundarharaincha Municipality appear to have limited knowledge and practice on personal hygiene. Additionally, personal hygiene practice was found highly

influenced by the respondent's knowledge. Therefore, these findings highlight the need for targeted interventions to improve knowledge on personal hygiene.

### **Keywords**

Personal hygiene; knowledge; practice; Primary school student

### **Acceptance of new Respiratory Syncytial Virus vaccine among pregnant women in Nepal for future routine immunization.**

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### **Background**

Children are at greatest risk for severe illness from Respiratory Syncytial Virus (RSV). While it is known that maternal vaccination against RSV also protects the child, the knowledge of RSV, practice and knowledge about vaccination during pregnancy, and the willingness to accept vaccines against RSV during pregnancy in the future among mothers needs to be understood.

### **Methods**

A face-to-face interview was conducted among 340 pregnant women who visited the Antenatal clinic from 15-Oct-2023 to 30-Nov-2023. Socio-demographic characteristics, knowledge and the attitude concerning antenatal vaccination affecting the acceptance of RSV vaccine were evaluated from the interview.

### **Results**

The mean age was 28.4 years, with 63% already having at least one child. Only 6% of participants had previously heard about RSV, but 95.6% were aware of the problem caused

by RSV after they were briefly explained about it in their local language. Approximately three-fourths of the participants expressed willingness to receive vaccines for themselves. A limited number were familiar with nasal vaccines, and only a few believed in their efficacy. Despite this, almost all participants (99.7%) in the study demonstrated a willingness to receive additional antenatal vaccines if approved for use in the future.

### **Conclusions**

The study showed a limited understanding of RSV in children among pregnant women in Nepal. However, they are aware of the impact of bronchiolitis and expressed a strong willingness to undergo maternal vaccination against RSV. They expressed less confidence in the nasal route of vaccination against RSV used in children.

### **Keywords**

Antenatal Vaccination; Nepal; Respiratory Syncytial Virus; RSV Vaccination; Vaccine Acceptance

### **Cutaneous Leishmaniasis: A diagnostic challenge in Nepal**

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### **Background**

Cutaneous leishmaniasis is a vector-borne disease transmitted by sandflies and caused by *Leishmania* protozoa. Cutaneous leishmaniasis has affected nearly 1 million people worldwide. Nepal is endemic for visceral leishmaniasis, however, cases of cutaneous leishmaniasis are rising recently. We report the cases of cutaneous leishmaniasis diagnosed at Anandaban Hospital, a leprosy referral center in Nepal.

### **Methodology**

Retrospective review of the patient's records at Anandaban Hospital from Jan 2014 to December 2022 A.D. Records were searched for demographics, history, clinical photographs, investigation, and treatment.

### **Results**

A total of 16 cases (10 males and 6 females), average age of 35.56 yrs (range 1 -77 yrs) were reviewed. Eight patients had a single lesion and 8 had more than 1 lesion. Nine patients had

lesions only on the face, 4 had lesions on the face and arm, and 3 patients had only extra facial lesions: the nose being the common site. Six cases were misdiagnosed initially by other centers (5 as cutaneous tuberculosis and 1 as leprosy). All patients were negative for slit skin smear for acid-fast bacilli. Only three patients had a history of travel to endemic areas outside Nepal and 12 patients never traveled outside Nepal. All patients were histologically confirmed as cutaneous leishmaniasis. rK-39 was positive in 7 cases, 14 patients had completed the treatment, 7 with miltefosine, 4 were treated with liposomal amphotericin B, 1 with sodium stibogluconate and cryotherapy, 1 with sodium stibogluconate and amphotericin B and 1 with oral Fluconazole.

### **Conclusion**

Increasing number of cutaneous leishmaniasis cases in Nepal is a threat for the clinicians as it can be misdiagnosed as cutaneous tuberculosis and leprosy both clinically and histologically. Majority cases involve the face and can sometimes lead to facial disfigurement. Recent rise in CL cases advocates for control programs to minimize public health risks in the future.

### **Keywords**

Cutaneous Leishmaniasis, Diagnosis, NTDs

### **Seroprevalence of Dengue in Healthy Blood Donors in Kathmandu, Nepal**

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### **Introduction**

Dengue outbreaks cause substantial humanitarian and economic challenges worldwide causing wide spectrum of diseases. Primary dengue can range from subclinical disease to flu like symptoms. Although less common secondary dengue is associated with increased mortality and morbidity. Globally, dengue cases have surged over the years including Nepal. The first reported case of dengue in Nepal was in 2004. Since then, the dengue cases has been endemic primarily in the low lands. The primary mode of dengue transmission is through the bite of Aedes mosquito, though rare but possible to transmit through alternative means, such

as blood transfusion. The impact of transmission of dengue to the recipients through the blood transfusion poses several risks, including potential infection in recipients. This mode of transmission may lead to complications like dengue shock syndrome and poor prognosis of other co-morbid conditions of the recipients. The aim of this study was to find the status of dengue NS1, IgM and IgG among the apparently healthy blood donors of the Kathmandu valley during the sporadic outbreak of dengue fever.

### **Methodology**

Two hundred and thirty-two serum samples from the healthy blood donors were screened with Dengue RDT (SD Bioline Dengue Duo) for detection of NS1 antigen, IgM and IgG antibodies.

### **Results**

Among the samples 18/232 (8%) were found IgM positive and 25/232 (11%) were found IgG positive. Similarly, 12/232 (5%) showed both IgG and IgM positive; however, all sample tested negative for NS1.

### **Conclusions**

This study, focusing on apparently healthy blood donors in the Kathmandu valley of Nepal during sporadic dengue outbreaks, revealed concerning findings. A notable percentage of donor's exhibit positive results for IgM and IgG antibodies, indicating potential exposure to dengue. While NS1 antigen was not detected, these results emphasize the risk of dengue transmission through blood transfusion in the region. Further comprehensive studies are crucial to understand the broader implications of dengue transmission and transfusion induced dengue, particularly given the rising incidence of Dengue.

### **Keywords**

Dengue, Blood donors, Blood transfusion, NS1 antigen

## **Effects of Ventilator Bundle on Patient Outcomes among ICU Patients: A Systematic Review and Meta-Analysis**

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## **Background**

Ventilator bundles are suggested to prevent ventilator-associated pneumonia (VAP), but significant variations in the effects of the bundle on patient outcomes have been reported.

## **Objectives**

To synthesize the evidence and evaluate the effects of the ventilator bundle on patient outcomes among critically ill adult patients.

## **Methods**

A broad search was performed in seven databases for relevant articles published from January 2002 to November 2022. Randomized controlled trials and quasi-experimental studies investigating the effects of implementing ventilator bundles in adult intensive care units (ICUs) were included. Two independent reviewers performed the study selection, data extraction, and risk of bias assessment. All data for meta-analysis were pooled using the random-effects model.

## **Results:**

After screening, 19 studies were included in the meta-analysis. Evidence of low-to-moderate certainty showed that the ventilator bundle reduced the rate of VAP (risk ratio [RR] = 0.64;  $P = 0.003$ ), length of ICU stays (mean difference [MD] = -2.57;  $P = 0.03$ ), mechanical ventilation days (MD = -3.38;  $P < 0.001$ ), and ICU mortality (RR = 0.76;  $P = 0.02$ ). Ventilator bundle was associated with improved outcomes, except mortality.

## **Conclusions**

The ventilator bundle, especially the IHI ventilator bundle, was effective in decreasing the incidence of VAP and improving most of the VAP-related outcomes. However, given the low-to-moderate certainty of evidence and high heterogeneity, these results should be interpreted with caution. A future study that adopts hybrid implementation trials with high methodological quality is needed to confirm the effects of the ventilator bundle on patient outcomes.

## **Keywords**

Ventilator associated pneumonia, ventilator bundle, patient outcomes

## **Investigation of azithromycin resistance pattern of Salmonella Typhi and Paratyphi A**

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### **Background**

Enteric fever, caused by *Salmonella* Typhi (*S. Typhi*) and Paratyphi A (*S. Paratyphi*) is a significant global health concern. The rise of antimicrobial resistance, particularly high levels of fluoroquinolone resistance and cases resistant to third-generation cephalosporins, underscores the need for monitoring antibiotic resistance patterns, especially concerning azithromycin (AZM). This study aims to compare the results of disc diffusion with the minimum inhibitory concentration (MIC) of AZM in banked *Salmonella* spp. from the Surveillance for Enteric Fever in Asia Project (SEAP), crucial for guiding treatment strategies against antibiotic resistance in enteric fever pathogens.

### **Methodology**

For this study, 45 *Salmonella* isolates demonstrating resistance or intermediate resistance to azithromycin were selected through disc diffusion, alongside 65 sensitive isolates collected from 2018 to 2022. MICs were determined using a frozen AZM reference panel ranging from 0.125 to 64 µg/ml (European Committee on Antimicrobial Susceptibility Testing, (EUCAST 2023)) via broth microdilution (BMD), with *Staphylococcus aureus* ATCC 29213 serving as the quality control strain. A final inoculum of  $5 \times 10^5$  CFU/ml was targeted for each isolate, and OD was measured at 595nm after 18-24 hours of incubation at 35°C.

### **Result**

We examined a total of 45 isolates with resistance, comprising 30 *S. Typhi* and 15 *S. Paratyphi* strains, along with 65 sensitive isolates, including 52 *S. Typhi* and 13 *S. Paratyphi* strains. During MIC determination for these isolates, the MIC of all the isolates was found to be equal or less than 16µg/ml(The British Society of Antimicrobials

Chemotherapy (BSAC) suggests the MIC values of  $\leq 16$   $\mu\text{g/ml}$  as sensitive) and we observed that all 100% of the isolates were sensitive to AZM.

### **Conclusion**

MIC results indicate susceptibility to azithromycin (AZM), suggesting potential overestimation of resistance via disk diffusion. BMD is superior to disk diffusion for assessing AZM sensitivity in *S. Typhi* and *S. Paratyphi*; caution is advised regarding disc diffusion breakpoints.

### **Keywords**

Key words: Minimum Inhibitory concentration, Broth-Microdilution, Azithromycin

## **Drug-resistant Mycobacterium tuberculosis among Nepalese patients at a tuberculosis referral center**

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### **Background**

Multidrug-resistant tuberculosis (MDR-TB), characterized by isoniazid and rifampicin resistance, is caused by chromosomal mutations that restrict treatment options and complicate tuberculosis management. This study sought to investigate the prevalence of pre-extensively drug-resistant (pre-XDR) and extensively drug-resistant (XDR) tuberculosis, as well as mutation pattern, in Nepalese patients with MDR/rifampicin-resistant (RR)-TB strains.

### **Methods**

A cross-sectional study was conducted on MDR/RR-TB patients at the German Nepal Tuberculosis Project from June 2017 to June 2018. The MTBDRsl line probe assay identified pre-XDR-TB and XDR-TB. Pre-XDR-TB included MDR/RR-TB with resistance to any fluoroquinolone (FLQ), while XDR-TB included MDR/RR-TB with resistance to any FLQ and at least one additional group A drug. Mutation status was determined by comparing bands on reaction zones [*gyrA* and *gyrB* for FLQ resistance, *rrs* for SILD resistance,

and *eis* for low-level kanamycin resistance, according to the GenoType MTBDRsl VER 2.0, Hain Lifescience GmbH, Nehren, Germany definition of pre-XDR and XDR] to the evaluation sheet. SPSS version 17.0 was used for data analysis.

## Results

Out of a total of 171 patients with MDR/RR-TB, 160 had (93.57%) had MTBC, of whom 57 (35.63%) had pre-XDR-TB and 10 (6.25%) had XDR-TB. Among the pre-XDR-TB strains, 56 (98.25%) were FLQ resistant, while 1 (1.75%) was SLID resistant. The most frequent mutations were found at codons MUT3C (57.14%, 32/56) and MUT1 (23.21%, 13/56) of the *gyrA* gene. One patient had SLID resistant genotype at the MUT1 codon of the *rrs* gene (100%, 1/1). XDR-TB mutation bands were mostly detected on MUT1 (30%, 3/10) of the *gyrA* and *rrs*, MUT3C (30%, 3/10) of the *gyrA*, and MUT1 (30%, 3/10) of the *rrs*.

## Conclusions

Pre-XDR-TB had a significantly higher likelihood than XDR-TB, with different specific mutation bands present in *gyrA* and *rrs* genes.

## Keywords

Line probe assay, MDR/RR-TB, mutation, pre-XDR-TB, XDR-TB

## Addressing the Social Determinants and Consequences of Tuberculosis in Nepal (ASCOT): results from a four-arm randomized-controlled pilot trial of socioeconomic support for TB-affected households

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## Background

WHO policy advocates reducing stigma and eradicating catastrophic costs of people with TB. Evidence on the optimal socioeconomic interventions to achieve these aims is minimal in low middle-income countries. We did a pilot randomized-controlled trial with mixed-methods process evaluation to evaluate the feasibility and acceptability of socioeconomic support for TB-affected households in four districts of Nepal.

### **Methods**

The study recruited and randomly allocated 128 people with drug-sensitive TB notified to the Nepal National TB Program into four study arms: control, social, economic, and combined social and economic (socioeconomic) support arms. Social support consisted of enhanced TB information, education, and counselling at household visits and with an illustrated wall calendar to increase knowledge; and TB clubs led by TB Champions/Survivors, which used group-counselling and a locally-made animated video to reduce stigma. Economic support consisted of six unconditional cash transfers of 3000 Nepalese Rupees each month throughout TB treatment. Feasibility was assessed through participant fidelity to recruitment, follow-up, and intervention and acceptability was through participants' survey feedback on intervention.

### **Results**

Participant recruitment was 100% (128/128) and participant retention was 95% (122/128). Fidelity to support package activities was high for cash transfers (62/64, 97%) and home visits and IEC (59/62, 95%). Attendance at TB Clubs was driven by lower uptake in social (25/30, 83%) vs socioeconomic (31/32, 97%). Participant satisfaction of socio-economic arm with support packages received was high in cash transfers = 29/32 (91%), Home visits and IEC = 29/29 (100%) and TB Clubs = 26/27 (96%). Participants qualitative survey feedback suggested: Cash transfers were timely and used for nutrition and travel. Home Visits and IEC provided good information, motivation, and counselling (including about drug side effects). TB Clubs were valued to share experience and reduce stigma.

### **Conclusions**

The ASCOT pilot trial showed that integrated socioeconomic support had optimal feasibility and acceptability to TB-affected households in Nepal.

### **Keywords**

stigma, catastrophic costs, tuberculosis, IEC, cash, video, motivation

## **Knowledge, attitudes, and practices regarding dengue fever in a prone rural municipality: a cross-sectional descriptive study in Sindhuli district, Nepal**

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### **Background**

Dengue fever is endemic in Nepal. However, there is no specific treatment for dengue fever. So, the only effective measure to control it at the community level is to make the general public aware of strategies to control transmission through behavior change communication activities, and for this, it is essential to understand the people's Knowledge, Attitudes, and Practices on Dengue Fever and its vectors. So, this study aimed to assess the level of knowledge and preventive practices regarding Dengue fever among community members in Phikkal Rural Municipality, Sindhuli district, Nepal.

### **Methodology**

A descriptive cross-sectional study design was employed, utilizing quantitative methods. Data was collected from 380 participants using systematic random sampling. A structured questionnaire was used to gather information on sociodemographic characteristics, sources of information, knowledge on transmission, symptoms, treatments, preventive measures, attitudes, and preventive practices related to Dengue fever.

### **Findings**

The majority of participants demonstrated limited knowledge about Dengue fever, with 41.3% having heard about the disease. While 95.5% correctly identified mosquito bites as the transmission route, misconceptions persisted regarding blood transfusion (42.2%). Participants showed good awareness of common symptoms like fever but lacked knowledge about less common ones like stomachache. Preventive practices were suboptimal, with 59.9% reporting following preventive measures, and challenges included a lack of information (75.5%). Media sources were identified as effective information channels.

### **Conclusion**

The study reveals a need for enhanced awareness campaigns, accurate information dissemination, and improved access to healthcare services in Dengue-prone areas. Strengthening local prevention programs and collaborative efforts involving health authorities, local governments, and community stakeholders are essential to mitigate the impact of Dengue fever in the region. Furthermore, the focus should be more on creating awareness on less common symptoms.

### **Keywords**

Dengue Fever, Community Knowledge, Attitude and Practice

### **Molecular Docking and Pharmacokinetic Studies of Punica granatum peel Phytocompounds to explore potential Antibacterial Activity**

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### **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 drug development.

### **Objectives**

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

### **Materials and Methods**

*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 studied phytocompounds.

## Results

Granatin A among studied compounds shows the least binding energy of -9.9 kcal/mol with 3N8D in comparison to vancomycin (-8.7 kcal/mol) and -9.5 kcal/mol with 4Z2D in comparison to levofloxacin (-7.6 kcal/mol)

## Conclusion

Molecular docking analysis shows the importance of granatin A among studied compounds and use for formulation of granatin A based drug in future.

## Keywords

Antibiotic Resistant Bacteria, Medicinal Plant, Molecular Docking, ADEM/T, BOILLED Egg

## Study of dengue seroincidence among young population in urban and semi-urban Nepal

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## Background

Dengue, vector- borne viral disease caused by Dengue virus (DENV), reported in 2004 in Nepal with worst outbreak in 2019 and 2022. The objective of this study is to understand the population- level burden of dengue in urban and peri-urban areas of central Nepal.

## **Methodology**

The longitudinal serological study was conducted between 2019 and 2021 in Kathmandu and Kavre districts involving 923 participants and followed up at various interval. From this, 843 participants along with their follow up data were randomly selected for dengue testing. Subsequently, another longitudinal study was done in 2023 involving 354 participants. In total 2091 dried blood spot were tested for IgG antibodies against dengue-derived recombinant antigen using commercially available ELISA kit and Sero-positivity cutoffs were determined using Mixture model.

## **Results**

The median age of participants was 11 years, with 53.0% being male. At baseline, seroprevalence was 2.1% (18/843), and seroincidence was 31.2 per 1000 person-years. The highest seroprevalence was among those above 15 years old (4%, 11/275) followed by 0-5 years old (1.9%, 3/158). However, seroincidence rate increased with age, rising from 12.1 (95% CI 0.3-67.3) per 1000 person-years for 0-5 years old to 47.7 (95% CI 32.2-70.0) for above 15 years old. Similarly, females exhibited higher seroprevalence (2.3%, 9/396) and incidence rate (31.9, 95% CI 20.0-48.2) compared to males (seroprevalence: 2%, 2/447; incidence rate: 30.5, 95% CI 19.1-46.2). Seroprevalence was higher in Kathmandu (3.7%, 13/352) with the increased incidence rate (99.2, CI 69.8-136.7) compared to Kavre (1%, 5/491) and incidence rate of 6.7 (95% CI 2.7-13.9).

## **Conclusion**

This study reveals a high burden of dengue in high altitude and densely populated area with an increased incidence rate and requires a public health intervention to address the growing dengue burden in Nepal.

## **Keywords**

Dengue, Seroprevalence, Seroincidence, Seroincidence rate

## **Ten-year trends in bacterial infection and antimicrobial resistance in a referral hospital in Kathmandu, Nepal**

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## **Background**

Infections caused by multidrug-resistant (MDR) bacteria contribute to higher morbidity, mortality, hospitalization, and financial burden. Understanding pathogen-specific antimicrobial resistance is crucial for developing effective treatment protocols and policies. This retrospective cohort study investigated the prevalence, etiology, and antibiogram of aerobic bacterial infections in patients visiting a neurological hospital.

## **Methodology**

We analyzed the patient demographics and bacteriological and susceptibility results from January 2014 to January 2024 at Dirghayu Guru Hospital and Research Center Pvt. Ltd., Kathmandu, Nepal. Ethical approval was obtained from the Nepal Health Research Council (Registration Number: 1306), Kathmandu, Nepal.

## **Results**

A total of 571 bacterial strains were isolated from 465 (10.83%) patients [median age: 50 years ( $p < 0.001$ ) and females: 275 (59.14%) ( $p = 0.015$ )]. Four hundred thirty-five (93.55%) patients had urinary tract infections, while 89 (19.14%) had bloodstream infections and 31 (6.67%) had respiratory infections. *Klebsiella pneumoniae* ( $n = 172$ ) was the most common pathogen, followed by *Escherichia coli* ( $n = 160$ ). The rates of resistance in Enterobacterales and gram-positive cocci were as follows: tetracycline 83.33% and 45.83%, cephalosporin 78.02% and 40.45%, fluoroquinolone 72.25% and 50.00%, aminoglycoside 65.14% and 43.53%, carbapenem 62.96% and 30.00%, penicillin 54.55% and 57.89%, and penicillin with beta-lactamase inhibitors 40.54% and 42.31%, respectively. Non-fermenters showed 100% resistance to these antibiotics. MDR strains (20.67%, 118/571) were predominated by *Staphylococcus aureus* (45.95%, 17/37) and *K. pneumoniae* (27.91, 48/172). *Pseudomonas aeruginosa* and *Klebsiella pneumoniae* had the highest median multiple antibiotic resistance indexes (1.00). MDR strains were more susceptible to piperacillin-tazobactam, ampicillin-sulbactam, and polymyxin B.

## **Conclusions**

One-tenth of hospital-visiting patients had bacterial infections, of which three-fourths were caused by Enterobacterales and one-fifth by MDR strains. Aminoglycosides and cephalosporins were most resistant to bacterial isolates, and polymyxins and penicillin with beta-lactamase inhibitors were least resistant to them. In recent years, bacterial infections have increased in prevalence, along with antimicrobial resistance and MDR.

### **Keywords**

Aerobes, antimicrobials, bacteria, infection, Nepal, resistance, trends

### **Intestinal Protozoans in Pediatric Individuals Visiting a Tertiary Care Hospital in Nepal during 2018–2021**

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### **Background**

Intestinal protozoans remain a serious public health threat, particularly among children in low- and middle-income countries like Nepal. Yet few studies have been conducted on the prevalence of intestinal protozoan parasites (IPP) among Nepalese pediatric individuals attending tertiary care hospitals. This study aimed to determine the prevalence of IPP in pediatric individuals ( $\leq 16$  years) who visited a tertiary care hospital in Nepal.

### **Methodology**

In this retrospective study, demographic information and stool specimen examination records from pediatric individuals with gastrointestinal disorders were analyzed over a four-year period (January 2018 to December 2021) at the Department of Microbiology, Kist Medical College and Teaching Hospital. Stool samples were examined microscopically using saline wet mount and iodine wet mount preparations. The data were analyzed using SPSS version 17.0, and statistical significance was set at  $p < 0.05$ .

## Results

Out of 2,279 enrolled children, 10.66% (n=243) were infected with IPP, with a higher prevalence among those aged 1–5 years (45.77%, n=110) and males (53.91%, n=131) (p=0.009). The most prevalent protozoan was *Entamoeba histolytica* (90.95%, n=221), followed by *Giardia lamblia* (7.00%, n=17). Two individuals (0.82%) had poly protozoan infection, and three (1.23%) had both cyst and trophozoite morphotypes of *G. lamblia*. The prevalence of IPP was highest in summer (29.22%, n=71), followed by autumn (26.34%, n=64), spring (24.28%, n=59), and winter (20.16%, n=49). The highest number of IPP cases was found in 2019 (41.15%, n=100), while the lowest incidence was in 2020 (16.05%, n=39).

## Conclusion

IPP prevalence was high in pediatric individuals aged 1–5 years and males, especially during summer season, mainly due to *E. histolytica*.

## Keywords

Intestine, Nepal, pediatric, prevalence, protozoans

## Health Seeking Behaviour during Dengue Fever among Slum Population of Kathmandu Metropolitan City: A Mix Method Study

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## Background

Dengue, is a global public health concern affecting almost 128 nations and Nepal is no exception. Vector proliferation, human travel, urbanization, and poor health behaviours are contributing significantly to the dengue outbreak. This study aims to assess the Health Seeking Behaviour during dengue fever among people living in slums.

## Methodology

A concurrent Mixed-method study was employed in this study. The data were gathered through face-to-face interviews among 210 household heads for the quantitative method, while for the qualitative method in-depth interviews were conducted among 7 dengue-infected participants until saturation was met. Descriptive data along with a Chi-square test at 5% level of significance were employed to explore factors associated with Health health-

seeking behavior during Dengue Fever. Qualitative information was coded based on a phenomenological approach and thematic analysis was performed.

### **Results**

Most households (73.8%) experienced dengue in the past year, often seeking treatment at private facilities due to illness severity (65.5%). Most accessed healthcare within 30 minutes, but half were dissatisfied with service quality. Knowledge varied: recognizing high fever (56.7%), understanding transmission (51.9%), and preventive measures (78.1%). Choices of health facility was associated with age ( $p = 0.037$ ), family income ( $p = 0.037$ ), distance from health facility ( $p=0.001$ ), behaviour of health service provider ( $p=0.002$ ), and perceived quality of health facility ( $p=0.008$ ). The qualitative findings revealed that limited knowledge, some opting for self-care, and health facility choice based on quality and convenience.

### **Conclusion**

This study reveals age-related and gender-based disparities in health-seeking behaviour, influenced by education, income and knowledge. Service quality is pivotal, especially in modern private facilities. Targeted health education campaigns are crucial for middle-aged and older populations in slum areas, alongside improvements in service provider behaviour and quality of health facility.

### **Keywords**

Dengue, Health seeking Behaviour, Kathmandu, Nepal, Slums

### **Molecular Detection of Dengue Virus Outbreak in Jhapa District, Nepal**

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Dengue is prevalent throughout Nepal, with Jhapa district in Koshi province consistently affected by the disease. Despite the district's enduring dengue endemicity, there remains a lack of data regarding the virological characteristics of the illness. To address this gap, this study initiated a molecular surveillance study of circulating dengue viruses (DENV) to ascertain the prevailing virus serotypes. In Jhapa district, a cross-sectional study on dengue molecular surveillance was undertaken. Sera were obtained from patients suspected of having

dengue who visited hospitals. Diagnosis was carried out utilizing a rapid diagnostic test (RDT) kit for detecting dengue NS1 antigen and IgG/IgM antibodies. Dengue serotyping was conducted using Dengue RT-PCR. Additionally, hematological and demographic data of patients were collected and subjected to analysis. A total of 290 serum samples were obtained from individuals suspected of having dengue fever clinically in 2022. Among these, 46 samples, accounting for 15.9%, tested positive for NS1, IgM, and IgG antibodies via the Rapid Diagnostic Test (RDT). The study in 2023 involved 66 samples, showing a higher proportion of seropositivity among males (37, or 56%) compared to females. Molecular analysis of 60 out of 64 serologically positive samples, indicated that DENV2 was the most prevalent serotype, followed by DENV3 (28.3%) and DENV1 (4.3%). DENV4 was not identified in any of the samples. To the best of our knowledge, this report is the first to detail the circulating serotypes of dengue viruses in Jhapa District. This contribution has the potential to enhance the exploration of dengue epidemics and deepen our understanding of their pathogenesis.

### **Keywords**

Dengue, Fever, dengue virus type 2, Jhapa, Nepal, RT-PCR, serotype

### **Antimicrobial resistance in aerobic bacterial strains causing orthopaedic surgical site infections at a national trauma center, Kathmandu, Nepal**

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## **Background**

Hospital-acquired infections, including surgical site infections (SSIs), pose a concerning challenge because of the growing resistance to multiple drugs, largely influenced by extensive prophylactic antimicrobial therapy. While SSIs are well documented in advanced hospitals in developed nations, their prevalence and bacterial profiles are inadequately reported in low- and middle-income nations like Nepal. This retrospective cohort study explored the prevalence of orthopedic SSIs in relation to aerobic bacterial etiology and antimicrobial resistance.

## **Methodology**

We examined the surgical and bacteriological records of patients suffering SSI (clean or clean-contaminated wounds) within a month of their surgical procedures between January 2020 and June 2022 at the National Trauma Center, Kathmandu, Nepal. Ethical approval was obtained from the National Academy of Medical Sciences (Registration Number: 6842079/80), Kathmandu, Nepal.

## **Results**

The prevalence of orthopaedic SSIs among hospital-visiting patients was 31.2% (448/1,438) [33.5–28.8, 95% confidence interval]. There were 341 (76.1%) males and 361 (80.6%) adults with SSIs. Knee/joint infections (n=141, 31.5%) were predominant. SSIs typically occur seven days after surgery. Enterobacterales were dominated by *Escherichia coli* (n=54, 40.9%), while non-fermenters and gram-positive cocci (GPC) were dominated by *Pseudomonas aeruginosa* (n=69, 81.2%) and *Staphylococcus aureus* (n=216, 93.5%), respectively. Enterobacterales, non-fermenters, and GPC exhibited penicillin resistance at 74.5%, 29.8%, and 65.1%, respectively, while cephalosporins resistance at 48.3%, 62.6%, and 49.6%; fluoroquinolones resistance at 25.9%, 40.5%, and 25.7%; and aminoglycoside resistance at 21.5%, 40.5%, and 17.3%. One-third of orthopaedic surgeries resulted in SSIs, mainly caused by *Staphylococcus aureus*.

## **Conclusion**

Fluoroquinolones and aminoglycosides were moderately effective in treating bacterial SSIs, while penicillins and cephalosporins were the least effective. Non-fermenters exhibited higher antimicrobial resistance compared with Enterobacterales and GPC.

## **Keywords**

Aerobes, antimicrobials, bacteria, Nepal, orthopaedic, resistance, surgical site infections

## **Detection of RSV in Children $\leq 2$ years from SARS CoV-2 negative samples at National Public Health Laboratory, Nepal**

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### **Introduction**

Respiratory syncytial viruses also known as human respiratory syncytial viruses (HRSV) are highly transmissible respiratory pathogens & the leading cause of hospitalization due to lower respiratory infection, especially in the pediatric population. This study is intended to determine the RSV positivity in SARS-CoV-2 negative samples obtained from patients  $\leq 2$  years, collected from September to December 2021, when RSV infection is more common.

### **Method**

SARS-CoV -2 negative archived nasopharyngeal samples of children  $\leq 2$  years from September to December 2021 at National Public Health Laboratory (NPHL) were tested for RSV by real -time reverse transcriptase Polymerase Chain Reaction (RT-PCR) using CDC RSV Kit. The Pan-RSV primer/probe set used for the universal detection of RSV and duplex RSV subgroup primer/probe set used for the detection and subgroup-specific identification of RSV A and B.

### **Result**

A total of 294 SARS-CoV-2 negative samples from children less than 2 y were tested. RSV A was identified in 100(34%) and RSV B was detected in 6(2%) samples. In all, 106(36%) samples were positive for RSV. Here wereport RSV positivity rate of 36% in SARS-CoV-2 negative samples whichwere left undiagnosed during the surge of COVID-19 cases.

### **Conclusion**

Our study highlights the need for an accurate and rapid differential or multiplex kits for screening respiratory disease for effective disease management in the pediatric population.

### **Keywords**

polymerase chain reaction, respiratory syncytial viruses, SARS-CoV-2

## **Intestinal parasites and associated risk factors on people of squatter community in Butwal, Rupandehi**

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### **Background**

Intestinal parasitic infections are one of the most prevalent illnesses affecting people causing major health problem, that affect billions of people worldwide, primarily in developing nations like Nepal. Increasing urbanization results in the formation of squatter communities along with health issues due to inferior quality of living. The purpose of this study is to ascertain the prevalence and risk factors of intestinal parasites in the squatter community of Butwal.

### **Methodology**

One hundred seventy individuals were selected with a convenience sampling strategy. A shortlist of questionnaires was prepared to evaluate demographic, socio-economic and behavioral factors to associate the parasitic infection. The stool samples were preserved in a 2.5% potassium dichromate solution. Direct wet mount and formal ether sedimentation and flotation methods were used to assess the prevalence and intensity of IPIs in the squatter population.

### **Results**

The overall prevalence of IPIs was 28.8% (5.3% protozoa and 24.7% helminth). Altogether 6 species of intestinal parasites were detected. *Ascaris lumbricoides* (21.2%) was the most dominant helminth parasite followed by *Trichuris trichuria* (2.9 %), *Entamoeba histolytica* (2.4%), *Cryptosporidium* (1.8%), *Giardia lamblia* (1.8%) and Hookworm (1.8%). Multivariable regression analysis revealed that the participants who did not trim their nails regularly were more likely to get IPIs compared to the participants who trimmed their nails regularly. In addition, having open types of toilets might have more likelihood of getting IPIs.

Relatively high prevalence (i.e., 1 out of 4 evaluated samples) of IPIs among slum participants might contribute high risk of intestinal parasitic transmission as more than one-quarter of participants did not trim their nails regularly, which is a significant risk factor of IPIs in this community.

### **Conclusion**

Simple health education regarding such crucial hygiene behavior might contribute significantly to reducing the parasitic burden in urban areas like Butwal where lots of people might be at risk of parasitic infections and transmission.

### **Keywords**

Intestinal parasites, Squatter, Prevalence, Multivariable regression

## **Inappropriate Use of Antibiotics in the Management of Childhood Illness in Nepal: A Qualitative Study**

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### **Background**

Globally, there has been a 46% increase in antibiotic consumption from 2000 A.D to 2018 A.D, exacerbating the issue of antibiotic misuse, including unnecessary usage for viral infections and self-medication. Easy access to antibiotics as over-the-counter leads to antibiotic misuse, posing a significant threat to public health and promoting antimicrobial resistance, particularly endangering children's health.

### **Methodology**

As part of a mixed-method study conducted from December 2022 to September 2023, 26 in-depth interviews were carried out with purposely selected parents (age  $\geq$  18 years) of the admitted child (1 month to 14 years) with common childhood illness (ARI/Diarrhea/Fever) in the inpatient department of the Kanti Children's Hospital. Thematic analysis was done to

investigate the proportion of improper antibiotic use, including self-medication, and identify influencing factors.

### **Results**

Preliminary findings of the study highlight significant gaps in antibiotic knowledge, revealing misconceptions regarding antibiotic recognition, antimicrobial resistance, and dosage completion. Parents commonly turn to self-medication influenced by factors such as familial beliefs, community norms, and advice from healthcare providers, other than doctors while others rely on past experiences. The accessibility and affordability of antibiotics contribute to widespread antibiotic misuse, particularly within pharmacy settings. Moreover, healthcare-seeking behaviors indicate a preference for pharmacies, driven by factors like convenience, cost-effectiveness, and trust. Additionally, parents exhibit varying expectations from physicians; some anticipate careful examination before antibiotic prescriptions, while others perceive antibiotics as essential for quick healing, driving them to expect antibiotic prescriptions, sometimes even without a doctor's recommendation.

### **Conclusion**

This study sheds light on gaps in antibiotic knowledge and widespread misconceptions among parents in managing childhood illness in Nepal. Moreover, the preference for pharmacies highlights the need for comprehensive information dissemination strategies. Addressing these challenges requires multifaceted interventions to promote responsible antibiotic practices and safeguard children's well-being while combatting antimicrobial resistance.

### **Keywords**

Antibiotic misuse, Childhood illnesses, Antimicrobial Resistance

## **Knowledge, attitude and practice on post exposure prophylaxis against HIV among Health care professionals in a Tertiary Care Hospital: a Descriptive Cross Sectional Study.**

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### **Introduction**

HIV remains a major global public health issue, having claimed 40.4 million lives so far with ongoing transmission in all countries globally. Healthcare professionals (HCPs) are frequently exposed to many HIV-infected patients; as a result, they are more vulnerable to HIV infection due to occupational exposure.

### **Methodology**

A Descriptive cross-sectional study will be conducted in the Shree Birendra Hospital, Chhauni, Kathmandu, Nepal. The details regarding the knowledge, attitude and practice of PEP for HIV will be collected using a pretested, semi structured, self-administered questionnaire. The 37 closed-ended questions in Google forms in link will be circulated amongst health workers electronically.

### **Results**

Out of 240 participants in the study hospital, our study showed 86.1% of participants had high level of awareness about PEP. However, despite awareness only 54% had adequate knowledge and only 44% of participants knew when to commence PEP following occupational exposure of HIV.

### **Conclusion**

Most of the HCPs have good information on occupational exposure, heard about and positive attitude towards PEP against HIV but have poor knowledge on timing, Health care workers in the study hospital.

### **Keywords**

Post exposure prophylaxis, Occupational, Health care workers

## **Prophylactic use of mefloquine among nepali peacekeepers- its adherence and adverse effects**

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### **Introduction**

Every year nearly 6000 Nepali army troops go for United Nations mission with almost 4500 troops going to African countries in malaria endemic region like South Sudan, Democratic

Republic of Congo, Central African Republic. As per the guideline, the troops are required to take prophylactic dose of Mefloquine which has got the FDA issued black box warning.

### **Methodology**

A Descriptive cross-sectional study was conducted in United Nation Mission in South Sudan, Rumbek, South Sudan. The permission for the study was taken from Ethical Review Board (ERB)- NAIHS. The details regarding the adherence and adverse effect of Mefloquine was collected using a self-administered questionnaire. The 52 closed-ended questions in Google forms in link was circulated amongst troops electronically.

### **Results**

Out of 631 participants in the study area, our study showed 77.1% of participants had high adherence to mefloquine, despite that 3.3% of the troops contracted malaria. Among the 631 participants had 14.1% ,7%, and 2% gastrointestinal, neurological, and psychological adverse effect respectively and 14% of female had menstrual abnormalities.

### **Conclusion**

Most of the troops have high adherence to mefloquine and participate actively to take prophylaxis. However, the prophylaxis is not 100% effective and has got some adverse effect which requires close monitoring.

### **Keywords**

Mefloquine, chemoprophylaxis, Adherence, Adverse effect

## **Neurodevelopmental Outcomes of Neonates with Sepsis: A Prospective Cohort Dual Centric Study from Nepal**

Swechhya Vaidya

### **Introduction**

Neonatal sepsis is a significant concern globally, especially in low- and middle-income countries (LMICs) like Nepal, where it contributes substantially to morbidity and mortality. Despite its impact on neonatal health, the relationship between neonatal sepsis and neurodevelopmental delay (NDD) remains unclear, particularly in LMIC settings.

### **Methodology**

We conducted a prospective cohort study in Nepal to explore neurodevelopmental outcomes following neonatal sepsis. Infants diagnosed with culture-positive or culture-negative sepsis were enrolled from two level III Neonatal Intensive Care Units (NICUs) and tertiary care centers in Kathmandu Valley. Developmental assessments were conducted using the

Developmental Assessment Scale for Indian Infants (DASII) at 6 months and 1 year post-sepsis diagnosis. Data on clinical, socioeconomic, and demographic variables were collected, and statistical analyses will assess the prevalence and predictors of neurodevelopmental delay.

### **Objectives**

This study aims to examine motor and cognitive delays postdiagnosis of neonatal sepsis using DASII and identify associated predictors. It seeks to comprehensively evaluate specific clusters involved in this scenario through prospective data collection in Nepal.

### **Preliminary Findings**

Of the 260 enrolled patients, 116 completed the 6-month follow-up, indicating a 31.90% prevalence of neurodevelopmental delay. Among these, 12.93% exhibited motor delays, with mild, moderate, and severe categories at 10.34%, 2.59%, and 0.86%, respectively. Mental delay prevalence was 18.10%, with mild and moderate categories at 14.66% and 3.45%, respectively. These preliminary results suggest a positive correlation between neonatal sepsis and neurodevelopmental delay.

### **Conclusion**

This study addresses the gap in understanding the association between neonatal sepsis and neurodevelopmental outcomes in LMICs, particularly Nepal. The findings are expected to inform clinical practices, emphasizing early identification and intervention for at-risk infants, and guide future research and public health interventions.

### **Keywords**

Neonatal sepsis, neurodevelopmental outcomes, developmental assessment, LMICs, Nepal

**NON-COMMUNICABLE DISEASE AND INJURIES**

## ORAL PRESENTATIONS

### **Population Prevalence, Pattern, and Associated Factors for Retinal Diseases at High Altitude in Nepal**

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#### **Background**

Retinal diseases are common at high altitudes due to a cascade of changes caused by hypoxia. This study aimed to assess the population prevalence, pattern, and associated factors of retinal disorders at high altitudes in Nepal.

#### **Methodology**

A cross-sectional study was conducted at three selected high-altitude districts (over 2500 meters) of Nepal. Subjects were at least 40 years old and the target sample size was 309. A detailed history was taken. Visual acuity, random blood sugar, blood pressure and blood oxygen saturation using pulse oxymetry were measured. Anterior and posterior ocular evaluations were conducted by retina specialists using slit lamp and indirect ophthalmoscopy.

#### **Results**

A total of 338 participants were enrolled in the study, nearly equally from the three districts. Mean age was 57.0 years (S.D 11.1 years), and two thirds (63.9%) were females. 38.2% were illiterate and 46.7% were farmers. Average blood oxygen saturation was 87.2% (S.D 4.1%). Systemic hypertension and diabetes mellitus were found in 58% and 9.8%, respectively.

Retinal diseases were found in 176 (52.5%), with bilateral involvement in 157 (46.9%). The major retinal diseases were hypertensive retinopathy (32.2%), high-altitude retinopathy (10.4%), age-related macular degeneration (AMD) (8.1%), branch vein occlusion (BRVO) (2.1%) and diabetic retinopathy (DR) (1.8%). In multivariate analysis, there was significant association of retinal diseases with age and hypertension. A best corrected visual acuity of 6/6 to 6/18 was present in 96.7%. Patient awareness of DR was 4.4%, AMD 5.6%, hypertensive retinopathy 23.8%, and high-altitude retinal diseases 10.7%.

## **Conclusion**

Over half of the study participants (52.5%) had retinal diseases, with hypertensive retinopathy, AMD, and high-altitude retinopathy as the most common retinal problems. A significant association of retinal diseases was found with ageing, and hypertension. Awareness of major retinal disease was low. Access to eye care services and patient education about retinal diseases should be emphasized in high-altitude regions of Nepal.

## **Keywords**

Prevalence, pattern, risk factors, retinal diseases, high-altitude, high-altitude retinopathy, Nepal

## **Evaluating the implementation of a Package of essential non-communicable diseases interventions in Nepal.**

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## **Background**

The burden of non-communicable diseases (NCD) has been increasing at an alarming rate particularly in Low- and Middle-Income Countries (LMIC). The Package of essential non-communicable (PEN) diseases interventions was adopted for early screening, detection, prevention, control, and treatment of NCDs at primary health care (PHC) level of Nepal. With an increasing trend of NCDs related mortality in Nepal, effective policy implementation is essential. However, NCDs services have not been able to fulfil the people's needs indicating challenges to policy implementation. Hence, this study aims to evaluate the implementation of PEN interventions in Nepal.

## **Methods**

A qualitative approach was used to gain a comprehensive understanding of the PEN implementation process. Participants involved in PEN programme implementation at three government levels and PHC facilities of Jumla, Bardiya, and Kapilvastu districts were selected using purposive and snowball sampling techniques. In-depth interviews were

conducted with 26 stakeholders using a semi-structured interview guide. Data was transcribed verbatim in Nepali and then translated into English for analysis. Data was analysed using the thematic framework analysis approach and NVivo software.

### **Results**

The PEN program was found to be partially implemented in the Jumla and Bardiya districts, while not in the Kapilvastu district. Numerous factors facilitated the implementation of the PEN programme including health care worker training in PEN, the PEN protocols, and free medicines and health services. Challenges to implementation included unclear stakeholder's responsibilities, gaps in the health care system, low prioritisation of NCDs, funding and resources constraints, and changing people's behaviour.

### **Conclusion**

Resource constraints and low programme prioritization were the most common challenges faced for PEN programme implementation in the three districts. The study highlights the need to capacitate and well-equip PHC facilities for effective PEN programme operation. Further research is needed that focuses on strategies to address challenges faced during the PEN program implementation.

### **Keywords**

non-communicable diseases, PEN, process evaluation

## **Scaling up structured lifestyle interventions to improve cardiometabolic health in low- and middle-income countries**

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## **Background**

Cardiometabolic diseases (CMDs) are the leading causes of death in low- and middle-income countries (LMICs). Although structured lifestyle interventions (SLIs) have shown promise in mitigating these diseases, the challenge lies in scaling them up in LMICs. To address this gap, we undertook a systematic review to identify the strategies, methodologies and outcomes used in scaling up SLI programs to improve cardiometabolic outcomes in LMICs.

The protocol is registered with PROSPERO (ID: CRD42023416974). Our search strategy was guided by the Setting, Perspective, Intervention, Comparison, and Evaluation (SPICE) framework. We searched six databases to identify relevant studies published in English. Quality assessment was performed using the Cochrane risk-of-bias, National Institutes of Health, and Joanna Briggs Institute tools. Given the heterogeneity of the outcome measures, we conducted a narrative synthesis of the extracted information.

## **Results**

Out of the 26 studies meeting the inclusion criteria, eighteen studies (69%) adapted SLIs intervention to suit local contexts, and half of them (50%) of the studies were implemented through government and nongovernmental organizations. Fifteen (58%) studies reported the feasibility of their scale-up, while seven (27%) studies reported no significant differences in lifestyle behaviors or CMD biomarkers. Strategies such as system integration, strengthening facility services, and providing incentives and training led to up to 100% attendance of participants. Notably, only four studies (15%) utilized theories, methods and frameworks for the full scale-up process, which is crucial for large-scale implementation in resource-limited settings.

## **Conclusion**

Early engagement of the community and local stakeholders is crucial for co-developing strategies for scale-up of SLIs. Conducting readiness assessments, adapting SLIs to the local context, and integrating them into the existing system are all essential considerations for

improving scale-up outcomes. Additionally, we strongly recommend the use of suitable frameworks to guide the scale-up of SLIs to maximize the benefit for the population.

### **Keywords**

Scale-up, structured lifestyle intervention, cardiometabolic diseases, systematic review, low- and middle-income countries

## **Effectiveness of Female Community Health Volunteers Training Program on Hypertension Knowledge and Blood Pressure Measurement Skills in Kavrepalanchowk, Nepal**

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### **Background**

FCHVs in Nepal serve as basic healthcare providers, they play a role in the prevention, management, and treatment of hypertension in the future. There have been limited studies on Nepal's FCHVs' knowledge and capacity to deliver hypertension-related counseling and services. We aimed to investigate the effectiveness of a short training program for FCHVs on hypertension knowledge and blood pressure measuring skills in Namobuddha and Mandandepur Municipalities, Nepal.

### **Methodology**

We conducted a quasi-experimental study design among 131 FCHVs from Namobuddha and Mandandepur Municipalities. We measured the baseline and end-line hypertension knowledge and Blood pressure measurement skills after providing a one-day training on hypertension knowledge and Blood pressure measurement. We used HK-LS (Hypertension Knowledge Level Scale) to assess the knowledge through face-to-face interviews and observed skill-level on Blood pressure measurement using an observation checklist adapted from a similar study from India. We conducted linear regression to see the

association of end line hypertension knowledge score and Blood pressure measurement skills score with socio-demographic and FCHVs general performance.

### **Results**

After the training, the knowledge score increased by an average of  $1.51 \pm 4.14$  points and Blood pressure measurement skills increased by an average of  $11.68 \pm 4.00$  among FCHVs (p-value < 0.0001) respectively. About 61.07 % were able to successfully measure and record blood pressure after the training compared to none at baseline. There was no significant association of end-line mean knowledge and Blood pressure measurement skills score with socio- demographic and general performance after adjusting for confounders.

### **Conclusion**

A oneday training intervention is effective for improving knowledge and blood pressure measurement skills among FCHVs. Overall, the finding indicates that FCHVs can be equally knowledgeable about hypertension and capable of measuring blood pressure regardless of their individual backgrounds such as age, educational background and general performance.

### **Keywords**

Effectiveness, Female Community Health Volunteers, Training, Hypertension Knowledge, Blood Pressure Measurement Skills

## **Acceptability and Feasibility of Motivational Interviewing using mhealth tool among Patients with Depression: Building Evidence to Address the Dual Burden of Mental Health Conditions and Non-Communicable Disease**

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## **Background**

Motivational Interviewing (MI) is recognized for its efficacy in behavior change interventions, predominantly within substance use disorders. Its adaptable nature, emphasizing patient autonomy and collaboration, makes it promising for diverse healthcare contexts. This pilot study evaluated the feasibility and accessibility of MI through the Community-based mHealth Motivational Interviewing Tool for Depression (COMMIT-D) delivered by community health workers (CHWs) in Dolakha, Nepal. COMMIT-D enables CHWs to receive real-time support during MI sessions and facilitates supervision through audio recordings of CHW-client interactions. Our overarching goal is to translate the evidence to address the dual burden of mental health conditions and non-communicable diseases.

## **Methodology**

We used mixed method approach. Between 2020 and 2022, we conducted acceptability survey, focus group discussions and in-depth interviews with 27 community health workers (CHWs), four community health nurses (CHNs) who are CHWs supervisor, and 54 patients with depression in Dolakha. We analyzed the data descriptively and thematically.

## **Results**

revealed high acceptance and perceived benefits of COMMIT-D among CHWs, with over 94% reporting its usefulness in communication and promoting medication adherence. All CHWs embraced MI for supporting behavior change among non-adherent patients. It enabled them to access decision-support and receive ongoing feedback on audio recordings. Patient adherence reached 90% at each CHW contact.

## **Conclusion**

Community-based motivational interviewing using mhealth tool is acceptable among CHWs, supervisors, and patients with depression who are not adhering to treatment. These findings led to the development of Behavioral Community-based Combined Intervention for Mental Health and Non-Communicable Disease (BECOME), integrating MI as a pivotal component to ultimately improving patient well-being and health outcomes.

## **Keywords**

Motivational Interviewing, depression, Community Health Workers, non-communicable diseases, Mental health

## POSTER PRESENTATION

### **Characteristics of cannabis use among gay, bisexual, and other men who have sex with men in Nepal; A respondent-driven cross-sectional survey**

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#### **Background**

Although drug use is increasingly associated with high rates of morbidity and mortality, little is known regarding its prevalence and associated factors among men who have sex with men (MSM) in Nepal. This study reports on the prevalence and factors associated with drug use, specifically cannabis, among MSM in Nepal.

#### **Methods**

A cross-sectional survey was conducted among MSM in Nepal (N=250) between October 2022 and November 2022. Participants were recruited using respondent-driven sampling (RDS) in Kathmandu Valley, Nepal. We collected socio-demographic characteristics, HIV risk-related behaviors, and questions on recreational drugs such as cannabis, poppers, cocaine, heroin, and drugs associated with chemsex (i.e., crystal methamphetamine, GBL/GHB, mephedrone, ketamine). We chose to focus on Cannabis users for this study (N=39).

#### **Results**

We collected data from all participants (N=250) but chose to focus on MSM who use cannabis (N=39), as cannabis was the most commonly used drug among the sample. Significant variables associated with cannabis use are age (aOR: 0.8; 95% CI: 0.7-0.9), being

single (aOR: 21.5; 95% CI: 2.6-175.6), ever being detained by the police (aOR: 11.4; 95% CI: 2.2-58.4), smoking tobacco daily (aOR: 4.6; 95% CI: 1.2-17.9), seen a doctor within the last 6 months (aOR: 0.2; 95% CI: 0.1-0.6), and having a trusted healthcare provider (aOR: 0.1; 95% CI: 0.01-0.2).

### **Conclusion**

Further investigation is warranted to elucidate the underlying mechanisms and develop tailored interventions to mitigate drug-related harms in this population.

### **Keywords**

Cannabis, Drug Use, MSM, Nepal

## **Service Readiness of Primary Health Care Facilities for the Management of Non-Communicable Diseases in Syangja District**

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### **Introduction**

Increasing prevalence of non-communicable diseases (NCDs) risk factors have a significant impact; contributing to Disability-Adjusted Life Years (DALYs). Ensuring effective and high-quality delivery of NCD services requires readiness in healthcare facilities. Service readiness is the ability and preparedness of the healthcare system to effectively and efficiently manage these NCDs. This study aims to assess the readiness of Primary healthcare facilities and identify the associated factors in Syangja District.

### **Methods**

A cross-sectional study was conducted among the heads of 117 Primary healthcare facilities in Syangja district. Face-to-face interviews were conducted using a pre-tested structured interview schedule and modified WHO SARA tools. Data entry was done in Epi-data, and analysis was performed using SPSS. Univariate, bivariate, and multivariate analyses were carried out in light of the study objectives.

### **Results**

Service readiness of healthcare facilities in Syangja was very low (6%) against NCD. The mean percentage scores for service-specific domains ranged from 40% to 58%, indicating

variations in readiness across different domains. The type of health facility (AOR: 93.60, 95% CI: 7.28-1202.23) was significantly associated with NCD service readiness. Approximately 80.3% of health facilities received support from the local government.

### **Conclusion**

Total service readiness was very low in the healthcare facilities of Syangja. It indicates that there is a gap in the existing situation of the incremental trend of NCDs and corresponding service readiness in Primary healthcare facilities. It is an urgent need to develop the mechanism of service readiness in the context of the ever-increasing burden of NCDs in Syangja.

### **Keywords**

Service Readiness, Non-communicable disease, Primary health facilities

## **Study of the diagnostic and monitoring efficiency of serum glucose and fructosamine measurements**

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### **Background**

HbA<sub>1c</sub> is an expensive and technically difficult assay requiring competent manpower to interpret chromatograms. There are several reports of discordance in HbA<sub>1c</sub> and glucose levels. Iron deficiency anemia, chronic kidney disease, hemoglobinopathies, use of certain drugs, pregnancy, hemolytic anemia, transfusions, and recent acute changes in glycemic control may hurt the HbA<sub>1c</sub> concentration. The cost of troubleshooting false results is higher for HbA<sub>1c</sub>. This study is designed to establish fructosamine as a clinical outcome by conducting head-to-head comparisons with HbA<sub>1c</sub>.

### **Methodology**

A prospective study on the potency of a simplified diagnosis and monitoring of diabetes, using serum glucose and fructosamine, in 308 patients (diabetic, prediabetic, and normal) was carried out. Samples with raised creatinine, decreased protein, decreased hemoglobin, and presence of hemoglobinopathies were excluded. Routine analytes including glucose, HbA<sub>1c</sub>,

and fructosamine levels were measured and the diagnostic Bayes' factor for a fructosamine was established.

### **Results**

The fructosamine level correlated well with HbA<sub>1c</sub> and was found to be highly significant ( $r=0.78$ ,  $p < 0.01$ ). Fructosamine had a diagnostic sensitivity and specificity of 89% and 78% respectively, to diagnose diabetes when a cutoff value of 260 mmol/L was used and in relation to the diagnosis established by HbA<sub>1c</sub> (using a cut-off of 6.5%).

### **Conclusion**

Fructosamine assay is cheaper and has the potential to replace HbA<sub>1c</sub>. HbA<sub>1c</sub> and fructosamine are highly correlated and fructosamine will be more sensitive to fluctuations in glucose concentrations and liable to far less biological variation. We propose that guidelines be developed to help clinicians interpret these alternative methods to control blood glucose levels better.

### **Keywords**

HbA<sub>1c</sub>; Fructosamine; Diabetes Mellitus; Glucose

## **The Relationship between Nicotine Dependence, Depression, Anxiety, and Stress among Smokeless Tobacco Users in Chandannath Municipality, Jumla**

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### **Background**

Nicotine dependence (ND) has been recognized as a significant public health burden in both high- and low- and middle-income countries. The quality of life of tobacco users is influenced by depression, anxiety, and stress (DASS), which increases their nicotine

dependence. Therefore, the study was planned to assess the relationship between ND and DASS among the adult population.

### **Methodology**

A cross-sectional analytical study was conducted in Chandannath Municipality with 306 participants aged 21-85 years. Data was collected through face-to-face interviews using the DASS-21 questionnaire and the Fagerstrom Test for Nicotine Dependence for Smokeless Tobacco (FTND-ST). The data was collected through KoboCollect and analyzed using IBM SPSS v.26. Data were presented using median (inter-quartile range), percentages, and Spearman correlation coefficients (rs).

### **Results**

The median age of the participants was 42 years, and 55% were male. The prevalence of smokeless tobacco users (SLT) was 20.6%, and the medium number of packets consumed was 3 (2-7) per week. The median ND was 7 (IQR:5-8), and more than 50 % had high ND. The median DASS scores for SLT were found to be 12(4-16),10(4-14), and 12 (8-20), respectively. Nearly 52.4 % of SLT users who had depression and anxiety had moderate to high ND, and 28.6% of them had stress with moderate to high ND. The ND was positively correlated with depression (rs= 0.21, p= 0.09), anxiety (0.27, 0.03), and Stress (r=0.17, p=0.11).

### **Conclusions**

Smokeless tobacco usage is prevalent and categorized by significant nicotine dependence. It is associated with psychological problems and shows a moderate to high level of ND. Therefore, it is suggested to identify and address any psychological effects of using SLT to prevent SLT use and minimize associated mental health issues.

### **Keywords**

Smokeless tobacco, Nicotine Dependence and DASS

### **Exploring needs for palliative care in rural Nepal: results from a house-to-house survey**

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## **Background**

The rising global burden of non-communicable disease (NCDs) is becoming a concern for all, causing a significant impact on the health of individuals and the lives of families and the community. Palliative Care focuses on patients with life-threatening illness and their families and is needed by many of the 70% in Nepal who die from NCDs. Palliative care has been developing mainly in urban areas. Few studies have explored palliative care needs in rural areas. Sunita Project is developing rural palliative care in Lamjung and Rukum Districts.

## **Objective**

To determine the need for palliative care in four municipalities in two districts.

## **Methods**

Areas were selected from district profiles to maximize geographic, ethnic, cultural and socioeconomic variation. 140-160 houses per area were sampled. A household member was asked the number and ages of residents and whether any had advanced chronic illness, frailty or major disability. Palliative care needs were confirmed using the Supportive and Palliative Care Indicators Tool (SPICT-LIS). A questionnaire about diagnosis, needs (using Nepali Palliative Outcome Scale-NPOS) and health seeking behavior was administered. Descriptive statistical analysis used MS Excel.

## **Results**

58 (29[50%] male) with palliative care needs were identified amongst 2320 people surveyed; 53/1715(3.1%) in Lamjung and 5/615(0.8%) in Rukum. Average age 79 (range 21-98). 44/58(76%) had a formal diagnosis. 25/44(57%) received some follow up. Highest average NPOS (symptom burden) scores: concern about the future (2.38/5), mobility problems (2.17/5), lack of peace (2.05/5), weakness (1.90/5). Pain was less common (1.02/5).

## **Conclusions**

A significant but varying need for palliative care exists in rural Nepal. Many people have not had a formal diagnosis. The reasons for lower need in Rukum are unclear. Significant psychosocial and spiritual needs emphasize the need for training in these aspects of palliative care. Needs have been explored further using purposively sampled multiple case studies.

## **Keywords**

Palliative Care, Non-communicable disease

## **Community support groups for non-communicable disease management: a feasibility study**

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### **Background**

Support group interventions can foster self-help and motivation for the adoption of health practices. Nonetheless, modalities of such interventions vary greatly. This study explored the feasibility of *community support group meetings* in promoting effective non-communicable disease related self-management behaviours in Nepali context.

### **Methodology**

Four support groups, namely: women-, mixed-, marginalised- and elderly-groups, of individuals with hypertension and/or diabetes and residing in Kageshwori Manahara Municipality (Ward-6) in Kathmandu were formed. The participants were invited to attend an orientation session where information on project and common self-management behaviours were delivered. Following orientation session, participants of each group met twice each month for four-months to discuss on their self-management behaviours. Data collection involved a mixed method approach. Baseline and endline (quantitative) survey was conducted to assess preliminary impact. Qualitative data, including the meeting discussions and in-depth interviews provided insights in patients' views and acceptability of such intervention.

### **Results**

Of the 41 participants (mean age: 60.13 years) who attended the orientation, 80% were female. Meeting attendance rate ranged between 70-90%. Significant changes in blood pressure and weight were noted post-intervention. Qualitative data indicated that community support group meetings could be a platform for information exchange and shared learning and could inspire lifestyle modifications. Whilst the participants identified potential difficulties in regularly running support group meetings, for eg., finding common interests for

collaborative activities; most believed that facilitator-led meetings has potential and they will be interested in such activities. The needs of different groups varied; and, homogeneous groups were more likely to engage in supportive activities with each other compared to heterogenous groups.

### **Conclusion**

Community support group meetings can be a potential strategy to engage the Nepali community in non-communicable disease self-management practices and addressing risk factors. Larger trials are needed to establish specific modalities and effectiveness.

### **Keywords**

Non-communicable diseases, Hypertension, Diabetes, Community Engagement, Community Support Groups

### **Assessment of Serum hs-CRP and Lipoprotein (a) as Cardiovascular Risk Markers in Women with Polycystic Ovarian Syndrome**

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### **Background**

Polycystic Ovarian Syndrome (PCOS) is the most common metabolic disorder among women of reproductive age group. PCOS is explored in terms of reproductive maladies like infertility and amenorrhoea while the other spectrum of disease i.e. cardio-metabolic consequences is not delved into. This study intended to unravel the status of cardiovascular risk markers in PCOS-afflicted women through assessment of inflammatory marker and lipoproteins.

### **Methodology**

A case-control study was conducted at Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu among 130 patients (70 PCOS and 60 controls) visiting Infertility

Clinic at Department of Obstetrics and Gynecology. Serum samples were collected on the second day of menstrual cycle. Baseline biochemical and hormonal parameters (blood glucose, total cholesterol, LDL-cholesterol, triglyceride, HDL-cholesterol, gonadal hormones, prolactin, vitamin D, thyroid hormones) and cardiovascular risk markers (hsCRP, lipoprotein (a)) were analyzed using Abbott ci4100 Integrated System, SNIBE Maglumi 800 and mispa-i3 protein analyzer. Statistical analysis was done using SPSS version 23.0. Different statistical tests were performed according to the nature of data.

### **Results**

Most of the participants in the PCOS cohort were overweight and obese as compared to the normal controls with mean BMI of  $26.59 \pm 3.58 \text{ kg/m}^2$  vs.  $22.69 \pm 2.29 \text{ kg/m}^2$  ( $p < 0.001$ ). The likelihood of elevated hsCRP was higher in PCOS [OR-15.17 (6.15,37.42),  $p < 0.001$ ] as compared to controls. Despite having normal BMI, 23.9% ( $n=17$ ) PCOS-afflicted individuals had lipoprotein(a) above desirable range. The cut-off value for hsCRP for diagnosis of cardiovascular risk in PCOS cohort in our study was calculated as 853.85 ng/ml with ~75% sensitivity and specificity.

### **Conclusion**

There is a high risk of cardio-metabolic disorders in women with PCOS as compared to their normal contingents. Among the biomarkers assessed, hsCRP outperformed others in assessment of cardiovascular risk in PCOS. Even in individuals with normal BMI, atherogenic lipid abnormalities was present.

### **Keywords**

Cardiovascular risk, Chronic low-grade inflammation, hsCRP, Lipoprotien (a), Polycystic Ovarian Syndrome

### **An audit and analysis of causes of treatment default in Head and Neck cancer: A single Tertiary Cancer Centre experience**

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### **Background**

Treatment default is widespread among cancer patients and usually compromises patients' clinical outcomes. The study aimed to audit treatment in head and neck cancer cases and assess compliance and causes of default.

### **Method**

We reviewed Outpatient department (OPD) clinical record files of head and neck cancer patients registered at our hospital in a year. Patients were chosen based on the availability of record files at the time of sampling. All patients' OPD files were evaluated for treatment completion and causes of treatment default were recorded from the OPD record file. If information was unavailable in the OPD record file, patients or patients' relatives (if a contact number was available) were called for further information and cause of default. The Google spreadsheet was prepared to record demographics and causes of treatment default.

### **Results**

72.19% were male among 205 patients analyzed. The most common site was the oral cavity (30.24%), followed by oropharynx (21.9%), larynx (20%), and others. Intent was curative in 175 patients (85.36%) and palliative in 22 patients (10.73%). 112 curative intent patients (64%) and 11 palliative intents (50%) completed planned treatment, 27 curative intent patients (15.42%) 7 palliative patients (31.81%) defaulted during treatment, and 36 curative patients (20.57%) and 4 palliative patients (18.18%) defaulted before starting Primary treatment. Treatment-related toxicities in 20 patients (26.31%) and waiting time for radiotherapy in 14 patients (18.42%) were major causes of default in this study. In curative intent cases, 44 patients (39.28%) had a complete response, 41 patients (36.3%) had a partial response, 10 patients (8.92%) had progressive disease and 6 patients (5.35%) had metastatic disease, 3 months' post-treatment.

### **Conclusion**

64% of curative and 50% of palliative intent completed treatment. The most common cause of treatment default was waiting time to start treatment. Further large-scale studies are needed to estimate the exact dimensions of the issue in our setup.

### **Keywords**

Head and neck cancer, treatment audit, treatment default

## **Coping Strategies and Perceived Burden among Caregivers of Older Adults with Mental Illness Attending Teaching Hospital**

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## **Background**

Caregivers of older adults with mental illness face various practical problems, however, effective coping resources enable to reduce perceived burden. This study aims to assess coping strategies and perceived burden among caregivers of older adults with mental illness.

## **Methodology**

Cross sectional study was conducted at Patan Hospital among 129 caregivers of older adults with mental illness attending OPD and IPD using purposive sampling. Interview was done using Brief COPE to assess coping strategies and Zarit Burden Interview to assess caregiver burden. Coping strategies were categorized as problem focused, emotion focused and avoidant coping, and perceived burden were categorized as personal strain and role strain. The level of perceived burden was measured as little/ no burden (0-20), mild-moderate (21-40), moderate-severe (41-60) and severe burden (61-88). Chi-square test was used to find association between socio demographic variables with level of perceived burden. Pearson Correlation was used to find relationship between coping strategies and perceived burden.

## **Results**

The mean score of personal strain and role strain was  $17.26 \pm 12.462$  and  $7.23 \pm 8.050$  respectively. Nearly half of caregivers (48.1%) felt little or no burden and 15.5% of caregivers felt severe burden. The level of perceived burden was associated with the female gender of caregivers ( $=6.630$ ;  $p=0.01$ ), type of family ( $= 8.420$ ;  $p= 0.004$ ), and employment of caregivers ( $= 4.069$ ;  $p= 0.044$ ) and psychotic disorder of patient (older adults) ( $= 9.444c$ ;  $p=0.002$ ). Emotion-focused coping strategies  $33.16 \pm 4.917$  were commonly used. There was no significant correlation between coping strategies and perceived burden.

## **Conclusion**

Caregivers using emotion and problem focused coping helps in minimizing stress of experiencing any level of burden. Though, there is no significant correlation between coping strategies and perceived burden in this study, findings may provide baseline data to determine coping strategies and perceived burden. Similar study can be conducted in large population.

## Keywords

caregiver burden, coping, mental illness, older adults

## Sleep quality and internet addiction among adolescents in Dakshinkali municipality, Nepal

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## Background

Poor sleep quality and internet addiction are significant issues affecting adolescents globally. This study aimed to explore the prevalence and contributing factors of poor sleep quality and internet addiction along with the relationship between sleep quality-related attributes and internet addiction.

## Methodology

A cross-sectional study was conducted among 243 adolescents of Dakshinkali Municipality, Nepal. Pittsburgh Sleep Quality Index and Young's Internet Addiction Test scale were used to measure sleep quality and internet addiction. Pearson's chi-square test and binary logistic regression were performed at a 5% level of significance to examine the associated factors.

## Results

Prevalence of poor sleep quality was 27.6% (95% CI: 22.6-33.7) while potential internet addiction was 49.4% (95% CI: 42.0-56.7). Poor sleep quality was associated with internet addiction (aOR: 1.845; 95% CI: 1.344-3.608), poor perceived relation with teachers (aOR: 2.274; 95% CI: 1.149-4.497), and presence of family conflict (aOR: 2.355; 95% CI: 1.040-5.329). Bad subjective sleep quality (aOR: 5.613; 95% CI: 2.007-15.701), sleep disturbance (aOR: 1.781; 95% CI: 1.251-4.872), frequent daytime dysfunction (aOR: 1.902; 95% CI: 1.083-4.638), and poor perceived relation with teachers (aOR: 2.298; 95% CI: 1.233-4.285),

and presence of family conflict (aOR: 1.606; 95% CI: 1.202-3.675) were associated with internet addiction.

### **Conclusion**

Almost a quarter of adolescents experience poor sleep quality, while nearly half screened positive for potential internet addiction. Established interrelations between sleep quality and internet usage underscore the importance of integrated intervention approaches combining lifestyle modification and family/school support to protect and promote the mental health and well-being of Nepalese adolescents.

### **Keywords**

Sleep quality, Internet addiction, Adolescents, Nepal

## **Quality of Life of Patient with Psychiatric Illness Attending Teaching Hospital**

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### **Background**

Quality of life (QOL) reflects individual's subjective experience relating them to context of world in which they currently live. QOL is meaningful outcome measure of patients with psychiatric illness, where long term impairments are present and complete cure is impossible. The objective of this study was to assess quality of life of patients with psychiatric illness.

### **Methodology**

A descriptive cross-sectional analytical study was conducted among 192 patients with psychiatric illness attending the psychiatric OPD of Patan Hospital from November 1, 2022, to December 29, 2023. The Nepali standard version of the WHOQOL-BREF tool was used to collect data. Collected data were analyzed using the SPSS 16 version using descriptive and inferential statistical measures.

### **Results**

It was found that quality of life was poor in 15.6%, moderate in 68.8%, and relatively high in 15.6% of patients. The domain score was highest in the social relationship domain (12.8+2.6) and lowest in the psychological domain (11.9+2.9), where a higher score indicated a higher

quality of life. Quality of life was found to be significantly associated with the type of family [AOR=0.29(95% CI: 0.09-0.91); p=0.03] and presence of residual psychiatric symptoms [AOR=38.47(95% CI: 8.49-174.30); p<0.01].

### **Conclusion**

Average patients with psychiatric illness had moderate quality of life. The quality of life was highest in the social relationship domain and lowest in the psychological domain. Furthermore, patients living in nuclear families and those with less than two residual psychiatric symptoms had good quality of life. Therefore, it is suggested to apply interventions for reducing residual psychiatric symptoms for good quality of life for psychiatric patients.

### **Keywords**

Mental Disorder, Psychiatric Illness, Quality of Life, Teaching Hospital, WHOQOL-BREF

## **Health facility readiness, facilitators and implementation challenges of package of essential non-communicable diseases (PEN) program in Banke district of Nepal**

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### **Background**

Non-communicable diseases (NCDs) have risen to the top of the list of causes of premature death and Disability Adjusted Life Years (DALYs) in the world as well as in Nepal. The PEN program uses tools for the prevention and management of NCDs at primary health facilities with low-resource setting. Since 2016, Nepal has been implementing the PEN program. This study assesses the health facility readiness, facilitators, and implementation challenges of the PEN program in Banke district of Nepal.

### **Methodology**

A descriptive cross-sectional design with a multi-method study having equal emphasis on both qualitative and quantitative data. All the primary health care (PHC) facilities of Banke district were studied.

### **Results**

The overall readiness index of the PEN program has found to be 62.4% (Cutoff 70%) which has not considered as ready to provide PEN services in Banke district. Out of eight local

levels in district, all of the local levels have found to be ready to provide breast cancer screening and management (84.49%), only Raptisonari rural municipality is ready for diabetes screening and management (70.14%) and none of the local levels ready to provide cardiovascular diseases and chronic respiratory diseases. Majority of the participants highlighted on support from the local leadership, role of female community health volunteers and trust of people on services are crucial to facilitate to implement the PEN program. Whereas lack of budget to the program, discontinuity of essential medicines and lack of satisfaction of staffs are major challenges to implement the PEN program from PHC facilities.

### **Conclusion**

The readiness index of the PHC facilities to implement the PEN interventions in health facilities of the districts is very low. Government needs to strengthen the PHC system by providing needed essential commodities and medicines, basic diagnostics, equipment, and training to clinical health care workers for effective implementation of PEN program.

### **Keywords**

DALY (Disability adjusted life year), NCD (Non-communicable disease), PEN (Package of essential non-communicable diseases).

## **Factors Associated with Substances Use among Young Adults in a Community of Lalitpur Metropolitan, Nepal**

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### **Introduction**

Substance use has emerged as a widespread issue, impacting not only the health of the individual but also familial and societal well being. This study aimed to assess the factors associated with substance use among young adults.

### **Methodology**

A quantitative cross-sectional analytical study was conducted among 329 young adults residing in Lalitpur Metropolitan city, Nepal. Convenience sampling technique was used for the selection of samples and data was collected through self-administered questionnaires. Descriptive and inferential statistics were used to analyse the data in Statistical Package for the Social Sciences version 16 software.

### **Results**

The study revealed that median age of respondents was 25 years with interquartile range (23,29) and 55.0% were male. The overall prevalence of substance use was 45.9%. Among the substance users, alcohol was the most commonly used substance 43.1% followed by smoking and smokeless tobacco products use 17.6%, marijuana use 3.9%, pain medication uses 1.8%, opiates and inhalants use 0.9% and anxiolytic use 0.6%. Logistic regression findings revealed that, males [AOR 3.4 (95% CI: 2.1-5.78)], educational status above secondary level AOR 2.26 (95% CI: 1.78-5.18)] due to curiosity [AOR 5.405 (95% CI: 3.04-9.615)] were significantly associated with substance use with  $p$  value  $< 0.05$ .

### **Conclusion**

Almost half of the respondents in the study used some form of substance. This emphasizes the need to implement preventive measures and educational interventions to make a positive impact on public health.

### **Keywords**

Correlate, Factors associated, Substance use, Young adults

## **Factors associated with resilience among patients with chronic kidney disease receiving hemodialysis in teaching hospital, Nepal**

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### **Introduction**

Chronic Kidney Disease is a global health issue that causes significant disability and mortality. In Nepal, fifth-stage chronic kidney disease is prevalent, and the number of

patients with end-stage renal disease (ESRD), requiring hemodialysis is increasing. Despite being a lifesaving treatment for patients with ESRD, hemodialysis often leads to psychosocial and physical problems. Enhancing patients' resilience by incorporating protective factors is crucial to overcoming the problems caused by disease and its lifelong treatment. This study aimed to assess the factors associated with resilience among patients with chronic kidney disease receiving hemodialysis.

### **Methods**

A cross-sectional analytical study was done among 143 patients, receiving hemodialysis in a Teaching Hospital, selected using convenience sampling technique. Data were collected through face-to-face interviews using five standard instruments, i.e., Connor and Davidson Resilience Scale, Family APGAR Scale, Illness Cognition Questionnaire, General Self-Efficacy Scale, Rosenberg Self-esteem Scale, for resilience, family support, illness cognition, self-efficacy, and self-esteem, respectively, after receiving ethical approval. Data were analyzed using descriptive and inferential statistics namely correlation and multiple linear regression analysis via Statistical Package for Social Science software.

### **Results**

The highest proportion of respondents had intermediate (49.0%) to low (27.3%) levels of resilience. Illness cognition ( $\beta = .17, p = .031$ ), self-efficacy ( $\beta = .44, p = .000$ ), and self-esteem ( $\beta = .25, p = .001$ ), had statistically significant positive associations with resilience. However, age ( $\beta = -.17, p = .000$ ) had significantly negative association with resilience. These associated variables account for 64% of the variance on resilience.

### **Conclusion**

The study revealed that majority of patients receiving hemodialysis had intermediate to low resilience. Illness cognition, self-efficacy, and self-esteem were significantly positively associated with resilience that may play a crucial role in building resilience. The findings suggest incorporation of these factors with special focus on older patients receiving hemodialysis during care to enhance resilience which ultimately leads to psychological well-being.

### **Keywords**

Associated factors, chronic kidney disease, hemodialysis, resilience

## **Depression Status and its Associated Factors among Middle-Aged Women in Madhyabindu Municipality of Western Nepal**

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## **Introduction**

Studies have revealed that the prevalence of depression is higher in women than in men, particularly among middle-aged women, who are more vulnerable and require special attention. In the context of Nepal, there is a research gap on factors associated with depression among middle-aged women. As a result, the present study assesses the depression status and its associated factors among middle-aged women.

## **Methods**

Employing a cross-sectional research design and multistage sampling, i.e., probability proportionates to size sampling to select wards, simple random sampling to select toles (or sub-wards), and systematic sampling technique to select the respondents. Based on the probability sampling technique, a total of 351 middle-aged women were interviewed face-to-face using a structured questionnaire. Both descriptive and multivariate analysis were used to analyze the obtained data. Further, reliability and validity were ensured.

## **Findings**

The study findings indicate that the prevalence rate of depression was 31.5%. The Beck Depression Inventory score scale indicates that respondents are suffering from mild levels of depression (17.37%), followed by 10.54% with moderate depression and 2.56% with severe depression, respectively. Findings also revealed that respondents with fewer sleep hours, alcohol and smoking habits, and women in the postmenopausal stage are more prone to depression. The logistic regression results further revealed that the depression levels of people with low income (for less than six months are six times higher), education (illiterate three times higher), and sleeping less than 6 hours (four times higher).

## **Conclusion**

The prevalence of depression among middle-aged women is quite high. Thus, awareness activities, health promotion, and education programs related to mental health should be designed and implemented, focusing on middle-aged women to reduce and eliminate depression among them.

## **Keywords**

Depression, Middle-aged Women, BECK depression inventory, Madhyabindu Municipality, Western Nepal

## **Comorbidities and visual outcome in patients undergoing cataract surgery in a tertiary eye hospital in Bhaktapur, Nepal: a cross-sectional study**

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## **Background**

The most prevalent cause of treatable blindness is cataract, which is also the most commonly performed ocular surgery with good outcomes compared to other ocular surgeries. With the current available correction, up to 50% of cataract-operated eyes still have impaired vision. Poor visual outcomes after cataract surgery were mostly caused by ocular and systemic comorbidities, surgical difficulties, and insufficient optical correction. Therefore, we wanted to evaluate the impact of pre-existing ocular and systemic comorbidities on final visual outcome.

## **Methods**

A cross-sectional study was conducted in a tertiary eye hospital in Bhaktapur, Nepal, on 370 individuals receiving cataract surgery between January and March 2020. Data were collected from operation theater records and out-patient follow-up for up to 11 weeks, including face-to-face exit interviews. Chi-square test, as well as the adjusted odds ratio, were used to examine the relationship between the visual outcome of cataract surgery and comorbidities and other variables. A p-value of <0.05 was considered statistically significant.

## **Results**

The mean (SD) age of the 346 participants included in the data analysis was 66.68 (11.59) years. Unlike in many studies, more than half of the participants (n = 206, 59.5%) were female; 71.3% (n = 246) were aged 60 and above. Pre-existing ocular comorbidity was present in 13.0% (95% CI: 9.5%–16.5%) of participants, with retinal disease being the top

comorbidity. Hypertension was present in 41.9% (95% CI = 36.7%–47.1%), diabetes in 13.6% (95% CI = 10.0%–17.2%), and bronchial asthma in 14.9% (7.4%–25.7%). Participants with pre-existing ocular comorbidities were 7 times more likely to have borderline-to-poor vision outcomes (AOR = 7.06, 95% CI: 3.32-15.0,  $p < 0.001$ ).

### **Conclusions**

The presence of any ocular comorbidity is a major risk factor for patients receiving cataract surgery for borderline-to-poor visual outcomes. Comorbidities must be taken into consideration when counseling patients regarding their visual prognosis.

### **Keywords**

Comorbidity, cataract, Nepal, surgery, vision

### **Feasibility of First-Degree Relative screening of Rheumatic Heart Disease cases: A Qualitative study**

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### **Background**

Rheumatic heart disease (RHD) remains a serious public health problem in low- and middle-income countries as well as in marginalized minorities in high-income countries, including indigenous populations. A complex interaction between environment and host susceptibility is responsible for the development of RHD. First degree relatives (FDR) may represent a high risk group due to the fact that they share a living environment and genetic susceptibility. This study aimed to determine the opportunities and challenges of incorporating FDR screening in national RHD program in Nepal.

### **Methodology**

In this qualitative study, we conducted a total of 15 in-depth interviews with the policymakers (5) and health care providers (10) involved in RHD care. A thematic analysis

was conducted, in which six building blocks defined by the World Health Organization were incorporated into six themes: leadership and governance, service delivery, medical products, human resources, information system and financing.

### **Results**

The Government should take initiative for funding and scaling up FDR screening to national RHD program. Development of RHD registry is necessary for policymaking and providing data related to RHD. Despite the importance of FDR screening, the available resources may not be sufficient to conduct it smoothly.

### **Conclusion**

Certain challenges are perceived, such as the availability of trained health worker and necessary equipment for the FDR screening of RHD cases. FDR screening seems feasible with the support of Government and other key stakeholders.

### **Keywords**

Rheumatic Heart Disease, first-degree relatives, Nepal

## **Mental Health Issues of Women of the Reproductive Age Living in Chandannath Municipality, Jumla**

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### **Background**

Depression, anxiety, and stress (DASS) are neglected public health issues in low-and middle-income countries that are affecting women of reproductive age. There are several factors associated with DASS that can be controlled and prevented to enhance mental health. There is a paucity of such a study in Nepal. Therefore, the study aims to identify the status of DASS and to examine the effects of socio-demographic, and behavioral factors on DASS scores among women of reproductive age in remote areas of Nepal.

### **Methodology**

This cross-sectional study was conducted in Chandannath municipality by taking 306 random samples. Among them, 89 women were of reductive age group. Data was collected using the

DASS-21 questionnaire and analyzed through the t-test and ANOVA using the SPSS 26 version. The P-values <0.05 (two-sided) were considered statistically significant.

### **Results**

Out of 89 women, more than 50% belonged to the Chhetri family, 42% were engaged in agricultural activities, and 91% were married. Remarkably, 30% were illiterate, 9.1% smoked, and 1.1% consumed alcohol. The prevalence of depression was 65.2%, anxiety 71.9%, and stress 53.9%. The results showed that 21.3%, 39.3%, and 17.9% of women had severe and very severe levels of DASS, respectively. It was found that there was a significant mean difference in depression between smokers and non-smokers (Mean (SD):10.38 (5.78) vs. 6.57 (4.78),  $t=2.11$ ,  $p=0.03$ ), agriculture vs others occupations (5.88 (4.58) vs. 8.29 (5.19),  $t=2.31$ ,  $p=0.023$ ), Illiterate vs. literate (9.37 (5.58) vs 5.84 (4.30),  $t=3.25$ ,  $p=0.02$ ). Additionally, ethnicity revealed a statistically significant mean difference with stress ( $F=2.42$ ,  $p=0.04$ ). The remaining demographic variables such as age, marital status, and monthly income did not show significant mean differences with DASS.

### **Conclusion**

Our findings suggest that women of reproductive age had higher levels of DASS. Larger community-based studies of women of reproductive age could provide more comprehensive answers to the factors associated with DASS.

### **Keywords**

Women, Reproductive age, Depression, Anxiety, and Stress

## **Effects of Dynamic Meditation on Serum Cortisol and Biochemical Parameters in Pre and Post-Meditation Participants**

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### **Introduction**

Modern life is replete with hassles, deadlines, frustrations, and demands that induce stressful situations. Such physical and psychological stress causes the body to increase its cortisol level. Chronic stress and long term elevation of cortisol activate biological responses

including increased blood pressure, blood sugar levels, and metabolism resulting the body to remain in this activated state associated with diseases such as diabetes, obesity, cardiovascular diseases. Osho dynamic meditation is a method that relaxes the mind, thereby reducing stress and lowering serum cortisol levels. This research aims to evaluate the effect of meditation in reducing stress hormone cortisol which subsequently lead to decrease in fasting blood glucose (FBG) and lipid profile i.e., total cholesterol (TC), triglyceride (TG), HDL, LDL.

### **Methods**

An experimental study was conducted at Tribhuvan University Teaching Hospital (TUTH) among 70 participants attending 7 days' meditation camp at the Osho Tapoban. Dynamic meditation along with proper vegetarian diet were incorporated to understand their combined effect on the serum cortisol, FBG, and lipid profile levels in pre and post meditation participants. Serum cortisol hormone level was measured by Snibe maglumi 800 autoanalyzer followed by FBG, and lipid profile analysis on Vector Biochemistry analyzer. The Wilcoxon signed-rank test was used to determine significant differences in cortisol, blood glucose and lipid profile level in pre and post-meditation participants.

### **Results**

There was a significant decline in the level of serum cortisol( $p < 0.001$ ) when comparing long-term practitioners(>1years) and new practitioners. Additionally, there was a significant decline in body weight and BMI( $p < 0.001$ ), blood glucose( $p < 0.001$ ), and HDL( $p < 0.001$ ) in both male and female populations after meditation. However, TG( $p < 0.001$ ) and TC( $p = 0.002$ ) were significantly lowered only in male participants. Conversely, serum LDL( $p = 0.53$ ) remain unaffected in both participants.

### **Conclusion**

Our findings suggest that meditation brings about significant decrease in cortisol level, alleviating stress. The study underscores the importance of meditation in reducing FBG, TG, and TC, thereby enhancing the physical and mental fitness of practitioners.

### **Keywords**

Stress, Serum cortisol, Blood glucose, Lipid profile, Mental health

# **Perception of Cigarette Graphic Health Warnings and its Impact on Smoking Behavior Among Current Adult Smokers and Stakeholders in Galyang Municipality, Syangja, Nepal: A Concurrent Mixed-Method Study**

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## **Background**

Tobacco smoking is considered as a leading cause of preventable death, mostly in developing countries like Nepal. Graphic health warning label (GHWL) on cigarette packets is one of the most common statutory means to communicate health risks of smoking. This study was carried out to assess perception and impact of GHWL and explore the challenges and opportunities in its implementation.

## **Methodology**

Descriptive cross-sectional study carried out among 210 current adult smokers of Galyang Municipality of Syangja by using 30 cluster sampling. Quantitative data collection was done among the current smokers aged 18 and above by interview method and the Qualitative data collection was done among 11 key informants by key informants Interview and analysis of both data were done parallelly.

## **Results**

Initiating smoking under 18 years of age were (45.71%). More than half (53.33%) initiate due to peer pressure. About (34%) smokes cigarette within 5 minutes after wake up. About (31%) have high dependence on tobacco smoking. About (75%) current smokers said warning makes thinking about health consequences. About (24%) Scared of images and Want to quit smoking (29%). Reduced no. of cigarettes (29%). About (44%) have tried to quit smoking. Only (8.10%) have think to quit within 30 days. Majority of (89.33%) of avoid pictorial health warning labels by buying sticks only. All the key informants said that GHW creates awareness and it looks scary, increases health consciousness, hardly controlling smoking. Restriction should be made in tobacco trade. Implementation part of act is lacking. Awareness /orientation program should be carried by using mass media, social media and Interaction program with political leaders.

## **Conclusion**

Tobacco smoking dependence was an important factor to make people not likely to quit. Tobacco control act is not implemented well, Awareness /orientation program should be conducted with the help of mass media, social media and interaction program with political leaders.

## **Keywords**

Cigarette packet pictorial health warning labels, Graphic health warning, adult smokers, intention to quit and tobacco dependence, perception on GHW, PHW, GHWL, Impact on GHW.

## **Baseline Findings of 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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## **Background**

Non-Communicable diseases (NCDs) encompass a group of persistent health conditions, including CardioVascular diseases, Cancer, and Chronic Obstructive Pulmonary Diseases (COPD), characterized by their prolonged duration and influenced by factors like genetics, behavior, environment, and physiology. NCDs prevalence and associated mortality is growing in low and middle-income countries. Tobacco and alcohol consumption, unhealthy dietary habits and physical inactivity have been identified as behavioral risk factors by the WHO. Adolescence is a critical lifestage, during which teenagers often engage in risky behaviors persisting into adulthood.

## **Methodology**

A pre-post quantitative study was conducted in the randomly selected 218 school-going adolescents from grades 7, 8, and 9 of two public schools located in Kageshwori- Manahara Municipality. Data collection was done through paper-based self-administered questionnaire. The standard Diet Quality Questionnaire (DQQ) was used to assess diet quality and a tool developed on the basis of Global School based Health Survey (GSH Global School Health surveys, STEPs Survey of NCD risk factors), was used to assess the level of knowledge regarding NCD. Descriptive analyses were performed using STATA -14.

### **Result**

Mean age of the participants was about 14 years and 69.3% of them were females. The mean scores for NCD Knowledge and Global Dietary Recommendations (GDR) Score were 23.1 +9.01 (total possible score = 67) and 8.9 + 1.7 (total possible score =18), respectively. The mean score for NCD protect was slightly greater (4.4 + 3.22) than that for NCD risk (4.1 + 3.06), the total possible score being 9 for both of these sub-components of GDR Score.

### **Conclusion**

This study showed that the mean NCD knowledge score of school-going adolescents in the sub-urban Kathmandu was less than half of the total possible score. It is important to conduct interventional research activities on enhancing the knowledge on NCDs and improving the behavioral practices to address their risk factors among the school-going adolescents.

### **Keywords**

Adolescents, Non-Communicable Diseases, Knowledge, Diet Quality

## **Assessment of Knowledge on Autism Spectrum Disorder (ASD) among medical doctors of a medical college in Kathmandu, Nepal: A Descriptive Cross-Sectional study**

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### **Background**

The prevalence of autism spectrum disorder (ASD) has increased to one in 36 children, underscoring the importance of early detection and intervention for improved outcomes. This study aimed to assess the knowledge of healthcare workers regarding ASD.

### **Methodology**

A descriptive cross-sectional study was conducted among the medical doctors of a medical college in Kathmandu using stratified random sampling. The data were collected by a face-to-face interview for 192 calculated sample size using a semi-structured Knowledge about Childhood Autism among Health Workers (KCAHW) questionnaire from April 2023 to June 2023 after receiving ethical approval from the Institutional Review Committee (Reg.no-723). The collected data were entered and analysed with Statistical Package for Social Sciences version 16.0.

### **Results**

The mean score of health workers who participated in the KCAHW questionnaire was  $13.27 \pm 2.91$  out of a possible 19. The resident doctors exhibited a mean score of 13.70, followed by consultants (13.19), intern doctors (13.10) and medical officers (12.50). The psychiatry department had the highest mean score (18.0) and the biochemistry department recorded the lowest (9.5). Scores were higher for participants aged more than 50 years (14.20), who received education about ASD in their medical school (13.38) and those acquainted with someone diagnosed with ASD (13.54). The knowledge gap was found to be higher in domain 2, (0.63) (symptoms of communication impairments) and least in domain 1, (6.05) (symptoms of impairments in social interaction) of the KCAHW questionnaire.

### **Conclusion**

Departments working with ASD patients, higher age of participants and prior education or experience with ASD had better knowledge scores which highlights the need to increase awareness among healthcare workers for early diagnosis and better care.

### **Keywords**

autism spectrum disorder, child, knowledge, healthcare workers

## **Quality of life of cervical cancer patients receiving chemotherapy in tertiary care hospital of Kathmandu Valley**

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### **Background**

Cervical cancer is the most fatal but preventable illness in the world for women with an effective HPV vaccination and time-tested screening strategies. Cervical cancer ranks as the first most frequent cancer among women in Nepal. The emotional trauma of diagnosis and therapy leads to psychosexual aftereffects that impair quality of life (QoL). QoL of cervical cancer patients is essential for personalizing treatment and providing better.

### **Objective**

To assess the quality of life and its associated factors among patients with cervical cancer receiving chemotherapy.

### **Materials and methods**

A cross-sectional study was conducted among 121 cervical cancer patients receiving chemotherapy in Bhaktapur Hospital. European Organization for Research and Treatment of Cancer (EORTC) QoL questionnaire (QLQ) C-30 (general) and EORTC CX-24 (specific) questionnaires were used to assess QoL. Bivariate analysis using Chi Square was performed to identify the associations between dependent variables and independent variables. Those variables that were significantly associated with the bivariate analysis were subjected to logistic regression analysis.

### **Results**

The study was conducted among 121 cervical cancer patients receiving chemotherapy. The mean score of global health status was  $20.66 \pm 12.17$ . The majority 62% had poor Global health status. , In the functional scale our study showed lower scores in social functioning, emotional functioning role functioning, sexual enjoyment, and sexual activity. Similarly, fatigue, insomnia, appetite loss and financial difficulties, menopausal symptoms, body image, and sexual worry were concerning issues in the symptom scale. Age (AOR= 5.365,  $p = 0.004$ , CI= 1.337-21.522), income (AOR= 5.365,  $p = 0.004$ , CI= 1.337-21.522), and co-morbidities (AOR= 5.365,  $p = 0.004$ , CI= 1.337-21.522) were statistically significantly ( $p > 0.05$ ) associated with overall QOL.

### **Conclusion**

Our study revealed the poor Global health status of patients receiving chemotherapy. Age, income, and co-morbidities were the independent factors found to have a statistically significant effect on overall QoL. The factors associated with QoL identified in the present study need to be considered when exploring effective and concrete intervention strategies for cervical cancer. Enhancing patient-physician interaction, providing counselling on issues particular to cancer, and educating patients about sexual health should be top priorities in their care.

## **Keywords**

Quality of life, cervical cancer patients, chemotherapy, EORTC C30 and CX24, Factors influencing QoL

## **Barriers of COVID-19 Vaccine Uptake and Hesitancy in Nepal: A Qualitative Study**

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## **Introduction**

Since 2019, global health has had the threat of vaccine hesitancy, compounded by notable disparities in the COVID-19 vaccine up which not only hinders the joint effort to control the spread of infectious diseases but also weakens the collective attempt to safeguard global health security and investigates the motivations and barriers influencing the acceptance and hesitancy of COVID-19 vaccines within the context of Nepal.

## **Methods**

As part of a mixed methods study conducted from December 2021 to June 2022, 20 in-depth interviews were carried out with purposively selected community members from urban and rural settings in Nepal. Thematic analysis was done to ascertain motivations and barriers to COVID-19 vaccine uptake and hesitancy.

## **Results**

The study uncovered diverse motivations and barriers shaping individuals' decisions regarding COVID-19 vaccination in Nepal. Motivations for COVID-19 vaccine acceptance were rooted in the fear of COVID-19 infection, the necessity of a vaccination card for specific purposes, and confidence derived from participants' knowledge and prior vaccine experiences. Barriers included the perception of minimal infection risk, viewing COVID-19

as a common seasonal disease, challenges in understanding the vaccine's benefits and risks, concerns about its reliability due to the expedited development timeline, difficulty with online registration, and fears fueled by media rumors regarding vaccine efficacy and side effects. Additional barriers included confusion about global vaccines being profit-driven, hesitancy grounded in the belief in the efficacy of alternative home remedies, and inequity of vaccine access.

### **Conclusion**

This study sheds light on the complex landscape of COVID-19 vaccine perceptions in Nepal, focusing on both positive and negative perspectives. Motivations are influenced by fear and reflective factors, while barriers and hesitancy are multifaceted, involving technical challenges, varied risk perceptions, media-induced fears, and adherence to social norm these factors is crucial for designing targeted interventions to increase vaccine uptake and these lessons can be extended to the introduction of future vaccines.

### **Keywords**

Motivations, Barriers, Vaccine Hesitancy

## **Social Media Addiction and its Association with poor sleep quality and anxiety among higher secondary students, Suryabinayak Municipality.**

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### **Background**

With advancements in technology, improved access to the internet, and a shift in working mode, social media use and addiction have been rocketing, with adolescents occupying the major proportion. COVID-19 has increased internet use more than expected. Unhealthy and excessive use of social media is associated with negative health outcomes including physical, psychological and social. Indulgence in social media use can lead to poor and inappropriate sleeping patterns, affecting individuals' cognitive and thinking abilities and making them more vulnerable to mental illnesses (depression and anxiety). The objective of the study was to estimate the prevalence of social media addiction, poor sleep quality, and anxiety, and to assess the association of social media addiction with poor sleep quality and anxiety.

## **Methodology**

This cross-sectional study was conducted in +2 students of public and private schools of Suryabinayak Municipality, Bhaktapur. Two stage random cluster sampling method was used in selection of participants in the study. A total of 433 students were recruited in the study from 3 schools (2 publics and 1 private).

## **Results**

The prevalence of social media addiction was 33.4% in total participants. There was an association between social media addiction with poor sleep quality and anxiety. A person with social media addiction has 3.98 and 3.75 times the odds of having poor sleep quality and anxiety respectively than a person with no social media addiction.

## **Conclusion**

Social media addiction was found in around one-third of the participants. Social media addiction hurts sleep quality and mental health (anxiety).

## **Keywords**

social media, sleep quality, anxiety, higher secondary

## **Risk Factors of Breast Cancer among Patients at a Tertiary Care Hospital in Lalitpur District, Nepal: a case-control study**

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## **Introduction**

Although breast cancer occurs overwhelmingly in high-income countries, there has been a recent increase in the incidence of breast cancer cases in low and middle-income countries. Reports from hospital-based registries showed that breast cancer is the second most common

cancer in Nepali women. The study aimed to find the risk factors associated with breast cancer among breast cancer patients at a tertiary care hospital in Lalitpur, Nepal.

### **Materials and methods**

An institutional-based 1:1 unmatched case-control study with a sample of 100 women was conducted at Patan Hospital between May to October 2023. Women aged 20–84 years with histologically or cytological confirmed breast cancer within the last 4 years of the interview date were identified retrospectively as study cases. The ethical approval of the study was obtained from the Institutional Review Committee of Patan Academy of Health Sciences. Semi-structured Questionnaire was used for data collection. Multivariate Logistic Regression was done to calculate the adjusted Odds Ratio with 95% CI.

### **Results**

Our analysis revealed that women aged 41-50 years were over 5 times more likely to develop breast cancer (OR 5.03), while those over 50 years showed an even higher risk, with an odds ratio (OR) of 31.11. Additionally, married individuals demonstrated a substantial association with breast cancer, being over 9 times more likely to develop the disease (OR 9.23). Furthermore, early age at menarche (13-15 years) was associated with a nearly 4-fold increase in breast cancer risk (OR 3.79). Moreover, the use of oral contraceptives (OCs) was found to increase the risk (OR 4.26).

### **Conclusion**

Conducting regular breast cancer screening programs such as mammograms and clinical breast examinations for early diagnosis, tailoring age-appropriate education for breast cancer awareness and discussing the potential risks and benefits of hormonal contraception especially those with increased risk might help to reduce the incidence of breast cancer among women.

### **Keywords**

Breast cancer, Case-control, Developing, Risk factors, Nepal

## **Emotional Intelligence and Psychological Distress among Caregivers of Mentally Ill Patients attending in Teaching Hospital.**

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### **Affiliations**

## **Introduction**

Emotional intelligence is the ability of caregivers of mentally ill patients to recognize, perceive, and understand their own and their mentally ill patients' emotions and psychological distress is the reported emotional suffering of caregivers of mentally ill patients which includes various symptoms of depression and anxiety. Caring mentally ill patient is a challenging and huge responsibility and caregivers are at risk of being subjected to psychological distress as they routinely provide assistance and supervision to their mentally ill patients. The aim of the study is to find out the relationship between emotional intelligence and psychological distress among caregivers of mentally ill patients.

## **Methods**

A descriptive cross-sectional study (n=204) was conducted among caregivers of mentally ill patients at Out Patient Department of Patan Hospital, Nepal using Non probability purposive sampling technique. Ethical approval was obtained from Institutional Review Committee. Data was collected through face-to-face interview schedule. Structured interview questionnaire was used to collect the data. Descriptive and inferential statistics were employed using SPSS version 16 to analyze the data.

## **Results**

Among caregivers, 97.55% had high level and 2.45% had an average level of emotional intelligence. Regarding psychological distress 67.65% of caregivers had mild, 29.41% had moderate and 7% had severe levels of psychological distress. Psychological distress is associated with gender and Education status (P-value<0.05). There was a weak and negative correlation between emotional intelligence and psychological distress among caregivers.

## **Conclusion**

Based on the study findings, it can be concluded that majority of the caregivers had high level of emotional intelligence and mild level of psychological distress. Gender and education status were significantly associated with psychological distress. There was a weak negative correlation between emotional intelligence and psychological distress among caregivers which indicates that caregivers with high level of emotional intelligence faces less psychological distress and caregivers with low level of psychological distress faces high level of psychological distress.

## **Keywords**

caregivers, emotional intelligence, mentally ill patients, psychological distress, psychiatric patient

## **Academic Stress among Students of Higher Secondary Level in the Schools of Kathmandu**

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### **Background**

School education is an imperative part in a person's life and it is also a turning point in their academic life. At this phase, the academic performance of a student plays an important role in deciding the next stage of their education, which in turn shapes their career. In today's highly competitive world, students face various academic problems including exam stress, disinterest in attending classes and the inability to understand a subject. Academic stress involves mental distress regarding anticipated academic challenges or failure or even the fear of the possibility of academic failure. Therefore, this study aimed to find out the academic stress of the students studying in higher secondary level in the public schools of Kathmandu.

### **Methodology**

A descriptive cross-sectional research study was carried out and the data was obtained from 304 students of class 11 and 12 of Shivapuri Higher Secondary School, Mahendra Higher Secondary School, Tangal Higher Secondary School, Nandi Higher Secondary School. The sample was selected through a non-probability purposive sampling technique. Data was collected by using self-administered semi-structured socio-demographic questionnaire with standard tools: Perceived Stress Scale (PSS) and Scale for Assessing Academic Stress (SAAS). Data analysis was done by using Statistical Package for Social Science 16 version using descriptive statistics (percentage, mean, and standard deviation) and inferential statistical test (chi-square test).

### **Findings**

Findings of the study showed that more than half (58.2%) of adolescent students had low academic stress and less than half (41.8%) had high academic stress. Similarly, there is a significant statistical association of academic stress with the education of the mother, type of family, and academic performance of adolescent students.

### **Conclusion**

As more than half of the students have low academic stress and less than half have high academic stress, the school should incorporate stress-relieving programs and measures for the emotional and mental health of adolescent students.

### **Keywords**

Academic stress, adolescent students, perceived stress

## **Prevalence and Factors Associated with Suicidal Ideation among the School Students of Pokhara Metropolitan, Nepal**

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### **Introduction**

Suicidal ideation results in attempting suicide which has been recognized as a major health problem among adolescents. Mental health issues are neglected especially in middle- and low-income countries. The main aim of this study is to determine the prevalence and factors associated with suicidal ideation among school students of Pokhara Metropolitan, Nepal.

### **Methods**

Ward number 27 of the Pokhara Metropolitan was selected purposively and applied a descriptive cross-sectional design. From all public secondary schools, two classes were chosen randomly and all students of a section were included. Out of 1354 students from three secondary schools 176 were involved in the study. A self-administered questionnaire was used to collect data. The chi-square test was used to assess the association of factors associated with suicidal ideation.

### **Result**

In this study, 25(14.2%) had suicidal ideation. There was association of suicidal ideation with religion, parental status, history of psychiatric illness, monthly income, parents check homework, parents understand problem, parental-monitoring, truancy, bullied, physically attacked, physical frightening, current cigarette use, really drunk, anxiety, loneliness and close friend.

### **Conclusion**

The findings reveal that one in every seven students had suicidal-ideation. So, curriculum-based intervention (coping strategies) could be useful for preventing suicidal-ideation.

### **Keywords**

school students, suicide, suicidal-ideation

## **Development process and content of sports-based mental health promotion program among adolescents in Nepal**

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### **Background**

Most mental health interventions prioritize treatment, yet half of all mental health issues begin by age 14 (WHO, 2023). Evidence shows preventive interventions, mostly from high-income countries, are typically school-based and singularly focused, such as on tobacco or alcohol use. Recognizing adolescents' attraction for sports, we developed a sports-based intervention to promote adolescent mental health and prevent mental health problem in low- and middle-income countries, aligning with Nepal's mental health policy. This formative study aimed to develop a program to promote mental health among adolescents through sports-based interventions and community engagement.

### **Methodology**

The study took place in Bardia district, Nepal, with Madhuban municipality chosen for its diverse population, community facilities, and transport access. To develop the intervention targeting 10- to 19-year age group, the research used a mixed-method approach, including systematic reviews, formative qualitative study, and stakeholder engagement. Formative study includes group interview, focused discussion, semi structured interview, transect walk. To gather these data, 4 group interviews with caregivers, 8 focus group discussions with adolescents, 16 semi-structure interviews and 2 transect walk(N=8) were done.

### **Results**

A systematic review found 20 trials targeting mental health using various sports and life skills workshops. Qualitative study revealed football, martial arts, and dance as popular among

adolescents. Consultations emphasized a need for a comprehensive sports-based intervention, leading to combining sports and mental health components, facilitated by trained local coaches.

### **Conclusions**

Preventive interventions are crucial for adolescent mental health, particularly in low- and middle-income countries. The study utilized a mixed-method approach to develop a sports-based intervention aligned with Nepal's policy, emphasizing the need for competency-based training for wider implementation.

### **Keywords**

Adolescent, Mental health promotion, Sport, Low- and middle-income countries, Community interventions, Nepal

## **An Official Peer-reviewed Scientific Publication of Madan Bhandari Academy of Health Sciences (MBAHS)1Diabetes Self-Management Practices among Diabetic Patients Attending Chitwan Medical College Teaching Hospital**

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### **Introduction**

Diabetes is an age-old common health issue that affects many people around the world. The majority of the diabetic population lives in low-and middle-income countries. Diabetes has badly affected individuals, families, and countries. This problem can be minimized and managed through effective self-management practices.

### **Objective**

The present study aims to identify the level of self-management practices among type 2 diabetes mellitus patients.

### **Methods**

A descriptive and analytical cross-sectional study design was used to assess diabetes self-management practices. A standard 'Summary of Diabetes Self-Care Activity' tool was adopted with few modifications after pretesting. This study was carried out among 191 sampleswithdiabetes type-2 patients attending the outpatient department of Chitwan Medical

College Teaching Hospital. The non-probability consecutive sampling method was adopted for data collection. Ethical principles were addressed during the study.

### **Results**

Among the total participants, 51.8% had unsatisfactory diabetes self-management practices. Age, education, place of residence, religion, occupation, family history, comorbidity, duration of diagnosis, alcohol drinking, and smoking were associated with diabetes self-management practice. There were 55.5% male participants. The majority, 42.4% belonged to the age group 60 and above. The minimum age was 30, the maximum age was 94, and the mean age was 56.9 years. The majority (77%) of participants were literate.

### **Conclusions**

This study revealed an unsatisfactory level of diabetes self-management practices. This finding implies that diabetes self-management practice-related education programs should be created and implemented for people who are impacted, as well as for those who provide care at home.

### **Keywords**

Comorbidity; diabetes; practice; self-care; self-management.

## **Chronic Obstructive Pulmonary Disease (COPD) Literacy among Traffic Police in Kathmandu, Nepal: A cross-sectional study**

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### **Introduction**

In Nepal, COPD is a growing concern, particularly among traffic police who are exposed to high levels of air pollution. Traffic police in Kathmandu are continuously exposed to air

pollution and are at an increased health risk. Therefore, we aimed to study COPD literacy among traffic police of Kathmandu Valley, Nepal.

### **Methods**

A descriptive cross-sectional study was conducted among 250 traffic police working in 11 areas of the Kathmandu Valley from July to August 2023. Self-administered questionnaires were distributed to all the participants. Multivariate logistic regression was used to assess the factors associated with COPD literacy.

### **Results**

The mean age of the participants was 30.49 and more than three-quarters of the respondents had more than 5 years of experience. The study revealed that nearly half of the participants (48.8%) had limited knowledge of COPD. Traffic police who studied COPD in school (AOR:2.7, 95% CI:1.5-4.7) who heard about chronic respiratory diseases (AOR: 3.4, 95% CI:1.7-6.6), who never smoked (AOR: 1.9, 95% CI:1.0-3.5) had higher odds of having a good level of knowledge. Unmarried participants had lower odds of having a good level of knowledge than the married participants (AOR: 0.4, 95% CI: 0.2-0.7,  $p = 0.03$ ).

### **Conclusion**

This study highlights inadequate COPD literacy among Kathmandu's traffic police and emphasizes the need for targeted educational interventions. Integrating COPD education into the curriculum and public health initiatives is crucial, especially for high-risk occupational groups like traffic police. These findings underscore the role of health literacy in promoting preventive behaviors and reducing the burden of COPD among at-risk populations.

### **Keywords**

Chronic Obstructive Pulmonary Disease (COPD), health literacy, traffic police, Nepal, Kathmandu, Air pollution

### **Effectiveness of lifestyle modification to control the blood pressure among hypertensive patient of Morang district**

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### **Introduction**

Cardiovascular diseases (CVDs) remain the leading cause of global mortality, with hypertension as a major risk factor. Lifestyle modifications play a crucial role in managing hypertension, yet their effectiveness requires assessment. This study aimed to evaluate the impact of lifestyle changes on blood pressure control among hypertensive patients in Morang district.

### **Materials and Methods**

The study employed a quasi-experimental design with 70 hypertensive adults enrolled in a six-month intervention in Purbanchal University Teaching Hospital. Multifaceted lifestyle modifications, including dietary education, exercise promotion, and family support, were implemented. Blood pressure, BMI, physical activity, and diet quality were assessed pre- and post-intervention.

### **Results**

Following the intervention, significant reductions in systolic and diastolic blood pressure were observed (mean difference of -7.66 mmHg and -5.75 mmHg, respectively). These findings highlight the efficacy of lifestyle interventions in blood pressure management. The study also identified factors such as age, gender, occupation, and comorbidities like diabetes and hyperlipidemia as influencing blood pressure control.

### **Discussion**

The study findings support previous research indicating the effectiveness of lifestyle modifications in hypertension management. Multifaceted interventions, including dietary changes and exercise promotion, were particularly effective in reducing blood pressure. Family support and regular follow-ups further enhanced the impact of lifestyle interventions.

### **Conclusion**

The study concludes that multifaceted lifestyle modifications, supported by family engagement and regular follow-ups, significantly reduce blood pressure among hypertensive patients. These findings underscore the importance of lifestyle interventions in hypertension management and highlight the role of patient support networks in sustaining positive health outcomes.

### **Keywords**

effectiveness/lifestyle /blood pressure

## **Development and Validation of Executive Function Scale for Children**

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### **Background**

Children learn rapidly in their early years, forming a critical foundation for lifelong progress. The adults who provide for the care and education of young children bear a great responsibility for their health, development, and learning. At the forefront of this research is a constellation of mental abilities called executive functions (EFs). EFs skills combine cognitive, communication, sensory, and motor skills. The present study is designed to develop and validate the Executive Function Scale (EFS) for children because the field of psychology lacks a locally developed scale.

### **Methodology**

The present study is designed as a mixed method; the participants are children aged 3-7 years. The present study is divided into three phases (Item Development, Scale Development, and Scale Evaluation). The total sample size for the present study is 2026.

### **Results**

Parent-rated items were developed based on the chief complaints reported by parents attending the hospital. A pilot study identified 43 items suitable for Exploratory Factor Analysis (EFA). The new EF Scale and Child Executive Function Inventory observed a strong correlation, i.e. 0.770\*\* and a Cronbach Alpha exceeding 0.9. Performance-based items have been developed following an extensive review of existing literature. The pilot study identified 26 items for Cognitive Flexibility (CF), 15 items for Working Memory (WM), and 51 items for Inhibition (InT) selected for EFA. There is a positive correlation i.e. 0.836\*\* between Dimensional Change Card Sort and CF, 0.859\*\* between the Memory for Designs test and WM, and 0.748\*\* between the Inhibition test and InT. Moreover, Cronbach's Alpha was found to be above 0.96 in all subtests, indicating high internal consistency.

### **Conclusion**

Our children are the future assets of our country. Deficits in EFs have a profound impact, therefore early assessment minimizes the loss of our assets. The EFS developed in the Nepalese context and language will be both valid and reliable.

## **Keywords**

Executive Function, Executive Function Scale, Development and Validation

## **Health literacy among patients with non-communicable diseases at a tertiary level hospital in Nepal- A cross sectional study**

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## **Background**

Health literacy (HL) is crucial in achieving the Sustainable Development Goal of reducing one-third of premature mortality by 2030 from Non-Communicable Diseases (NCDs) and improving Universal Health Coverage. Low health literacy is linked to poor health outcomes, and evidence shows concerning levels of limited HL, even among highly educated individuals. This study aims to assess HL levels and related factors among NCD patients at Tribhuvan University Teaching Hospital (TUTH) in Nepal.

## **Methodology**

A cross-sectional survey was conducted at TUTH among 303 NCD patients (CVDs, COPD, Diabetes Mellitus, Hypertension, Epilepsy, Asthma, and Cancer) who came for follow-up from December 2022 to February 2023. Data was collected via face-to-face interviews by the trained enumerators using a structured Health Literacy Questionnaire (HLQ) containing 44 items (containing nine domains). Multivariate logistic regression analysis was performed using SPSS version 26, with statistical significance at 0.05, to determine the associated factors with HL.

## **Results**

The mean  $\pm$ SD age of the respondent was  $47.4 \pm 16.18$  years. More than half of the respondents were female (56.1%) and had higher HL for all the domains of HL except

‘Navigating the healthcare system’. Educational status was significantly associated with six of nine HL domains. Co-morbidity, attending the health-related seminar, regular physical activity, and social connectedness were associated with at least one of the domains of HL.

### **Conclusion**

This study identified the important factors of HL, such as socio-demographic and medical factors among NCD patients. This highlights the need for a comprehensive approach to address identified gaps in HL, considering its multifaceted and composite complexion and promoting interventions to improve HL in high-risk populations.

### **Keywords**

Health literacy, Health knowledge, Health education, Chronic diseases, cardiovascular diseases

## **Understanding the shift in the stigma perspective of healthcare providers through the involvement of People with lived Experiences**

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### **Introduction**

Healthcare providers at different health system levels play a significant role in serving as facilitators for diagnosing and treating patient's mental health problems. However, stigma associated with the service providers can act as a barrier to the effective delivery of mental health services.

### **Methods**

The training on mental health was provided to three health system tiers (Female Community Health Volunteers, Primary health workers, and Mental health specialists) from the Arjunchaupari Rural Municipality (RM), Syangja and Pokhara Metropolitan, Kaski districts. In training, People with Lived Experiences (PWLEs) were involved in narrating their recovery story using the photo voice method. This study followed the intervention guidelines/protocol outlined in the "REducing Stigma among HealthcAre ProvidErs" (RESHAPE) study implemented in Nepal. Qualitative interviews were conducted with all

three tiers of mental healthcare workers. Thematic analysis was done where key themes were identified and coded using the dedoose software.

### **Results**

The findings indicated the knowledge increment of health professionals about the various types of the stigma associated with mental health. In addition, the professionals highlighted their change in stigma perception through the involvement of PWLEs. They shared their experiences of advocacy on mental health through the change in the treatment modality in their workplaces, which reflects the positive shift in the mental health stigma, ultimately resulting in the smooth delivery of mental health services.

### **Conclusion**

The findings provide a solid foundation for developing effective stigma reduction policies and strategies at the healthcare level. Furthermore, this study has highlighted the involvement of PWLEs as a crucial component in reducing mental health stigma.

### **Keywords**

ental health, healthcare providers, stigma

## **Factors associated with quality of life of patients living with chronic obstructive pulmonary disease attending a teaching hospital**

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### **Background**

Chronic Obstructive Pulmonary Disease (COPD) is a global health problem. People with COPD increasingly struggle not only with physical challenges, often limiting their activities of daily living, but also many social and emotional challenges which overall influence their quality of life (QoL). The study aims to assess the factors associated with QoL of patients living with COPD attending Patan Hospital, Lalitpur, Nepal.

### **Methodology**

A quantitative cross-sectional analytical research design was used to collect data about COPD patient's QoL at Patan Hospital, Nepal from November, 2022 to April, 2024. A standardized St. George's Respiratory Questionnaire for COPD (SGRQ-C) in Nepali version was used to collect data of 166 respondents using non-probability purposive sampling technique. Chi-square and logistic regression was used in SPSS version 16 software to predict associated factors of QoL among patients living with COPD. Significance level was considered 0.05 for all analysis.

### **Results**

The study showed that more than half (60.3%) of patients had moderate QoL and very few (7.2%) had good QoL. The overall mean score of QoL was  $58.73 \pm 15.70$  and domain wise score; Symptom  $64.92 \pm 17.42$ , Activity  $74.46 \pm 16.71$  and Impact  $47.25 \pm 19.06$ . Domiciliary use of oxygen [Adjusted Odd ratio (AOR):2.74, 95% Confidence Interval (CI)=1.28-5.85] and medicine adherence (AOR:3.30, 95% CI=1.45-7.51) were found to be significant factors of QoL of patients living with COPD.

### **Conclusion**

The average QoL of patients living with COPD was moderate where the most affected domain was activity domain followed by symptom domain. Patient with high medicine adherence and no need of domiciliary oxygen had good QoL which suggests that early detection, prevention of symptoms deterioration and medicine adherence helps to enhance QoL of patients living with COPD.

### **Keywords**

Chronic obstructive pulmonary disease, Factors associated, Quality of life

## **Depression and its Associated Factors among Patients in Rehabilitation Centers at Pokhara Metropolitan City**

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### **Background**

Depression and Substance Use Disorders (SUDs) pose a substantial global health burden, impacting both individual's well-being and societal functioning, as well as economic stability. The co-occurrence of these conditions within rehabilitation centers further complicates treatment outcomes and recovery trajectories. The objective of this study was to identify the prevalence and factors associated with depression among patients undergoing substance abuse treatment in rehabilitation centers located in Pokhara Metropolitan city of Nepal.

### **Methodology**

An institution-based cross-sectional study was done to conduct the research among rehabilitation center patients in Pokhara Metropolitan. A multistage probability sampling approach was used to select 212 patients who were admitted to rehabilitation centers. Data collection utilized a semi-structured questionnaire administered through face-to-face interviews. The collected data were entered into Epi-data software and analyzed using SPSS. Binary logistic regression using odds ratios with a 95% confidence interval was performed.

### **Results**

In total, 212 participants were interviewed, with more than half (58%) of the patients in the rehabilitation center experiencing depression. Among them, 47.2% exhibited mild depression, 9.9% had moderate depression, and 1.4% experienced severe depression. Factors significantly associated with depression ( $p=0.05$ ) were financial capabilities (UOR= 2.71), sleep duration (UOR=2.16), problematic sleep (UOR=3.19), violence exposure (UOR=3.12), and self-esteem (UOR=2.06).

### **Conclusion**

The study identified a high prevalence of depression among patients undergoing substance abuse treatment in rehabilitation centers. The findings highlight the importance of implementing comprehensive measures within rehabilitation centers, including the introduction of financial support programs, sleep hygiene education, violence prevention strategies, and self-esteem enhancement approaches.

### **Keywords**

Depression, Drug abuse, Rehabilitation centers

### **Quality of Life of Kidney Transplant Donor at Shahid Dharmabhakta National Transplant Centre**

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### **Introduction**

End-stage renal disease has a high rate of mortality and morbidity globally. Kidney transplantation remains the best treatment option in comparison to other forms of renal replacement. This study was carried out to compare QOL before and after donor nephrectomy. The aim of study was to assess the quality of life of the living donor

### **Methods**

A prospective cross-sectional study was conducted among 80 renal transplant donors of Shahid Dharmbhakta National Transplant Centre (SDNTC) from February 2021 to February 2022. A consecutive sampling technique was done for data collection. Short Form 36 version 2 (SF36v2) was used to assess the quality of life of kidney donors. The interview was conducted by the researcher just before and twelve months after the donor nephrectomy. The scores of eight domains of quality of life before and after transplant were compared with paired t-tests through SPSS software 20.

### **Results**

Out of eight domains of quality of life, physical functioning, fatigue, emotional well-being, pain, and general health were decreased 12 months after donation. physical functioning, limitation due to physical health, Role limitation due to emotional problems, Energy Role, fatigue, Emotional wellbeing, social functioning, pain, and general health, were compared using paired T-tests. The result showed (M= 70.60 SD=18.67) before transplant and M= 66.92 SD= 17.30 one-year post-transplant. The mean decrease is M= 3.68, SD= 3.56, df= 7, (95% CI 0.7, 6.6), p=0.02. This means we can conclude that QOL was decreased in post-transplant donors after one year. Increasing age was found to be an independent predictor of poorer quality of life. Domain of Quality of life like Physical functioning (p=0.001), limitation due to physical health (p=0.01), energy role fatigue (p=0.001), pain, and general health (p=0.001) were significantly associated with kidney donation in donors.

### **Conclusion**

The quality of life of renal transplant donors was affected by donor nephrectomy.

### **Keywords**

donor, end stage renal disease, quality of life; renal transplant.

## **Lived experiences of Type 1 diabetes patients visiting a tertiary care hospital of Nepal: a descriptive phenomenological study**

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### **Background**

Type 1 diabetes is a non-preventable chronic disease condition of young people and accounts for about 10-15% of all the cases of diabetes. This disease is multifaceted in nature affecting various aspects of life and daily functioning requires consistent effort, lifestyle changes and vigilance. This study aimed to explore the lived experiences of Type 1 diabetes patients visiting the outpatient department of Patan Hospital regarding living with the disease condition.

### **Methodology**

Descriptive phenomenological research design was used for the study. Data was collected from 22 purposively selected patients in contact with the Outpatient Department (OPD) of the Patan Hospital. Participants were of the age group 15 years and above with years of diagnosis being at least one year. Colaizzi's descriptive phenomenological method was used for data analysis. Ethical approval from IRC-PAHS, and written consent was taken from all participants.

### **Results**

Thirteen themes emerged from the analysis: (1) initial hospitalization (2) coping mechanism (3) learning process and acceptance (4) changes and adjustments (5) diabetes management challenges (6) concern and worries (7) financial burden (8) lack of knowledge (9) health experiences (10) deprived opportunities and activities (11) Type 1 diabetes-related stigma (12) experiences related to living in COVID-19 (13) outside of valley.

### **Conclusion**

The study highlights lack of awareness in the community on Type 1 diabetes. Experiences related to Type 1 diabetes-related stigma were also shared. It also recommends regular parental counseling to prevent overprotection. It emphasizes the need for effective implementation of school health nurse programs to solve school-related challenges. Financial burden has also emerged as a considerable factor in the study. The study also suggests concerned authorities to take measures before implementing conditions like lockdown as

experiences related to difficulty in getting insulin and other necessary medical equipment were shared by the participants.

### **Keywords**

Chronic disease, Patan hospital, lived experiences, phenomenological research, Type1 diabetes

## **Perceived Social Support and Self-Efficacy Among Family Members of Cancer Patients Attending Teaching Hospital**

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### **Background**

Cancer has an expanding global impact. Because of the chronic nature and the emotional pain associated with the patient's prognosis, providing care to patients is unpleasant however, Social support and self-efficacy have been highlighted as important safeguards for minimizing negative consequences of distress. The study aimed to measure family members of cancer patients' perceived social support and self-efficacy.

### **Method**

An observational-analytical cross-sectional study design with convenience sampling among 205 family members of cancer patients of Patan Academy of Health Sciences was used. Data was collected using a structured questionnaire from 13<sup>th</sup> August to 23<sup>rd</sup> September 2023. Descriptive and inferential statistics were employed using SPSS version 16 for data analysis. The study was conducted after adopting ethical approval from the Institutional Review Committee of the Patan Academy of Health Sciences.

### **Results**

In total, 55.6% of respondents perceived high social support and 5.9% of respondents had perceived low social support. Similarly, 83.4% expressed high self-efficacy whereas 47.8% had low self-efficacy in providing care. Social support was significantly positively ( $r=0.200$ ) related with self-efficacy. Respondents having educational status of above secondary level perceived high social support (AOR: 2.26, 95% CI=1.13-4.53). Likewise, males (AOR: 2.21, 95% CI=1.18-4.16), respondents having the educational status of above secondary (AOR: 3.53, 95% CI=1.77-7.04) and employed (AOR: 2.39, 95% CI=1.24-4.58) expressed high self-efficacy.

## **Conclusion**

More than half of the respondents perceived high social support and self-efficacy in caring for their family member diagnosed with cancer. Social support and self-efficacy had a positive relationship. An assessment of family members' social support may help to rule out their self-efficacy in caring for a cancer patient.

## **Keywords**

Social Support, Self-efficacy, Family members, Cancer, Oncology

## **Factors associated with adherence to dietary and fluid restriction among patient undergoing hemodialysis in a teaching hospital**

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## **Introduction**

Chronic Kidney Disease (CKD) is a serious non-communicable disease and its prevalence and burden are increasing globally. Hemodialysis is the treatment choice of patients with CKD and the number of people requiring hemodialysis is increasing per year in Nepal. Adherence to dietary and fluid restrictions is crucial for patients undergoing hemodialysis as it plays a significant role in their overall health, managing their condition effectively, and improving their quality of life. The objective of this study was to find out the factors associated with adherence to dietary and fluid restriction.

## **Methodology**

A cross-sectional analytical study was conducted among 116 patients undergoing maintenance hemodialysis in Patan hospital, Nepal, selected by convenience sampling technique. Data were collected through interview techniques using sociodemographic and clinical characteristics, Diet and Fluid Adherence Questionnaire, Multidimensional Scale of Perceived Social Support and Chronic Kidney Disease Self Efficacy Scale. Data were analyzed using descriptive statistics and inferential statistics namely correlation and multiple linear regression through SPSS software.

## **Results**

All respondents (100%) had a high level of self-efficacy on chronic kidney disease and 85.3% of respondents had a moderate level of social support. Likewise, 57.8% of respondents had a moderate level of adherence to diet and fluid restriction. Self-efficacy in chronic kidney disease was the only significant factor associated with adherence to diet and fluid restriction ( $\beta = .34, p = 0.000$ ).

### **Conclusion**

The majority of patients undergoing hemodialysis had moderate levels of social support and adherence to diet and fluid restriction and high levels of self-efficacy. The significantly associated factor was self-efficacy in chronic kidney disease. Thus, this finding indicates the importance of self-efficacy in CKD by conducting a health education program focusing on diet and fluid restriction among patients undergoing hemodialysis.

### **Keywords**

Adherence, associated factors, chronic kidney disease, hemodialysis

## **Effectiveness of Structured Educational Intervention on Knowledge Regarding First Aid Management among Female Adults in Community, Lalitpur, Nepal**

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### **Introduction**

Injuries and accidents are major public health problems worldwide contributing to the risk of mental illness, disability and violence that provoke poverty, crime and substance abuse. Women and children are vulnerable to certain types of injuries, especially burns and choking incidents, being common occurrences within households. Basic knowledge on first-aid management might be a preventive measure for reducing the consequences related to it. Introducing first aid knowledge among female groups can effectively promote knowledge sharing among women and raise community awareness. Most of the studies have often covered a broad range of injuries and accidents, lacking in-depth knowledge of specific injuries and events. Thus, this study aims to conduct a study on education intervention to

identify the effectiveness of structured educational intervention on knowledge regarding first aid management of choking and burns among female adults in the community.

### **Methods**

A preexperimental one group pretest posttest study was conducted among the randomly selected 24 female adults of ward 8, Lubhu, Lalitpur. Data were collected using a self developed questionnaire through a structured interview schedule. Data were analyzed after meeting the assumptions of the paired *t* test through the Statistical Package for the Social Sciences version 16.

### **Results**

A significant increase in knowledge scores was observed for choking (*t* value = 19.82, *p* value <0.05) with a large effect size 0.94. Similarly, a significant increase in knowledge scores were observed for burns (*t* value = 14.21, *p* value <0.05), with a large effect size 0.89 indicating the effectiveness of the educational intervention.

### **Conclusion**

The structured educational intervention on choking and burns was effective in increasing knowledge among female adults. Thus, structured educational intervention should be implied by community health nurses and public health professionals to enhance overall community awareness.

### **Keywords**

Burns, Choking, Educational Intervention, First aid management, Female

## **Stress related health problems among secondary school teachers in dharan sub-metropolitan city**

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### **Background**

Chronic stress can increase mortality and morbidity due to cardiovascular diseases, hypertension, diabetes mellitus and behavioral risk factors such as obesity, unhealthy diet, alcohol consumption and smoking. This study aims to estimate the prevalence of occupational stress as well as stress related health problems and its associated factors among secondary school teachers in Dharan Sub-Metropolitan City.

### **Methods**

A community based cross sectional study was conducted among 252 secondary school teachers of Sunsari district of Province one using stratified random sampling with proportionate allocation method. Semi-structured pretested questionnaire along with measurement of anthropometry, waist and hip circumference and blood pressure were done.

### **Result**

Our study revealed that 36.1% of the study participants were suffering from occupational stress. It was found that most of the study participants had either normal BMI (46.8%) or were in the overweight category (43.3%). According to the WHR, majority of the males i.e., 71.1% and half of the female teachers i.e., 51.8% had WHR that put them at risk of cardiovascular diseases. Around forty percent of the participants were reported to have hypertension, 13.1% had depression, 29% had diabetes, 14.5% had hypothyroidism, 19.4% had hypercholesterolemia, 22.6% had panic disorder and 8.1% had migraine. The study concluded that the lesser the years of experience among the teachers the odds of having occupational stress increased by 3.48 times (AOR=3.483, CI =1.16-10.46 at p-value 0.02).

### **Conclusion**

This study showed that more than one- third of the teachers were found to be suffering from Occupational Stress. A teachers' stress was found to be associated with their lack of experience

### **Keywords**

Occupational Stress, Behavioral risk factors, Mental Health, Non-communicable disease

## **Mental Health Status of Children in Conflict with the Law of Correction Home in Bagmati Province**

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### **Background**

Children in conflict with the law are predisposed to mental health difficulties as they are already a vulnerable, misunderstood, and frequently stigmatized group. This assessed the prevalence and associated factors of Depression, Anxiety, and Stress (DAS) among children in conflict with the law.

### **Methodology**

A Cross-sectional study was conducted using a mixed method among two child correction homes in Bagmati Province. A census was conducted due to the small population. For an interview, Semi-structured questionnaires and validated Nepali versions of the DASS-21 were administered to 182 children aged 14-18 years. Key Informant Interviews were conducted with wardens and psychosocial counselors. Data was managed using SPSS-16 and thematic analysis handled qualitative data.

### **Results**

More than half of the respondents had depression (58.2%) and stress (52.2%) while Anxiety was 76.4%. Educational status, past living conditions, family conflict, and isolation from family significantly correlated with Depression, anxiety and stress. In case of past living status, the odds of having depression among respondents who didn't live with parents was 4.11 times more likely than that who live with their parents (AOR=4.11:95% CI= 1.377-12.271). The respondent who felt being isolated were 12.57 times more likely to have anxiety than those who did not with (AOR=12.57:95% CI=3.581- 44.173) which was 2.8 times in case of stress (AOR=2.8:95% CI= 0.946-8.584). Other factors like sex, parental marital status, abuse, and punishment also influence stress. The correctional home environment didn't correlate with Depression, anxiety, and stress. Mental health issues were linked to family conflict, broken homes, abuse history, and isolation, supported by Key Informant Interview also.

### **Conclusion**

More than half of the children in conflict with the law were having all three types of mental health problems. These results highlight the urgent need for comprehensive and tailored intervention to address the mental health needs of Children in Conflict with the Law.

### **Keywords**

Children in conflict with the law, Mental Health, Depression, Anxiety, Stress,

### **Breast Cancer Among Women Presenting with Palpable Breast Lump in A Tertiary Care Hospital - A Cross-Sectional Descriptive Study**

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## **Background**

Breast cancer, in Nepal, accounts for 6% of all cancers where the commonest age group is 40-50 years. Breast lump is one of the earliest clinical signs among patients with breast carcinoma. However, its late presentation and lack of timely screening and treatment have led to high mortality in Nepal.

## **Methodology**

A hospital-based cross-sectional study was conducted in the Department of Surgery at Shree Birendra Hospital. After obtaining the informed written consent, female patients  $\geq 18$  years old presenting to the Surgical OPD/ER with breast lump from January 2022 to June 2022 were involved in the study. A pre-designed proforma including socio-demographic characteristics and clinical and histological characteristics was used to collect data and was later analyzed using Statistical Package for Social Sciences taking  $p < 0.05$  as significant.

## **Results**

Based on histopathological examination, the participants were divided into two groups, the “Malignant group” (Breast Cancer) and the “Benign group” (Benign Breast Disease). The prevalence of breast cancer among patients presenting with palpable breast lump was 7.2% ( $n = 18/250$ ). Malignant group cases were found to differ significantly from the Benign group in terms of age, BMI, education, job, menopause ( $p$ -value  $< 0.001$ ), and marital status ( $p$ -value = 0.036). The Malignant group was also significantly different in clinical presentation such as symptom, mobility, consistency ( $p$ -value  $< 0.001$ ), and various risk factors such as relative's history, contraceptives, parity, smoking, alcohol ( $p$ -value  $< 0.001$ ), and diabetes mellitus ( $p$ -value = 0.002).

## **Conclusion**

Breast cancer was found to be associated with various patient demographics, risk factors, and the lump's clinical and histological characteristics. Timely detection of the early signs, such as breast lump could prevent the progression of the disease and reduce morbidity and mortality, preserve the quality of life, and reduce substantial financial burden.

## **Keywords**

Breast Lump; Breast Cancer; Benign Breast Disease; Malignant Breast Disease; Prevalence; Epidemiology

## **Counseling for Hyperlipidemia by Female Community Health Volunteers in Rural Nepal: A Biphase Mixed-Methods Approach**

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## **Background**

Female Community Health Volunteers (FCHVs) can be important in hyperlipidemia management in rural Nepal by providing self-management counseling to community dwellers. However, understanding FCHVs' knowledge, self-efficacy, barriers to counseling, and the intensity of hyperlipidemia-related training they need is important.

## **Methodology**

Using the Health Belief Model, we conducted a two-phase mixed-methods study among 28 FCHVs in rural mid-Western Nepal in eight Focused Group Discussions (FGDs) exploring FCHVs' knowledge, self-efficacy, and barriers in counseling about hyperlipidemia in phases 1 and 2 ten months apart. After phase 1 FGDs, we conducted hyperlipidemia-related training using didactics and role play. We also conducted a brief refresher training after phase 2 FGDs. For complementarity, we concurrently administered two relevant surveys, one before Phase 1 and another after Phase 2 training. We analyzed qualitative data using thematic analysis and quantitative data using descriptive statistics and mixed them during interpretation.

## **Results**

FCHV's mean age was  $48 \pm 6.8$  years, 1/3rd had secondary education, and 3/4th were working as FCHVs for >10 years. We found five themes under 3 domains of Knowledge, Self-efficacy and Barriers in FGDs. FCHVs had limited knowledge about hyperlipidemia and

lacked confidence in counseling during phase 1. However, they believed that with sufficient training, they could effectively counsel about hyperlipidemia. In phase 2, FCHVs expressed improved hyperlipidemia-related knowledge and self-efficacy in counseling. Similarly, in quantitative analysis, we found improvement in FCHVs' knowledge, confidence and reduced perceived barriers in counseling about hyperlipidemia. Nevertheless, despite perceived self-efficacy, major knowledge gaps persisted even after phase 2 training, emphasizing the need for ongoing education/training to improve FCHVs' ability in effective counseling.

### **Conclusion**

FCHVs are interested and eager to provide counseling about hyperlipidemia. Despite training, the most important barrier was inadequate knowledge. Sustainable strategies to improve hyperlipidemia care in rural Nepal hinge on continuous training and incentives for FCHVs.

### **Keywords**

Female community Health Volunteers (FCHV), Hyperlipidemia Counselling, Mixed Method Analysis

### **Mental and Nutritional Well-being among School Adolescents with Low Vision and Blindness**

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### **Background**

Adolescents experience rapid physical, cognitive, and psychosocial growth. Good nutrition and mental well-being are crucial during this stage. However, adolescents with visual impairments encounter additional challenges in attaining optimal nutrition and mental well-being, impacting their quality of life. These challenges also affect different targets of Sustainable Development Goals. There is a knowledge gap regarding the nutritional and mental health status among adolescents with visual impairment in Nepal. This study aimed to

determine the nutritional and mental health status of adolescent students with visual impairment in Nepal.

### **Methods**

This quantitative cross-sectional study was conducted between September and November 2021, including two inclusive schools in Kathmandu Valley and two outside of the Valley. Schools and participant selection was purposive. Detailed ocular examinations were conducted to determine the visual impairment in children with blindness or low vision. Trained enumerators reviewed school records for demographic variables, measured height and weight, and conducted face-to-face interviews with the Nepali version of the depression self-rating scale. Binary logistic regression was applied to test the association. Statistical significance was declared at a p-value < 0.05.

### **Results**

The mean age of participants (N=65) was 13.97±2.14 years. The male-to-female ratio was 8:5. Among them, 64.62% (n=42) were blind, and 33.85% (n=22) were studying at schools out of Kathmandu Valley. Prevalence of malnutrition was 38.46% (n=25) and 10.77% (n=7) had depressive tendencies. Children with malnourishment were nearly five times more likely (COR:4.750, CI: 0.845-26.710) to have depressive tendencies. Males, adolescents with low vision, adolescents studying in schools out of Kathmandu Valley, and older adolescents were more likely to have depressive tendencies. Females, adolescents with low vision, adolescents studying in schools out of Kathmandu Valley, and older adolescents were more likely to have malnutrition. None of the associations was statistically significant.

### **Conclusion**

Among adolescents with visual impairments, males and females were likely to face challenges in nutritional and mental well-being, respectively.

### **Keywords**

Adolescent, Depression, Malnutrition, Nepal, Visual Impairment

### **Severity and Quality of Life in migraine patients with Aura versus without Aura; A Hospital-based Cross-sectional Study**

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## **Background**

Although described as separate entities, migraine with aura and without aura have not been well-studied in terms of severity and impact on the quality of life. This study was conducted to compare and contrast the severity and effects on the quality of life between the migraine with and without aura.

## **Methodology**

This was a cross-sectional study conducted among the people diagnosed with migraine headaches in the Neurology outpatient department of a tertiary care hospital in Nepal. The ethical approval for the study was taken from the Institutional Review Committee of the Nepalese Army Institute of Health Sciences (IRC-NAIHS) with registration no. 675 and reference no. 245. The relevant information was taken via semi-structured questionnaires, and the data were analyzed in Statistical Package for the Social Sciences (SPSS), version 25. The significance level was taken as  $p < 0.05$  at the 95% confidence interval (CI).

## **Results**

64.9% of cases had migraine with aura whereas the remaining 35.1% had migraine without aura. The median pain intensity was higher in the aura group (9.00 vs 8.00,  $p=0.68$ ). Based on the HIT-6 grading, the migraine without aura group had a greater impact on quality of life (28 [65.32] vs 15 [34.68],  $p=0.926$ ). However, these results were not statistically significant.

## **Conclusion**

Migraine without aura had a poorer quality of life as compared to the aura group, though the severity of the headache was almost similar between them.

## **Keywords**

Migraine headaches, migraine with aura, migraine without aura, quality of life, headache-impact test

# **Prevalence of Attention Deficit Hyperactivity Disorder and its associated factors among secondary school students of Kathmandu Metropolitan City**

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## **Background**

A cross-sectional study aimed to determine the prevalence of attention deficit hyperactivity disorder (ADHD) among secondary school students in Kathmandu Metropolitan City (KMC) and explore its association with screen time, screen addiction, individual factors, and family-related factors.

## **Methodology**

Quantitative research methodology was used, utilizing self-administered questionnaires. A sample of 638 participants (Grade 12 students) was selected using multi-stage cluster sampling, with permissions obtained from relevant authorities. Screen time was measured across five activities using a 6-point scale, while symptomatic ADHD, game addiction, social media addiction, and smartphone addiction were assessed using standardized scales.

## **Results**

The prevalence of ADHD among secondary student's students in KMC was 26.6%, with significant associations observed with various factors. Female students exhibited a higher prevalence of ADHD compared to males (AOR = 1.719, 95% CI 1.075 - 2.748). Students attending private schools had a significantly higher prevalence of ADHD than those in government schools (AOR = 3.619, 95% CI 1.911 - 6.853). Additionally, students with a history of disharmony in their relationship with their fathers showed a higher likelihood of ADHD (AOR = 3.673, 95% CI 1.507 - 8.950). The presence of social media addiction (AOR = 6.287, 95% CI 3.603 - 10.969) and smartphone addiction (AOR = 4.075, 95% CI 2.531 - 6.561) significantly increased the odds of having ADHD.

## **Conclusion**

The study reveals a considerable prevalence of ADHD among secondary school students in KMC, with notable associations with individual and family-related factors, as well as social media addiction and smartphone addiction. These findings underscore the importance of holistic approaches to address ADHD, including targeted interventions to reduce screen time and manage screen addiction among adolescents, along with fostering harmonious family

relationships and providing support for individuals with ADHD symptoms. Such efforts are essential for promoting the mental well-being of adolescents in Kathmandu Metropolitan City.

### **Keywords**

ADHD Prevalence, Adolescents, Kathmandu Metropolitan City, Screen time, Screen addiction, social media addiction, Smartphone addiction and Mental Health

### **Predictors of recurrent stroke in terms of stroke subtypes, anatomical distribution, risk factors and compliance to post stroke therapy**

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### **Background**

Recurrent strokes pose greater disability risks with uncertain outcome differences compared to initial strokes. Our Nepal-based study investigates recurrent stroke occurrence, its subtypes, anatomical distribution, and compliance to post-stroke therapy. Addressing modifiable risk factors is crucial for reducing stroke burdens and improving long-term prognosis.

### **Methodology**

The records of patients with a diagnosis of recurrent stroke within the last 5 years were retrospectively investigated.

### **Results**

The study comprised 45 patients with a mean age of 68.4 years ( $68.4 \pm 14.05$ ) and 51.1% female with a sex ratio of 1.04:1. Ischemic stroke was predominant, affecting 86.6% of patients, while 13.4% experienced hemorrhagic stroke initially. The middle cerebral artery territory, particularly the left hemisphere, was most frequently involved (22.2%). Residual weakness was reported in 53.3% of cases post-initial stroke. Initial treatment mainly involved aspirin (66.6%), supplemented with other medications based on comorbid conditions. Hypertension was prevalent in 73.3% of cases, followed by diabetes mellitus (28.8%) and

heart disease (22.2%). Amlodipine was the preferred prophylactic medication in only 66.6% of hypertensive patients. Medical compliance with treatment was observed in 12 patients only. The majority were non-compliant. Improvement was noted in 33 patients, 2 experienced seizures and 10 showed no improvement. Smoking was reported in 26.7% of patients, with 22.2% being both smokers and alcoholics, and 4% solely alcoholics. Ischemic strokes constituted 84.4% of recurrent cases, with the middle cerebral artery territory being most commonly affected (31.1%). Echocardiography, CT angiography, and carotid Doppler were the most frequently performed diagnostic tests.

### **Conclusions**

Recurrent strokes in Nepal predominantly involve ischemic strokes, with middle cerebral artery territory often affected. Despite high hypertension prevalence, medical compliance is low. Multifaceted prevention strategies targeting modifiable risk factors like smoking and hypertension are crucial to mitigate recurrence and improve outcomes for stroke patients in Nepal.

### **Keywords**

recurrent stroke, ischemic stroke, hypertension, Middle cerebral artery

### **Clinico-epidemiological Profile of Colorectal Carcinoma Patients Presenting in A Tertiary Care Center: A Descriptive Cross-Sectional Study**

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### **Background**

Colorectal cancer (CRC) is the major contributor to treatable premature cancer deaths and years of life lost around the globe. However, there is a lack of sufficient information on the epidemiology and management of CRC in Nepal.

### **Methodology**

We conducted a cross-sectional study in Shree Birendra Hospital with newly diagnosed CRC cases registered within two years from January 2020 to April 2022. Analysis was done via Statistical Package for the Social Sciences.

### **Results**

A total of 56 patients were registered during the study period, the majority (71%) of whom were over 60 years, 64.3% were male and 35.7% were female. 87.5% of patients consumed a mixed diet. 51.8% of cases were smokers and 55.4% consumed alcohol. 62.5% had normal BMI while 14.3% were overweight and 23.2% were underweight. 69.6% lived a sedentary lifestyle. 60.7% drank coffee and 23.2% took vitamin D supplements. A positive family history of CRC was seen in 10.7% of patients. 8.9% of cases had a history of inflammatory bowel disease. Initial presentation with rectal bleed was seen in 71.4% and 28.6% showed obstruction. The rectum (46.4%) was the most involved anatomically. 41.1% showed peripheral metastasis mainly in regional lymph nodes (25.0%). Histopathological examination showed mostly adenocarcinoma (83.9%), with the remaining being undifferentiated carcinoma.

### **Conclusion**

CRC is a significant public health problem in Nepal, most of which are diagnosed in advanced stages and are challenging to manage. Multiple factors are involved in the varied presentation of CRC including risk factor exposure, demographic variations, genetic susceptibility, and histopathology. With the advent of established tools for screening, it is essential to raise awareness and implement measures to prevent, detect, and treat CRC in Nepal.

### **Keywords**

Colonic neoplasm, Colorectal neoplasm, Rectal neoplasm, Gastrointestinal hemorrhage, Inflammatory Bowel Diseases.

### **Hypertension and its associated factors among public vehicle drivers in Pokhara, Nepal**

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### **Introduction**

Hypertension is a major public health concern globally, affecting individuals of all ages, backgrounds, and lifestyles. It serves as a significant risk factor for various cardiovascular diseases, including heart attacks, strokes, and kidney disorders. It often goes undiagnosed and untreated due to the lack of symptoms. Nepal has adopted global targets for hypertension control and aims to achieve a 25% reduction in the prevalence of raised blood pressure by

2025. Despite increased hypertension risk factors such as shift work, stress, inactivity, and poor diet, there's still insufficient evidence directly linking driving to hypertension. The study aims to find out the prevalence and associated factors of hypertension among drivers.

### **Methodology**

This cross-sectional study focused on public vehicle drivers in Pokhara metropolitan, using convenience sampling with a sample size of 358. Interview Schedule was used and the face-to-face interview was done during the study. The WHO STEPS questionnaire was used to assess the prevalence of hypertension. data were entered into Redcap software and analyzed using SPSS. Descriptive statistics and a chi-square test were applied to identify factors associated with hypertension.

### **Results**

The prevalence of hypertension was found to be 39.1%. Hypertension was significantly associated with various characteristics like age, education time, marital status, tobacco consumption, age of smoking initiation, alcohol consumption, binge alcohol intake, physical activity, duration of driving and service, obese, and central obesity. From the chi-square test age, alcohol intake, smoking, duration of service, and driving are highly significant with hypertension.

### **Conclusion**

This study concludes that nearly two-fifths of drivers had hypertension. Age, marital status, education time, smoking, alcohol consumption, duration of driving and service, and adiposity were associated with hypertension. The research highlights the need to focus on modifiable and non-modifiable risk factors that are associated with hypertension.

### **Keywords**

Hypertension, Associated factor, Drivers, High Blood Pressure, Prevalence of Hypertension, Nepal

### **Knowledge of road traffic accidents among taxi drivers in Kathmandu Valley**

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## **Introduction**

Over 5500 RTAs occur annually in Kathmandu Valley, causing 180+ fatalities. Taxi safety is emphasized, yet no exploration of preventive practices on road traffic accidents relating to epidemiological triad has been done so far which arrests the need for the study.

## **Objective**

To assess the preventive practices on road traffic accidents among taxi drivers in Kathmandu Valley.

## **Methodology**

The study in Kathmandu Valley employed a cross-sectional design, sampling 322 taxi drivers. Semi-structured tools and observational checklists were used, with data analyzed using SPSS.

## **Results**

In the study, nearly 98% were male drivers, median age of 36, mostly married, and over half Janajatis. About half had secondary education, and four-fifths earned less than 50,000 monthly. The survey data shows that many taxi drivers drink and drive, answer phone calls while driving, and overspeed in emergencies. However, most use seatbelts and have insurance. The data indicates that many taxi drivers have driven without safety measures during emergencies and have overloaded their vehicles with passengers or loads. Additionally, many only services their vehicles when necessary. The data reveals that many taxi drivers have driven on very bumpy paths and in poor environmental conditions. Additionally, some have violated traffic rules, while most stop for pedestrians. However, a significant portion struggles to reach their destinations on time.

## **Conclusion**

Taxi drivers in the study exhibit various risky behaviors and operational challenges, highlighting the need for improved safety measures and regulatory enforcement.

## **Keywords**

Road traffic accident, Taxi drivers, Preventive Practices, Kathmandu Valley, Epidemiological Triad

## **Prevalence of Metabolic Syndrome among Hypertensive Patients Attending a Tertiary Care Center in Nepal**

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### **Background**

Hypertension is a common medical condition and it can increase the risk of heart, brain, kidney, and other diseases. The progression of hypertension is likely to vary depending on coexisting risk factors including medical conditions such as blood glucose and lipid profile biomarkers. Metabolic syndrome is a disease entity characterized by a complex constellation of physiological, biochemical, and metabolic factors including abdominal obesity, insulin resistance, elevated arterial blood pressure, and dyslipidemia. Metabolic syndrome is associated with a two-fold increase in cardiovascular outcomes and a 1.5-fold increase in overall mortality. We had the objective to calculate the prevalence of metabolic syndrome in hypertensive patients.

### **Methodology**

A single-center hospital-based, descriptive cross-sectional study was conducted through the convenience sampling technique in Shree Birendra Hospital (SBH), Kathmandu from February 2022 to February 2023 after receiving ethical clearance from the Institutional Review Committee (Reg. no. 618). Data was collected from hypertensive patients visiting general outpatient department and medical outpatient department of Shree Birendra Hospital after taking informed consent and then analyzed using Statistical Package for Social Sciences (SPSS) version 16.

### **Results**

Out of 108, the prevalence of metabolic syndrome was found to be present in 71 (65.7%) of the participants in the study. Mean age was  $58.29 \pm 11.619$ , Males: 49, Females: 59. The continuous variables are expressed as median value with IQR in patients with metabolic syndrome along with their level of significance: Waist circumference: 96 (14) (p: 0.000), Triglycerides: 168.4 (112.2) (p: 0.000), HDL-C: 38.7 (9.5) (p: 0.004) and Fasting blood glucose: 98.3 (23.9) (p: 0.024).

### **Conclusion**

There is a high prevalence of metabolic syndrome among hypertensive patients. Thus, all hypertension patients must undergo thorough screening to determine whether they have any additional cardiovascular risk factors that constitute the metabolic syndrome. Hypertensive

patients with metabolic syndrome should receive comprehensive care to reduce their risk of developing diabetes and cardiovascular disease.

### **Keywords**

Hypertension; Metabolic syndrome; Cross-sectional study

### **Improved glycaemic control and remissions of type 2 diabetes: a service evaluation of weight management using traditional food in Nepal (Ho-DIRECT NEPAL)**

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### **Background**

Remission of early Type 2 diabetes (T2D) is possible, however, programmes used in published trials are unaffordable in many Southeast Asian populations where T2D is more frequent and more aggressive at lower body weight and younger. We aimed to document an entirely food-based approach.

### **Methods**

A low-cost diet programme was devised, using traditional foods to provide 8-weeks ~850kcal/day nutritionally-complete weight loss induction, and then weight loss maintenance. Kathmandu diabetes clinic patients with early T2D (>5 years) aged 30-70 years, BMI  $\geq 23$  kg/m<sup>2</sup>, were recruited, with 2-4 weekly dietetic appointments (30-45 minutes) and verbo-pictorial leaflet using household measures. Glucose-lowering medications (49/70 at baseline) were stopped between 0-8 weeks.

### **Results**

For the first 70 patients (45 female) agreeing, from 85 invited between March 2022-September 2023, baseline mean age was 48.6(9.9) years, bodyweight 74.58 (9.46) kg, BMI 29.7(3.6) kg/m<sup>2</sup>, known diabetes duration 2.5(1.9) years, HbA1c on treatment 8.1(1.6) %. At 12, 24 and 52 weeks respectively (n=44, 46, 45), mean (SD) weight was 70.13 (8.45), 69.76 (8.86), 70.02 (8.75) kg, HbA1c 6.82 (0.94), 6.93 (1.48), 7.14 (1.27) %. The totals with HbA1c <6.5% at 12, 26, and 52 weeks were 46%, 48%, and 36% with remission of T2D (HbA1c<6.5% off medication >3 months) in 43%, 39%, and 29%, The main reported adherence barriers to changing eating habits, fear of weakness, hunger, and inconvenience during travel. Facilitators were ease and acceptability of the diet, reduced doses and costs of medications, and improved appearance.

### **Conclusion**

The study has provided the first evidence that a simple intervention, advising and demonstrating the use of no-added-cost traditional foods in a nutritionally complete diet plan, can generate a substantial improvement in glycaemic control, with a lower need for medication. It resulted in a valuable remission rate that could not arise by chance, from relatively modest weight losses. Therefore, traditional food-based weight management can valuably improve diabetes control and generate remissions.

### **Keywords**

Type 2 Diabetes, Diet, Weight Loss, Remission, Nepal

## **Prevalence and Factors Associated with Perinatal Depression Among Nepalese Women in Kathmandu**

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### **Introduction**

Mental health problems are prevalent during the perinatal period, affecting more than 10% of women in developed countries and 25% in developing countries. Perinatal mental health is an important aspect of women's well-being from conception to postpartum. The study aimed to

determine the prevalence and risk factors for perinatal depression among women who visited a maternity hospital in Kathmandu.

### **Methodology**

A cross-sectional study of women in their perinatal period was conducted at the Paropakar Maternity and Women's Hospital in Kathmandu. A total of 300 perinatal women were recruited. The Edinburgh Perinatal Depression Scale-10 was used to assess perinatal depression. Respondent sociodemographic characteristics and infant's health were also collected and managed with IBM-SPSS software. Univariate and multivariate logistic regression analyses were used to confirm the predictors' significance, with a p-value of less than 0.05 indicating statistical significance. Ethical approval was obtained from the Paropakar Maternity and Women's Hospital, and individual written consent was also obtained.

### **Results**

The mean age of respondents was 25.5 (SD 4.5) years; their first pregnancy was 23.5 (SD 3.7) years; and 53.7% of respondents were in the antenatal period. The prevalence of depressive symptoms (EPDS $\geq$ 10) was 40% (95% CI: 31.4% to 45.8%). Being of Madeshi ethnicity (AOR 7.07, 95%CI 3.29–15.16), unemployed (AOR 4.29, 95%CI 2.24–8.23), mean age of 25 years and above (AOR 2.11, 95%CI 1.03–4.29), unsupportive family members (AOR 3.17, 95%CI 1.60–6.31), having gender preference (AOR 6.19, 95%CI 2.19–17.44), and suffering miscarriages (AOR 3.43, 5%CI 1.59–7.38) were identified as key predictors of perinatal depression.

### **Conclusion**

A substantial proportion of women experienced depression during the perinatal period. Supportive families, employment and having no gender preferences all significantly reduced women's depression during the perinatal period. Targeted interventions in health and wellbeing services should be implemented to improve perinatal mental health during both pregnancy and postpartum periods.

### **Keywords**

Pregnancy, postpartum, perinatal depression, Cross-sectional survey, Nepal

### **Social Media Use and its Psychological Effects among Grade 9 and 10 Students of Government Schools in Tokha Municipality of Kathmandu**

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### **Background**

Social media are interactive technologies that facilitate the creation and sharing of information, ideas, interests, and other forms of expression through virtual communities and networks.

Social media platforms have become integral to adolescents' lives, offering a means of communication, self-expression, and connection with peers. However, concerns have been raised about the potential negative psychological impacts of social media use on this vulnerable population. Thus, the study aims to assess the psychological effects of social media among grade 9 and 10 students.

### **Methodology**

A descriptive cross-sectional study was conducted among grade 9 and 10 students. A total of 215 samples were collected from four schools by applying a simple random sampling method. Data was collected through a self-administered technique. Social Media Addiction Scale- Student Form and Short Mood and Feelings Questionnaire were used to measure social media-related addiction and depression. The data analysis was performed in SPSS 20 version software. The Chi-square test was used ( $p < 0.05$ ) to find a significant association. Ethical approval was taken from the institutional review committee of Karnali Academy of Health Sciences.

### **Results**

Out of 215 respondents, (51.17%) were addicted to social media, and (47.44%) were depressed. The most commonly used social media by the respondents were YouTube, Facebook, TikTok, Google, and Snapchat respectively. The study shows a significant association between social media addiction and adolescents owning a phone ( $p < 0.001$ ) and religion ( $p = 0.026$ ). Similarly, there is a significant association between students having a social media addiction and depression ( $P < 0.001$ ).

### **Conclusion**

Social media addiction and depression are major issues, with almost half of the respondents suffering from it. Studies suggest that students must be encouraged to speak with people

around them and socialize, not to use social media for time pass, parents counseling, and establish mental health counseling facilities in schools.

### **Keywords**

Social Media, Addiction, Depression, Psychological effects, Facebook, YouTube

### **Workplace Stress and Anxiety among Medical Health Workers in Selected Hospitals of Kathmandu During COVID-19 Pandemic: A Cross-sectional Descriptive Study**

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### **Introduction**

Workers in the healthcare industry who are exposed to COVID-19 are more likely to suffer mental health issues. This study aimed to assess the workplace stress & anxiety among medical health workers working in the selected hospitals in Kathmandu during the COVID-19 pandemic.

### **Methods**

We conducted a descriptive cross-sectional study among medical health workers working in selected hospitals in Kathmandu during the COVID-19 pandemic. A total of 420 medical health workers were selected through convenient sampling from various wards of the selected hospital. Data was collected using a self-administered questionnaire. Perceived Stress Scale (PSS-10) and Generalised Anxiety Disorder (GAD-7) were used to assess stress and anxiety among health care workers. Data analysis was performed in SPSS version 21. The point estimate at a 95% Confidence Interval was calculated along with frequency and percentage.

### **Results**

Out of 420 respondents, 361 (86.0%) (95% CI: 82.3 to 89.1) experienced moderate levels of stress, while 13 (3%) (95% CI: 1.7 to 5.2) of them experienced high levels of stress. Similarly, out of 420 respondents, 105 (25.0%) (95% CI: 20.9 to 29.4) had moderate anxiety, while 57 (13.60%) (95% CI: 10.4 to 17.2) of them had severe anxiety.

### **Conclusions**

The outcomes of the study indicated a significant proportion of anxiety and stress symptoms among health professionals in Nepal during the pandemic's stages. Health worker preferences should be incorporated into programs designed to reduce stress among them during the COVID-19 pandemic.

### **Keywords**

Anxiety; COVID-19; Distress; Healthcare worker; Nepal.

### **Procrastination and test anxiety among medical students in medical colleges**

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### **Background**

Procrastination among students is a prevalent behavior that negatively influences their performance and well-being. It was found a high prevalence of poor mental health among medical students of Nepal. This research assessed the prevalence of medical students struggling with their behavioral trait of procrastinating and test anxiety in Nepalese students.

### **Method**

A descriptive cross-sectional study was conducted among 214 medical students (MBBS) of Chitwan Medical College through a pretested semi-structured questionnaire through self-administered questionnaire. The questionnaire was self-developed with The Academic Procrastination Scale and The Westside Test Anxiety Scale aiming to assess the psychological and behavioral trait of medical students. The collected data were entered and analyzed using SPSS IBM v.22. Data were analyzed using chi-square test, t-test, ANOVA, logistic regression and correlation where association were established where p-value was <0.05.

### **Result**

Prevalence of Test Anxiety (TA) was found to be 39.3% among studied population. TA among medical students has strong association with maternal and paternal education level with significance. In this study, respondents who had maternal and paternal education level secondary/more (95% CI 0.526-2.056, p-value=0.036 and 95% CI 0.463-2.476, p-value=0.048) respectively are more likely to have TA. Factors such as residence, alcohol use

smoking and/or tobacco products/chewing were associated with academic procrastination. The mean academic procrastination was significantly higher to those living close to campus on their own/with flatmates ( $p = 0.001$ ), with individuals who consume alcohol displaying higher mean scores than those who do not ( $p = 0.008$ ), individuals who use smoking and/or tobacco products/chewing have higher mean scores compared to non-users ( $p = 0.033$ ).

### **Conclusion**

The strong correlation between academic procrastination and test anxiety with the positive correlation value ( $r=0.593$ ) illustrates that students with test anxiety is greatly affected by academic procrastination. Regular assessments and counseling services offered by colleges can effectively manage among students.

### **Keywords**

Academic Procrastination, Test Anxiety, Medical Students

### **Factors associated with quit attempts among current smokers residing in Kathmandu Metropolitan City**

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### **Background**

Tobacco use is known to be one of the leading risk factors for the increasing burden of non-communicable disease. In order to reverse or slow down the disease progression, one can quit tobacco use at any stage. Quit attempts is one of the three specific transition phase of quitting smoking. The study attempts to address the limited knowledge on the pattern of quit attempt and factors associated in the context of Nepal particularly in Kathmandu Metropolitan City.

### **Methodology**

A community based quantitative cross sectional study was conducted among 264 current smokers aged 18-69 years in Kathmandu Metropolitan City, Nepal between November 2021 and February 2022. Questions on tobacco use were administered through face to face interview based on validated standard questionnaire namely Fagerstrom Test for nicotine dependence (FTND), Perceived Stress Scale (PSS) and questions on past quit attempts. Chi-

square test and logistic regression analysis was used to determine the factors that were significantly associated with making a quit attempt.

### **Results**

More than half of the respondents (62.5%) had tried to stop smoking at least once in the last 12 months. Nearly seven out of ten respondents (68.5%) had tried to quit without using any assistance. Logistic Regression analysis indicated that respondents with intention to quit smoking, interested to quit if helped, advised to quit smoking by health care provider in the past 12 months, and those who had noticed health warnings on tobacco packages were more likely to make quit attempt.

### **Conclusion**

Out of 264 respondents, more than one-third of smokers were reluctant to make a quit attempt with the majority of the quit attempts being without any assistance. This study highlights the importance of cessation support such as advice by healthcare workers, and exposure to health warnings in tobacco packages as measures to increase quit attempts. Further research exploring unexamined variables is necessary for a comprehensive understanding of quit attempts.

### **Keywords**

Quit attempts, current smokers, attempt to quit smoking

## **Prevalence and Variability of Depression Among Pregnant Women Attending Public Health Facilities of Pokhara Metropolitan City**

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### **Background**

Pregnant women are at increased risk of developing depression since various significant physiological, and psychological changes occur during pregnancy. Depression during pregnancy results in miscarriages, pre-eclampsia, preterm delivery, low birth weight, impaired mother-infant interactions, postpartum depression, and suicide. However, there is a lack of research on antenatal depression in Nepal. Hence, this study aims to assess the prevalence of antenatal depression and its associated factors among pregnant women attending selected public health facilities of Pokhara Metropolitan City.

## **Methods**

Health facility-based cross-sectional study was conducted among 289 pregnant women visiting for antenatal checkup at selected public health facilities through consecutive sampling technique. Edinburgh Postnatal Depression Scale (EPDS) with a cut-off score  $\geq 10$  was used to assess antenatal depression. Data were collected between September to October 2023 through face-to-face interview with participants. At first, chi-square test was used to test the association between dependent and independent variables and then binary logistic regression was used to find factors associated with antenatal depression.

## **Results**

The prevalence of antenatal depression was 11.1% (95% CI: 11.061 - 11.130). Age, education, husband's education, living with husband, family's monthly expenditure, fear of giving birth, smoking by husband, and intimate partner violence were found to be associated with antenatal depression from the chi-square test. Moreover, from binary logistic regression, pregnant women who had fear of giving birth (aOR: 5.526, 95% C.I: 1.582-19.310) were more likely to experience antenatal depression. Similarly, pregnant women who experienced intimate partner violence (aOR 2.533, 95% CI: 1.006 - 6.374) had higher odds of antenatal depression than their counterparts.

## **Conclusion**

According to this study, nearly one in every ten pregnant women has antenatal depression. The findings highlight the need to address intimate partner violence during pregnancy. Furthermore, strategies aimed at minimizing the fear of giving birth can aid in the reduction of depression during pregnancy.

## **Keywords**

Antenatal Depression, Mental Health, Pregnant Women, Pokhara

## **Cyberbullying victimization and psychological distress among Female adolescents of Illam District, Nepal: A Cross-Sectional Study**

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## **Background**

Cyberbullying is an emerging public health problem throughout the world with potential to cause severe physical, mental, and social distress among its victims. Cyberbullying has significant negative impacts on the overall development of adolescents, with victims being more likely to experience depression, anxiety, self-harm, and exhibit suicidal behaviors. This study estimated the prevalence of cyberbullying and its association with depression, anxiety and stress among female adolescents attending higher secondary schools in the Deumai Municipality of Nepal.

## **Methodology**

A cross-sectional study was conducted in all available higher secondary schools of Deumai Municipality of Illam district of Nepal. A total of 501 female adolescents enrolled in grade 11 and 12 were approached to assess their exposure to cyberbullying and experience of psychological distress. The study primarily focused on the prevalence of cyberbullying victimization, along with the assessment of depression, anxiety, and stress levels and their associated factors. Psychological distress was explored using DASS-21. Pearson's  $X^2$  tests and multivariate logistic regression analysis were applied to determine the association between psychological distress and related variables including cyberbullying victimization at 95% confidence interval and 5% level of significance.

## **Results**

The prevalence of cyberbullying victims was 32.5% whereas, the overall prevalence of depression, anxiety and stress among the female adolescents was found to be 46.5%, 52.7% and 34.9% respectively. The cyber-bullying victims were seen to have almost twice the odds of experiencing depression (aOR: 1.64, 95% CI: 1.11-2.42), anxiety (aOR: 2.49, 95% CI: 1.67-3.70) and stress (aOR: 2.59, 95% CI: 1.74-3.86) in comparison to non-victims.

## **Conclusion**

Nearly one-third of the adolescent girls experienced cyberbullying whereas, nearly half experienced depression, anxiety, and stress. Cyberbullying victims are significantly more likely to experience psychological distress. There is an urgent need to strengthen cybersecurity and strong legislative measures to address cyberbullying to safeguard the mental health of adolescents in the digital age.

## **Keywords**

Cyberbullying victimization, psychological distress, female adolescents

# **Comparison of Outcomes among Patients Undergone Trans-abdominal Preperitoneal and Totally Extra peritoneal with Primary Inguinal Hernia Repair: A retrospective study**

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## **Introduction**

TAPP (Trans-abdominal pre-peritoneal) and TEP (Totally extra peritoneal) repair are commonly used laparoscopic surgical procedures for unilateral inguinal hernia. Laparoscopic surgery has many advantages over open surgery, but a steep learning curve and prolonged duration of surgery are the two common disadvantages of the laparoscopic approach.

## **Methodology**

A cross sectional retrospective study was conducted in the Shree Birendra Hospital, Chhauni, Kathmandu, Nepal. The data was collected using predesigned proforma. Records of the patient were collected from the data sheet obtained from the record section.

Approval of study was obtained from the Institutional Review Committee of NAIHS.

## **Results**

In the TAPP group, the operation time was significantly longer (103 vs 91 minutes;  $P = .019$ ). The postoperative complication rate was not significantly different between the two groups. One patient (2.0%) in the TAPP group and five patients (5.7%) in the TEP group suffered recurrence ( $P = .16$ ). Postoperative groin pain was not significantly different (14% in the TAPP group vs 19% in the TEP group;  $P = .065$ ), but more patients required analgesics in the TEP group (3.2% vs 19%;  $P = .071$ ).

## **Conclusion**

TAPP for primary inguinal hernia achieved better results than TEP relative to postoperative pain and the use of medication for pain relief without increasing the complication and recurrence rates.

## **Keywords**

Inguinal hernia, Laparoscopic trans abdominal preperitoneal repair, Postoperative pain, recurrence

## **Relationship of Anxiety and Depression with Quality of Life among Chronic Obstructive Pulmonary Disease Patients**

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### **Background**

The prevalence of anxiety and depression in Chronic Obstructive Pulmonary Disease (COPD) patients increases with the disease progression and presence of anxiety and depression may affect their quality of life. The study is conducted to assess the relationship of anxiety and depression with quality of life among COPD patients.

### **Methodology**

Descriptive cross-sectional research design was used. Purposive sampling was used to select 175 COPD patients attending to chest OPD at Shree Birendra Hospital, Kathmandu. Data were collected through interview technique using Hospital Anxiety Depression Scale and St. George's Respiratory Questionnaire for COPD. Descriptive statistics namely frequency, percentage, median, mean and standard deviation, and inferential statistics namely chi square test, odds ratio and Pearson's correlation were used for data analysis.

### **Results**

The findings revealed that 34.3% respondents had anxiety, 33.1% respondents had depression, 25.1% respondents had both anxiety and depression and 37.1% respondents had low quality of life. Higher odds of anxiety, depression and quality of life was found in sex (OR=2.476; CI=1.242-4.938) and duration of COPD diagnosis (OR=2.253; CI=1.188-4.273). The association between anxiety and depression with quality of life was found to be highly significant ( $p < 0.001$ ). A positive correlation was found among score of anxiety, depression, and quality of life.

### **Conclusion**

The study concludes that with the presence of anxiety and depression, quality of life of COPD patients is affected mainly in female patients and those with increase duration of COPD diagnosis. Further study among patients with other respiratory diseases to evaluate anxiety, depression, and quality of life.

## **Keywords**

Anxiety, Depression, Psychiatric co-morbidities, Quality of Life

## **Knowledge on Breast Cancer Risk Factors and Early Detection Measures among Hospitalized Female Patients at Civil Service Hospital of Nepal**

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## **Background**

Breast cancer is the most common malignancy affecting women and the second cause of cancer death in the world. The most common cancer in Nepalese females was cervical cancer followed by breast cancer. Breast cancer is detected by early detection measures such as self-breast examination and clinical breast examination that helps to diagnose find more risk of breast cancer. Thus, knowing breast cancer and its early detection measures can help to improve the health status of patients and changes their KAP. The objective of this study is to determine knowledge on breast cancer risk factors and early detection measures among the admitted female patients at Civil Service Hospital of Nepal.

## **Methodology**

A cross-sectional study design with a qualitative method was used, which was carried out in different patients admitted wards of Civil Service Hospital of Nepal. Total 141 hospitalized female patients of age 18 years and above were included in this research.

## **Result**

The knowledge on breast cancer risk factors and early detection measures among hospitalized female patients at Civil Service Hospital of Nepal shows that 61.70 percent of patients have basic knowledge about breast cancer, its risk factor, and early detection measures. Likewise, 42.55 percent and 67.38 percent of patients know that early detection measures of breast cancer are BSE and CBE respectively. Performing of early detection measures (BSE and CBE) shows 38.33 percent (once a month) and 20.57 percent (once annually) respectively.

## **Conclusion**

The knowledge on breast cancer risk factors and early detection measures among hospitalized female patients of Civil Service Hospital of Nepal is below average. The reason behind having below-average knowledge about breast cancer is lack of knowledge, health education, and not facing any breast problems.

## **Keywords**

Admitted, Breast, Cancer, Comprehensive, Detection, Examination, Hospital

## **Prevalence of Self-Harm Behavior and Its Associated Factors Among the School Adolescents of Baiteshwor Rural Municipality**

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### **Background**

Self-harm is considered to be one of the strongest predictors of death by suicide in adolescence. Inadequate adherence to treatment serves as an indicator of adverse psychosocial consequences among adolescents who exhibit self-harming behaviors. Adolescents knowingly harm themselves thinking they deserve it, express their emotions, and gain attention from parents and peers.

### **Objective**

To assess the prevalence of self-harm behavior and factors associated among adolescents of Baiteshwor Rural Municipality.

### **Methodology**

A cross sectional study was conducted among 280 adolescent students (Grade 8,9 and 10) of Baiteshwor Rural Municipality. This study used a multistage sampling with self-administered questionnaire for data collection. Functional Assessment of Self-Mutilation (FASM) tool was used for assessing the self-harm behavior. Depression, Anxiety and Stress Scale (DASS-21) tool was used to measure the prevalence depression, anxiety and stress. The chi square test and logistic regression were applied to analyze the results in SPSS V.16. P-value  $\leq 0.05$  was considered as statistically significance and then fitting into the final multivariate logistic regression.

### **Result**

More than a fifth (22.1%) of the respondents had heard about self-harm. Among the respondents, significant percentage (25.6%) had faced some sorts of abuse during their life time. Among them 4.7% of respondents had faced sexual abuse. A significant proportion (40.7%) had signs of depression, 52.9% had anxiety. More than half (51.8%) had practiced

self-harm behavior while the age at first self-harm was found to be 13. Upon assessing the association of self-harm behavior with psychological distress characteristics, anxiety (<0.001), stress (0.003) and depression (0.003) were found to be significantly associated with self-harm behavior.

### **Conclusion**

There seems to be inadequate knowledge among adolescents regarding self-harm behavior. Abuse and psychological distress seem to be contributing factor of self-harm. Gender also seems to significantly affect self-harm behavior. Education and awareness regarding self-validation and self-esteem through approaches focused on behavior change can prevent self-harm.

### **Keywords**

Self-harm, Adolescents, Abuse, Psychological distress

## **Sleep deprivation and its associated factors among early adolescents in selected schools of Kathmandu Metropolitan City**

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### **Background**

Sleep Deprivation is a growing mental health issue that is simply characterized by a lack of adequate sleep along with fatigue and lethargy. Sleep deprivation can be considered as an increasing concern especially among early adolescents as they have wider access to the internet and social media nowadays. This research aims to identify the prevalence of sleep deprivation and its associated factors among early adolescents.

### **Methodology**

A cross-sectional study was conducted to interview 329 early adolescents from five selected schools of Kathmandu Valley. Lottery method was used to select the study area and a simple random technique was used to select sample units. A semi-structured questionnaire and face-to-face interview were conducted as a data collection tool and technique. KOBO Toolbox software and SPSS version 25.0 was used for data entry and analysis. Relevant descriptive statistics were computed for all variables and the association between two categorical variables was computed using the Chi-square test.

### **Results**

As per the findings, out of 329 respondents, 60.2% of them had poor sleep quality, and 54.7% of them were dependent upon the use of social media. Sleep Quality and Social Media Dependency among respondents were positively associated with the gender of the respondent ( $p<0.001$ ), frequency of checking social media platforms per day ( $p<0.001$ ), use of social media before sleeping and after waking up ( $p<0.001$ ,  $0.003$  respectively), duration of using social media before sleeping ( $p=0.006$ ), academic performance at school ( $p=0.001$ ) and interest of studying at home ( $p=0.001$ ).

### **Conclusion**

This study shows a significant relationship between social media usage and poor sleep quality and academic performance. It highlights a critical need for awareness of sleep deprivation and the psychological effects of excessive use of social media among adolescents in Kathmandu Valley.

### **Keywords**

Sleep Deprivation, Social Media Dependency, Early Adolescents.

### **Health Promoting Behaviors, its Facilitators and Inhibitors among Women of Reproductive Age (15-49) of Ward Number 16, Kathmandu Metropolitan City**

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### **Background**

Health promoting lifestyle behaviors are defined as complete activities and beliefs that a person carries out in order to remain healthy and prevent themselves from diseases. Studies have shown that women's lifestyle, physical activity, and health responsibility are not at satisfactory levels. Thus, this research study assessed health promoting behaviors, their facilitators, and inhibitors among women of reproductive age in the context of Nepal.

### **Method**

A descriptive cross-sectional study was conducted among 398 women of reproductive age of ward number 16, Kathmandu Metropolitan City through a pre-tested structured questionnaire and IDI guidelines through face-to-face interviews. Health Promoting Lifestyle Profile-II (HPLP II) questionnaire developed by Walker et al. was used to assess health promoting behaviors, and a self-developed IDI guideline was used to identify facilitators and inhibitors of health promoting behaviors. Data collected were entered using SPSS IBM v. 26 and

analyzed using the Man-Whitney test and Kruskal–Walli’s test, where associations were established with p value <0.05.

### **Result**

The mean total HPLP-II score among women of reproductive age (15-49) was found to be moderate (2.86±0.32). Spiritual growth (3.41±0.52) was most practiced dimension of a health-promoting lifestyle, while physical activity (1.85±0.57) was least practiced dimension. Factors such as age, marital status, Body Mass Index (BMI) and occupational status were associated with health promoting behaviors. The median health promoting behaviors were significantly higher among women belonging to the age group of 35–59. Similarly, health promoting behaviors were higher among women who were obese and lower among underweight women. Personal interest, experience of disease, family and social support networks were found to be facilitators, while lack of time, school or work duties, and family responsibilities were found to be inhibitors.

### **Conclusion**

Health promoting behaviors were found to be moderate. Physical activity was the least practiced dimension. Thus, prompt actions need to be taken to enhance physical activity among women of reproductive age.

### **Keywords**

Health-promoting behaviors, Women of Reproductive Age, Health Promoting Lifestyle Profile II (HPLP)

## **Internet Addiction and its association with mental illness among Adolescents in Dhangadhi Sub-Metropolitan City**

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### **Background**

The Internet is continuously evolving to enhance life and is gradually becoming an aspect of human progress. The availability of the internet has increased widely among school children

during the COVID pandemic. Excessive use of the Internet has become one of the leading challenges of modern society and causes both physical and mental impairment. The prevalence of internet addiction has been reported to be 1.6% to 18% in different populations. Depression and anxiety were ranked in top ten diseases living with disabilities in developed as well as developing countries; therefore, they are marked as public health importance.

### **Objective**

This study was to find the prevalence of internet addiction and mental illness among the adolescent of Dhangadhi Metropolitan City.

### **Methodology**

A cross sectional study has been conducted in Government schools of Dhangadhi sub metropolitan city. We used IAT tool for internet addiction and HADS as a tool to measure the prevalence of Depression and Anxiety.

### **Result**

In the selected public school 3.60% were nonusers. Mean age of participants was 15.2 years. Mean age of using internet was 12.4 years. More than half of the respondents (55.6%) used internet for more than 2 hours daily. While looking for mental illness 1.8% showed severe symptoms of depression whereas 2.0% showed severe anxiety symptoms. Internet addiction tool showed 16.0 % respondents used within normal limits while 3.3 showed severe addiction. Gender, having personal gadget and internet using time were the significant factor for internet addiction.

### **Conclusion**

The prevalence of internet addiction among adolescents of Dhangadhi followed the global trend. Only 16% adolescent used internet within normal limit, while 3.3% showed severe addiction t. While looking for mental illness 1.8%, 2.0% showed severe symptoms of depression and anxiety symptoms respectively.

### **Keywords**

Internet addiction Mental illness, Internet addiction tool, HADS tool

## **Behavioral Risk Factors of Non-Communicable Diseases among the Adolescents in Kathmandu Metropolitan City**

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## **Introduction**

Non-communicable diseases (NCDs) are a global concern, especially in low and middle-income countries, posing significant health and economic challenges. Adolescence is a critical period for establishing lifelong habits, necessitating the promotion of healthy behaviors to prevent NCDs. Understanding risk factors is vital for effective public health interventions to ensure long-term health outcomes in this population. This study aimed to assess behavioral risk factors for NCDs among adolescents in Kathmandu Metropolitan City, Nepal.

## **Methodology**

A cross-sectional descriptive study design was used to assess NCD risk factors among 240 adolescents (aged 15-19) using simple random sampling. The data collection was done in July 2019. Data collection was done through a semi-structured questionnaire based on the validated WHO STEPS Instrument. Pre-testing ensured validity and reliability. Data was managed using Epi-data, analyzed with SPSS using descriptive statistics and chi-square tests. Ethical approval was taken from the IRC department of Nobel College.

## **Results**

The Prevalence of current smoking of any tobacco products was (25.4%), current smokeless tobacco products (22.9%), alcohol consumption (61.3% ever, 29.3% current), inadequate vegetable consumption (25.4%), inadequate fruit consumption (45%), regular intake of high-salt processed food (37.9%), sedentary lifestyle (33.8%), overweight (12.1%). Certain behavioral risk factors were associated with specific demographic factors such as sex, age group, and mother's education level; higher tobacco use in males ( $P=0.014$ ), higher fruit consumption in (15-16) age group ( $P=0.001$ ), higher consumption with higher Mother's education level ( $P=0.028$ ), higher high-salt processed food consumption in female ( $P=0.007$ ), higher vigorous physical activity engagement in males ( $P=0.027$ ). Overweight was also found statistically significant with moderate-intensity work ( $P=0.002$ ).

## **Conclusion**

The escalating risk behaviors among Kathmandu adolescents; alcohol and tobacco use, sedentary lifestyles, high salt intake, and low fruit consumption, drive the rising prevalence of

NCDs. Urgent interventions, particularly targeting late adolescents, are essential to promote cessation and healthy lifestyles, aiming to mitigate the NCDs burden from an early age.

### **Keywords**

Non-communicable disease, risk factor, adolescents, Behavior

## **Hypertension and Associated Factors among School Teachers in Far Western Province, Nepal: A Cross-Sectional Study**

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### **Background**

Hypertension is one of the risk factors for cardiovascular diseases and the leading cause of death globally. There is little known about occupation-related hypertension in low- and middle-income countries like Nepal. Therefore, the study aims to identify the prevalence of hypertension and its associated factors among school teachers in the Far Western Part of Nepal.

### **Methodology**

A cross-sectional survey was conducted among 223 randomly selected school teachers in the Amargadhi Municipality of Dadeldhura district. Using a pretested standard questionnaire, data on demographic, behavioral, co-morbidity, and blood pressure were collected. The odds ratio (OR) with 95% CI was computed to identify hypertension-related factors.

### **Results**

The majority of the respondents were male (56.1%) and 55% were government employees. The mean age of the respondents was 35.8 years (SD:10.41). Thirty-four percent of them had a sedentary lifestyle and 38.1% were overweight. The overall prevalence of HTN was 13.9 % (95% CI: 9.64-19.14). Age more than 35 years (OR:4.96, 95% CI:1.95-14.16), being a government employee (3.31, 1.30-9.48), sedentary lifestyle (3.43, 1.48-8.07), being

overweight (5.32, 2.19-13.75), stress (3.01, 1.13-7.58), and family history of hypertension (2.70, 1.15-6.23) were associated with HTN.

### **Conclusion**

There is a high prevalence of HTN among school teachers and influenced by being overweight, advancing age, and having a sedentary lifestyle. Therefore, promoting healthy lifestyles and life modification behaviors is crucial for the prevention and control of HTN among school teachers.

### **Keywords**

Hypertension, Prevalence, Factors, School Teachers

### **Factors associated with dietary adherence among diabetes patients**

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### **Background**

Dietary management is regarded as one of the pillars of diabetes care. Several socio-demographic and clinical factors were associated with patients' diet adherence.

### **Methodology**

We conducted a community based cross-sectional study at Dhulikhel Municipality using quantitative approach to assess factors associated with diet adherence among diabetes patients. We recruited 393 DM patients (165 Male and 228 Female). Participants having value below the mean score (a score of 2.10) on 10 items dietary adherence assessment scale were categorized as adherent. The Morisky 8 item medication adherence scale that was used to develop 10 item tools for evaluation of dietary adherence in Egypt was used after translating and pretesting. Multiple logistic regression was carried out to identify factors for diet adherence among diabetes patients and variables with p-value < 0.05 were considered statistically significant.

### **Results**

Out of a total 393 participants, 280 (71.25%) adhered to their diet. Sex, family type, occupation, and doctor-patient time were significantly associated with diet adherence among diabetes patients after adjusting for socio-demographic and clinical characteristics. Adherence to diet among the joint family was 0.53 times lower compared to the nuclear

family ( $p=0.016$ ). The odds of diet adherence were 1.08 times higher among patients with each increase in 1 minute in doctor-patient time (95% CI: 1.01, 1.51;  $p=0.018$ ). Retired participants had 3.05 times higher odds of diet adherence as compared to unemployed and employed (AOR: 3.05; 95% CI: 1.18, 7.87;  $p=0.021$ ). The odds of diet adherence among female patients were 1.91 times higher as compared to males (95% CI: 1.01, 1.51;  $p=0.018$ ).

### **Conclusion**

Adherence to dietary practice was more than fifty percent; which showed that community people are aware of the diabetes disease. Healthcare providers should be proactive in encouraging DM patients to follow dietary recommendations. Different models can be incorporated to understand the real situation of the community like social behavior change, Human-centric design.

### **Keywords**

Diet adherence, Diet, Dhulikhel

## **Perceived stigma towards mental illness and its associated factors among residents of Chandragiri Municipality -12**

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### **Introduction**

Globally, mental illness prevalence is rising, accounting for 14% of DALYs lost and posing a substantial burden on global health. Nepal faces a disproportionately high burden, yet mental health remains overlooked. Stigma, fueled by misunderstandings and fear, results in human rights infringements and discriminatory practices. Despite numerous efforts, stigma remains a

concealed obstacle, hindering efforts to address mental health effectively. This research assesses the perceived stigma surrounding mental illness and its determinants within the Chandragiri Municipality of Kathmandu.

### **Methodology**

A cross-sectional study was conducted among 267 respondents using convenience sampling from February to March 2022. Data was collected using a valid and reliable structured questionnaire **Community Attitude Towards Mental Illness**. Ethical clearance was taken from Institutional Review Committee of Chitwan Medical College. Data were collected through face-to-face interviews, which were then inputted into SPSS version 20 for both descriptive and inferential analysis.

### **Results**

The overall perceived stigma was found to be 74.60% (95% CI, 69.38- 79.82). Among the total, 52.85 % had moderate and 22.1% had high level of stigma. There was no association between the stigma and socio-demographic factors. However, having a family member with a mental condition had an impact on the stigma.

### **Conclusions**

The study reveals an unacceptably high perceived stigma towards mental illness in Chandragiri Municipality, Kathmandu potentially leading to social isolation, treatment delays, and poor adherence. Addressing this requires implementing community awareness programs, targeted family interventions, integrating mental health services into primary care, promoting open dialogue, advocating policy changes, and conducting longitudinal studies

### **Keywords**

Mental Illness, Stigma, Perceived stigma, Mental health

## **Anxiety and depression among women with and without infertility problems in selected centers of Kathmandu, Nepal**

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Infertility is one of the neglected public health problems around the world. Infertility is a stressful life event and anxiety and depression are common in infertile women. It was a quantitative cross-sectional study with objective of study with the aim to determine the severity of anxiety and depression with fertility status and find its association with demographic and socio-economic and health related factors. The study was carried out in two centers which were providing infertility treatment service as well as ob/gyn OPD service. The sampling method was stratified systematic simple random method. The study included 177 women of whom 91 were without fertility problem and 86 with fertility problem. Interview schedule was used for the socio-demographic and health related variables. To assess the anxiety and depression validated Nepali version of HADS was used. Pearson's Chi-square test and binary logistic regression was used to establish the association between anxiety and depression with fertility status and other socio-demographic and health related variables. Both the groups were comparable with respect to age, socioeconomic status, occupation, education, religion, income perception, and ethnicity. No significant differences found between both groups with respect to the socio-demographic profile. Prevalence of anxiety in my study was 23.1 percent and 46.5 percent in fertile and infertile women, likewise prevalence of depression is 5.5 percent and 36 percent in fertile and infertile women respectively. Occupation, marriage duration, support from husband and relation difficulties were associated with anxiety and depression. This study revealed that anxiety and depression was more in infertile women. Anxiety was associated with occupation, duration of marriage, supports from husband and relation difficulties Depression was associated with occupation, duration of marriage, support from husband, relation difficulties and moderate activities or sports among women. The prevalence of the problem recommends there should not be too late to address the mental health issues.

**Keywords**

Infertility, Anxiety, Depression, Nepal

## OTHERS

### ORAL PRESENTATION

#### **Enhancing the Quality of Adverse Drug Reaction Reports in Nepal**

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#### **Introduction**

Quality of adverse drug events (ADE) reports are necessary to protect public health and prevent, detect, and assess adverse reactions to medicinal products on the market. ADE reports contain important technical data on drug safety and are a prerequisite for signal generation and to inform the pharmaceutical industries to revise the pamphlet or withdraw the product from the market. The report is fundamental to the risk management of marketed drugs. High-quality ADR reports are the basis of drug safety monitoring and effective data utilization in pharmacovigilance.

#### **Objective**

Identify potential factors contributing to low-quality reports to evaluate the characteristics and quality of ADE reports.

#### **Methods**

The ADR reports received by the National PV Center for three consecutive years January 2020- November 2022 as the pre-training phase and from January-April 2023 as the post-training phase. The capacity building plan was developed and implemented in December 2022. The reports were scored using a pre-validated AQUA-12 tool. The data were subjected to Fisher's exact and chi-square tests in R version 4.1.2.

#### **Results**

The reports rated as high-quality reports were 47% (n=41) (pre-phase 30% (17) and post-phase 83% (24)) (p-value= 0.0000). Reporting quality was better after the three days of

training to the regional PV center contact persons specifically pharmacists. Reports of different severity and outcomes showed significant differences in the quality of reports specifically on the completeness of the reports. The study also suggested the females are at higher risk for experiencing ADRs.

### **Conclusion**

This study identified the areas that can be strengthened which helped in the development of a capacity-building plan by the National Pharmacovigilance Center. The intervention appeared to have a significant influence on the quality of reports.

### **Keywords**

adverse drug events, ADE reports, pharmacovigilance, quality assessment, capacity- building training, and gender differences.

## POSTER PRESENTATION

### Screening of aflatoxin producing *Aspergillus flavus* from food samples of Nepal

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#### Background

Fungal toxins, such as aflatoxin produced by the toxigenic fungus *Aspergillus flavus*, contaminate food commodities, primarily cereals, grains, and nuts during storage and postharvest conditions, and are responsible for life-threatening diseases such as liver cancer. This study aimed to screen the aflatoxin producing *Aspergillus flavus* from stored peanut and maize samples.

#### Methodology

Total of 50 samples (40 maizes and 10 peanuts samples) were collected from different places of Nepal. All the samples were disinfected and put aseptically on Potato Dextrose Agar (PDA) and incubated at 28 °C for 48 h. Isolated fungi were purified either by hyphal tip or single spore methods, and identified by standard phenotypic characterization. Phenotypic characteristics of isolate were confirmed by observing colony morphology after staining with Lactophenol Cotton Blue. Screening of aflatoxin producing *A. flavus* was performed using selective medium *Aspergillus* Differential Medium (ADM) and qualitative confirmation of aflatoxin production was done by thin layer chromatography.

#### Results

Altogether 50 isolates resembling to *Aspergillus flavus*, *Mucor*, *Rhizopus* and Yeast were isolated on PDA. Out of 50 fungal isolates, 40 isolates showed yellowish-green, or dark green colonies surrounded by a white circle that was eventually covered by conidia. Fifteen isolates (30%) were aflatoxin producing *A. flavus* that produced yellow colonies on ADM after incubation at 28°C for 48 hours. Extracted aflatoxins flourished as blue color at 365nm on TLC plates.

#### Conclusion

This study showed the isolation of aflatoxigenic *A. flavus* from stored maize and pea-nut samples, highlighting the potential risk of health hazards in the future and the need to seek sustainable remedies.

### **Keywords**

Aflatoxin; *Aspergillus flavus*, cereals

## **Occupational Health Hazards and its consequences among Computer Users working in Kathmandu Valley**

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### **Background**

Computers have become an epitome of modern life, being used in every aspects of life. Yet, its repeated use has led to many occupational health problems such as Visual problems, musculoskeletal problems, work-related stress, and many more. Also, poorly designed computer workstations and lack of awareness among computer users regarding ergonomic requirements trigger computer-related health problems. Therefore, this study assesses the prevalence of occupational health hazards and its consequences among computer users working in Kathmandu Valley.

### **Methods**

A Cross-sectional study design, followed by a purposive sampling technique was used to collect data from 422 sample-size computer users working in Kathmandu Valley using semi-structured questionnaire. Data was analyzed by using SPSS version 16 then chi-square test along with multivariate logistics regression was done to identify associated factors. The p-value < 0.05 was considered as significant.

### **Results**

The most common occupational health hazards reported by the respondents were: musculoskeletal problems (66.1%), Visual problems (48.8%), and work-related stress (45.7%). The complaint such as pain in the lower back (59.9%), neck (58.1%), and shoulder (45.9%) were the most common musculoskeletal symptoms reported. Similarly, dry eyes

(53.9%), followed by headache (49.5%) and blurred vision (48.1%) were most common reported visual problems.

### **Conclusion**

From the findings it can be concluded that visual problems were substantially contributed due to having higher screen time, long working hours and not using preventive measures. Musculoskeletal problems were mainly due to not following the principles of ergonomics followed by long working hours and days. Similarly, stress was found among the participants who were not satisfied by the provision of salary along with their manager and colleagues.

### **Keywords**

Computer-related health problems, Occupational health hazards, Information technology professionals, Computer users

### **A single-center, open-label pilot study to evaluate the safety and efficacy of CC-11050 (Dovramilast) in Nepalese patients with erythema nodosum leprosum (step 2)**

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### **Background**

Reactional states are immunological complication events that commonly occur in leprosy. The type II reactional state, or erythema nodosum leprosum (ENL) is associated with patients with high bacterial load. Prednisolone and thalidomide are the WHO-recommended drugs available for ENL treatment. Both drugs have serious side effects which limits their long-term uses. A new safe and effective drug for ENL management is required. So, the major objective of this study is to determine the safety and efficacy of Dovramilast in patients with moderate to severe ENL.

## **Methodology**

The study is divided into two steps: Step 1 with 10 male participants and Step 2 with 40 participants, both male and female. We already completed Step 1. Now Step 2 will determine if 12 weeks of Dovramilast treatment is safe and effective for alleviation of ENL 40 participants. Participants will be evaluated on day 10, 28 and monthly during treatment, and monthly for 1 year after any discontinuation of drug. If participants develop a recurrent ENL episode within the year of follow-up and agree to receive another round of treatment they can receive an additional 12-week treatment. The maximum treatment in Step 2 will be 4 rounds of 12-week treatments (48 weeks).

## **Result**

We found that Dovramilast is safe and effective in the treatment of 10 participants diagnosed with new or recurrent ENL in Step 1. There were minimal side effects and no serious adverse events reported. In Step 2, we will evaluate the safety and efficacy of Dovramilast for longer treatment duration, potential impact on neuropathy, potential recurrent episodes, pharmacokinetics, and evaluation of molecular and immunological markers in blood and tissue.

## **Conclusion**

The results from this study will provide more evidence for the larger multicenter randomized controlled trial which could have significant impact for ENL management in Nepal and internationally.

## **Keywords**

Clinical trial, Dovramilast, ENL, Leprosy

## **Prevalence and Associated Factors of Respiratory Symptoms and Illnesses among Brick Kiln Workers in Sarlahi District, Nepal**

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## **Background**

The Brick kiln industry in developing nations amplifies respiratory health concerns due to the chemicals and dust it generates. This study was designed to measure and assess the

prevalence and associated factors of respiratory symptoms and illnesses among brick kiln workers in Nepal.

### **Methods**

This cross-sectional survey used an American Thoracic Society Division of Lung Diseases (ATS-DLD) questionnaire to measure the respiratory symptoms and illnesses of 390 brick kiln workers. Logistic regression analyses were performed to evaluate the association between respiratory symptoms and illnesses (chronic cough, chronic phlegm, wheezing, chronic bronchitis, and asthma) with similar exposure groups (green brick molding (GBM), green brick stacking/carrying (GBS/C), red brick loading/carrying (RBL/C), coal preparation (CP) and firemen (FM) were similar exposure groups), age, duration of work, and smoking among brick kiln workers. Statistical significance was set at  $p < 0.05$ . Statistical analyses were performed using IBM SPSS Statistics 25.

### **Results**

The main respiratory symptoms and illnesses were chronic cough (12.3%), chronic phlegm (10.8%), wheezing (9.2%), chronic bronchitis (10.8%), and asthma (3.6%). Notably, similar exposure groups such as coalmen were more likely to have chronic coughs (OR = 3.89, 95%CI 1.81 – 8.34,  $P < 0.001$ ), chronic phlegm (OR = 2.89, 95%CI 1.26 -6.61,  $P < 0.05$ ), chronic bronchitis (OR = 2.41, 95%1.02 – 5.65,  $P < 0.05$ ) and Asthma (OR = 3.89, 95%CI 1.16 – 13.07,  $P < 0.05$ ). Similarly, firemen had wheezing (OR:2.68, 95%CI 1.13-6.36,  $P < 0.05$ ) and chronic bronchitis (OR: 2.60, 95%CI1.15- 5.91,  $P < 0.05$ ). Likewise, red brick carriers had chronic phlegm (OR: 2.78, 95%CI 1.41 – 5.49,  $P < 0.01$ ) compared to green brick carriers.

### **Conclusion**

Brick kiln workers, especially coalmen, firemen, and red brick loaders had a high prevalence of respiratory symptoms and illnesses. Technology transfer, natural gas substitution, and personal protective equipment are necessary to protect workers.

### **Keywords**

Brick kiln workers, respiratory symptoms, Nepal.

### **Validity of Friedewald's and Martin-Hopkins equations in the measurement of Low-Density Lipoprotein [LDL] compared to Direct LDL measurement in patients' serum samples**

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## **Background**

Coronary Heart Disease (CHD) is one of the leading causes of mortality worldwide. High Low-density lipoprotein cholesterol (LDL-c), Dyslipidemia in serum is associated with the increased incidence of CHD. Adult Treatment Panel III emphasizes LDL-C reduction as the primary target of therapy. Hence, the accurate estimation of LDL-C is critical to fit the patients according to treatment modalities recommended by the National Cholesterol Education Program (NCEP). This study aims to evaluate the validity of Friedewald's and Martin-Hopkins Equations compared to direct measurement of LDL cholesterol for the reliable estimation of LDL-c.

## **Methods**

This study was carried out in the Biochemistry laboratory, at Tribhuvan University Teaching Hospital (TUTH). 1,100 patients' serum samples were included in the study whose Lipid profile tests were performed. Calculated LDL-c was estimated by Friedewald's and Martin-Hopkins formulae. The data were analyzed in SPSS version 25 (IBM) and Microsoft Excel.

## **Results**

Compared to Direct assay, Friedewald's and Martin-Hopkins's Equations have significant difference in their estimated values ( $p < 0.001$ ). LDL-c were underestimated and overestimated by Friedewald's and Martin-Hopkins's Equations respectively. Highly positive correlation but disagreement was seen for the direct measurement against Friedewald's and Martin-Hopkins Equations which showed that the calculated methods cannot be used in lieu of Direct estimation method. Furthermore, Friedewald's equation gives a higher percentage of error compared to Martin-Hopkins, especially at different TG levels.

## **Conclusion**

Our finding suggests that Martin-Hopkins's Equation gives consistent result and better precision than Friedewald's equation for LDL-c estimation.

## **Keywords**

Friedewald's equation, Martin-Hopkins's Equation, Direct-LDL assay

## **Implementation experiences of competency-based master's level curriculum of public health in Nepal: Perception of graduates and their employers**

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## **Introduction**

Patan Academy of Health Sciences (PAHS) is one of the first institutions of Nepal to deliver public health education through the competency-based curriculum in an integrated modular framework. There is limited evidence on the usefulness of various pedagogical methods for public health graduates who have entered the workforce. With this background, the current study was envisioned to explore the perceptions of public health graduates and their employers regarding relevance and usefulness of curriculum of public health at PAHS.

## **Methods**

A cross sectional, qualitative study was conducted among 18 public health graduates of PAHS and eight employers through in-depth interviews. The interview guides were strategically designed based on PAHS core competencies for MPH graduates and captured information on public health professionalism, workplace traits and interpersonal behavior. Transcription of the interviews was done and were translated in English. Thematic analysis was done. Ethical approval was rake from Institutional Review Committee (IRC) of PAHS.

## **Results**

MPH graduates are found working across academia, health management, national health systems, research, and international agencies. Initially, they found the diverse topics and syllabus structure confusing at PAHS. However, as the program progressed, they appreciated the organized sequence of learning, covering Public Health Worldview, Determinants of Health, Community Assessment, Planning, Management, Monitoring and Evaluation, Policy, and Financing modules. The Learning with different approaches as case-based discussion, fostered by self-directed learning, problem-solving, and adaptability. The managers consistently praised PAHS graduates for their professionalism, creativity, diligence, and ability to meet tight deadlines, considering them indispensable team members. The graduates were also esteemed as a valuable asset to the government-level as Ministry, excelling in behavior, work, and skills.

## **Conclusion**

The graduates were quite satisfied with their experiences and emphasized the relevance of theoretical and practical knowledge acquired at PAHS. Similarly, the employers also

expressed satisfaction with the graduates from PAHS, especially the positive work experiences.

### **Keywords**

MPH graduates, Competency-based curriculum, modular framework, pedagogical methods, PAHS

## **Over-the-counter Sales of Antimicrobials (Group B Drugs) and Factors Associated with it among Private Pharmacies of Madhyapur Thimi Municipality, Bhaktapur, Nepal: A Mixed Method Study**

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### **Background**

Globally, antimicrobial resistance is responsible for an estimated 700,000 deaths per year, which could increase to as much as 10 million by 2050 if not addressed. Private pharmacies in Nepal provide easy access to medicines but irrational dispensing of antimicrobials from these outlets contributes to antimicrobial resistance. This mixed-method study aims to assess the practice of over-the-counter sales of antimicrobials by private pharmacies and the factors associated with it from the perspective of both the private pharmacy and the community people.

### **Method**

It is a cross-sectional study with concurrent triangulation mixed method design. A two-stage random sampling method was used to collect data from 42 pharmacies and 336 exit interviews. A structured questionnaire was used for quantitative data collection while interview guides were used for qualitative. A total of 23 qualitative interviews were taken (18IDIs and 5KIIs) through purposive sampling. Descriptive statistics and multi-level regression were used for quantitative data analysis. Braun and Clarke's six steps of thematic analysis were followed for qualitative data analysis.

### **Findings**

The practice of over-the-counter sales of antimicrobials was 55.06%. The factors associated with over-the-counter sales were, the occupation of the clients ( $p=0.048$ ), the presence of a

doctor in the pharmacy ( $p < 0.001$ ), the reason for pharmacy visits ( $p = 0.003$ ), and education of the pharmacy staff ( $p = 0.007$ ). Five themes were identified through qualitative analysis i.e., understanding of antimicrobials, interaction with private pharmacies, reasons for over-the-counter sales of antimicrobials, consequences of over-the-counter sales, and suggestions for improvement. Some of the identified reasons were: high opportunity costs, socio-economic status of clients, profit motive of pharmacies, and poor regulation on over-the-counter sales.

### **Conclusion**

This study revealed a concerning prevalence of over-the-counter sales of antimicrobials through private pharmacies. The reasons for over-the-counter sales extend across individual factors, pharmacy practices, and government policies. The participants highlighted a need for a combined effort to address this issue.

### **Keywords**

antimicrobial, Nepal, over-the-counter, pharmacies

## **Knowledge and practices regarding prevention of occupational health hazards among poultry-farm workers in a Metropolitan city**

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### **Background**

Occupational health covers the physical, mental, and social well-being of workers in every occupation. One of them is a poultry worker. Those are exposed to different types of hazards like biological, chemical, physical, and ergonomic. So the objective of this was to identify knowledge and practices regarding the prevention of occupational health hazards among poultry farm workers.

### **Methodology**

A cross-sectional descriptive study was conducted among 165 poultry farm workers by using multistage random sampling technique. Sample size was calculated using the Cochran formula. Workers age above 18 years and continue working more than 3 months in this field. Pre-tested, validated structured interview schedule was used to collection data. Data was

collected by researcher herself using by in-person interview technique. Descriptive and inferential statistics were used for data analysis.

### **Results**

Majority of the respondents 69.7% were male and 66.7% belonged to the age group of 18 to 39 years with a mean age of 35.6 years. Among them, 59.4% had satisfactory knowledge of prevention of occupational health hazards while 34.5% of respondents had satisfactory practice on preventive measures. The most common personal protective measures used by respondents were masks, gloves, and boots. In statistical test association shows that knowledge and experience ( $p=.000$ ), workers status ( $p=.000$ ), and training ( $p=.002$ ). Similarly, there was a significant association between practices with work experience ( $p=.011$ ) and training ( $p=.029$ ). Overall knowledge level was found relatively better than the level of practice and a positive correlation between knowledge and practice.

### **Conclusion**

Most of poultry workers have a satisfactory level of knowledge, and despite knowing the prevention of occupational health hazards, the majority of them don't follow preventive practices. A significant association was found in between knowledge and practices with education, work experience, and training.

### **Keywords**

Keywords Occupational health hazards, prevention of occupational health hazards, personal protective measures

## **Quality of Life among Postmenopausal Women Residing in Biratnagar Metropolitan City Morang, Nepal**

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### **Background**

Menopause is the permanent end of menstruation. Post menopause is the time after menopause. During the menopausal period, women can experience various symptoms affecting their quality of life. This study assesses the quality of life among postmenopausal women residing in Biratnagar Metropolitan city, Morang.

## **Methodology**

Descriptive community based cross-sectional design as it collected and analyzed data at a single point in time. By multistage sampling, n = 303 women aged between 45 and 60 years were recruited and the prevalence of menopausal symptoms and its relationship with vasomotor, psychosocial, physical and sexual domain related QOL (Quality of Life) was assessed using Structured questionnaire of the Menopausal Quality of Life Questionnaire (MENQOL). Descriptive as well as inferential statistics were applied for the data analysis.

## **Result**

The mean MENQOL score in menopausal was  $2.66 \pm 0.85$  and sexual symptoms ( $3.69 \pm 2.29$ ) had the highest mean score and psychosocial symptoms ( $2.03 \pm 0.93$ ) had the lowest mean score rather than other dimensions. There was a significant association between the total menopausal quality of life score and age, ethnicity, duration of menopause, comorbidities and seeking health services ( $p < 0.05$ ). Women who had menopausal stage less than or equal to five years stage had significantly lower MENQOL scores from those who had menopausal stage more than 5 years (Mean=  $2.90 \pm 0.91$ ,  $p = 0.000$ ). The MENQOL scores of postmenopausal women who had having co-morbidities (Mean= $2.83 \pm 0.90$ ,  $p = 0.002$ ) increasing levels of bother experienced from the symptom. Women who had seeking health services related to menopausal problems had significantly increasing level of symptoms (Mean= $2.74 \pm 0.82$ ,  $p = 0.014$ ).

## **Conclusion**

Based on the results, sexual symptoms were the most dominant symptom. Therefore, it is necessary to integrated national health services that addresses both sexual and other health conditions. Education and awareness regarding seeking health services, importance of sexual health among post menopause woman and encouraged to discuss concerns openly.

## **Keywords**

Postmenopausal Woman, Menopausal symptoms and Menopause specific quality of life

## **Exploring the nature of health news in Nepali media: a retrospective secondary analysis from four national newspapers**

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## **Background**

Health journalism is a distinct beat for its role in covering a variety of topics ranging from illness and disease to medical interventions. The coverage of a wider range of health issues helps society in two aspects, first to educate people about health issues and second to inform policy makers on health systems gaps and areas of intervention. In Nepal, mass media are rapidly increasing. Our study explores the health issues covered by selected Nepali newspapers, the nature of sources of health news and representations of marginalized communities in the newspapers.

## **Method**

The study employed retrospective qualitative research design for content analysis of 120 news articles published in selected four national newspapers of Nepal: Kantipur Daily, The Himalayan Times and Naya Patrika from January to December 2023. The newspapers were selected based on circulation and language diversity through expert consultations. The selection criteria of news were the byline stories. The research team extracted information and performed inductive analysis of news. The analysis elements included overarching theme of health-related news articles, the various sources cited within each news story, and any explicit mentions of marginalized and vulnerable populations.

## **Findings**

The findings indicate that the majority of news highlighted the existing gaps of health systems focusing health workforce and essential medicines. Health communication was the second most common theme covered by the news articles addressing prevalent health issues ranging from NCD prevention, tobacco cessation to measles outbreak and prevalence of dengue. Issues of poor people were explicitly mentioned advocating existing health insurance and social security schemes. Most of the news articles referred officials as news source.

## **Conclusion**

The news articles published in four national newspapers covered broader dimensions of health. The reference source of information was mentioned in most of the news. Capacity building trainings to news journalists can further enhance the role of media to translate existing health evidence to inform policy and people.

## **Keywords**

Health news article, media monitoring, news sources, newspaper

## **Drug related problems among childhood cancer patients admitted in pediatric haemato-oncology department**

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### **Background**

Pediatric patients undergoing chemotherapy are subjected to numerous medications. As a result drug-related problems (DRPs) such as adverse drug reactions, drug interactions and several medication errors could take place.

### **Objective**

To study the occurrence of DRPs and their causes in pediatric cancer patients  
Methods  
A prospective observational study was conducted in the Pediatric Haemato-oncology department of Nepal Cancer Hospital and Research Center, Lalitpur, Nepal for 3 months after acquiring ethical approval. DRPs were identified with the help of patient's medical records and through standard literature and were recorded as per Pharmaceutical Care Network Europe V9.1 tool. Data was collected and analyzed through Statistical Package for Social Sciences V 20 and MS Excel©. Descriptive statistics was used to represent the data.

### **Result**

Among the 30 patients enrolled, a total of 211 DRPs were identified in 28 patients.

Treatment safety (n=131; 62.09%) was the major type of DRP identified followed by treatment ineffectiveness (n=79; 37.44%) while drug selection (n=116; 51.76%) and dispensing (n=51; 22.77%) were the major primary domains of causes responsible for the problems. Within causes identified, inappropriate combination of drugs and prescribed drug not being available were the major subdomains responsible for the problems. Anti-infectives drugs (n=41; 35%) were majorly associated with DRPs followed by antineoplastic agents (n=24; 20.5%).

### **Conclusion**

DRPs were identified within the pediatric cancer patients. Treatment safety was the major problem observed while selection of drug was the significant cause. Antiinfectives drugs for systemic use were mainly involved in DRPs followed by antineoplastic and immunomodulating agents.

### **Keywords**

Cancer, Drug-related Problems, Pharmaceutical Care Network Europe, Pediatrics, Pharmacist

### **Effectiveness of the online multi-component lifestyle program on reducing blood pressure among the school employees of Kavre District, Nepal**

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### **Background**

Prehypertension, defined as a systolic blood pressure of 120-139 mmHg or diastolic blood pressure of 80-89 mmHg, is a precursor to hypertension, and is associated with excess morbidity and deaths from cardiovascular diseases. Hence, reduction of blood pressure to optimal levels is a major public health priority

### **Objectives**

To measure the effectiveness of the online multi-component lifestyle program on reducing blood pressure among the school employees of Kabhre district, Nepal

### **Methods**

A simple randomized controlled trial designed to establish the effectiveness of online multicomponent lifestyle among the school employees of Dhulikhel, Banepa and Panauti municipalities of Kavrepalanchok district. Participants was randomized together to either intervention or usual care group. This trial is registered with ClinicalTrials.gov Identifier: NCT04899648

### **Results**

At baseline, 264 participants remained in the intervention group (102 were normotensive, 114 were prehypertensive, and 48 were hypertensive) and 260 remained in the control group (102 were normotensive, 110 were prehypertensive, and 48 were hypertensive). Among prehypertensive participants, the mean systolic blood pressure was 3.45 mmHg lower in the intervention group compared to the control group and the mean diastolic blood pressure was 2.93 mm Hg lower in the intervention group compared to the control group after adjusting baseline systolic blood pressure (CI: -6.376, -0.539, p-value 0.02) (CI: -4.885, -0.977, p-value 0.003)

In pre-hypertensive participants, the mean systolic blood pressure and diastolic blood pressure among intervention and control groups was difference by -3.24 mm Hg (95% CI -0.03,6.45) p-value 0.048- and -2.6mm Hg (95% CI -0.55, 4.64) p-value 0.013 respectively.

### **Discussion**

Our study found a significant improvement of hypertension management in pre-hypertensive population of the intervention group compared to the control group. Regular, professional and, at times, customized, counselling delivered by our nutritionist and physiotherapist might have empowered and encouraged the study participants to adopt a healthier lifestyle

### **Conclusion**

An online multi-component lifestyle intervention could be an effective measure for the reduction of blood pressure among prehypertensive individuals in limited resource settings.

### **Keywords**

Hypertension, Prehypertension, Intervention, Multicomponent

### **Occupational safety and health status among welders of Bhaktapur District of Nepal**

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## **Introduction**

The International Labor Organization highlights staggering global figures of 300 million occupational accidents, 160 million occupational diseases yearly, and 2.3 million annual worker deaths due to hazards. In Nepal, occupational health and safety awareness is nascent, even in established industries. Welding, crucial for economic growth in Bhaktapur District, Nepal, poses significant hazards. Despite its importance, research on welders' occupational safety and health is sparse. This study aims to investigate the occupational safety and health status of welders in Bhaktapur District, Nepal, focusing on their work environment and related health challenges.

## **Methodology**

We conducted explorative qualitative study with the aim to identify the situation of Occupational safety and health among the welders from Suryabinayak Municipality, Bhaktapur, Nepal. The IDI was conducted with 26 welders from Bhaktapur in April and May, 2023 using semi-structured interview guideline.

## **Results**

We found that commonly used PPE included glasses and gloves, but availability, affordability, and discomfort were notable challenges. Safety belt usage varied. Health concerns reported were welding-related eye/skin issues, electric shocks, exhaustion, and occasional injuries. Risk reduction measures emphasized PPE, caution, and Tetanus vaccination, but managing health costs was a challenge. Worker associations were criticized for ineffective support. Mixed perspectives on PPE benefits existed. Challenges in the welding profession included decreased work, health risks, lack of safety equipment, poor regulations, financial difficulties, and inadequate social security. Participants stressed the importance of well-ventilated workspaces, cleanliness, amenities, and safety measures.

## **Conclusion**

Similar to common issues identified in previous studies, the study also sheds light on the unique challenges and experiences specific to the grill factory workers in Nepal. To address these challenges, it is crucial to improve the provision of PPE, enhance insurance coverage, promote formal training programs, and implement comprehensive measures that prioritize the safety and well-being of workers in the grill factory sector.

## **Keywords**

Occupational safety and health, PPE, Welders, Bhaktapur

## **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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## **Background**

Adolescence is a unique stage of human development and an important time 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-methods study was conducted from April to May, 2023 in the selected ten government schools of three municipalities of the Sarlahi district namely, Hariwan, Bagmati, and Barathawa. The schools were divided into intervention and control schools conveniently (non-randomized). Convenient sampling was employed to select 914 students from grades 7, 8, and 9 from the selected schools.

## **Results**

The overall mean age of the adolescents was about 14 years. Of total, 55.8% were female and most of them were unmarried. Regarding age-specific BMI, around 10% of the females were underweight whereas it was around 39% among males. Around 38% of the adolescents reported they consumed unhealthy packaged foods from local shops in their tiffin hours. Overall, more than 80% of the respondents knew about nutrition and 53% of respondents knew about anemia. Around 57% of female respondents were consuming Iron Folic Acid (IFA) tablets as per the schedule and nearly 69% of respondents had consumed medicine for worm infestation in the past 6 months.

## **Conclusion**

The findings from this study showed that the majority of the adolescents knew about nutrition. The stratified results for major outcomes such as nutritional status, dietary diversity, knowledge of health and nutrition, deworming, and IFA distribution highlight gender and municipality-based differences which call for tailored interventions specific to gender, municipality, and school.

## **Keywords**

Adolescents, Nutrition, Dietary Diversity, IFA, Worm Infestation

## **Caregivers' burden while caring people with palliative care needs in rural Nepal: A cross-sectional mixed method study**

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## **Background**

Caregivers experience multifaceted burdens while caring, particularly in rural communities of Nepal due to limited healthcare access and low health literacy. Understanding their burden in delivering care is essential to develop appropriate palliative care services in rural communities. No previous studies have specifically explored caregiver burden in caring for people with palliative care needs (PWPCN) in rural Nepal. So our aim is to explore caregiver burden and support received whilst providing care to PWPCN in rural Nepal.

## **Methodology**

A mixed method, cross-sectional study was undertaken in Lamjung and Rukum-West districts. Data were collected using a pre-tested questionnaire. PWPCN were identified through house-to-house survey (n=587). Caregivers completed the quantitative survey. In-depth interviews explored the experiences of purposively selected caregivers. Descriptive statistical (quantitative) and thematic analysis (qualitative) were undertaken.

## **Results**

58 PWPCN identified. 52(90%) had caregivers at home who completed the questionnaire. 15 caregiver interviews were undertaken. The median caregiver age was 51.5 years (range 21-81), with 42/52(81%) being female and 23/52(40%) daughters-in-law. 43/52(83%) reported experiencing caring burden; 38/52(73%) reported emotional exhaustion. Worry about the patient's health and their well-being was common; many carers were older, needed care

themselves. 35/52(67%) found caring tasks demanding, often juggling patient care and housework. 31/52(60%) reported physical exhaustion and 35/52(67%) disrupted social life due to constant caregiving needs leading to tiredness and weakness. Financial difficulties due to limited income were additional burdens. 43/52(83%), 33/52(61%) and 24/52(46%) caregivers reported receiving support from family, neighbors, and friends, respectively. Practical assistance was the most common support, whilst financial support came primarily from family. 15/52(29%) received help from community groups, mainly in the form of loans.

### **Conclusion**

Caregiving responsibility was mostly born by women, particularly daughters-in-law. Most experienced burden in caring despite receiving some support from family and neighbors. Targeted interventions are being designed to ease the burden and enhance support systems.

### **Keywords**

Burden, Caregiver, Nepal, Palliative care, Rural ethnic community

## **Work Stress and Health-Seeking Behaviour of Public bus staff in Kathmandu valley.**

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### **Background**

Kathmandu, the Capital of Nepal, has many complexes like traffic congestion, road traffic crashes, poor public transport system, and air pollution. And within this environment, the bus staff of public buses have to work which influences their health. It is necessary to identify factors affecting their health and well-being to ensure the safety of bus staff and passengers. Thus the objective of this study is to assess the work stress and health-seeking behavior of public bus staff in Kathmandu Valley with its associated factors.

### **Methodology**

A descriptive cross-sectional study was conducted among 236 bus staff of the public bus of Kathmandu Valley. Multi-stage sampling was used for the data collection. Both qualitative and quantitative approaches were taken in this study. The data collection was done from Ashoj's 4<sup>th</sup> week to Magh's 2<sup>nd</sup> week, 2080.

### **Results**

The prevalence of work stress in the study population was 51.3 % and more than half (53.8%) of the study population had gone to visit health facilities in the last 12 months' period. Occupation and income were found to be significantly associated with work stress. And, crowdedness in the bus was also found to be a significant factor for stress with  $p=0.003$ . Bus

staff income level and working duration were significantly associated with positive health-seeking behaviour. Bus staff who were insured were 1.37 (95% C.I 1.103-3.408) times more likely to have positive health-seeking behaviour including other explanatory variables in the model behaviour.

### **Conclusion**

The study shows that stress is prevalent at work for the bus staff due to various occupational-related factors and many of them are not conscious regarding health. Health promotion programs need to be conducted by the bus company to ensure the health and well-being of their staff.

**Keywords:** Job stress, Health seeking behaviour, Public bus

### **Drivers of anti-microbial resistance within the communities of Nepal from one health perspective: a scoping review**

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### **Background**

A major driver of antimicrobial resistance (AMR) is the inappropriate use of antimicrobials. At community level, people are often engaged in behaviors which drive AMR with human, animal and environmental (One Health) impacts. This scoping review consolidates research to determine a) community's knowledge attitudes and practices around AMR b) existing community-based interventions c) barriers and enablers to addressing AMR in Nepal.

### **Method**

This scoping review follows the Joanna Briggs institute scoping review methodology. Literature indexed in PubMed, SCOPUS, CINAHL, Global Index Medicus, HINARI-

SUMMON, EMBASE (Ovid), Global Health (Ovid), CAB Abstracts (Ovid), Web of Science and Google Scholar between January 2000 and January 2023 were reviewed for inclusion. Articles were included in the review if they considered the issues of AMR at the community level in Nepal, this excluded clinical and lab-based studies. 47 articles meeting these criteria, were extracted, and analyzed to consolidate the key themes.

### **Result**

31 (66%) articles exclusively included human health, five (11%) concentrated only in animal health, no studies solely focused on environmental aspects of AMR and remaining studies jointly presented human, animal and environment. Findings revealed inadequate knowledge accompanied by inappropriate practice in both human and animal health sectors. Four community interventions improved knowledge and practices on appropriate use of antimicrobials among community members. However, various social and economic factors were found as barriers for appropriate use of antimicrobials in the community.

### **Conclusion**

Community engagement and one health approaches could be a key tool to improve awareness of AMR and promote behavioral change related to AM use in communities as current studies have revealed inadequate knowledge alongside inappropriate practices shared in both human and animal health sectors.

### **Keywords**

Keywords: Antimicrobial resistance (AMR), Community, Nepal, One Health

### **Newly established Nepal's Poison Information Center: its current status and challenges**

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## **Background**

Poison Information Center (PIC) is a specialized unit providing information on prevention, early diagnosis, and treatment of poisoning. The current study aims to describe the epidemiology of poisoning case queries received in the newly established PIC of Nepal and to identify the challenges that could provide the basis for moving forward.

## **Methodology**

We prospectively reviewed the cases of poisoning-related queries received to the poison information center, Tribhuvan University Teaching Hospital since its inception between September 2023 to Feb 2024. We reported the sociodemographic profile, type of poisoning and individual compounds responsible for poisoning.

## **Results**

Of the 93 cases received, most patients were female (n=60%). The center has received more calls from the central part of the country (Bagmati province; n=70%) where the poison center is situated. There are a smaller number of calls from Madhesh province (n=2%) and Sudurpaschim (n=2%). More than half poisoning cases from the received calls were intentional (n=65.5%, 61/93). The most common poisoning case received was due to pesticides (n=45/93, 48.3%) followed by analgesic and antipyretics (n=10/93, 10.7%). The most frequently ingested pesticide was organophosphorus compounds (n=14/45, 31.1%) and rodenticide (n=15/45, 33.3%). Among therodenticides, the most common individual compound involved in poisoning was zinc phosphide (n=8/15, 53.3 %). Acetaminophen poisoning was the most commonly ingested drug. Of the five mortalities, the most common was with aluminum phosphide (n=3/5, 60 %) followed by one with paraquat and mult-drug ingestions respectively. Our study identified several challenges faced by the PIC which include limited resources and inadequate awareness on PIC services to healthcare professionals.

## **Conclusion**

The present data from the Nepal Poison Information Center directory reflects a pattern of poisoning in the country. Despite the challenges faced by the center, our study also highlights the resilience and dedication of PIC staff in overcoming these obstacles to continue providing essential services to healthcare professionals.

## **Keywords**

Poison Information Center, Poisoning, Nepal

## **Serum creatinine level and estimated glomerular filtration rate (egfr) in lung cancer patients before and after chemotherapy: carboplatin combined regimen in truth.**

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## **Background**

Lung cancer is increasing globally and lung cancer-related deaths too. It has been estimated that in 2025 more than 20 million new cases of cancer will occur in the world. Cis-diamine (1,1-cyclobutane dicarboxylate) platinum, also known as Carboplatin is an alkylating antineoplastic agent often used in combination with thoracic or gynaecological cancers. Recent studies have shown that carboplatin does not cause nephrotoxicity in lung cancer patients.

## **Objective**

This study aimed to verify whether carboplatin is truly a non-nephrotoxic drug in lung cancer patients. The study correlated different variables with serum creatinine and estimated the Glomerular Filtration Rate (eGFR) of lung cancer patients under carboplatin-combined chemotherapy.

## **Methods**

The study type was prospective, observational, cohort type study. Altogether 40 study participants were enrolled which comprised 27 male and 13 female lung cancer patients. The blood samples were collected in a silica gel-containing tube. The serum creatinine was then measured in an Abbott Architect automated machine, which uses the principle of the Jaff alkaline picrate method. Age, weight and gender were considered for the measurement of eGFR according to the Cockcroft-Gault (CG) formula.

## **Results**

There is no significant change in eGFR before and after carboplatin combined chemotherapy in lung cancer patients. We also found that the CG formula is correlated with the age and

weight of patients. eGFR is positively correlated with the age of patients with a p-value of 0.012 and negatively correlated with the weight of patients with a p-value of 0.001.

### **Conclusion**

Carboplatin showed no significant nephrotoxicity in lung cancer patients. Carboplatin dosing value at Trivuwun University Teaching Hospital (TUTH) is safe for the kidney. So, it is safe to use in elderly lung cancer patients with close observation while administration.

### **Keywords**

lung cancer, creatinine, glomerular filtration rate, carboplatin, nephrotoxicity

## **Exploring the use of assistive devices among persons with disabilities in Lalitpur Metropolitan City and Manahari Rural Municipality of Nepal**

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### **Introduction**

Every individual has the right to live life with dignity and achieve their full potential, but the majority of places across the world have yet to incorporate the needs of People with Disabilities (Persons with Disabilities) and Nepal is no exception to this fact. Accessibility and Economic empowerment are crucial for independent living, which demands for disable friendly infrastructure. Even though The Accessible Physical Structure and Communication Services directive was developed in 2012, however, the recently established structures, such as roads, public buildings, and governmental websites, do not strictly follow the directive. As limited studies have been focused on these issues this study will explore the current scenario in the disability sectors covering two different (urban and rural) areas of Nepal and support in local policy making and planning of activities appropriate for Person with Disabilities to live an independent life.

### **Methods**

The study was descriptive study for which quantitative data were collected from persons with disabilities. Observation checklist and survey questionnaire were the major tools for data collection. The census was conducted to collect information from our study sites. The survey was conducted in ward number 3 of Manahari and Lalitpur districts respectively.

## **Findings**

Nearly one-quarter (21.1%) of the persons with disabilities were using assistive devices. Of 46 persons with disabilities who were using assistive devices, 22% of them purchased the assistive devices while 18.5% stated that they used the assistive devices prepared locally. 40.7% of people with disabilities were supported by different organizations for assistive devices. Half of the persons with disabilities (55.6%) needed assistance to use the assistive devices.

## **Conclusion**

The findings emphasize the multifaceted nature of assistive device utilization among PWDs, encompassing various levels of assistance required. Future efforts aimed at improving accessibility should consider these nuanced factors to better meet the diverse needs of individuals with disabilities.

## **Keywords**

Disability, Assistive device, Nepal

## **Implications of findings from a Nepalese study of Long Covid**

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## **Background**

To improve health in populations addressing the United Nations Sustainable Development (SD) target goal 3.4 of reducing premature mortality from non-communicable diseases (NCDs) by one-third by 2030, the focus has been on accessibility and quality of care. There is, however, an emerging paradigm for health that inflammation is a common biological pathway for multiple and interacting health conditions (Weiss, 2008; Ravella, 2022). We consider data from our Nepalese study of late symptoms following SARS-CoV-2 infection in these contexts.

## **Methodology**

From our 6168 Nepali women patient retrospective controlled cohort study, we synthesized three major implications, in the above-noted contexts, and those from recent publications

reporting persistent cognitive dysfunction over three years in two large SAR-CoV-2 infected populations (Hampshire, 2024; Ellingjord-Dale, 2024), and WHO estimates of global excesses of mortality with SAR-CoV-2 infections (Msemburi, 2022).

### **Results**

16.9% of SARS-CoV-2-infected patients self-assessed themselves as being unrecovered 6 months following their diagnoses, which implies compellingly that this infection in Nepali women is not only an acute illness. Secondly, the spectrum of symptoms associated with nonrecovery implies that the long-term systemic consequences are metabolic and hormonal, and not only immune. The observation that one-third of the unrecovered patients did not report any of the common symptoms attributed to this infection leads to a third implication: other unrecognized symptoms and processes (likely chronic inflammatory) complicate this infection, a conclusion consistent with the noted persistent cognitive dysfunction and excess mortality reports' data.

### **Conclusion**

Distinctions between acute (usually communicable) and chronic (usually noncommunicable) medical conditions are becoming less appropriate. Successfully addressing the SDG target for NCDs calls for approaches and reframing our discussions of both acute and chronic health to increase our attention to causes and the breadth of stressors increasing chronic inflammation, such as SARS-CoV-2 infection.

### **Keywords**

Inflammation, SARS-CoV-2, communicable disease, noncommunicable disease, public health.

## **Prevalence and associated factors of Low Back Pain among Bank employees of Pokhara, Nepal**

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## **Background**

Low Back Pain (LBP) is a prevalent musculoskeletal condition among office professionals, particularly bankers, who are more susceptible due to extended periods of sitting and poor ergonomic conditions. Globally, about 23-46% of office employees experience LBP. This study aims to assess the prevalence and factors associated with low back pain among bankers in Pokhara.

## **Methodology**

An institutional-based cross-sectional study was conducted among 334 bank workers systematically selected from 27 banks in Pokhara Metropolitan, Kaski district, from January 2023 to February 2023. All bank employees with at least three months of work experience were included in the study. Data was collected through face-to-face interviews using a semi-structured questionnaire. LBP-related information was assessed using a section of the Extended Nordic Musculoskeletal Questionnaire (NMQ-E). Data was entered into EpiData v3.1 and exported to SPSS v21 for analysis. The Multivariable binary logistic regression was employed to identify the associated factors. For all statistical tests, p-values <0.05 were considered statistically significant.

## **Results**

Of 334 participants, 54.5% were female, 40.4% were unmarried, and 68.4% were private bank employees. Notably, 68.3% participant reported presence of work-related stress, and 65.6% participant reported using a computer for four or more hours daily. The prevalence of LBP was found to be 36.52%. In multiple logistic regression, being female (AOR: 2.38; 95%CI: 1.44-3.92), working with private bank (AOR: 3.04; 95%CI: 1.44-6.42), and the presence of workplace stress (AOR: 3.80; 95%CI: 2.20-6.58) were found to be associated with low back pain as compared to their counterparts.

## **Conclusion**

The prevalence of LBP among bank employees in Pokhara was 36.52%, indicating a substantial burden of musculoskeletal condition among bank workers. The results highlight the importance of addressing ergonomic issues, particularly in private banking sectors, and implementing stress management interventions to mitigate the risk of LBP among bank employees.

## **Keywords**

Low Back Pain, Bank, Bank employees, Pokhara, Nepal

## **Comparative Analysis of Cooking Methods and Pot Materials on Bioactive Compounds and Antioxidant Properties in Black Rice, Jetho Budho and Jumli Marshi Rice**

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### **Background:**

Rice (*Oryza sativa*), belonging to the family Poaceae, is consumed by nearly half of the global population, providing 30–70% of energy. Despite white rice most consumed, pigmented rice has gained popularity for its antioxidants, phenols, and health benefits in recent years. However, there is limited evidence on the effect of cooking methods and pot materials on bioactive compounds and antioxidant properties of different rice landraces. Hence, this research aims to investigate the impact of various cooking methods and pot materials on the total phenolic, flavonoid, and antioxidant profiles of three distinct rice varieties; Black Rice, Jetho Budho, and Jumli Marshi Rice.

### **Methods and Materials**

Rice samples were cooked with flame (Brass, Copper, Pressure) and electric (Rice Cooker) and then extracted with methanol. The amount of Total Phenolic Content (TPC) was determined by the Folin-Ciocalteu reagent method and the Total Flavonoid Content (TFC) by the Aluminium Chloride method. Antioxidant Activity was evaluated by 2,2-diphenyl-1-picrylhydrazyl (DPPH) Free Radical Assay.

### **Results**

The higher TPC value was obtained by Black Rice ( $74.48 \pm 2.35$  mg GAE/g) in Brass and lowest by Jetho Budho ( $14.17 \pm 17$  mg GAE/g) in a Rice Cooker. Higher TFC value was obtained by Black Rice ( $54.04 \pm 2.34$  mg QE/g) in Rice Cooker and Lowest by Jetho Budho ( $33.94 \pm 2.83$  mg QE/g) in Copper whereas, higher Antioxidant Activity was shown by Black Rice ( $IC_{50}=40.86$   $\mu$ g/ml) cooked in Rice Cooker and low activity by Jetho Budho ( $IC_{50}=322.69$   $\mu$ g/ml) cooked in Pressure Cooker.

### **Conclusion**

This study revealed that the pot material and cooking materials affect the TPC, TFC, and Antioxidant activity of rice species. Rice Cooker and Copper pot were more suitable cooking pots to preserve antioxidant capacity, phenols, and flavonoids. Furthermore, Black Rice has

higher DPPH radical scavenging activity and more potent IC<sub>50</sub> values than those of Jetho Budho and Jumli Marshi rice.

### **Keywords**

Antioxidant, DPPH, Oryza sativa, Total Flavonoid Content, Total Phenolic Content

### **Health-related quality of life and its associated factors among patients with sickle cell disease in Bardiya district**

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### **Background**

Sickle Cell Disease (SCD), a public health problem in Nepal, is a hemoglobinopathy which leads to anemia and long-term complications such as pain syndromes, severe bacterial infections and ulcers and adversely affects quality of life of individuals. Health Related Quality of Life (HRQoL) refers to how a person's quality of life is affected by their sickness, and is comprised of biological, social, psychological, and functional autonomy elements. Various studies have reported significantly low HRQoL among SCD patients. Since there is lack of research relating to HRQoL among SCD patients in Nepal, this study is aimed to assess the HRQoL level and its determinants in order to inform policy makers and clinicians to help improve them.

### **Methodology**

A descriptive cross-sectional community-based study design using quantitative method was carried out. A pre-defined structured questionnaire including SF-36 questionnaire was used to evaluate the socio-demographic, clinical, health behavior, health service access and utilization and HRQoL among 401 patients with SCD in Bardiya district. Ethical approval was obtained from IRC-PAHS.

### **Results**

54.36% of the respondents had good HRQoL. During multivariate logistic regression, age  $\geq$  19 years at time of diagnosis (AOR 2.58, 95% CI 1.06-6.30), unknown family history of SCD (AOR 0.24, 95% CI 0.08-0.70), experiencing chronic or severe pain due to SCD (AOR 0.33,

95% CI 0.14-0.74), co-morbidities (AOR 0.18, 95% CI 0.05-0.62), having visited hospital for SCD in the past 12 months (AOR 0.33, 95% CI 0.14-0.80), spending  $\geq$  Rs. 3000 per health facility visit (AOR 0.32, 95% CI 0.19-0.56) and having health insurance enrollment (AOR 0.48, 95% CI 0.27-0.87) were found to be significantly associated with good HRQoL.

### **Conclusion**

Many SCD patients have poor HRQoL and most of the factors that are significantly associated with good HRQoL are related to health care and can be modified in order to insure better HRQoL for these patients.

### **Keywords**

Sickle Cell Disease, Health-Related Quality of Life, Tharu Community

## **Quality of life and its associated factors among Postpartum women attending Paropakar Maternity and womens Hospital**

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### **Background**

The postpartum phase is critical to a woman's physical, mental, and social health. It lasts from the time of childbirth until the mother returns to her pre-pregnancy status. The primary focus of maternity care has shifted from managing and preventing problems to assisting psychological adjustment to pregnancy and improving quality of life (QOL). The primary aim of this research is to evaluate postpartum mothers who visit Paropakar Maternity and Women's Hospital in terms of their quality of life and characteristics linked with it.

### **Methodology**

An analytical cross-sectional study design was conducted among Postpartum Mothers seeking services at Paropakar Maternity and Women's Hospital. Complete enumeration was conducted until we met our sample size of 320. Data collection was done with the help of kobo-toolbox and questionnaire, analyzed using descriptive statistical methods and inferential statistics such as Chi-square test and Fischer's exact test to associate with QOL.

### **Results**

The average mother in the 320 participants in the study was 26 years old. Remarkably, 55.3% of women had given birth naturally, and 71.6% of women were housewives. QOL was

correlated with the mother's age ( $p=0.010$ ), her religion ( $p=0.002$ ), her family type ( $p=0.014$ ), the mode of delivery ( $p=0.043$ ), her gravidity ( $p=0.037$ ), the infant's sex ( $p=0.03$ ), her perceived support ( $p=0.001$ ), and her level of satisfaction with life ( $p=0.001$ ).

### **Conclusion**

At a minimum of 59.33 and a maximum of 97.33, the participants' total physical well-being was high for most of them. There was a correlation found between QOL and mother, child, obstetric, and socio-demographic characteristics. Additionally, correlations between the supporting variable QOL were observed. The multidimensional felt support and contentment with the life scale were the two tools used to quantify the scores.

### **Keywords**

Quality of life, Postpartum Mothers, WHO-BREF

## **Taxonomic Mosquitoes and Their Vector Species of Palpa, Nepal**

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### **Introduction**

Mosquitoes are tiny blood-sucking Dipteran insects of the family Culicidae. Mosquito-borne diseases (MBDs) pose a significant health threat in Nepal.

### **Methodology:**

In this study, mosquito surveys were conducted during both the pre-monsoon (June – July 2023) and post-monsoon periods (October – November 2023). The mosquito samples in the pre-monsoon period were collected from 20 Q-GIS randomly generated points. All post-monsoon mosquito samples were collected from 13 mosquito-borne disease (MBD) case-known localities from the district hospital records. Both adult and larval sampling were collected. Adults were sampled by hand picking, sweeping nets, and pyrethrin spray, while larvae were collected from water bodies and reared at home for their emergence.

### **Results:**

Altogether 12 species were identified from 594 individual samples belonging to five genera *Anopheles* (1 sp.), *Armigeres* (2 spp.), *Collesssius* (1 sp.), *Culex* (6 spp.) and *Stegomyia* (2 spp.) of mosquitoes that are new records for the district. Among them, six species *An.vagus*,

*Cx.gelidus*, *Cx.quinquefasciatus*, *Cx.tritaeniorhynchus*, and *Stegomyia albopicta*, were known as vector mosquitoes for malaria, JE, filariasis, and dengue. Post-monsoon (1-D=0.63) has more species diversity than pre-monsoon (1-D=0.48) and only three species *Stegomyia albopicta*, *Collessius pseudotaeniatus*, and *Culex quinquefasciatus* are successfully reared.

### **Conclusion:**

These findings highlight the presence of more mosquito species in the post-monsoon period more surveillance should be needed with ecological gaps in this region. Also, potential disease vectors in Palpa District and emphasize the importance of continuous surveillance and vector control measures to mitigate the risk of MBD transmission. Collaborative efforts between health authorities and local communities are crucial for implementing effective prevention and control strategies to safeguard public health in the region.

### **Keywords**

Culicidae, Palpa, Vector, Dengue, Malaria, Filariasis, Japanese Encephalitis, mosquitoes

## **Thyroid Dysfunction and Autoimmune Thyroid Disease in Women with Gestational Diabetes Mellitus (GDM)**

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### **Introduction**

Any degree of glucose intolerance that is initially diagnosed during pregnancy is known as gestational diabetes (GDM). Gestational diabetes mellitus, thyroid dysfunction and thyroid autoimmunity are very frequent in women of reproductive age and is associated with adverse pregnancy outcomes.

### **Objective**

To determine thyroid dysfunction in women with gestational diabetes mellitus compared to healthy pregnant women referred to Tribhuvan University and Teaching Hospital (TUTH).

### **Methods**

In this case-control study, 67 women with gestational diabetes mellitus and 67 non diabetic healthy pregnant women referred to TUTH were selected using the convenience sampling method, and their serum levels of free T3, free T4, TSH, Anti-TPO, TG, TGA, and TRAb were determined and compared.

### **Result**

There was a significant difference between the GDM group (13.4%) and the control group (1.5%) in terms of the prevalence of subclinical hypothyroidism ( $p= 0.018$ ). The frequency of thyroid autoantibodies was high in GDM group (43.3 %) than control group (3%). Among these antibodies, anti-TPO was more prevalent, which was positive in 31.3% of women with GDM and 1.5% of healthy pregnant women ( $P= <0.001$ ). A significant positive correlation was found between GCT and anti-TPO ( $r=0.258$ ,  $p=0.035$ ) and also between anti-TPO and TSH ( $r= 0.387$ ,  $p= 0.001$ ). Linear regression analysis demonstrated that GCT significantly predicts the autoimmune thyroid disease as shown by raised anti-TPO in GDM patients and also autoantibody has a role play in thyroid dysfunction affecting the TSH parameter in the first line. ROC curve showed that AUC for anti-TPO, TGA and TRAb were 0.858, 0.891 and 0.671 respectively.

### **Conclusion**

Overall, it can be inferred that gestational diabetes is associated with subclinical hypothyroidism and thyroid autoantibodies. The presence of thyroid autoimmune antibodies may predict the risk for development of GDM in pregnant women. Therefore, it may be reasonable to perform thyroid function test with thyroid autoantibodies routinely to assess the risk of developing GDM.

### **Keywords**

Gestational diabetes mellitus, Thyroid autoantibodies, Subclinical hypothyroidism

### **Patterns of Service Utilization of Selected Primary Eye Care Centers in Eastern Nepal: A Mixed Methods Exploration**

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### **Introduction**

Primary Eye Care Centers (PECCs) have been established with the purpose of delivering easily accessible eye care services within the reach of the community. The objective of this study was to evaluate the extent to which the services offered by selected PECCs in Eastern Nepal are being utilized by the target population.

### **Methods**

A mixed-method study was conducted to assess the service utilization of PECCS in eastern Nepal. A total of 69 In-Depth Interviews (IDIs) for qualitative and 163 exit client interviews for quantitative analysis for client satisfaction were assessed.

### **Results**

Out of 163 participants, 87.1% were satisfied with the overall services of the PECC. General eye and ear treatment services were provided and most of the community people used the primary eye care services. Major challenges faced by healthcare providers as well as consumers were lack of modern equipment, lack of advanced services, congested space, lack of insurance services, poor transportation facilities, high cost of glasses, preference for private service providers, and lack of coordination with the local municipal government. However, the services have been proven to be affordable and easily accessible to most of the community people which helped in early diagnosis and treatment.

### **Conclusions**

The service utilization at primary eye care centers (PECCs) was optimal. The majority of the participants seemed satisfied with the services, there's a significant amount of prospect for improvement, the improvement of physical infrastructure, instruments, and frequent

screening camps or outreach programs could be highly beneficial to enhance the effectiveness of these centers.

### **Keywords**

Community; Perception; Primary Eye Care Center; Satisfaction; Service utilization

## **To access the knowledge, attitude and practice of community pharmacies towards pharmacovigilance and adverse drug reactions in Kathmandu**

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### **Background**

Community pharmacist's (CPs) are considered to be key players in the process of pharmacovigilance (PV) and reporting adverse drug reactions (ADRs). Adverse drug reactions can be a threat to the health of people in Nepal. There is no mandate to report ADRs by any regulatory authorities in Nepal. There is no system develop for involving consumers in the system of ADR reporting. The objective was to assess the knowledge, attitude, and practice of community pharmacists toward pharmacovigilance and adverse drug reactions in Kathmandu.

### **Methodology**

A cross-sectional study was conducted among 112 dispensers in community pharmacies in Kathmandu between October- December 2023 by using a self-administered, 17-item structured questionnaire. A Simple Random Sampling Technique was applied for the study. Statistical analysis was carried out using SPSS software version 25.

### **Results**

A total of 112 community pharmacies were included in the survey. There were 60 (53.57%) male. Majority of the participants 80 (71.43%) had completed diploma in pharmacy course. The difference in the mean knowledge score in relation to the Educational qualification was statistically significant with a p-value of 0.011. 94 (83.9%) respondents gave the correct responses regarding the definition of pharmacovigilance and 67 (59.8%) were aware of the existence of an ADR reporting system in Nepal. 34 (30.4%) respondents knew the number of pharmacovigilance centers in Nepal. 91.1% respondents, agreed that reporting of ADRs is a

part of pharmacist duty. 94 (83.9%) study participants had never ever been trained on how to report ADR while 81 (72.3%) respondents had never seen the ADR reporting form.

### **Conclusion**

Community pharmacists who participated in the study were knowledgeable about PV, and their attitude towards reporting ADRs was highly positive. However, the number of reported ADRs was very low because of a lack of knowledge on how and where to report them. Hence, these findings highlighted on need for pharmacovigilance program for safer medication use at community level.

### **Keywords**

Adverse drug reaction, Attitude, Knowledge, Practice, Pharmacovigilance, community pharmacists

### **Association of Apolipoproteins A1 & B100 in Subclinical Hypothyroidism in Patients Attending Endocrinology Clinic at Tribhuvan University Teaching Hospital**

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### **Introduction**

Subclinical Hypothyroidism is high blood thyroid-stimulating hormone (TSH) concentrations and normal serum total or free T4 and T3 concentrations, with little or no signs/ symptoms of hypothyroidism. Dyslipidemia & hypothyroidism are established in clinical studies; however, the initiation of dyslipidemia may start with SCH. Altered lipid profile is known to cause adverse cardiovascular outcomes, cerebral ischemia risk, and angina pectoris in older but little data is available to prove its association with SCH. This study was done to investigate the presence of dyslipidemia & its association with SCH to assess the cardiovascular risk.

### **Objective**

This study intends to determine Apolipoproteins A1 & B100 levels in SCH patients & look for its association to determine adverse cardiovascular outcome in patients attending Endocrinology clinic at Tribhuvan University and Teaching Hospital (TUTH).

### **Methods**

In this cross-sectional study, 110 patients with SCH from the Endocrinology Outpatient Department of TUTH were selected by convenience sampling method. Estimates of thyroid, lipid profiles, and Apolipoproteins were made, and lipid variables were used to calculate lipid indices.

### **Results**

The majority of SCH cases were females (72% vs 28% male). SCH was divided into two groups: group I (TSH between < 10) & group II (TSH >10). Lipid profiles, apolipoproteins & lipid index parameters were increased in group II indicating that severity of SCH is associated with higher risk. TC ( $r = 0.271$ ,  $p < 0.004$ ), LDL ( $r = 0.278$ ,  $p < 0.003$ ), ApoB ( $r = 0.267$ ,  $p < 0.005$ ), AI ( $r = 0.246$ ,  $p < 0.009$ ), LCI ( $r = 0.289$ ,  $p < 0.002$ ) & non-HDL-C ( $r = 0.261$ ,  $p < 0.006$ ) were significantly correlated with TSH.

### **Conclusion**

Our findings suggests that females have higher prevalence of SCH & the seeding of cardiovascular risk starts at the level of subclinical hypothyroidism which becomes apparent at overt hypothyroidism. Hence, timely screening & management of dyslipidemia is crucial in SCH patients.

### **Keywords**

Subclinical Hypothyroidism, Cardiovascular risk, lipid profile, Apolipoproteins

### **Physical fitness and recovery heart rate of an individual having a parental history of type II diabetes mellitus**

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### **Introduction**

With its features of being genetically inherited and causing autonomic dysfunction, type II diabetes mellitus (T2DM) has become the absolute threat to the offsprings of diabetic parents. Diagnosis of cardiovascular autonomic dysfunction in the offspring at early age would help to reduce the exacerbation of disease.

### **Objective**

Our study was aimed to assess the physical fitness and recovery heart rate by performing YMCA (Young Men's Christian Association) 3-minutes step test in healthy offsprings having parental history of T2DM.

### **Methodology**

A comparative cross-sectional study was carried out enrolling 50 healthy offsprings of non-diabetic parents (Group A) and 50 asymptomatic healthy offsprings of diabetic parents (Group B). YCMA 3-minute step test was performed and physical fitness was determined after recording the recovery heart rate in both groups.

### **Results**

The physical fitness level was significantly poor in offsprings of diabetic parents when compared to that of non-diabetic parents. The peak heart rate of Group A was  $107.7 \pm 8.40$  and that of Group B was  $114.98 \pm 9.02$ . Majority of offspring of diabetic parents had very poor fitness level. We also found out that there was significant reduction in heart rate recovery in group having parental history of diabetes mellitus.

### **Conclusion**

Physical fitness level of offspring of diabetic parents was found to be reduced than that of non-diabetic parents which can be due to any factor predisposed on offsprings from their parents. Proper health care and lifestyle modifications may be the important steps to work on to increase the quality of life in such individuals.

### **Keywords**

Physical fitness, Diabetes mellitus, 3-minute step test, Recovery heart rate

# POPULATION MIGRATION AND AGEING

## ORAL PRESENTATION

### **Prevalence of blindness and visual impairment among people 50 years and above in Nepal: a national Rapid Assessment of Avoidable Blindness Survey**

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#### **Purpose**

To determine the prevalence and causes of blindness and vision impairment among people 50 years and older in Nepal.

#### **Methods**

We conducted seven provincial-level Rapid Assessment of Avoidable Blindness (RAAB) cross-sectional, population-based surveys between 2018-2021. Provincial prevalence estimates were weighted to give nationally representative estimates. Sampling, enumeration and examination of the population 50 years and older were done at the province level following standard RAAB protocol.

#### **Results**

Across seven surveys, we enrolled 33,228 individuals, of whom 32,565 were examined (response rate 98%). Females (n=17,935) made up 55% of the sample. The age-sex-province weighted national prevalence of blindness (better eye presenting visual acuity <3/60) was 1.1% (95% confidence interval [CI] 1.0-1.2%) and any vision impairment <6/12 was 20.7% (95% CI 19.9-21.5%). The prevalence of blindness and any vision impairment were both higher in women than men (1.3% [95% CI 1.1-1.5%] vs 0.9% [95% CI 0.7-1.0%]). Age-sex weighted blindness prevalence was highest in Lumbini Province (1.8% [95% CI 1.3-2.2%]) and lowest in Bagmati Province (0.7% [95% CI 0.4-0.9%]) and Sudupaschim Province (0.7% [95% CI 0.4-0.9%]). Cataract (65.3%) was the leading cause of blindness in our sample, followed by corneal opacity (6.4%), glaucoma (5.8%) and age-related macular degeneration (5.3%). Other posterior segment disease accounted for 8.4% of cases.

#### **Conclusion**

The prevalence of blindness was higher among women than men and varied by province. Blindness had declined compared to previous surveys and proportion of blindness due to cataract had also declined.

### **Keywords**

RAAB, Survey, Nepal, 2021

### **Socioeconomic, behavioral and health related characteristics of older adults in Nepal**

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### **Background**

The proportion of aging population is rising rapidly throughout the world and in Nepal due to the changing socio-economic status, health behavior and technologies. In Nepal, almost a quarter of national population are older adults ( $\geq 45$  years), whose health status is rarely elaborated. This study was carried out to reveal the socioeconomic, behavioral and health related characteristics of older adults of Nepal.

### **Methodology**

A community-based survey was conducted among 4179 randomly selected older adults residing in Bagmati Province from July 2022 to June 2023. Semi-structured questionnaire consisting Geriatric Depression Scale, Activity of Daily Living, Instrumental Activity of Daily Living along with socio-demographic and health profile were used for the data collection through face-to-face interview. The data were described in frequency and percentage across local level and gender at  $p < 0.005$ .

## **Results**

The mean age of the population was  $61.66 \pm 11.1$  years. The rural municipality represents 66.3% of the sample and an almost equal proportion of both genders. The prevalence of multi-morbidity, disability, and depression was found to be 27.6%, 23.3%, and 35.1% respectively. There was no significant difference in multi-morbidity and depression across local levels. However, there was a significant difference in disability status across local levels. There was a significant difference in multi-morbidity and depression across gender.

## **Conclusion**

A significant proportion of older adults are suffering from multi-morbidity, disability, and depression. There was no significant difference in multi-morbidity and depression across local levels. However, there was a significant difference in disability status across local levels. There was a significant difference in multi-morbidity and depression across gender. The findings warrant the need for targeted interventions for older adults.

## **Keywords**

Chronic diseases, Disability, Health characteristics, Older Adults, Nepal

## **Status of child marriage among adolescent girls in Nepal**

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## **Background**

Child marriage is a human rights violation affecting young individuals who marry before the age of 18, with lasting adverse socio-cultural and economic impacts. In the federalized context of Nepal, child marriage has gained attention as a threat to women's health. However, there are differences in the prevalence of early marriage across Nepal. The study aims to generate evidence about the disparities in the status of child marriage which will help to bridge the information gap for targeted intervention.

## **Method**

We analyzed data from population and housing census 2021, Nepal. We calculated the percent of early-age (<18 years) marriage among adolescent girls (10-20) stratified by

ecological belt, province, district, and different local levels. We fitted a linear regression model to determine the association of early-age marriage at different local levels with literacy rate, provinces, local levels, and Dalit population, and the results were presented as beta coefficients and 95% confidence interval (CI).

### **Result**

The percentage of adolescent girls aged 10-20 years marrying at the age <18 years in Nepal is 5.4% with the highest in Karnali province (8.1%), followed by Madhesh (6.3%). At the district level, early marriage among adolescent girls is highest in Rukum (East) (9.7%) followed by Salyan (9.4%), Surkhet (9.3%), (Rukum West) (9.3%), and Panchthar (9.0%).

When compared with Bagmati province, the early marriage is the highest in Karnali (beta=3.3; 95%CI: 2.627-3.902), followed by Madhesh (beta=2.9; 95%CI: 2.173-3.686), Koshi (beta=2.1; 95%CI:1.597-2.662), Lumbini (beta=1.97; 95%CI: 1.355-2.589), Gandaki (beta=1.94; 95%CI: 1.340-2.545) and Sudurpaschim (beta=0.94; 95%CI: 0.347-1.541) province. Similarly, rural municipalities have higher early marriage (beta=2.7; 95%CI:1.057-4.394) followed by urban municipalities (beta=2.2; 95%CI:0.517-3.814) compared to metropolitan cities.

### **Conclusion**

Early child marriage is a major issue in Nepal with the highest proportion in Karnali and Madhesh provinces. Targeted interventions are crucial for addressing child marriage and safeguarding the rights and well-being of vulnerable adolescent girls.

### **Keywords**

Child marriage; adolescent girls; Census 2021; Nepal

## **Prevalence of osteoporosis and associated factors among people aged 50 years and older in the Madhesh province of Nepal: a community-based cross-sectional study**

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## **Background**

Osteoporosis affects the economy of health system globally. Nepal lacks the study about osteoporosis and its causal factors in community settings. Therefore, this study aimed to assess the prevalence of osteoporosis and its associated factors; lifestyle behaviours and daily calcium intake.

## **Methodology**

A community-based cross-sectional study was conducted among 395 people aged 50 years and older in the *Madhesh* Province of Nepal between July 2022 and August 2023. The Osteoporosis Self-assessment tools for Asians (OSTA) index was used to predict the osteoporosis. Socio-demographic information, anthropometric measurement and lifestyle behaviours were collected through structured questionnaire. A food frequency questionnaire and 24-hour recall methods were applied to find out the frequency of calcium rich food consumption and daily calcium intake respectively. The chi-square test and Mann–Whitney U test were used. Binary logistic regression was applied to measure the association between predictors and the outcome of interest.

## **Results**

The incidences of no risk, moderate risk, and high risk of osteoporosis were 38.7%, 39%, and 22.3% respectively. The osteoporosis risk was higher in females (aOR =5.18, CI: 2.10-12.75) and increased with advancing age (aOR= 32.49, CI: 14.02-75.28). Underweight was associated with osteoporosis (aOR= 13.42, CI= 4.58-39.30,  $p<0.001$ ). Osteoporosis was strongly associated with daily calcium intake with a median calcium consumption of 225 mg.

## **Conclusion**

This study showed the high prevalence of osteoporosis among people aged 50 years and older due to the combined effect of being underweight and inadequate calcium intake. Nutritional counselling might encourage people to consume sufficient calcium-rich food and adopt an appropriate lifestyle behaviour to maintain healthy body weight so that osteoporosis and osteoporotic fractures can be prevented. Further research can explore the impact of socioeconomic status and medical comorbidities on a large scale.

## **Keywords**

Bone mineral density (BMD), Osteoporosis, Osteoporosis self-assessment tools for Asians (OSTA)

## **Impact of Spousal Migration on Mental Health of Women in Nepal**

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### **Background**

Lately, foreign employment has attracted hundreds of thousands of Nepali youths. In Nepal, 25 percent of households have at least one family member who does not live in the country. The top 5 destination countries of Nepali migrant workers in 2018/19 are UAE, Qatar, Saudi Arabia, Kuwait, and Malaysia. Labor migration in Nepal is large and crucial to the national economy. We aim to assess the impact of spousal migration on the mental health of women in Nepal.

### **Methods**

We conducted a cross-sectional study to assess the prevalence of stress, anxiety, and depression among women in Nepal. 545 married women aged more than 18 years were randomly included from Chandrapur municipality of Rautahat district from June 2022 to August 2022 and conducted interviewer-administered questionnaire. We assessed symptoms of stress, anxiety, and depression using standard scale Depression, Anxiety, Stress scale (DASS-21).

### **Results**

There was no significant association between spousal migration and symptoms of stress, anxiety and depression. The prevalence of stress, anxiety and depression was 25.76%, 16.67% and 25.76% respectively among wives of migrant workers. Last home visit of husband and starting of conversation were significantly associated with anxiety. Compared to those whose husband has never returned mean anxiety score is lowered by 3.41 units among those who have returned between home the interval of 1-2 years after migration (95% CI: -6.28 to -0.55; p-value: 0.02) and lowered by 5.32 units among those who have returned home between the interval of 2-3 years after migration (95% CI: -8.86 to -1.78; p-value: 0.004). Mean anxiety score is higher by 8.92 units among participants whose conversation is started

by wife compared to those whose conversation is started by their husband (95% CI: 2.31 to 15.54; p-value: 0.009).

### **Conclusion**

Further, longitudinal studies are needed to increase the understanding of how spousal migration might affect women's mental health status over the period.

### **Keywords**

Spousal Migration, Mental Health, Stress, Anxiety, Depression

## **POSTER PRESENTATION**

### **Effectiveness of Comprehensive Nursing Interventions on Well-being among Senior Citizens in Rural Community of Nuwakot District, Nepal**

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#### **Background**

The deleterious process of aging affects in basic activities of human life there by affecting their well-being. Comprehensive nursing interventions address the needs and problems of the rapidly accelerated ageing population.

#### **Objective**

To promote well-being of senior citizens by providing comprehensive nursing interventions.

#### **Methods**

Mix method approach was adopted in the study. The development of comprehensive nursing interventions was done based on focused group discussion and literature review in phase I and the effectiveness of the interventions was assessed through quasi-experimental study among 120 senior citizens aged 60-75 years. The sample was selected by multi-stage cluster random sampling. Research tools were socio-demographic characteristics, clinical proforma and elderly well-being tool and the validity and reliability of the tools and CNIs were maintained prior to the study.

The comprehensive nursing interventions comprising both structured psycho-physical activities, interactions, and health education, was provided to the interventional group twice a week for six weeks in 12 sessions in a group of senior citizens in their community. Post-interventional assessment was done on both groups after one month of the intervention. Follow-up assessments were done only in the interventional group after three and six months to identify retention of effectiveness. Both descriptive and inferential statistics were used for analysis of data including qualitative analysis.

#### **Results**

The thematic analysis showed that senior citizens had health problems, dissatisfaction with

relationships, and financial status. And their attitude was positive towards the aging process. In the overall well-being, the mean and median of post-intervention assessments I, II, and III in the interventional group were significantly higher than baseline and showed significant differences at  $p < 0.05$ . There was also a remarkable difference between the groups on well-being. The median of well-being of the control group remained the same. Educational status was associated with the well-being of senior citizens.

### **Conclusion**

Comprehensive nursing interventions was found to be effective in improving well-being of the senior citizens in rural community.

### **Keywords**

Comprehensive nursing interventions, Well-being, Senior citizens, Rural community.

### **Health Service Utilization among Elderly in Itahari sub-metropolitan City.**

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### **Introduction**

Aging is associated with a range of physical and mental changes that increase morbidity and healthcare needs among the elderly population. This study aimed to assess chronic morbidities, health problems, health care-seeking behavior, and health care utilization among elderly individuals in Itahari Submetropolitan City. A descriptive cross-sectional study was conducted, involving face-to-face interviews and multi-stage sampling. Data were analyzed descriptively and inferentially.

### **Methodology**

A descriptive cross-sectional study was conducted among elderly people in Itahari Submetropolitan City. Face-to-face interviews were used for data collection, focusing on health care utilization among the elderly. Multi-stage sampling was employed for participant selection, and both descriptive and inferential analyses were conducted.

### **Results**

A total of 323 participants were included, with a mean age of 71.4 years, predominantly male, and living with their sons. The majority (72.5%) had been diagnosed with an illness,

and 34.1% had multiple illnesses of mild severity. Health care utilization was observed in 70.6% of respondents with chronic illnesses, and 60.8% reported difficulties accessing health care, primarily due to high costs.

### **Keywords**

health care/ utilization/ elderly

### **Elderly Patient at Risk of Malnutrition and Their Quality of Life in Tertiary Hospital, Kathmandu**

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### **Background**

Nutrition of elderly people is crucial for healthy aging, maintaining productive lives for as long as possible, and reducing the course of chronic disease. Given that quality of life declines with age, it is crucial for elderly individuals. Therefore, this study aims to find out the elderly patient at risk of malnutrition and their quality of life in tertiary hospitals.

### **Methodology**

This cross-sectional study was carried out among 281 elderly people in tertiary hospital from January to February 2023 after taking ethical approval. Non-probability purposive sampling techniques was used. Face to face, interview was conducted using structured interview schedule in the absence of their caregiver using standard Mini-Nutritional Assessment tool for identifying elderly at risk of malnutrition, and WHOQOL\_OLD quality of life to find out the quality of life of elderly at risk of malnutrition. Data was analyzed using Statistical Package for Social Science. Descriptive Statistics (frequency, percentage) and Inferential Statistics (Chi-square) were used to analyze the data.

### **Results**

The study findings revealed that out of 281 sample more than half 164 (58.4%) (52.64-64.16, 95% Confidence Interval) of elder patient were at risk of malnutrition. There was a significant association among ethnicity, smoking, comorbidities and adequate rest. Among at risk of malnutrition elderly 102 (62.2%) have poor quality of life. Nutritional risk among elderly is directly associated with quality of life as evident by p value which is significant 0.03.

### **Conclusion**

The study concluded that older people are at risk of malnutrition, which impairs the quality of life. This emphasizes the routine screening and need for targeted nutritional interventions. The results have implications for policymakers and healthcare professionals that are relevant to the creation of comprehensive care strategies for the aging population.

### **Keywords**

Nutritional Risk, Elderly Patient, Quality of life

### **Prevalence and associated factors of gender-based violence for female: evidence from high school students**

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### **Background**

Gender-based violence (GBV) is a major global public health challenge in the 21<sup>st</sup> century that has a serious impact on women's health and well-being. Therefore, this study aimed to assess the prevalence and factors associated with GBV among secondary school female students in the Sarlahi district of Nepal.

### **Methods**

Using a cross-sectional study, information was collected from 225 secondary school female students in the Sarlahi district of Nepal. Data was collected by using a semi-structured, self-administered questionnaire. Probability proportionate and simple random sampling techniques were used for sampling. All required ethical procedures were followed. The

association were explored by using the chi-square test and binary logistic regression where a p-value <0.05 was considered statistically significant.

### **Results**

The prevalence of GBV among the students during their lifetime was 45.33% followed by physical (16.89%), sexual (30.22%) and psychological (39.56%) violence respectively. The prevalence of physical violence from family members was 97.36%, followed by emotional violence (41.57%). Further, the prevalence of sexual violence from the non-family members was 91.17%. Type of family had a significant association with lifetime experience of GBV (p=0.003) Gender based discrimination in the family had a significant association with lifetime (p=0.001) as well as last 12 months (p=0.001) GBV experience. Experience of witnessing physical violence as a child was within last 12 months was associated with GBV (p=0.03).

### **Conclusion**

GBV has been prevalent among the high school students, with limited level of awareness in that issue. This warrants the urgent need to establish preventive and responsive control measure within schools and communities to address the GBV effectively.

### **Keywords**

Gender-based violence, secondary school female students, sexual violence, physical violence, emotional violence

## **A mixed method study of the elderly's quality of life and related factors in bharatpur metropolitan city, chitwan**

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### **Introduction**

Aging is a natural, global, and inevitable phenomenon, every single person has to go through. One of the emerging challenges to public health is to improve the quality of later year of life as life expectancy continues to increase. Population aging has become a global phenomenon as they are growing more quickly in emerging nations than they are in industrialized nations, leaving minimal opportunities to regulate to the consequences of demographic shift.

### **Methods**

A community based descriptive analytical approach was used to examine the quality of life and associated factors among elderly people. Mixed method was chosen for the study. Household survey was conducted using the WHOQOL-OLD tool for quantitative data. In-depth interview were conducted among 20 participants for qualitative data collection. Data generated through in-depth interviews were transcribed verbatim. In-depth interviews lasted about an hour and were audio recorded. The in-depth interview guide had been developed by the research team and pilot-tested before actual interviews.

### **Results**

This study result showed the association between quality of life and socio-demographic variables. Among all the variables under socio-demographic variable of this study, age ( $\chi^2=14.445$ ,  $p=0.001$ ), gender ( $\chi^2=14.323$ ,  $p<0.001$ ), marital status ( $\chi^2=10.816$ ,  $p=0.001$ ), education status ( $\chi^2=23.948$ ,  $p<0.001$ ), household income ( $\chi^2=13.493$ ,  $p=0.001$ ), personal income ( $\chi^2=14.129$ ,  $p=0.001$ ), source of personal income ( $\chi^2=28.332$ ,  $p<0.001$ ), social security allowance ( $\chi^2=18.005$ ,  $p<0.001$ ), alcohol consumption ( $\chi^2=9.397$ ,  $p=0.002$ ) are significantly associated with quality of life of elderly. In addition, affordability ( $\chi^2=12.088$ ,  $p=0.001$ ), physical activity ( $\chi^2=9.314$ ,  $p=0.002$ ), emotional support ( $\chi^2=9.122$ ,  $p=0.003$ ) and economic support ( $\chi^2=8.104$ ,  $p=0.004$ ) are associated with quality of life of elderly people.

### **Conclusion**

The research underscores the importance of addressing the diverse factors that influence the quality of life of elderly individuals in urban settings. By recognizing the associations between socio-demographic variables and quality of life, targeted interventions and support systems can be developed to enhance the well-being of the elderly population.

### **Keywords**

Ageing, Chitwan, Elderly, Health status, Quality of life, Qualitative study, Health care access

# **Depression and Loneliness among older parents', their associated factors and expectations after adult children's migration: A mixed method study in an urban setting of Kathmandu Metropolitan City**

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## **Background**

With increasing life-expectancy, the older population of Nepal has also been increasing. Nepal is a low- and middle- income country with a high migration level, most of them migrating to seek better employment and education. Nepal census 2021 showed that 2.2 million Nepali people are absent and living abroad.

## **Methods**

Cross-sectional study with a concurrent triangulation mixed-method design was utilized to find out the effects of adult children's migration on the depression and loneliness level among older parents living in the urban area of ward no. 9 of Kathmandu Metropolitan City.

## **Results**

Almost half of the empty nest respondents had some form of depression with 5% of them with a severe form of depression calculated based on the Geriatric Depression Scale. The prevalence of loneliness was found to be 35.71% calculated based on the UCLA 3- item Loneliness scale. Depression was found to be associated with sex, marital status, living status, education, household head and socioeconomic status in the bivariate analysis. Loneliness was found to be associated with marital status, living status, household head, socioeconomic status, number of children abroad and chronic disease. The thematic analysis of the in-depth interviews revealed mental health impacts including depressive symptoms aggravated during hospital visits and being persistently fearful of bad events. Loneliness was reported to be increased mainly during the festivities. A major convergent finding from the study was the mental impacts being high among the empty nests living alone with their spouses deceased.

## **Conclusion**

This study aims to identify if adult children's migration has adverse mental health outcomes like depression and loneliness among left behind older parents and explore their expectations.

This will help in planning effective evidence-based policies to improve their mental health and psychological well-being.

**Keywords:** Depression, Loneliness, Older population, Migration, Empty Nests

## **Assessment of Quality of life among the elderly population of Omsatiya Rural Municipality, Nepal**

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### **Background**

Proportion of elderly population is increasing in Nepal along with increasing life expectancy. Current health system and family member of elderly are not able to address their need which may affect their quality of life (QoL). The objective of this study was to assess QoL of elderly population and to compare the domain wise QoL across different factors.

### **Method**

A community based cross sectional study was conducted 309 elderlies in Omsatiya Rural Municipality. QoL was assessed using WHOQOL-BREF scale. Socio-demographic factors, health characteristics and other variable were recorded by using structured questionnaire by face to face interview. The collected data was analysed through IBM SPSS version 16. Proportion, Independent t-test and ANOVA were done.

### **Result**

The majority 57% were in the 65-69 years age group, 58.6% were males and 59.5% belonged to the Madhesi community. Over half of respondents, 57.3% depend on security allowance as an income source. The study found 79.6% suffer from co-morbidity experiencing 48.9% vision problems, 47.8% back pain, 47% joint pain due to aging followed by 34.1% hypertension, 17.3% diabetes, and 22.8% other problems. Those with co-morbidity had lower quality of life as compared to those without. Approximately half 45.5% reported various psychological problems. Around 37.2% of elderly work in general. The means score was highest in the 63.6% environment domain whereas the social domain 49% was significantly affected encompassing personal relationships and social support. Factors associated with better quality of included being in the age group 65-69, having higher income and higher education, absence of co-morbidities and being married and staying with partners. The study

findings revealed that the majority 69.9% had an average QoL, while 27.8% had better and left remaining with poor quality of life.

### **Conclusion**

Education, income, role of parties and co-morbidities are crucial to maintain quality of life. The quality of life as well as social relationships of the elderly declined with the increasing age. Intervention is required to improve the social domain and prevention of comorbidities to have better QoL.

### **Keywords**

Elderly, QoL, socio-demographic

# SEXUAL, REPRODUCTIVE HEALTH AND RIGHT

## ORAL PRESENTATION

### **Decomposing inequality in knowledge about HIV prevention and discriminatory attitudes towards people living with HIV among youth aged 15-24 years in Nepal**

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#### **Introduction**

Inequalities in HIV prevention knowledge and discriminatory attitudes towards people living with HIV (PLHIV) can thwart the government's effort to reduce HIV stigmatisation and achieve universal access to HIV care and treatment. This study aims to assess socio-economic inequalities in HIV prevention knowledge and discriminatory attitudes toward PLHIV among youth aged 15-24 years in Nepal.

#### **Method**

We analysed secondary data of 6713, 6429, and 7122 young individuals from 2011, 2016, and 2022 Nepal Demographic and Health Surveys, respectively. We performed a weighted analysis to adjust complex survey design and non-response rates. Wealth-related inequality was assessed using concentration indexes(CIx) and curves. We determined wealth-related inequalities in HIV prevention knowledge, and discriminatory attitudes towards PLHIV, and decomposed inequalities by participant characteristics using Wagstaff method. We applied Oaxaca-Blinder decomposition method to measure and decompose the inequality differential between two time periods.

#### **Results**

The proportion of youth with HIV prevention knowledge decreased from 27.8% in 2011 to 18.8% in 2022, while discriminatory attitudes increased from 37.2% in 2016 to 52.4% in 2022. The CIx for HIV prevention knowledge decreased from 0.288 in 2011 to 0.176 in 2022, whereas the CIx for discriminatory attitudes increased from -0.131 in 2016 to -0.079 in 2022, indicating an overall reduction in inequality. In 2022, wealth and education contributed

50% and 40% to the inequality in HIV prevention knowledge, while they contributed 67% and 21% to the inequality in discriminatory attitudes, respectively. The CIx for HIV prevention knowledge changed by -0.070 between 2011 and 2022 with education and wealth contributing 44% and 33%, respectively. The CIx for discriminatory attitudes shifted by 0.030 between 2016 and 2022 with education and occupation contributing 54% and 35%, respectively.

### **Conclusion**

The inequality in HIV prevention knowledge between 2011 and 2022, and discriminatory attitudes between 2016 and 2022 among youth has reduced, with wealth, education, and occupation being the major contributing factors.

### **Keywords**

discriminatory attitudes; HIV; inequality; Nepal Demographic and Health Survey; people living with HIV

## **Exploring the Intersection of Disability and Sexual and Reproductive Health: Reported needs for Women's Access to Care**

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### **Background**

Approximately 15% of the global population experiences some form of disability, with women comprising over half of this demographic. In Nepal, 1.02% of women are living with a disability. Inequities within the healthcare system, is exacerbated by disability, perpetuate disparities in accessing sexual and reproductive health and rights (SRHR) services. There is a pressing need to comprehensively understand these issues with active involvement from individuals with lived experiences and relevant stakeholders. This study aimed to assess the needs of WWDs in accessing SRHR services in Nepal.

## **Methodology**

A participatory research approach utilizing a five steps human-centered design was employed to explore WWDs' SRHR needs, barriers to accessing SRHR services, and to co-create and co-design interventions together with people with lived experiences and relevant stakeholders. Qualitative research methods were utilized, with participants recruited from the network of the Nepal Women Disabled Association at national and district chapters, with a focus on Kathmandu Valley, Morang, Dhanusa, and Kanchanpur. Women aged 18-49 with physical, visual, and/or hearing disabilities, willing to participate voluntarily, were included in the study. This paper includes the data from multiple sessions of the empathize phase conducted among WWDs, collected in 2023, data analyzed using thematic analysis.

## **Results**

Eleven sessions were conducted including women with disability and relevant stakeholders. Most participants had a severe form of disability and held blue-colored disability identification cards. Six primary areas of need for WWDs regarding SRHR services were identified including 1) acceptance of SRHR needs by family and society, 2) access to SRHR-related information, 3) accessibility of health facilities, 4) provision of respectful care and services at health facilities, 5) availability of safe spaces, and 6) communication and navigation systems.

## **Conclusion**

Interventions should target WWDs themselves along with their families and health care providers. However, the need for coordinated efforts to create safe and respectful care for WWDs is beyond sensitization and creating awareness.

## **Keywords**

Hearing Disability, Visual impairment, Physical disability, Sexual and Reproductive health

## **Exposure to intimate partner violence and adverse mental health outcomes among reproductive-aged Nepalese women**

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## **Introduction**

While the prevalence of intimate partner violence (IPV) is relatively higher among South Asian countries including Nepal, studies investigating the impact of IPV on mental health among Nepalese women are lacking. This study aimed to explore the potential association between IPV and mental health status among reproductive-aged Nepalese women.

## **Methods**

Data from the 2022 Nepal Demographic and Health Survey was used which included 4,211 women aged 15-49 years. Respondents were asked about their experiences of physical, sexual, and emotional IPV in the past 12 months, as well as their mental health status measured by the Patient Health Questionnaire-9 (PHQ-9) and the Generalized Anxiety Disorder-7 (GAD-7) scales. Multilevel Poisson regression models were used to assess the association between forms of IPV and anxiety and depression.

## **Results**

Approximately 27.2% of women reported experiencing some form of partner violence: 24% faced physical violence, 13% emotional violence, and 7% sexual violence. The prevalence of anxiety and depressive symptoms, using international cut-offs, was found to be 7.4% and 5.4%, respectively. Experiencing any form of IPV significantly heightened the risk for anxiety and depressive symptoms, with adjusted prevalence ratios (PR) of 2.36 (95% CI: 1.87-2.98) for anxiety and 3.20 (2.44-4.20) for depression. Exposure to multiple IPV types further escalated these risks, showing PRs of 3.71 (2.83-4.87) for anxiety and 5.85 (4.33-7.89) for depression when exposed to  $\geq 2$  types, compared to those unexposed to IPV. The associations for anxiety and depressive symptoms remain materially unchanged after excluding those women who gave birth in past 12 months.

## **Conclusion**

The study highlights a strong link between IPV and increased risks of anxiety and depression, especially when multiple forms of violence are involved. This emphasizes the urgent need for targeted interventions and comprehensive support systems to address the wide-ranging impact of IPV on mental health among

## **Keywords**

violence, mental health, reproductive aged women, Nepal

# **Exploring the Association Between Knowledge of Safe Abortion and Contraceptive Usage Among Married Women of Reproductive Age: Insights from a National Survey in Nepal**

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## **Introduction**

Despite abortion being legal in Nepal for two decades, a high number of pregnancies still result in unsafe abortions. Many married women do not use contraceptives, and over 50% of abortions are unintended. This study examines the relationship between women's knowledge about the legality and limitations of abortion, and their contraceptive use. The goal is to determine the influence of this knowledge on reducing unintended pregnancies and unsafe abortions.

## **Method**

A study in Nepal in late 2022 assessed the relationship between women's knowledge about abortion and their use of contraception. Researchers obtained ethical approval and used a cross-sectional design with stratified sampling to represent provinces in Nepal. A total 1,976 who were ever married were included in the analysis. The study focused on the use of contraception and assessed the impact of two independent variables: awareness of abortion legality and conditions. The analysis was carried out separately for knowledge of legal abortion and abortion conditions due to their high correlation effects. Socio-demographic characteristics were also considered in measuring the effects alongside knowledge variables, offering insights into the relationship between abortion knowledge and contraceptive practices among ever-married women in Nepal.

## **Results**

Women who knew about abortion laws and procedures were more likely to use contraception. Muslim and Madhesi women were less likely to use contraception. As education level increased, contraception use decreased. Adolescent girls were less likely to use birth control. Women in non-working households were less likely to use contraception compared to those

in skilled service jobs. No significant differences in contraception use were found based on wealth, urban/rural location, or province of residence.

### **Conclusion**

Increased usage of contraception is linked to knowledge of the legal status and indications for abortion. Better reproductive health and rights for women and girls by providing them with information and access to a comprehensive range of sexual and reproductive health services.

### **Keywords**

Abortion knowledge, Contraceptive use, Ever-married, Safe abortion, WRA

## **Effectiveness and Implementation of Simulation Based Mentorship Program in four districts of Nepal**

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### **Background**

Simulation-Based Mentorship Program (SBMP) was implemented in four districts of Nepal to bridge the gaps in knowledge and skills of nurses working in birthing centers by providing regular monthly mentorship on essential obstetric and newborn care using simulation based low dose high-frequency approach. The study aimed to evaluate the SBMP using REAIM (Reach, Adoption, Implementation, and Maintenance) framework. This abstract presents the endline findings (i.e. 6 months after completion of the intervention).

### **Methods**

The study used a mixed method, quasi-experimental design. A total of 358 nurses (206 in intervention and 120 in the control group) were enrolled at the baseline from 112 birthing centers (56 intervention and 56 control). The intervention group received simulation-based training on infection prevention, antenatal care, postnatal care, essential care for labor and birth, helping babies breathe, and pre-eclampsia and eclampsia management every month, followed by weekly practice sessions after completion of each monthly session. Difference in Difference (DID) analysis was done to compare the knowledge scores; skills were assessed using Paired t-test.

## **Results**

SBMP reached 74% nurses of the study districts. The adjusted DID analysis revealed a 15% DID in knowledge scores, with increment in scores among intervention group by 23% and among control group by 9% only ( $p < 0.01$ ). The skills scores increased from 42% to 92% among the intervention group ( $p < 0.01$ ). The average duration between two monthly sessions was 55 days, more than the planned duration i.e. 1 month. Challenges during program implementation were nurses' difficulty time management for the program, high case load in the birthing centers, staff scarcity, weather extremes, geographical difficulties, and COVID pandemic.

## **Conclusion**

SBMP was effective in improving and retaining the knowledge and skills. SBMP could be a valid alternative for training MNH service providers to provide quality perinatal care.

## **Keywords**

Simulation, Mentorship, SBMP

## **Minimally invasive tissue sampling to strengthen identification and characterization of perinatal deaths reviewed under the MPDSR system**

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## **Background**

Although the perinatal and neonatal death rates have decreased recently, it still poses a major challenge to the health system of Nepal. The objective of the study is to determine the causes of perinatal deaths by integrating Minimally Invasive Tissue Sampling (MITS) in Maternal and Perinatal Death Surveillance and Response (MPDSR) system in hospital perinatal deaths.

## **Methods**

The research is planned for three years' duration and it is currently undergoing. The study is conducted among the perinatal deaths reported in the five hospitals implementing the MPDSR system in the Kaski district of Nepal. All the stillbirths and early neonatal deaths falling into the MPDSR review are eligible unless they are grossly macerated or decomposed. MITS is performed among the consenting cases of perinatal deaths to retrieve relevant tissue samples and specimens from the perinatal deaths and from the placenta, and histopathological, microbiological, biochemical, and molecular tests are performed to determine the cause of death.

## **Results**

Among a total of 162 perinatal deaths reported in the study sites, 138 were screened and 135 were deemed eligible. A total of 108 (82.3%) of them consented to MITS. The cause of death was determined in 73 cases, among which intrauterine hypoxia was the main fetal cause in 31 (42.5%) cases followed by sepsis, intra-amniotic infection, and congenital anomaly each in 7 (9.6%). Placental abnormalities were the main maternal cause in 20 (27.4%) cases followed by medical and surgical conditions in 15 (20.5%). In 58 (79.4%) cases, MITS added information to the cause of death.

## **Conclusion**

MITS can add information to the cause of perinatal deaths, and it can strengthen the determination of causes in the causal chain of events. The outcome will be helpful to

standardize methods to establish the accurate causes of perinatal deaths, strengthen the death surveillance system and develop strategies to minimize the deaths.

### **Keywords**

Cause of death, Death surveillance system, minimally invasive tissue sampling, Stillbirth, Perinatal deaths

## **Effectiveness of a cervical cancer stigma reduction intervention on cancer stigma score and cervical cancer screening uptake in Nepal: a cluster randomized control trial**

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### **Background**

Cancer stigma contributes to low cervical cancer screening rates among Nepali women. However, tailored stigma reduction interventions are not implemented in Nepal. This study assessed the effectiveness of a cervical cancer stigma reduction intervention on cancer stigma scores and cervical cancer screening uptake among urban Nepali women.

### **Methodology**

A two-arm open-label cluster-randomized control trial was conducted in Budanilkantha Municipality. A computer program randomized 6 wards in the intervention arm and 6 wards in the control arm with 310 women; 155 in each arm. Cancer stigma was measured with the Cancer Stigma Scale. Our intervention was guided by the "Stigma Mechanisms in Health Disparities Framework," which targeted stigma across individual, interpersonal, and sociocultural levels. A parasocial contact approach was utilized, featuring a video presentation showcasing the life experiences of a cervical cancer survivor. Secondly, participatory discussions were done on stigma drivers, facilitators, types, and consequences. Lastly, flashcards were used to dispel myths and misconceptions to combat stigma. The intervention was implemented through a one-day, 4-hour session involving 12 participants

from each ward. Primary outcomes were cancer stigma measured two months' post-intervention and cervical cancer screening uptake measured six months post-intervention. Data were analyzed using the intent-to-treat approach with a generalized estimation equation logistic regression. The study has been registered in clinicaltrials.gov, NCT05489978.

### **Findings**

The odds of having cancer stigma were 0.25 times lower in the intervention group compared to the control group (CI: 0.08-0.6,  $p=0.022$ ). In the intervention group, cancer stigma significantly decreased in severity (OR=0.31, CI:0.1-0.9,  $p=0.048$ ) and awkwardness (OR=0.21, CI:0.08-0.5,  $p=0.001$ ) domain, with no differences in other sub-domains. Cervical cancer screening odds were 3.9 times higher in the intervention group (CI:1.1-13.2,  $p=0.028$ ) than in the control group.

### **Conclusion**

Cervical cancer stigma reduction intervention effectively reduced cancer stigma and increased screening uptake among urban Nepali women. This intervention can increase screening coverage in low- and middle-income countries.

### **Keywords**

cervical cancer, stigma, intervention, screening, prevention, women, Nepal, low- and middle-income countries

## **Co-Creating Interventions to Address Menstrual Seclusion in Nepal Via Human Centered Design**

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In this study, we describe insights garnered from a partnership with community members in Dailekh, Nepal, who co-created their approaches to mitigate harms associated with chhaupadi (menstrual seclusion). This investigation employed collaborative Human-centered Design (HCD) tools via a 4-day design workshop in two phases focused on discovery and design. Community members with lived experience practicing chhaupadi developed five intervention concepts: 1) harnessing Female Community Health Volunteers as role models, for counseling, and raising awareness; 2) focusing on mothers and mother's groups to instigate behavioral shifts; 3) engaging the broader community in behavior change efforts; 4) empowering fathers to effect change in their homes through counseling and education; and 5) training and emboldening youth through advocacy in their schools and homes. This research underscores the importance of multi-level approaches tailored to stakeholder groups. Further, it is imperative that interventions prioritize tackling deleterious aspects of chhaupadi and emphasize rights and safety, while also acknowledging chhaupadi's entrenched history, as there are positive aspects that women and girls may wish to preserve. Overall, utilizing HCD tools is a promising approach to meaningfully engage participants in voicing their opinions and co-designing interventions that target forms of harm against women.

### **Keywords**

menstrual health, chhaupadi, reproductive health, interventions, menstruation, human centered design, intervention development

### **Effective coverage of births in health facilities in Nepal: Cross-sectional study combining Demographic and Health Survey 2022 and Health Facility Survey 2021**

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## **Background**

In Nepal, despite increasing percentage of births in health facilities, maternal mortality remains a concern. While accessibility of healthcare services is crucial, there is also a pressing need to improve enabling environments to ensure quality of childbirth care. This study aimed to estimate effective coverage of facility-based childbirth in enabling environments in Nepal.

## **Methods**

We used data from Nepal's Demographic and Health Survey (DHS) 2022 including 1,977 women with a birth in the preceding two years and the 2021 Health Facility Survey (HFS) which sampled 804 health facilities offering childbirth services. We calculated the percentages of births by facility type (DHS) and the percentage of facility types with enabling environments for childbirth services, including providers (HFS). We combined the two to estimate effective coverage of births for routine childbirth, basic, and comprehensive emergency obstetric and newborn care (BEmONC and CEmONC).

## **Results**

Around 80 % of all births occurred in health facilities nationwide. This reduced to 18.5% nationwide when only births in facilities equipped for routine childbirth were considered, and further to 12.9% and 12.2%, respectively for BEmONC and CEmONC. The reduction between crude and effective coverage across facility types varied from 36.8% to 13.5% in government hospitals for routine childbirth, to less than 9% for BEmONC and CEmONC, and from 16.1% to 4.7% in private hospitals for routine childbirth, to less than 4% for BEmONC and CEmONC. While, 20.1% of births were in health posts, no health posts had enabling environments for routine childbirth.

**Conclusion**

Fewer than one in five births occur in health facilities with enabling environments for acceptable quality care in Nepal. This emphasizes the need for policymakers to prioritize the quality of childbirth services in well-equipped and well-staffed facility environments to improve maternal and neonatal outcomes. Continued efforts are crucial to standardize enabling environment indicators and thoroughly assess care quality.

**Keywords**

Effective coverage, Enabling environments, Maternal health services, Quality of care

## **POSTER PRESENTATION**

### **Maternity Challenges and Support System of Women Working in Nepal Police; A Descriptive, Cross-sectional Study in Kathmandu Valley**

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#### **Background**

Maternal health remains a significant issue in developing countries where the maternal health of working women is even more challenging in the present context. This study assessed the challenges faced by policewomen, the support provided to them, and the level of satisfaction with that support.

#### **Methodology**

A descriptive, cross-sectional study was conducted using a self-developed pre-tested tool where 130 policewomen who were in maternity period and working in Kathmandu Valley were interviewed along with FGD and KII. Data were analyzed using SPSS IBMv.22. Similarly, the chi-square test was used for assessing the association between different variables, and significance was considered when  $p < 0.05$ .

#### **Results**

This study revealed that 43.5% of the respondents faced maternal challenges, where 8 out of 10 women (82.6%) had received support, 26.1% utilized health services and 34.8% were satisfied with the departmental support. Individual income, number of children, age of recent child, family type, health related issues, provision of maternity leave, partner support during pregnancy, delivery and child care were some factors associated with maternal health challenges and health care utilization respectively.

Similarly, women aged  $< 30$  were 2.991 times more likely (AOR:2.991,95% CI: 1.122-9.907) to get support during maternity whereas, people who got leave for the routine checkup were 3 times more likely (AOR:3.000,95%CI:1.969-11.700) to utilize health services. Qualitative analysis of KII and FGD showed, “flexibility in duty shifts and easy work during maternity, incentives and free health checkups” were the mentioned support systems and similarly, “Guarding duty with inadequate rest leading preterm delivery”, “carrying a baby at the back

and gun at the front at the same time was the hardest phase” that showed the maternal challenges.

### **Conclusion**

The association was seen with considerable factors with maternal challenges and support systems. This study has implications for improving maternal health and safety in police departments.

### **Keywords**

Maternity challenges, support system, health service utilization, female police

### **Factors associated with parental communication on sexual and reproductive health to their adolescents in a community of Lalitpur**

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### **Background**

Parental communication is the principal means to transmit sexual values and knowledge to their adolescents on Sexual and Reproductive Health (SRH) and a critical approach that prevent adolescent’s engagement in sexual risk behaviors. Therefore, the aim of this study is to identify the factors associated with parental communication to their adolescents on sexual and reproductive health.

### **Methodology**

A quantitative descriptive cross-sectional analytical study design was done among 277 mothers having 13-19 years adolescent females residing in ward no 8, Lubhu. Data was collected by using a purposive sampling technique from 13<sup>th</sup> August to 23<sup>rd</sup> September 2023, through interview technique using researcher researcher-developed structured interview schedule. Data was analyzed using descriptive and inferential statistics.

### **Results**

In this study, 239(86.3%) had poor parental communication practices and only 5(1.8%) had good parental communication practices on Sexual and Reproductive health (SRH) to their adolescents. Nearly half of the respondents 135 (48.7%) had a high level of knowledge, 122(44.0%) had a moderate level of knowledge 275 (99.3%) had a positive attitude toward

SRH communication. Findings revealed that the educational level of the mother above secondary level (AOR=4.23,95% CI=1.43-12.48) and mothers with a high level of knowledge (AOR=4.43, 95% CI=1.93-10.18) were factors associated with parental communication on SRH.

### **Conclusion**

This study concludes that though the knowledge of parents on SRH was high to moderate level with positive attitude there was poor parental communication practice on SRH to their adolescents. Thus, the findings suggest that good parental communication practices maintain a healthy sexual life in adolescents.

### **Keywords**

Adolescents, Parents, Parental Communication, Sexual and Reproductive Health

### **Online intimate partner violence against teens and young people in Nepal**

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### **Background**

Increased access and use of digital technology has raised concerns about online IPV, particularly among teens and young people in Nepal. Despite this, there is limited awareness of online risks with severe mental health consequences. This study aimed to explore the prevalence, attitudes, and practices related to online IPV among 16 to 24 year-olds. Additionally, it also examined the risk factors, impacts, coping strategies, reporting, and response mechanisms, aiming to recommend policy and strategic interventions.

### **Methodology**

The study used a concurrent mixed-methods approach across all seven provinces of Nepal, selecting 10 districts based on internet accessibility and geographical feasibility. Participants were divided into two age groups: 16 to 17 years old (teens) and 18 to 24 years old (young adults). Data collection involved 4,352 self-administered online surveys, 17 FGDs, 10 KIIs with service providers, and 11 survivors' case stories. Ethical approval was obtained from the

Nepal Health Research Council's Ethical Review Board, ensuring ethical standards and taking informed consent from the local government and study participants.

### **Results**

An alarming 24% experienced online IPV and 41% faced offline IPV. Males experienced higher prevalence (13%) than females (9%) with excessive online monitoring, control, and verbal abuse. Sunsari district showed the highest prevalence (38 percent). Same-sex (21%) and adult-minor (11%) relationships were common, but heterosexuals and similar age groups were the main perpetrators. Participants often mistook controlling behaviours, possessiveness, sharing social media passwords, and not seeking sexual consent as signs of a healthy relationship. Impacts included anger (48%), humiliation (24.3%), loneliness (17%), depression (16%), safety concerns (16%), and self-harm (12%), among others. However, 51% of survivors did not know where to seek help, while 25% relied on self-coping.

### **Conclusion**

The study suggests enhancing policies, and resources, adopting survivor-centric and child-friendly approaches, prioritizing mental health, integrating online safety into school curricula, and enhancing community outreach activities to address the issue effectively.

## **Effect of Soap Water Bubbles Play on Pain Response During Intravenous Cannulation among Hospitalized Children**

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### **Background**

Intravenous cannulation is one of the most common and distressing procedures performed on pediatric patients in the inpatient setting. The pain of IV-line placement can cause changes in physiological indicators such as increased heart rate, respiration, blood pressure and decreased oxygen saturation. Soap water bubbles play is considered as a simple and effective non-pharmacological method for reducing pain. The objective was to assess the effect of soap water bubbles play on pain response during Intravenous cannulation among hospitalized children.

### **Methods**

A quasi-experimental study (post-test control design) was conducted among children of age group 4-6 years admitted in pediatric emergency and pediatric wards of BPKIHS. Total 50 participants undergoing intravenous cannulation were selected by adopting consecutive

sampling technique. Random allocation of first groups i.e. experimental and control group was done by lottery method and the sample was placed in every alternate group. Child was encouraged to make soap water bubble play 3 minutes prior to intravenous cannulation in experimental group only. Children's pain score was assessed in both experimental and control group via self-report using Faces Pain Scale- Revised. Mann Whitney test was used to compare means of pain score between experimental and control group.

### **Results**

The mean pain score among experimental group was 2.40 and in control group was 7.68. Experimental group showed significantly lower pain ( $p < 0.0001$ ) compared to the control group. There was no association between socio-demographic variables, background variables and child's experience of intravenous cannulation and pain response in children. Conclusion The findings suggest that soap water bubbles play before intravenous cannulation is effective in reducing pain in children.

### **Keywords**

Intravenous Cannulation, Pain, Soap water bubbles play, Children.

### **Intersectional psychosocial impact of Epilepsy: a gender lens approach**

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### **Background**

Epilepsy, a neurological disease, impacts multiple aspects of the lives of people living with Epilepsy (PLWE). In this study, we have explored the psychosocial impact of the disease on the lives of PLWE in Nepal. We also explored the intersectionality of gender with the impacts of epilepsy.

## **Methodology**

In depth interviews were conducted with twenty participants receiving treatment for epilepsy at two treatment centers in Kathmandu. A rich account of the participants' lived experiences was explored through probing and intuition.

## **Results**

Stigma associated with Epilepsy was the most common factor affecting the quality of life (Qol) of PLWE. The psychosocial impacts of epilepsy included limited employment and educational opportunities, limited socializing, unable to drive vehicles, unable to engage in sports and activities such as swimming. Epilepsy and anti-seizure medication (ASM) had marked effects on the sexual and reproductive health (SRH) of the participants. Women living with Epilepsy faced more SRH problems than men. Participants adopted various coping mechanisms to deal with the disease. More male participants mentioned actively adopting coping mechanisms to improve their Qol with epilepsy. Epilepsy affected interpersonal relationships of PLWE, especially spousal relationships, and friendships. The negative impact on spousal relationships was more severe for women than for men living with epilepsy. Access to effective ASM mitigated many of the most severe impacts for PLWE.

## **Conclusion**

Social factors, specifically stigma associated with Epilepsy, have important multidimensional effects on the Qol of PLWE. Seizure control through appropriate ASM is a critical factor in obtaining high Qol. Experiences of PLWE are strongly gendered. Women report more psychosocial and biological (reproductive) impact of the disease while men are more proactive in adopting active coping mechanisms to deal with the disease. Establishing strong psychosocial support systems is critical to improving Qol of all PLWE.

## **Keywords**

Epilepsy, PLWE, Biopsychosocial, psychosocial, gender, stigma

## **Effectiveness of oxytocin and breast massage on prolactin level and breast milk production among postpartum mothers at tertiary level hospital, eastern Nepal**

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## **Background**

Breastfeeding is considered as one of the most natural and intimate of all human interactions. Breast milk production is affected by prolactin and Oxytocin (let down) hormones, which play a role in the smooth production of breast milk. Witnessing the client in problem during breastfeeding due to lack of breast milk production is very painful for the mother and nurses as well.

## **Objective**

To assess the effectiveness of oxytocin and breast massage on prolactin level and breast milk production in blood among primiparous postpartum cesarean mothers.

## **Methods**

A quasi-experimental equivalent pre and post-test research design were conducted at the postnatal ward of BPKIHS, Nepal, including 30 primiparous postpartum cesarean mothers. An interview questionnaire and an observation Performa prepared were used for data collection. Prolactin hormone in blood was measured by the Chemiluminescence immunoassay CLIA method, breast milk production measured based on the indicators of the duration of feeding in minutes and sleeping hours of the baby after breastfeeding (one time in the morning), frequency of feeding, urination, and defecation of the baby in 24 hrs. Data were analyzed by paired t-test and independent t-test.

## **Results**

The mean difference of prolactin hormone levels in experimental group was  $147.216 \pm 78.846$  ng/ml while in the control group was  $54.364 \pm 64.779$  ng/ml. There were statistically significant differences between experimental and control groups in prolactin level (p-value 0.001), duration of breastfeeding p-value were 0.560, 0.299, 0.003, duration of sleeping hours after breastfeeding p value 0.156, 0.003, 0.027, Frequency of breastfeeding in 24hrs p value 0.267, 0.004, 0.025, Frequency of Urination in 24hrs p the value were 0.111, 0.02, 0.001, Frequency of defecation in 24hrs p-value were 0.0405, 0.001 and 0.017 on day 1, day 2, and day 3 respectively.

## **Conclusion**

The study suggests that oxytocin and breast massage are more safe, effective, with inexpensive, noninvasive methods for increasing the prolactin level in blood and improving breast milk production with lack of adverse effects and can be practiced to any mother who had delivery either by LSCS or vaginal delivery in any setting with minimal resources.

## **Keywords**

Oxytocin and breast massage, prolactin level, Breast milk production, primiparous cesarean

## **Inequalities in Knowledge of the Abortion Law among Women and Girls in Nepal**

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## **Introduction**

Even after more than two decades of the legalization of abortion, knowledge of abortion legality is still low in the country. The wealth status has a positive relation with abortion knowledge and making decisions on abortions. The objective of the study is to assess the associations of women's wealth status and knowledge of abortion legality.

## **Methods**

A multistage cross-section study was carried out to find out the underlying factors for abortion knowledge on legality. A total of 2286 women and girls were analyzed to assess the associations between women's wealth status and abortion knowledge. Knowledge of legality was assessed through a single direct question, and wealth status was assessed through equity tools and categorized into wealth quintiles. Chi2 test was used to find out the association of wealth and legality. Furthermore, concentration index (CI) was used to estimate the inequalities to have knowledge on legality. The study was approved by the Nepal Health Research Council (436/2022P).

## **Results**

A total of 44.5 percent women and girls have knowledge on abortion legality. About 42 percent poorest respondents have knowledge whereas the statistics was 53 percent in the richest group. The wealth status of the respondents are significantly associated with knowledge on legalization of abortion ( $\chi^2=15.74$ ;  $p=0.003$ ). The concentration index ( $C=0.05518903$ ,  $p=0.0001$ ) showed that there are significant inequalities among women and girls to have knowledge on abortion legality.

## **Conclusion**

Increasing wealth status is a major factor in having a higher level of abortion knowledge on legality. Inequalities persist in abortion knowledge from poorest to richest women and girls. Moreover, targeted group intervention, specifically in poor would be a tool to improve abortion knowledge on legality among women in Nepal.

## **Keywords**

Inequalities, Wealth Index, Knowledge of Legal abortion

## **Knowledge and service utilization of Maternal and Child Health among women in Mugu**

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## **Background**

Mugu, situated in the remote mid-western mountains of Karnali Province, faces challenges in providing effective health services due to difficult geography, limited infrastructure, and poor accessibility, heightening health vulnerabilities, particularly for women and children. data from Mugu District underscores suboptimal usage of maternal, newborn, and child health services in comparison to national statistics, emphasizing the urgent need for targeted interventions.

## **Methods**

A cross-sectional descriptive study was conducted adopting a mixed-methods approach. It engaged 461 respondents across four local levels of Mugu district, including one municipality (Chhayanath Rara) and three rural municipalities (Soru, Mugum Karmarong and Khatyad).

## **Results**

The study unveiled a commendable level of knowledge of MCH among women in Mugu. However, service utilization fell short of expectations, marked by the prevalence of early marriage resulting in early pregnancy. Notably, 71.8% of mothers received ANC at least four times whereas just 9% had four PNC. 72% were married before the age of 20 years, resulting in early conception (about 50% delivered before the age of 20). Almost one in ten mothers (7.8%) reported that they experienced at least one maternal death in their family due to complications of pregnancy, childbirth, or within 42 days' postpartum period. Also one tenth of surveyed mothers (11.9%) reported that they had lost their child who was born alive but died later within 4 weeks of birth.

## **Conclusions**

The majority of women had good knowledge about the ANC visits. However, the PNC visits were very limited. The study revealed high rates of early marriages among young women, causing early pregnancies. Despite >90% awareness of ANC, actual utilization lagged, highlighting a gap. Early marriages also lead to insufficient awareness of newborn and self-care during ANC and post-pregnancy.

## **Keywords**

Knowledge, service utilization, maternal and child Health

## **Impact of Government Initiatives in the adolescent knowledge and attitude regarding sexual and reproductive health: A cross-sectional analysis**

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## **Background**

Nepal's adolescent population constitutes 24% of its total population. Inadequate knowledge of sexual and reproductive health (SRH) puts youth at risk of unintended pregnancies, unsafe abortions, and sexually transmitted infections. This study aims to examine the impact of government initiatives on adolescents' knowledge and attitudes toward SRH.

## **Methodology**

A multi-stage sampling method selected two governments and two private schools in Sundarharaicha municipality based on their government/private status and proximity to Adolescent-Friendly Health Service (AFHS) sites. A sample size of 399 was determined using Cochran's formula with a p-value of 0.534. Self-administered techniques were used for data collection, yielding 363 analyzable responses. Chi-square tests established association between variables, while regression analysis determined their strength and direction.

## **Result**

Among respondents, 50.4% were male, 50.1% attended government school, 24.2% had a school health nurse and 49.9% studied in the catchment area of AFHS site. Teachers were cited as primary source for information by 50.4%, but only 13.3% preferred them. Only 35.8% demonstrated adequate SRH knowledge. Regarding attitude, 72.5% showed positivity, 5.8% neutrality, and 21.8% negativity toward SRH issues. Males demonstrated three times more knowledge on sexual and reproductive health (AOR: 3.508, CI: 2.203-5.584). Government school students were twice as likely to have SRH information (AOR: 2.095, CI: 1.199-3.663). Males were twice as likely to hold positive attitudes toward SRH (AOR: 1.963, CI: 1.180-3.267), private school students were twice as likely to have positive attitudes (AOR: 1.960, CI: 1.191-3.224), and those with adequate knowledge were three times as likely to have positive attitudes (AOR: 3.009, CI: 1.631-5.551). The presence of a school health nurse appeared to have a negative relationship with knowledge level (AOR: 0.894, CI: 0.455-1.760), and being in the AFHS catchment area made no statistical difference.

## **Conclusion**

Effective implementation of school health initiatives and AFHS program is important to effectively address adolescents' SRH needs. Further research is recommended.

## **Keywords**

Adolescents, Knowledge, Attitude, SRH

## **Impact of the COVID-19 Pandemic on Adolescent SRH Service Utilization: Insights from Service Providers in Sindhupalchowk District, Nepal**

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## **Background**

The COVID-19 pandemic has adversely affected the utilization of sexual and reproductive health (SRH) services among adolescents in low and middle-income countries, including Nepal. However, evidence of this impact remains limited. This study explores service providers' perspectives to understand how the pandemic has influenced SRH service utilization by adolescents aged 15-19 in Sindhupalchowk district, Nepal.

## **Methods**

From August to December 2021, qualitative semi-structured key informant interviews were conducted with 22 service providers selected purposively. Participants included health post in-charges, private practitioners, female community health volunteers, school health nurses, and health coordinators from four municipalities in Sindhupalchowk. Interviews were conducted in Nepali, transcribed verbatim, translated into English, and analyzed thematically manually.

## **Results**

Service providers highlighted shortages of contraceptive devices (especially condoms) and sanitary pads in health facilities during lockdown months. They reported being diverted to COVID-19 patient management, leading to decreased prioritization of adolescent health issues. Despite challenges, adolescents increasingly utilized government facilities during the pandemic due to closures of pharmacies, private facilities, and transportation restrictions.

## **Conclusion**

Adolescent utilization of SRH services was constrained during the COVID-19 lockdown, primarily due to facility closures and transportation restrictions. Government health facilities should prioritize effective measures to ensure the availability, accessibility, and distribution of SRH services during future emergencies to safeguard adolescent health.

## **Keywords**

Adolescent, SRH services, COVID-19, Service Providers

## **Challenges and Enablers in Adolescent Access to SRH Services amid the Covid-19 Pandemic in Sindhupalchowk, Nepal**

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## **Background**

The COVID-19 pandemic has significantly affected the Sexual and Reproductive Health (SRH) landscape in Nepal, with limited understanding of its impact on adolescent SRH. Hence, our study aims to investigate adolescents' perceptions and experiences regarding accessing SRH information and services during the pandemic in the Sindhupalchowk district.

## **Methods**

We conducted 12 in-depth interviews (IDIs) and 4 focus group discussions (FGDs) with adolescents aged 15–19, selected from two municipalities and two rural municipalities in Sindhupalchowk. Assistance from female community health volunteers facilitated participant selection and recruitment. Written consent was obtained from participants aged 18 and above, while ascent forms were used for those aged 15–17. Data collection was done between August 2021 and December 2021, with transcripts translated from Nepali to English and analyzed thematically manually.

## **Results**

During lockdowns, adolescents shifted to online classes, reducing peer interaction and hindering the sharing of needs and feelings. Adolescents also reported using mobile phones and social media more often and seek SRH information from the internet during school closure. Closure of shops prompted some girls to switch from sanitary pads to cloth pads during menstruation. Fear of COVID-19 transmission and movement restrictions deterred adolescents from accessing health facilities, although information disseminated by female community health volunteers facilitated access to SRH resources.

## **Conclusion**

Adolescent access to SRH information and services was constrained by school closures, fear of COVID-19 transmission, and movement restrictions. Priority should be given to adolescents to identify their health needs and issues in the coming days.

## **Keywords**

Adolescent, SRHR, COVID-19

## **Disparity in maternal and newborn health status at the palika level in Rautahat district**

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## **Background**

There is a lack of palika level disaggregated data on maternal and newborn health status in Nepal. The objectives of this study were to measure the discrepancy in institutional delivery, ANC 4 visits as per protocol, knowledge on danger signs, practice and knowledge on birth preparedness and complication readiness among recently delivered women (RDW) of Rautahat district.

## **Methods**

It was a cross sectional study conducted among 2724 RDWs using systematic random sampling in all 18 palikas of the district. Palika wise sample size calculation was done. Descriptive statistics was performed and cross tabulation was done between demographic variables and outcome variables.

## **Results**

Overall, 23% of RDWs had 4 ANC visits as per the protocol, with a disparity ranging from 45% in Madhav Narayan to 11% in Kataharia and Devahi Gonahi. Institutional delivery was 65% varied from 90% in Chadrapur to less than 50% in Brindavan and Devahi Gonahi. The majority of women (73%) had saved money for delivery services, which varied from 91% in Madhav Narayan to 45% in Rajpur. Regarding danger signs during pregnancy, only 38% knew about severe headache (range 0 to 69%), 6% knew about blurred vision (range 0 to 25%), 20% knew no fetal movement (range 5% to 41%) and 32% knew about vaginal bleeding (range 0% to 60%).

## **Conclusion**

The overall MNH service status of Rautahat is poor and there is a wide disparity among the palikas. Focused interventions targeting palikas with low indicators are needed.

## **Keywords**

Maternal and neonatal health, Rautahat, palika

## **Factors affecting the use of emergency contraceptive pills among female pharmacy undergraduate students in Kathmandu Valley**

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## **Background**

Unintended pregnancies constitute a critical global health crisis. With the introduction of emergency contraceptive pills, there has been a noticeable downward trend in the incidence of unwanted pregnancies. Despite the easy availability of the ECP, concerns persist over its misuse. In Nepal, rampant use among young adult females worsens the issue, especially in urban areas. Female undergraduate pharmacy students, pivotal due to their occupation and age, are essential to study about knowledge and use. Understanding perspectives of future pharmacists who will be responsible for counseling and dispensing of ECP to others could be helpful in increasing rational use of the pill. Therefore, this study investigates the knowledge and factors influencing ECP use among them in Kathmandu Valley.

## **Methodology**

A descriptive cross-sectional study was conducted among 169 female respondents, who were selected using the census sampling method. Data were collected from all colleges affiliated with Purnbanchal University within the Kathmandu Valley. A semi-structured questionnaire served as the primary tool for data collection. Data was entered in Epidata and analyzed in SPSS. Protocols were followed to ensure participants' consent and anonymity throughout the study.

## **Results**

Approximately one-fifth (20.7%) of respondents were sexually active, and nearly two-thirds of them (65.71%) were using ECPs as primary contraceptives. The majority (57.8%) had knowledge about the pills. Factors like age, marital status, living arrangements, knowledge, perception of ECP efficacy, and familiarity with brand names showed statistical significance ( $p < 0.05$ ) in relation to ECP use.

## **Conclusion**

Although the majority of respondents had good knowledge of the ECP, a substantial portion of sexually active females relied on it as their primary contraception, suggesting a concerning level of ignorance and underestimation of the pill's severity. This calls for action to emphasize on the importance to rational use of ECP and raise awareness about the potential negative impacts on women's reproductive health in the future.

## **Keywords**

Emergency Contraception, Emergency Contraceptive Pills, Female undergraduates, Pharmacy, Health Science

## **Utilization of Adolescent Friendly Health Services and its Associated Factors Among Secondary Level Students in Budhanilkantha Municipality, Kathmandu**

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### **Background**

Adolescence, a critical phase from ages 10 to 19 represents a period of physical, emotional, and social development, accompanied by sexual and reproductive health (SRH) needs. The provision of Adolescent Friendly Health Services (AFHS) emerges as a crucial component, especially in developing nations like Nepal. This study aimed to assess the utilization of Adolescent Friendly Health Services and explore the associated factors among secondary level students in Budhanilkantha Municipality, Kathmandu.

### **Methodology**

A descriptive cross-sectional study was conducted among 246 secondary-level students from randomly selected schools of Budhanilkantha Municipality of Kathmandu district. Students were selected by using the probability proportionate to size (PPS) sampling method from each class. A self-administered questionnaire was used to collect data. Data analysis was done in SPSS software. The chi-Square test was used to measure the association with significance at 0.05.

### **Results**

The mean age of the respondent was  $14.82 \pm 1.276$  years. 94 (38.2%) were male and 152 (61.8%) were female. 82.1% of the respondents had heard about Adolescent Friendly Health Services. 58.9% had utilized AFHS. The majority of the service that was utilized was counselling service i.e. 51.7% followed by menstrual problem management i.e. 44.1%. Factors significantly associated with the utilization of adolescent-friendly health services ( $p < 0.05$ ) were shyness while getting the services related to SRH (UOR=2.45), and fear of being seen while getting SRH services (UOR=3.27).

## **Conclusion**

Local government and local organizations should conduct awareness programs to increase the utilization of AFHS. Adequate training and IRC materials from the related organization also help in increasing the utilization of AFHS.

## **Keywords**

Adolescent Friendly, Health, Reproductive Services, Factors, Nepal

## **Women's empowerment and its relationship to intimate partner violence**

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### **Background**

Intimate partner violence is a serious public health problem and a violation of women's human rights, and it is one of the biggest social issues in Nepal. Empowerment is one of the crucial factors to help women to interrupt the cycle of violence by their intimate partners or husbands. The objective of this study is to assess women's empowerment and its relationship to intimate partner violence against women.

### **Methodology**

In a cross-sectional study, the nonprobability purposive sampling method with face-to-face interviews was used with full confidentiality to select the desired sample. For this study, the researcher was to find out the total number of married women in Tansen Municipality wards no. 7 and 8 among the 18–49 age group of 352 married women. Cross-tabulation and multivariate logistic regression were applied to identify the demographic and socio-economic factors.

### **Results**

The results revealed that violence was widespread among married women in terms of physical (20.2%), sexual (24.1%), emotional (33.2%), controlling behaviors (53.7%), and overall intimate partner violence and can be measured (68.5%). Primary educated women experienced intimate partner violence was 74.7% and more likely (COR = 1.741, 95% CI: 1.10–2.75) compared to higher educated women.

## **Conclusion**

Higher education and having a paid job proved to be protective factors against intimate partner violence. There was no significant role in reducing intimate partner violence due to the women's decision-making, having children, type of marriage, type of family, and property ownership. Additionally, the husband's alcoholic and smoking behavior increased the chances of violence.

## **Keywords**

intimate partner violence, empowerment

## **Factors associated with Surgical Site Infection following Cesarean Delivery in a Teaching Hospital**

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### **Background**

Surgical site infection (SSI) after cesarean section (CS) increases maternal morbidity, hospital stay, and medical cost. It is caused due to the interplay of various patient-related obstetric and operation-related factors. This study aims at identifying common risk factors for SSI.

### **Methodology**

A cross sectional descriptive study design with purposive sampling among 186 cesarean women attended in the gynecological outpatient department of Patan hospital, Lalitpur. Data were collected using structured questionnaire and chart review from 13th August to 23rd September, 2023. Descriptive and inferential statistics were employed using SPSS version 16 for data analysis. Significance value was considered  $< 0.05$  for data analysis. Study was conducted after adopting Ethical approval from Institutional Review Committee of Patan Academy of Health Sciences.

### **Results**

The result of the study revealed that the prevalence of SSI was 23.66% among women having CS. Medical problems like hypothyroidism, and membranes rupture before CS were significantly associated with SSI. The risk of SSI were 3 times higher among cesarean women

who had medical problems like hypothyroidism {AOR=3.015(1.353,6.717)}, and Cesarean women with membranes rupture before CS had 2.5 times higher risk of encountering SSI respectively with {AOR=2.503(1.061,5.905)}, and no association were found in other factors.

### **Conclusion**

Based on the findings the prevalence of SSI was higher in cesarean delivery so the obstetric department needs to follow strict prevention control measures to prevent SSI among Cesarean women. Future research is needed to explore extrinsic factors like duration of surgery, blood loss, BMI, etc which are related to the incidence of SSI among cesarean women.

### **Keywords**

Cesarean Section, Cesarean women, Prevalence, Surgical site infection

## **Effectiveness of Sacral Warm Compress on Pain During Active Labor Among Primigravida Women Admitted in Teaching Hospital**

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### **Introduction**

Labor is the active process of delivering a fetus and is characterized by regular, painful uterine contractions. Labour is mostly considered to be one of the most painful experiences in the life of women. so, treating pain in labor is important. The objective of this study was to assess the effectiveness of sacral warm compress on pain during active labor among Primigravida women admitted in teaching hospital.

### **Methods**

A quasi experimental pretest posttest control group design was conducted among 64 Primigravida women in active labor in maternity ward of Patan Hospital using non probability purposive sampling. Pain was assessed with Numerical Pain Rating Scale before and after 20 minutes of warm compress. Data was analyzed with Wilcoxon sign ranked test and *Mann–Whitney U test* using Statistical Package for Social Sciences (SPSS) version 16.

### **Results**

The median score of pain perceived before and after intervention in experimental group were 7.5 and 7.0 whereas, in control group were 7.0 and 9.0 respectively. Wilcoxon sign rank test p-value was <0.01 in experimental group and <0.05 in control group. Mann –Whitney U test p-value were 0.571 and <0.001 in pretest and posttest respectively.

### **Conclusion**

There was a significant difference in pain perception before and after warm compress in experimental group. Similarly, a statistically significant difference was found after intervention in the experimental and control group. The findings reveal, that application of sacral warm compress is highly significant and effective in reducing the perception of labour pain among primiparous women during active phase of the first stage of labour.

### **Keywords**

Effectiveness, First stage of labour, labour pain, Primigravida women, Sacral warm compress

## **Experiences of pregnant women with gestational diabetes mellitus: a descriptive phenomenological study**

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### **Background**

Gestational diabetes Mellitus (GDM) is a type of diabetes diagnosed for the first-time during pregnancy. Over the past forty years, GDM has slowly become more prevalent on a global scale. Around 15% of pregnant women each year are affected by GDM globally. The prevalence of GDM has also increased in Nepal. GDM is associated with multiple risk factors. Focusing on women's experiences with GDM is highly important to identify their physical, psychological, social needs, and challenges. Similarly, understanding women's experiences with GDM is important to identify whether health services are developed according to their needs or not. The objective of the present study was to explore the experiences of pregnant women with GDM admitted at general maternity ward of Patan Hospital.

## **Methodology**

A descriptive phenomenology approach was used to conduct this study. Purposive sampling was utilized to select 15 women with GDM from maternity ward of Patan Hospital. Data were collected for 6 weeks through in-depth semi-structures interviews in a simple Nepali language by adopting face-to-face approach. Data analysis was conducted using Colaizzi's method.

## **Results**

Six themes emerged from the data: Response to GDM diagnosis, Challenges, Coping, Adapting to diagnosis, Opportunity and Future concern.

## **Conclusion**

The findings of this study concludes that GDM is an emotionally distressing experience for most of the pregnant women accompanied by diverse challenges. GDM also brings a lot of opportunities for women living with this disease. To improve pregnancy experience with GDM, health care delivery system needs to be reoriented in order to address the unmet needs of the women and navigate challenges. There is also an increased need of support from family, colleagues and society to improve the pregnancy experiences. This study would be helpful in generating knowledge, raising awareness, identifying areas of improvement in current nursing practice.

## **Keywords**

Experience, Gestational Diabetes Mellitus, Phenomenology, Pregnant women

## **Findings and implications from an evaluation of Rope Guna Fal (“You Reap What You Sow”), a radio serial drama in Nepal that addressed parenting education, child marriage, and adolescent sexual and reproductive health**

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## **Background**

Population Media Center Nepal, in partnership with the United Nations Children’s Fund (UNICEF), Antenna Foundation Nepal, and VIAMO Nepal, produced *Rope Guna Fal* (“You Reap What You Sow”). Designed using a theory-based entertainment-education methodology, *Rope Guna Fal* was a 104-episode radio serial drama broadcast throughout Nepal from 2021-2022 and available on VIAMO’s ‘Suchanako Sansar’ digital platform. *Rope Guna Fal* was designed to impact social, behavioral, and normative change across three broad themes: parenting education, child marriage, and adolescent sexual and reproductive health. Using a Stages of Change framework, the objectives of this 2022 evaluation sought to understand differences between listeners and non-listeners on knowledge, attitudes, behavior, and social norms related to the program themes.

## **Methodology**

This 2022 evaluation was approved by the Nepal Health Research Council (NHRC) and utilized a cross-sectional study design. Sharecast Initiative Nepal administered a survey, using a digital tool, to a representative sample of individuals living in 2,083 households in the broadcast area. Multiple logistic regression modeling assessed differences between listeners and non-listeners while controlling for key demographic variables.

## **Results**

Selected statistically significant differences between *Rope Guna Fal* listeners and non-listeners include: listeners were one-third as likely as non-listeners to believe that members of their community feel it’s OK to scold or beat children as a form of discipline (AOR = 0.34, 95% confidence interval [0.15, 0.73]). In addition, 95.5% of listeners said they intend to stop child marriage in their family and community, compared to 78.9% of non-listeners.

## **Conclusion**

Important implications that emerge from this evaluation include that a well-designed campaign with powerful stories based on formative audience research can educate Nepalis about the consequences of child marriage, motivate people to discuss sexual health, and give confidence to the audience that they can contribute to stopping early marriage in their families and communities.

## **Keywords**

Radio; parenting education; child marriage; sexual and reproductive health and rights

## **Lifestyle factors associated with Menopausal symptoms among women of Dhulikhel municipality**

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### **Background**

Menopausal symptoms affect nearly 80% of women globally. Despite recent research focusing on menopausal symptomatology and social factors affecting women's lives, there remains limited investigation into the specific factors associated with menopausal symptoms. This knowledge gap underscores the importance of studies aimed at identifying these factors, particularly in suburban regions.

### **Methods**

We conducted face-to-face interviews in this cross-sectional study to assess lifestyle factors affecting menopausal symptoms among women (n = 354) aged 45 to 60 years residing in Dhulikhel municipality, Nepal. Menopausal symptoms were measured using the Menopause Rating Scale (MRS), which assesses somatic, psychological, and urogenital symptoms. In lifestyle factors, we assessed lifetime smoking and alcohol consumption. The association between lifestyle factors and the MRS score was assessed using a generalized linear model adjusting for potential confounders including age, ethnicity, education, employment, marital status, age of menarche, parity, and comorbidity.

### **Results**

Lifestyle factors like smoking status and alcohol consumption were significantly associated with MRS scores. After adjusting for confounders, the mean overall symptom score was 2.87 units higher (95% CI: 0.64-5.09), the urogenital score was 0.72 units higher (95% CI: 0.11-1.33), and psychological symptoms were 1.58 units higher (95% CI: 0.42-2.75) among

smokers as compared to non-smokers. When compared to non-consumers, alcohol consumers had on average 1.69 units higher somato-vegetative symptoms score (95% CI: 0.93-2.46), 2.26 units higher psychological symptoms score (95% CI: 1.31-3.20), and 4 units higher overall symptoms score (95% CI: 2.20-5.80).

### **Conclusion**

The findings highlight the substantial influence of lifestyle factors, such as smoking and alcohol consumption, on MRS among women residing in Dhulikhel, Nepal. Tailored public health interventions focusing on smoking cessation and alcohol reduction, culturally sensitive counseling, and health promotion initiatives are vital for enhancing symptom management during the menopausal transition. Future research could explore the effectiveness of specific lifestyle interventions.

### **Keywords**

Menopausal Rating Scale (MRS), lifestyle, women

## **Effect of yoga on premenstrual syndrome and dysmenorrhea among students of a selected college of Kathmandu, Nepal: A quasi experimental mixed methods study**

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### **Background**

Premenstrual syndrome (PMS) and dysmenorrhea significantly impacts the quality of life of many women, including female students. Yoga is linked to positive effects on reducing PMS and dysmenorrhea. This study aimed to measure the effect of yoga on PMS and dysmenorrhea and explore related experiences among college students.

### **Methodology**

This mixed-methods study, using a quasi-experimental sequential explanatory approach, involved total 76 participants, 38 in intervention and 38 in control group, from hostel of Padmakanya Multiple Campus, Kathmandu. The intervention group received 5-days yoga training and were asked to practice for 45 minutes daily over 3 months. Baseline assessment preceded yoga training, with midline and endline assessments at 45 and 90 days post-

intervention, respectively. 10 in-depth interviews were conducted at midline and another 10 at 90 days with participants of the intervention group. Quantitative and qualitative data analysis involved difference-in-differences technique and thematic analysis respectively.

### **Results**

At midline, 41.3% (95% CI: 39 – 50.1, P = 0.003) of those who initially had a pain intensity score >5 at baseline reported a score <5, while at endline, this proportion increased to 56.2% (95% CI: 15.7 – 74.5, P < 0.0001). Pain intensity score significantly decreased by 3.34 units (95% CI: 1.36 – 5.31, P-value = 0.001) in midline and 2.7 units (95% CI: 1.15 – 4.25, P value = 0.001) in endline. No change in PMS was seen at midline. However, at endline, 67.2% (95% CI: 6 – 92.1, P < 0.0001) of participants shifted from 'Moderate to very severe' to 'Mild', with a significant decrease in PMS score by 24.1 units (95% CI: 7.49 – 40.94, P = 0.001). Qualitative findings supported quantitative results, showing decreased pain, anxiety, irritation, and anger, with remarkable improvement in sleep disorder during menstrual and regular days.

### **Conclusion**

This study showed yoga's positive effects on PMS, dysmenorrhea, and sleep disorders, suggesting it as a potential treatment option.

### **Keywords**

Yoga, Premenstrual Syndrome, PMS, Dysmenorrhea, Menstrual pain

## **Mental Health Status and its associated factors among Women with Fertility Issues Visiting Fertility Center in Kathmandu Valley**

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### **Background**

Infertility is a multidimensional stressor associated with different social and mental health problems. Even among the general population, major depression is two to three times as common among women in comparison to men. This research assessed the mental health status and its associated factors among women with fertility issues.

## **Method**

A descriptive cross-sectional study was conducted among 143 women with fertility issues visiting fertility center in Kathmandu valley through a pre-tested structured questionnaire through face-to-face interview. The questionnaire was self-developed with added DASS-21 (Depression, Anxiety, Stress Scale) tool aiming to assess the mental health status of women. The collected data were entered and analyzed using SPSS IBM v. 22. Data were analyzed using chi-square test and logistic regression where association were established where p value was <0.05.

## **Results**

More than 8 out of 10 respondents (82.5%) had some form of anxiety, more than half (51.2%) had some form of stress and 35% women had some form of depression. Most of the women with fertility issues were highly affected by social factors. Factors such as age of respondent's, age at marriage, family type, marital satisfaction, social stigmas, reported abuse, insecurity, family support, type and duration of infertility were associated with mental health problems. In this study, the prevalence of insecurity was 72%, with respondents who felt insecure because of not having a child was 3.194 times (AOR=3.194, 95% CI 0.982-10.395) more likely to have stress than those who weren't insecure. Also, those women who had spent more than five lakhs for treatment were 2.71 times (AOR=2.71, 95% CI 0.217-26.741) more likely to have some form of depression than women having treatment cost less than this.

## **Conclusion**

Anxiety, Stress and Depression seems common among women with fertility issues. Higher psychological distress requires prompt actions to address women's mental health need who are battling with infertility.

## **Keywords**

Fertility issue, Women, Anxiety, Stress, Depression

## **Factors Associated with fear of childbirth among primigravida women attending antenatal OPD of teaching hospital, Lalitpur**

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## **Introduction**

Fear of childbirth (FOC) is an important clinical issue observed in all pregnant women, leading to consequences for their health, and implications for labour, delivery and the postpartum period. Childbirth fear is of great health concern in women living in high-income countries; however, little is known about it, among women living in low-income countries like Nepal. In this study, childbirth fear and associated factors among primigravida women of Lalitpur were explored.

### **Methods**

A cross-sectional Analytical study of 236 primigravida women was conducted at Patan Hospital. Participants were assessed for childbirth fear using the Wijma Delivery Expectancy/Experience Questionnaire (WDEQ-A). Demographic and obstetric variables were collected using a self-developed structured questionnaire. The Multidimensional Scale of Perceived Social Support Scale (MSPSSS) was used to measure the social support. To find out the association between variables, chi-square test was done and using a multiple logistic regression, impact of each associated factors were measured. For examining the relationship between fear of childbirth and social support, Pearson Correlation test was done.

### **Results**

The mean age of the participants was 26 (SD±3.4) years. During pregnancy, 1.27% primigravida women reported a low level of fear, 83.47% reported moderate, 14.41% reported high and 0.85% reported severe level of fear of childbirth. Those who had secondary or above education (odds ratio (OR): 0.518,  $p < 0.017$ ), unemployed (OR: 2.237,  $p < 0.003$ ) and those who were worried about episiotomy (OR: 0.496,  $p < 0.022$ ) were more likely to report fear of childbirth. Additionally, social support ( $r = -0.034$ ) had negative and weak relationship with Fear of Childbirth.

### **Conclusions**

This study highlighted the connection between childbirth fear with mother's education, employment, and worries about episiotomy. Identifying and developing interventions for the reduction of childbirth fear is of great clinical importance for healthy pregnancy outcomes.

### **Keywords**

Keywords: Childbirth Fear, Demographics, Obstetrics, Pregnancy, Social support.

### **Prevalence of child marriage and its associated factors among married women of the kumal community of Rupa rural municipality, Kaski, Nepal**

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## **Background**

This study was focused to examine the prevalence of child marriage, factors associated with it and its impact on Sexual and Reproductive health among women in Kumal community at Rupa Rural municipality, Kaski.

## **Methodology**

Cross-sectional analytical study was conducted among married women of Kumal community. Census was done due to limited availability of participants of Kumal community. Face to face interview was used as a data collection technique and semi-structured interview schedule was used as a tool. Bivariate and multivariate analysis was performed to assess the strength of association.

## **Result**

The prevalence of child marriage was found to be 68.4%. The mean age of the marriage was 18 years. More than three-quarters (76.7%) had appropriate knowledge of child marriage while more than nine-tenth states that its can be prevented. Low socioeconomic status was found to be one of the major factors of child marriage. The income of the family was seen to be associated with child marriage (AOR=0.302, p= 0.017). Most of the participants (47.3%) suggested the upcoming generations not to marry early. Although child marriage is not culturally accepted, poor socio-economic status, parental pressure and personal choice are the prominent reason of early marriage. Stress and depression, teenage pregnancy, low birth weight of the baby were the major consequences.

## **Conclusions**

There is high prevalence of child marriage in indigenous community. Education and economic status of early married women was not found to be satisfactory. Family having poor socio-economic status had higher chance of child marriage. Not only mother but also

infants face different problems due to birth from teenage mother. Participants suggest that child marriage can be prevented with the support of the local authorities through endorsement of proper law, proper education, female empowerment, community mobilization and family education.

### **Keywords**

Child marriage, Prevalence, Kumal community, Nepal

## **Maternity Challenges and Support System of Women Working in Nepal Police; A Descriptive, Cross-sectional Study in Kathmandu Valley**

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### **Background**

Maternal health remains a significant issue in developing countries where, maternal health of working women is even more challenging in the present context. This study assessed the challenges faced by police women, the support provided to them and the level of satisfaction towards that support.

### **Methodology**

Descriptive, cross-sectional study was conducted using a self-developed pre tested tool where, 130 police women who were in maternity period and working in Kathmandu valley were interviewed along with FGD and KII. Data were analyzed using SPSS IBMv.22. Similarly, chi-square test was used for assessing the association between different variables and significance was considered when  $p < 0.05$ .

### **Results**

This study revealed that 43.5% of the respondents faced maternal challenges, where 8 out of 10 women (82.6%) had received support, 26.1% utilized health services and 34.8% were satisfied with the departmental support. Individual income, number of children, age of recent child, family type, health related issues, provision of maternity leave, partner support during pregnancy, delivery and child care were some factors associated with maternal health challenges and health care utilization respectively.

Similarly, women aged <30 were 2.991 times more likely (AOR:2.991,95% CI: 1.122-9.907) to get support during maternity whereas, people who got leave for the routine checkup were 3 times more likely (AOR:3.000,95%CI:1.969-11.700) to utilize health services. Qualitative analysis of KII and FGD showed, that “flexibility in duty shifts and easy work during maternity, incentives and free health checkups” were the mentioned support systems and similarly, “Guarding duty with inadequate rest leading preterm delivery”, “carrying baby at the back and gun at front at the same time was the hardest phase” that showed the maternal challenges.

### **Conclusion**

The association was seen with considerable factors with maternal challenges and support system. This study has implications for improving maternal health and safety in police departments.

### **Keywords**

Maternity challenges, support system, health service utilization, female police

## **Factors influencing skilled provider-assisted delivery trends in Nepal: analysis of Nepal Demographic Health Survey data from 2001 to 2022**

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### **Introduction**

Nepal has significantly increased the use of skilled provider-assisted childbirth care over the past two decades, but the country's rates of maternal and infant mortality are still high. The purpose of this study is to examine the factors that influence the utilization of skilled provider care during childbirth in Nepal.

### **Methods**

Researchers analyzed the rates of skilled provider-assisted deliveries in Nepal in different survey periods using statistical modeling and health inequality gap analysis methods. The data were used from the 2001, 2006, 2011, 2016, and 2022 Nepal Demographic and Health Surveys. Changes over time were examined using a trend analysis. Factors were evaluated using multivariable regression and decomposition analysis in Stata version 18 SE.

## **Results**

From 2001 to 2022, Nepal's maternal health landscape underwent demographic shifts, with mothers aged 20–24 constituting the largest demographic group. Educational attainment among mothers improved, with a decline in the proportion of those with "no education" and an increase in those with higher education. Despite a predominantly rural population, there was a noticeable decrease in rural residency. Most pregnancies were within the "one to two children" category, and skilled birth attendant coverage increased significantly from 11% to 80%. Health inequity analysis showed progress in reducing disparities across wealth quintiles, maternal education, and urban-rural access to skilled birth attendance. However, disparities persist based on ethnicity, religion, and language, with rural-urban divides still evident. Changes in skilled provider-assisted delivery outcomes between 2022 and 2016 highlight evolving factors impacting access.

## **Conclusion**

In Nepal, the proportion of skilled provider-assisted deliveries increased, and Nepal's demography changed between 2001 and 2022. There are inequities in health, especially in education, the wealth quintile, ethnicity, and urban and rural areas. To improve maternal health outcomes across the country and provide equal access to these services, it is imperative that these inequities be addressed.

## **Keywords**

curriculum, ICM global education standards, midwifery, nursing, pre-service education

## **Translation and cross-cultural adaptation of the Nepali version of Sexual Interest and Satisfaction scale (SIS): a cross-sectional study**

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## **Background**

Individuals with Spinal Cord Injury (SCI) rank regaining sexual function as their top priority. Sexual dissatisfaction often leads to low self-esteem, reduced intimacy, and relationship difficulties and hence forms an essential part of the rehabilitation process.

In Nepal, where people generally hold fairly traditional views about sex and sexual health, a sexual outcome measure that is culturally sensitive is a must for addressing sexual problems. No study has yet been carried out to investigate the impact of SCI on sexual attitudes and satisfaction in Nepal. Therefore, this study aims to translate and cross-culturally adapt the Sexual Interest and Satisfaction Scale (SIS) in the Nepali language.

## **Methods**

- 1) Forward translation: Three translators translated the English version of SIS into Nepali.
- 2) Synthesis: The three translated versions were synthesized into a draft version.
- 3) Expert committee review: The expert committee meetings were held to reach a consensus for a sensible and applicable pre-final version of SIS.
- 4) Pre-test: The pre-final version of SIS was tested on 25 individuals with SCI. Their opinions and comprehension were documented for each question, and subsequent modifications were made to form the final version of Nepali SIS (SIS-NP).

The internal consistency of SIS-NP was calculated using Cronbach's alpha.

## **Results**

The translation and cross-cultural adaptation segregated the questions into two divisions: first, which could be answered by everyone irrespective of their sexual partner status, and second, which could only be answered by those with a sexual partner. No changes were made to the original questions; however, essential clarifications and definitions were added. A total of 66 individuals with SCI participated to evaluate internal consistency with a median

duration of injury of 9.5 years (IQR = 9.25). Unmarried participants accounted for 40% (n=27). Internal consistency was found to be 0.74.

### **Conclusion**

SIS was translated to Nepali, adapting standard recommended guidelines. SIS-NP demonstrated adequate internal consistency to be used in SCI.

### **Keywords**

Spinal Cord Injury; Sexual Interest and Satisfaction Scale; Nepali; Sexual impairment.

## **Perception Regarding Sexual and Reproductive Health and Utilization of Sexual and Reproductive Health Services among Adolescents of Suddhodhan Rural Municipality, Rupandehi**

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### **Background**

Adolescence is a period of transition from childhood to adulthood. A huge difference in the availability and utilization of sexual and reproductive health services is observed despite decisive steps by the Government of Nepal. The study aims to assess the perception of late adolescents regarding sexual and reproductive health and the utilization and factors associated with sexual and reproductive health services among late adolescents.

### **Methodology**

An institution-based cross-sectional study was conducted among 414 late adolescents of secondary and higher-secondary level students in Suddhodhan Rural Municipality, Rupandehi. Wards of the municipalities were selected purposively, and 4 schools were selected conveniently studying in grades 9, 10, 11, 12. Written consent was taken before the data collection and data was entered in Epidata 3.1.

### **Results**

Though the majority of the adolescents had positive toward adolescent sexual and reproductive health, 32.4% of the adolescents perceived masturbation causes weakness in the

future and 51% of the adolescents didn't know whether it causes weakness or not. About 50.7% of the participants didn't know about the National Safe Abortion Policy, 2002.

### **Conclusion**

Sexual and Reproductive health perception among adolescents is fair but some misperceptions still exist. The utilization of adolescent-friendly sexual and reproductive health services was found to be very low. Therefore, it is important to design interventions that increase awareness of sexual and reproductive health issues and correct misperceptions and there is a need for coordination between schools, and health institutions to conduct various awareness-related programs.

### **Keywords**

Adolescence, Adolescent Friendly Health Services, Adolescent Sexual and Reproductive Health Service utilization

## **Perceptions and practices on infant and young child feeding among mothers of under two years children in Bharatpur Metropolitan City, Chitwan, Nepal.**

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### **Background**

Inappropriate infant and young child feeding practices contribute to malnutrition and its consequences. This study aimed to assess the perception and practices of Infant and young child feeding among mothers in Bharatpur metropolitan city, Chitwan district.

### **Methodology**

A two-stage, probabilistic sampling strategy was employed to recruit 186 mothers of under two years' children from Bharatpur, Nepal, for this community-based, cross-sectional investigation of infant and young child feeding practices and perceptions.

### **Results**

While a satisfactory level of knowledge on IYCF was observed (64%), practices fell short. Exclusive breastfeeding under 6 months and timely introduction of complementary foods at 6 months reached only 57.1% and 55.5%, respectively. Knowledge of IYCF, nutritional counseling, and higher maternal autonomy were positively associated with better feeding practices. Interestingly, male children were 28 times more likely to receive timely complementary foods compared to females (AOR = 28, 95% CI: 28(10.74-73.03)), suggesting potential gender bias. Additionally, mothers' knowledge about and decision-

making regarding minimum acceptable diet (MAD) significantly influenced their children's feeding practices. Mothers with Highest and Middle Autonomy were more likely to meet MAD criteria for their children in comparison to Mothers with lowest autonomy (AOR=19.6,95 % CI:(4.11-93.7), (AOR=5.84,95 % CI:(1.4 -23.9).

### **Conclusion**

Despite satisfactory knowledge, infant and young child feeding practices require improvement. Counseling programs during ANC visits, immunization, and growth monitoring could be beneficial. Educating mothers to address gender bias and improve decision-making autonomy are crucial for better infant and young child feeding practices.

### **Keywords**

Infant and young child feeding, maternal perception, complementary feeding, breastfeeding, Nepal

## **Decision-making process of abortion in Karnali: A qualitative research from the perspective of women who had abortion-related complications**

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### **Background**

As abortion related complications being the third leading cause of maternal death, it is necessary to deal with unsafe abortion and enhancing decision making capacity of women for adopting safe abortion. For this, scientific evidence is crucial to formulate relevant policies and programs. Less qualitative studies have been conducted in Nepal regarding abortion.

### **Objective**

To understand decision making process as to how abortion is performed from the perspective of women of Karnali Province who had abortion related complications.

### **Methods**

This study is a cross – sectional, descriptive qualitative study. In- depth interview was conducted with 27 women from Salyan and Rukum West district (selected two districts) of Karnali Province who had taken abortion related complication service. The In-depth interview was recorded taking consent with the interviewee. The recorded interviews were

transcribed and translated to English. Then, coding and analysis was done manually. Thematic content analysis was used to identify themes which was further analyzed for interpretation.

**Results and conclusion** Perceived ideal family size, gender preference and financial condition of the family are found to contribute to decision making of abortion. Lack of adequate knowledge regarding the use of family planning devices, there is underestimation of risk of pregnancy which leads to unintended pregnancy. Knowledge and accessibility of safe abortion sites, power dynamics and privacy/secretcy affect deciding place for abortion. Abortion is embraced with privacy and secretcy however negative response from society and family is lesser among married women especially for those whose spouse is living with her.

**Recommendation:** Instead of generalizing abortion as stigmatized issue to every population, specific activities to those needed populations considering their secretcy can be effective. Assurance of couples' privacy from government facility should be promoted. Certification and training mid-level health workers to distribute medical abortion drugs from pharmacies is important.

### **Keywords**

Decision making, abortion, married women, Karnali

## **Birth Preparedness and Complication Readiness Practices Among Recently Delivered Women in Bharatpur Metropolitan City, Nepal**

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### **Background**

Maternal mortality remains a significant challenge globally, often attributed to inadequate birth preparedness and complication readiness (BPCR) practices. This study aimed to assess the BPCR practices among recently delivered women in selected wards of Bharatpur Metropolitan City, Nepal, and identify associated factors.

### **Methodology**

A cross-sectional descriptive study was conducted, targeting recently delivered women within the last 12 months. The study included 220 participants and Data were collected through face-to-face interviews using a structured questionnaire covering sociodemographic, knowledge-related, obstetric, family, neighbor, and institutional factors.

### **Results**

Among the 220 respondents, over half were aged above 25 years, and more than half of the recently delivered children were male. The majority were married before the age of 19 and identified as Brahmin/Chhetri and Hindu. Around half of the women had adequate knowledge of signs and symptoms during pregnancy, while knowledge regarding childbirth postpartum was lower. Most participants had adequate knowledge of antenatal care (ANC) checkups. Nearly all delivered their child in an institution, with around half having four or more ANC visits. Complications during childbirth were reported by 45.9% of women, mainly abdominal pain and smelling discharge. Nearly half of the participants saved money for childbirth, while few identified potential blood donors.

### **Conclusion**

While a significant proportion of recently delivered women demonstrated adequate knowledge of ANC and childbirth, BPCR practices were suboptimal. Factors such as family type, knowledge of BPCR components, obstetric signs and symptoms, and ANC visits significantly influenced BPCR practices. Strengthening BPCR education and interventions targeting identified factors could improve maternal outcomes in Bharatpur Metropolitan City.

### **Keywords**

Birth preparedness, complication readiness, maternal health, recently delivered women, Nepal

## **Assessment of reproductive health problems among women in selected Terai districts of Nepal**

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### **Background**

Reproductive health challenges persist among women in Nepal's Terai districts, posing a considerable public health burden. The aim is to investigate the prevalence and determinants of reproductive health issues, including Pelvic Inflammatory Disease (PID), Pelvic Organ Prolapse (POP), cervical lesions, cervical cancer, and their associated risk factors.

## **Methodology**

This research utilizes a mixed-methods strategy to thoroughly investigate reproductive health issues among women of reproductive age in specific Terai districts of Nepal. The quantitative aspect of the study encompasses a cross-sectional survey administered to 570 women, employing Slovin's formula for sample size determination and pretested semi-structured questionnaires. Through the saturation theory, along with in-depth exploration and targeted analysis, 40 participants were interviewed, enabling a comprehensive understanding of the investigated phenomenon. The obtained data was analyzed in SPSS with the level of significance <0.005 level. A thematic analysis was done using NVIVO for qualitative data.

## **Results**

The results indicate a high prevalence of uterine prolapse (42.1%) and cervical cancer (56.1%) within the surveyed population. Pelvic Inflammatory Disease (PID), Pelvic Organ Prolapse (POP), cervical lesions, and cervical cancer are notably linked to various factors including age, ethnicity, economic status, health-seeking behavior, age at first childbirth, nutritional status, and workload ( $p < 0.005$ ). Qualitative analysis identified underlying factors contributing to these reproductive health challenges, as well as insights into health-seeking behavior and treatment practices.

## **Conclusion**

These findings highlight the critical need for tailored interventions and healthcare initiatives to tackle the prevalent reproductive health issues. Enhanced awareness of available reproductive health services is crucial for women's well-being. This study offers valuable insights into the complex landscape of reproductive health problems in Nepal's Terai region, laying the groundwork for evidence-based interventions and policy development aimed at enhancing the reproductive health outcomes for women in this demographic.

## **Keywords**

Cervical cancer, Pelvic Inflammatory Disease, Pelvic Organ Prolapse, Terai, Nepal

## **Screening of high-risk pregnancies for Down Syndrome using quadruple test at the tertiary care center of Nepal**

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## **Background**

Down syndrome (DS) is the most common cause of developmental delay and accounts for 15-30 percent of individuals with intellectual disabilities. No finite published data suggests the prevalence of DS in Nepalese children. There is no definitive protocol from the government or professional bodies regarding screening, though the practice for screening DS is increasing both in the public and private sectors.

## **Objectives**

To screen high-risk pregnant women (Age  $\geq 30$  years) by quadruple biochemical test in the second trimester for Down syndrome and other chromosomal abnormalities. To evaluate the sensitivity and accuracy of the second-trimester screening (quadruple test with genetic sonogram) for trisomy 21 as compared to biochemical testing.

## **Methods**

This prospective observational study was conducted in the Department of Clinical Biochemistry in collaboration with the Department of Obstetrics and Gynecology, Institute of Medicine, TUTH, Maharajgunj, Kathmandu, Nepal. Pregnant women at 15-21 weeks of gestation were enrolled. Quadruple test (Alpha-fetoprotein (AFP), beta-human gonadotrophin (hCG), unconjugated estriol (UE3), and Inhibin-A in the laboratory using the technology of Chemiluminescence micro particle two-step immunoassay. Risk estimation using values of hormone levels and the resulting MoM was done using PRISCA 5.0.2.37.

## **Results**

204 high-risk pregnancies were screened for trisomy 21, trisomy 18, and neural tube defects. The mean age of the patient was  $33.65 \pm 3.71$  years. Out of 204 patients, 16 (8%) patients were identified as high risk for trisomy 21, 4 (1.96%) patients for Trisomy 18, and 4 (1.96%) patients for neural tube defects. Multiples of Median (MOM) for AFP were (0.925; Sensitivity: 61% and specificity:56%), B-HCG (1.175; Sensitivity: 35% and specificity 62.5%), UE3(1.035; Sensitivity: 53.4% and specificity 81.2%) and Inhibin (2.58; Sensitivity: 36% and Specificity: 56%) respectively.

## **Conclusion**

The second-trimester quadruple test provides an effective screening tool for Down syndrome in the Nepalese population. Quadruple tests combined with sonograms can lower the rates of unnecessary amniocentesis in high-risk populations.

### **Keywords**

Biomarker's blood\*; Chorionic Gonadotropin blood; Down Syndrome blood; Down Syndrome diagnosis\*; Pregnancy Trimester, Second

### **Iron Deficiency and Anti-Thyroid Peroxidase Antibodies in Reproductive-Age Women**

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### **Background**

Iron deficiency (ID) is a common nutritional deficiency, mostly prevalent in women of reproductive age, and is one of the overlooked causes of thyroid dysfunction including its autoantibodies. There is paucity on the evidence of the effects of ID on thyroid function. Thus, this study aimed to evaluate the relationship of thyroid disorder and autoimmune thyroid status in the iron-deficient females of the reproductive age group.

### **Methods**

This is a descriptive cross-sectional study carried out in 134 non-pregnant women of reproductive age (15-49 years) attending outpatient department of Tribhuvan University Teaching Hospital. Serum iron, Total iron binding capacity (TIBC), ferritin, free thyroxine (fT4), free triiodothyronine (fT3), Thyroid stimulating hormone (TSH) and thyroid peroxidase antibodies (TPOAb) were measured. Iron deficiency (ID) was defined as serum ferritin < 15 µg/L and iron overload (IO) was defined as serum ferritin > 150 µg/L. Continuous variables were compared with either ANOVA if they were normally distributed, or with Kruskal Wallis-H test if they were not normally distributed. Spearman correlations were performed between the continuous variables.

### **Results**

In total, 134 women of reproductive age with mean age of  $32.8 \pm 8.4$  years were enrolled in the study among which sixty (44.8%) were ID whereas sixty-one (45.5%) were iron sufficient (IS) and thirteen (9.7%) were IO. There was no significant difference between the median of fT4, TSH and Anti-TPO among ID, IS and IO group while iron ( $p < 0.01$ ), TIBC ( $p < 0.01$ ) and fT3 ( $p = 0.012$ ) was significantly different between the three groups. Serum ferritin was inversely correlated with fT3 ( $r = -0.217$ ,  $p = 0.012$ ) whereas TIBC showed significant positive correlation with fT3 ( $r = 0.715$ ,  $p < 0.001$ ). There was no significant correlation between other iron ferritin, fT4, TSH and TPOAb.

### **Conclusion**

Iron deficiency was common in women of reproductive age group and was significantly associated with thyroid dysfunction but not necessarily the TPOAbs. Thus, screening for thyroid disorders in iron deficient anemic women should be considered in order to offer timely treatment for avoiding the related complications.

### **Keywords**

Iron deficiency, Thyroid dysfunction, Reproductive age, Women, Anti-Thyroid peroxidase antibodies

### **Perceived Stigma and its associated factors among PLHIV in Bharatpur ART Center, Chitwan District, Nepal**

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### **Background**

Stigma, characterized by attitudes and beliefs that negatively affect people living with HIV (PLHIV), is a menace to the emotional well-being and mental health of this population. Moreover, stigma and discrimination may impact on HIV prevention, treatment, care, and support. In this study, we investigated the levels of perceived stigma and associated factors among PLHIV in Chitwan, Nepal.

## **Methodology**

This cross-sectional study enrolled 348 PLHIV selected with probability sampling from clients in care at the Bharatpur ART center, Chitwan District, Nepal. Trained investigators conducted face-to-face interviews using a semi-structured instrument; stigma was assessed using the Bunn standard HSS tool with mean scores  $>3.001$  considered as high-level stigma. Respectively where a mean score of all domains that felt stigma (PAC, DC, NSI, and ES) were 3.2, 3.04, 3.1 and 2.64. Stigma was measured in terms of felt stigma (public attitudes concern, disclosure concern, negative self-image, enacted stigma, and overall stigma).

## **Results**

Overall high-level stigma was found in 58.9% of the study population, whereas the percentages for each domain (NSI, PAC, DC, and ES) were 65.2%, 53.7%, 56.9%, and 49.7%, respectively. Age, ethnicity, reason for testing, marginalization due to HIV, hopelessness due to HIV, and depression due to HIV were significantly associated with stigma.

## **Conclusions**

Stigma is a major source of distress for PLHIV, which also deters high-risk individuals from accessing HIV testing and counseling services. We found alarming levels of stigma with particularly concerning estimates for NSI, suggesting that internalized negative perceptions are highly prevalent. These findings are relevant to inform interventions to reduce stigma and discrimination against PLHIV, aiming not only to improve the well-being of this population, but also to promote better access to HIV prevention, diagnosis, and care.

## **Keywords**

Stigma, Human immunodeficiency virus (HIV), and PLHIV

## **Equity Gaps in Continuum of Care for Maternal Health Services Nepal: An Analysis from Demographic and Health Survey 2022**

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## **Introduction**

With the high burden of maternal mortality in Nepal, maternal health interventions have remained a priority program for Nepal. Achieving the Sustainable Development Goal requires reducing the maternal mortality rate by more than half, which is largely contingent on utilization of high-quality services across the continuum of care. The study aims to assess the determinants of the continuum of care for maternal health service utilization.

## **Methodology**

We performed a weighted analysis of the Nepal Demographic and Health Survey (NDHS) 2022 accounting for complex survey design. We analyzed data from 1,933 women aged 15–49 who had a live birth and/or a stillbirth in the 2 years preceding the survey. Stratified random sampling method was used in the survey. We have computed equity gaps as difference between highest coverage and lowest coverage strata. We performed bivariable and multivariable logistic regression and the results are presented in odds ratios with 95%.

## **Results**

In the study, 51.2% (95% CI: 48.3 - 54.0) had completed the continuum of care:  $\geq 4$  ANC visits, health facility delivery, and PNC within 2 days. Women from Brahmin/Chhetri ethnic group were found to have 17 percentage points higher completion rate of the continuum while the women from the women in richest wealth quintile had 40 percentage points higher completion rate than the poorest wealth quintile. The difference between the highest and lowest coverage province was 24 percentage points. Likewise, there was a 24-percentage point difference in the completion of the continuum of care between women with no education and those who had completed at least secondary education. In multivariable logistic regression model, only province was statistically associated with completion of continuum of care.

## **Conclusion**

Notable disparities exist in continuum of care in maternal health services particularly based on province. Tackling such differences requires locally contextualized and tailored interventions to increase the uptake of services.

## **Keywords**

Continuum of care, maternal health, equity, Nepal

## **Prevalence of Sexual Harassment in Public Transportation and its Associated Factor among Late Adolescents of Lalitpur Metropolitan City**

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### **Background**

Sexual harassment in public transport is not a new issue in Kathmandu, especially among young girls and women. Students mainly use public transportation as a means of traveling to their educational institutions creating great risk of sexual harassment causing range of consequences. This study accentuates to assess the prevalence of sexual harassment in public transportation and its associated factors among the late adolescents of Lalitpur Metropolitan City.

### **Methods**

A descriptive cross-sectional study was conducted among 260 late adolescents of Lalitpur Metropolitan City, through a structured self-administered questionnaire among female students using a multistage sampling technique. For the qualitative method, FGD and IDI guideline was used among the male students and bus staff respectively. The collected data were entered, similarly descriptive, inferential and regression analysis was also carried out using SPSS IBM v 22.

### **Result**

Half of the adolescents (51.5%) using public transportation as a daily means of transport had experienced sexual harassment. In this study, more than three-fourths of the respondents (95.4%) seemed to used preventive measures against sexual harassment. Likewise, majority (74.5%) of the respondents seemed to use coping mechanisms immediately after experiencing sexual harassment. Due to sexual harassment majority (84.8%) of the respondents reported developing mental effects. Factors such as the grade of the respondent, academic stream, type of transportation used, lack of security system, and lack of education among male figures were associated with the prevalence of sexual harassment. Similarly, lack of a security system in transportation is 2.4 times (AOR=2.4, 95% CI 1.079-5.336) more likely to cause sexual harassment compared to respondent denying lack of a security system as one of the factors.

### **Conclusion**

Half of the respondents experienced sexual harassment in public vehicle affecting their mental health. Strengthening coping mechanisms and preventive measure against harassment along with safety interventions in public transportation would aid in making a safer environment.

## **Keywords**

Sexual Harassment, Public transportation, Effects, Female students.

## **Knowledge and perception regarding Caesarean Section delivery and its determining factors among married women of Hetauda sub-metropolitan city**

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## **Background**

A Cesarean section (CS) is a surgical procedure that can save the lives of mothers and babies when certain complications arise during pregnancy or labor. According to the NDHS 2022 report, 18% of births were delivered via C-section. Thus, research studies assessed the knowledge level, perception, and various determining factors for women regarding cesarean sections.

## **Method**

A descriptive cross-sectional study was conducted among 349 married women in Hetauda Sub-Metropolitan City, through a self-prepared, pre-tested, semi-structured questionnaire. For the qualitative data collection, Key Informant Guidelines (KII) were prepared and completed with the obstetricians. Data collected were entered and analyzed using the Chi-square test and logistic regression for knowledge level, the Mann-Whitney test, and the Kruskal-Wallis test for perception, where associations were established with a p-value <0.05.

## **Results**

The prevalence of CS was found to be 32.9% among the studied population. More than half of the respondents had adequate knowledge (59%) regarding caesarean sections. Factors such as religion, education of women, education of husbands, gravida, previous place, and previous mode of delivery were associated with the level of knowledge. In this study, respondents who had previous CS were 2.822 (95% CI 1.455–54.76, p-value = 0.002) and normal as well as Caesarean sections were 2.578 (95% CI 1.096–6.062, p-value = 0.030) more likely to have adequate knowledge on CS delivery than previous normal delivery. Major factors, such as education of women, Gravida, preferred mode and previous mode of

delivery, were associated with the perception. The median perception was significantly higher among respondents who had previous experience with CS than the group who hadn't.

### **Conclusion**

The studied population had good knowledge of CS. Regarding the Perception on CS, women with previously performed CS had a higher perception than normal vaginal delivery. Thus, immediate actions need to be taken by the government to monitor health institutions to decrease unnecessary CS delivery.

### **Keywords**

Key words: Knowledge, Perception, Caesarean Section delivery, Married Women

## **Facilitators and barriers to self care interventions in advancing sexual reproductive health among women with disabilities in mugu and surkhet district of nepal: a qualitative study**

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### **Background**

The World Health Organization (WHO) recommends a range of self-care interventions, such as self-injection, self-screening or testing, self-medication, and self-monitoring, which are either delivered or can be delivered through the current Nepalese health system. Although sexual reproductive health (SRH) self-care empowers women with disabilities to improve decision-making, early detection of potential issues, access to care, and overall SRH outcomes is increasingly seen as conducive to good health outcomes, this research is first to explore practices and experiences (facilitators and barriers) of SRH self-care among women with disability in Nepal.

### **Methodology**

Qualitative research methodology has been used where 20 in-depth interviews and one Focus Group Discussion (FGD) were conducted with women with disability living in Rural parts of Nepal until data saturation. Thematic analysis was conducted where themes and subthemes were developed after an inductive coding process using NVIVO software. Manifest analysis was conducted to analyze the data and presented in the form of descriptions and excerpts.

### **Results**

The finding revealed that the current self-care interventions for women with disabilities in Mugu District include the use of pregnancy kits, self-medication for menstruation, oral contraceptive pills and abortion, and self-monitoring for menstrual cycle, antenatal and postnatal checkups. The knowledge and information regarding SRH self-care methods and support from family members and healthcare providers were key facilitators. However, the barriers to SRH self-care practices reported by participants include limited knowledge and awareness, limited range of SRH self-care services, negative attitudes and beliefs towards people living with disability, and economic hardship.

### **Conclusion**

While current self-care practices such as self-medication and self-monitoring show potential, they are impeded by factors including limited awareness, availability of services, societal stigma, and financial constraints. The study highlights the need to enhance SRH self-care intervention among women with disability through multisectoral and sociological approaches to increase SRH accessibility and SRH autonomy.

### **Keywords**

sexual and reproductive health, self-care practices, Nepal, women with disabilities, accessibility

## **Validation of the Nepali version of the International Consultation on Incontinence Questionnaire - Urinary Incontinence Short Form (ICIQ - UI SF)**

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### **Background**

Urinary incontinence is evident throughout the life span. For the assessment, a validated tool is warranted for the assessment among Nepali population. The main objective of this research study is to determine the reliability and validity of the Nepali version of the ICIQ - UI SF.

### **Methodology**

After approval from ICIQ modular team and KUSMS-IRC, reliability, and validity of the Nepali version of the ICIQ - UI SF was evaluated with consent among 131 pregnant women with UI at ANC clinic of Dhulikhel hospital.

### **Results**

The Nepali version of the ICIQ - UI SF showed good internal consistency reliability, with Cronbach's  $\alpha = 0.81$ . Three factors were extracted and identified with an eigenvalue  $\geq 1.03$ , explaining 68.74% of the total variance. Through factor analysis first, second and third factors were identified as 'severity and quality of life', 'incontinence due to urge and overflow' and 'stress and other types of incontinence'. The Nepali version of the ICIQ - UI SF scores were low to moderate positively correlated with most of the Nepali version of the KHQ subscales.

### **Conclusion**

The results provide evidence for the psychometric properties of the Nepali version of the ICIQ - UI SF for pregnant women with UI being valid and reliable tool which can be further used in clinical and research studies.

### **Keywords**

Factor analysis, pregnant women, questionnaires, urinary incontinence, validation.

## **Knowledge, Attitude, and Practice on Sexual and Reproductive Health and its Associated Factors among the Visually Impaired Female Population of Reproductive Age of Kathmandu Valley**

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### **Background**

Globally, due to various individual as well as community barriers, sexual and reproductive health has been a big challenge for visually impaired women and girls. The study was conducted to assess the knowledge, attitude and practice on sexual and reproductive health and its associated factors among the visually impaired female population of reproductive age of Kathmandu valley.

### **Methodology**

A descriptive cross-sectional study was conducted among 110 visually impaired female population of reproductive age of Kathmandu valley. Both quantitative and qualitative study was conducted using structured questionnaire through face-to-face interview. Descriptive and inferential statistics were used to interpret the data considering  $p$  value  $< 0.05$  for significant association.

### **Results**

Majority (51.8%) of the respondents have low level of knowledge as well as poor practice (69.1%) whereas all the respondents (100.0%) have positive attitude regarding sexual and reproductive health. In binary logistic regression, the respondents with bachelor or above education were 4.17 times more likely (AOR: 4.17, 95% CI: 1.15-15.18), respondents with father's education equivalent to secondary level are 1.89 times more likely (AOR: 1.89, 95% CI: 0.55-6.46) and respondents with practice of seeking counselling services are 6.52 times more likely (AOR: 6.52, 95% CI: 2.19-19.43) to have higher level of knowledge than others. Similarly, respondents with family income source other than agriculture and job are 6.82 times more likely (AOR: 6.82, 95% CI: 1.38-33.60) and respondents with practice of seeking counselling are 21.58 times more likely (AOR: 21.58, 95% CI: 5.79-80.39) to have good practice than other respondents. The study also revealed that there is significant association between level of knowledge and practice. Similarly, the qualitative study describes those barriers and misconceptions related to sexual and reproductive health act as a major hindering factor for good practice among the visually impaired.

### **Conclusion**

Educational campaigns and different sexual and reproductive health related programs can be conducted in order to increase the knowledge level along with improving good practice among the visually impaired females.

### **Keywords**

Knowledge, Attitude, Practice, Sexual and Reproductive Health, Visually Impaired, Reproductive Age

## **Knowledge and Practice on Genital Health and Hygiene among Reproductive Aged Women on Humla, Karnali**

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### **Background**

The problem related to genital hygiene is inadequately known and has not acknowledged proper attention during the phase of reproductive aged women which has distress their health and impact on their reproductive aged women and can cause pelvic inflammatory diseases

and their complication. Purpose of this study was to assess the knowledge and practice of genital hygiene among reproductive aged women in Humla, Karnali Province.

### **Methodology**

A community based descriptive cross-sectional study design was used in this study. Simikot rural municipality of Humla Karnali province was chosen purposively. Two wards (7 and 9) were chosen by lottery method of simple random sampling, reproductive age women were chosen by systematic random sampling technique. Total sample size was 422 reproductive aged women. The tool for data collection was developed by the following literature and consulting expert. Semi structure questionnaire was used as a tool and face to face interview was conducted among reproductive aged women. The collected data was entered in epi-data, then the data are analyzed in SPSS 23.0 version. Univariate and bivariate analysis was done at 95% confidence interval.

### **Findings**

The major findings were that 48 percent (205) women had good knowledge and 25 percent had (105) practicing good genital hygiene. A significant association was found between literacy of genital health with age (p-value 0.0001), family type (p-value 0.003), educational status (p-value 0.0001), occupational status (0.002) and receiving orientation on maintaining genital hygiene (0.03). Similarly, the significant difference between practice on genital health was found associated with age (p-value-0.00010, family type (p-value 0.04), educational status (0.001), and receiving orientation on maintaining genital hygiene (0.03).

### **Conclusion**

The findings revealed that though the reproductive aged women have adequate knowledge on genital hygiene the practice remain poor. Orientation programs found effective in maintaining genital hygiene so similar types of programs should be conducted covering a wide range.

### **Keywords**

Key words: Practice, Knowledge; Genital hygiene; Reproductive aged Women

### **Knowledge and experiences of dating violence among undergraduate public health students of Kathmandu Metropolitan City, Nepal**

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## **Background**

Dating Violence (DV) is classified as a type of intimate partner violence and is defined as physical, sexual, psychological or emotional and digital violence within dating relationships or between current or former dating partners, which is mostly prevalent from the middle school years throughout adulthood. The objective of this study was to assess the Knowledge and experiences of dating violence among undergraduate public health students of Kathmandu Metropolitan City (KMC), Nepal.

## **Methodology**

A descriptive, cross-sectional study was conducted among 352 undergraduate public health students of KMC. Probability proportionate sampling was used as a sampling technique. The self-administered questionnaire was used for the data collection. Both univariate and multivariate logistic regression techniques were applied and reported adjusted odds ratios (aOR) with 95% confidence intervals.

## **Result**

Among 352 undergraduate public health students about three fourth (72.7%) were female. In the study, nearly half (48.9%) of the students had adequate knowledge of DV. Among 182 students having current or past dating relationships, majority (78.0%) of them had faced at least one type of violence from dating partner. Nearly one-fifth (16.5%) of respondents ever faced unwanted physical touch, kissing, and physical intimacy from a dating partner. Among 142 students who were facing DV, about one-fifth of respondents (15.9%) had depression/anxiety as consequences. The DV was more likely among male participants (AOR=3.035, 95%CI=1.171-7.867), students who were 18-21 years' age group (AOR=2.733, 95%CI=1.156-6.466).

## **Conclusion**

Knowledge on DV was not seen satisfactory among the students of health sector like public health while experiences of any kind of DV was seen high. Thus, there was need of open discussion on DV and its different forms in school, colleges, friends circle and within the family so that problem can be prevented before it takes tremendous consequences. Promotion of healthy relationship will play an important role to reduce unhealthy, abusive or violent dating relationship.

## **Keywords**

Knowledge, Experiences, Dating Violence, Public Health Students

## **Association between physical activity in pregnancy and neonatal birthweight among the pregnant women receiving care at Dhulikhel Hospital, Nepal: a longitudinal study**

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## **Introduction**

Growing evidence supports the benefits of physical activity during pregnancy for both mothers and babies. However, the evidence is inconclusive, and there are very limited studies conducted in low- and middle-income countries. The aim of this study was to assess the association between physical activity and neonatal birth weight among women in their third trimester in Nepal.

## **Methodology**

This is the ongoing prospective longitudinal birth cohort study among pregnant women visiting the gynecology and obstetrics outpatient department at Dhulikhel Hospital for routine ANC check-ups. Women are recruited in their 1<sup>st</sup> trimester and followed through their 2<sup>nd</sup>, 3<sup>rd</sup> trimester, delivery, and postpartum. Between August 2023 and January 2024, we recruited and followed up on 228 women in their third trimester, to assess the association between physical activity using the International Physical Activity Questionnaire (IPAQ) tool and the

birth weight of the neonate. The information regarding IPAQ was obtained through face-to-face interviews in their 3rd trimester, whereas the information about birth weight was abstracted from hospital medical records. Energy expenditure (metabolic equivalent of task (MET)\*hours/week) for total activity, moderate and vigorous intensity activities was calculated. The associations with birth weight were evaluated by regression modeling after adjusting for age, ethnicity, employment, gestational week, current BMI, and overall diet score.

### **Results**

About 66.8% of women engaged in vigorous physical activity, 26.2% in moderate activity, and only 7% were involved in walking. The mean neonatal birth weight was  $2980 \pm 493.9$  g. After adjusting for confounders, physical activity had no significant association with neonatal birth weight ( $\beta = -0.52$ , 95% CI: -1.34 to 0.29)

### **Conclusion**

Higher physical activity in the 3rd trimester of pregnancy was not associated with the birth weight of newborns among pregnant women from a peri-urban setting in Nepal. Larger population-based studies using comprehensive physical activity assessment tools are needed to confirm and expand these findings.

### **Keywords**

Physical activity, third trimester, birth weight, pregnant women, Nepal

### **Prevalence and associated factors of premarital sexual behavior among undergraduate youth of management colleges of Dhangadhi Sub-Metropolitan city, Kailali, Nepal.**

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### **Background**

Although sexuality remains a taboo in Nepali society, the prevalence of premarital sexual activities is increasing. Youth who begin early pre-marital sexual activity are more likely to be engaged in unsafe sex. The aim of this study is to determine the prevalence and associated factors of premarital sex among college-going youths of Dhangadhi Sub-Metropolitan City, Kailali (DSMC).

### **Methodology**

This is a descriptive cross-sectional study conducted in management colleges having Bachelor of Business Studies (BBS) programs in DSMC. The sample size for the study was 374. The probability proportionate to size sampling technique was adapted for sample estimation for the selected colleges and then the lottery method was used to select the academic year. The data was entered in the Epi-data 3.1 version, and it was analyzed in SPSS26. Pearson's chi-square test was used to test the association between premarital sex and independent variables.

### **Results**

The prevalence of premarital sex among undergraduate college youths was 35.3%, of which 52.3% were males. Among those undergraduate youths, more than half (51.5%) had experienced their first intercourse before 18 years of age. At least 1 out of 10 participants reported that their intercourse led to pregnancy. Predictors such as age, gender, relationship status, dating experience (p-value < 0.001), communication with parents (p-value = 0.002), family type (p-value = 0.020) and family income (p-value = 0.002) were significantly associated with premarital sex. Furthermore, not living with parents, parent's education level, friends with sex partners, friends having dating experience, and awareness that friends have sex were also among the factors that were significantly associated with premarital sex.

### **Conclusion**

Sex education interventions within and beyond educational institutions are crucial to increase the level of awareness, and protect physical, mental and social health of young unmarried partners in Nepal.

### **Keywords**

Premarital sex, Youths, Nepal.

## **Risky Sexual Behavior and its Determinants among Undergraduate Hostellers of Kathmandu Metropolitan City**

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### **Background**

Risky Sexual behaviour (RSB) includes practices of unprotected sex, sex with multiple partners, and/or sex under substance abuse, increasing vulnerability to reproductive health problems. This study explored the risky sexual behaviour and its associated factors among Nepalese undergraduates.

### **Methods**

A cross-sectional study was executed among 361 undergraduates residing in hostels of Kathmandu Metropolitan. The data was collected through a self-administered questionnaire. Pearson's chi-square test and multivariate logistic regression analysis was performed to determine factors associated with risky sexual behaviour at 5% level of significance. The ethical approval for this study was obtained from the institutional review committee of CiST College (Ref no. 47/080/081)

### **Result**

The prevalence of risky sexual behaviour among undergraduates was found to be 64.3% (95% CI: 59.8-69.8%). Risky sexual behaviour was found to be associated with higher age (aOR: 3.938; 95% CI: 1.707-8.673), male gender (aOR: 3.233; 95% CI 1.623-6.439), being in past/current relationship (aOR: 3.914, 95% CI: 2.099-7.012), lower education of mother (aOR: 3.655; 95% CI: 1.189-9.237), and peer pressure to have a sexual relationship (aOR: 2.356; 95% CI: 1.260-4.349). Bivariate analysis illustrated problematic pornographic consumption to have a statistical relation with risky sexual behaviour. However, this association weakened and became non significant after accounting for other factors in the adjusted model (aOR: 1.213, 95% CI: 0.331-4.442).

### **Conclusion**

The study highlights a significant prevalence of risky sexual behaviour among undergraduate students, linked to the factors such as age, gender, relationship status, parental education, and peer pressure. These findings suggest the need for comprehensive sex education programs that equip students with the knowledge and skills to navigate healthy relationships, make safe choices, and embrace responsible sexual practices.

### **Keywords**

sexual behaviors, sexual health, undergraduates, Nepal

# **Utilization of Maternal Health Services a Case of Birthing Centers from Rural Municipalities of Kaski, Nepal**

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## **Introduction**

Given the high global maternal mortality rate of about 287,000 in 2020, predominantly (95%) in low and lower-middle-income countries like Nepal, the research focused on antenatal, childbirth, and postnatal care within birthing centers linked to health posts. SDG Goal 3, target 3, has set ambitious national targets to decrease the MMR to 70 per 100,000 live births and neonatal mortality to 12 per 1,000 live births and to achieve coverage of 90% for four ANC visits, institutional delivery, SBA delivery, and three PNC check-ups by 2030. Despite the critical role of these services in preventing maternal deaths and achieving SDG targets, many birthing centers in Nepal report fewer than 30 deliveries annually. This highlights the necessity for research to improve maternal care services and experiences in rural areas of Nepal. The study aimed to assess the utilization of maternal health services and influencing factors among mothers in rural municipality of Kaski.

## **Methodology**

A quantitative cross-sectional study was conducted in September–October 2023 across three rural municipalities in Kaski: Rupa, Annapurna, and Machhapuchhre. The study used multistage sampling technique. Data collection included face-to-face interviews using structured questionnaire with 200 randomly selected mothers who had given birth in these areas.

## **Results**

The utilization of ANC, delivery, and PNC services from birthing centers in rural municipalities of Kaski was 84.4%, 25%, and 88.8%, respectively. Husbands' education was significantly associated with the utilization of maternal health services from birthing centers. Exposure to media, wealth index, and stay at health facility after delivery was positively associated with PNC service utilization from birthing center.

## **Conclusion**

1 out of every 4 women utilizes delivery services from a birthing center. Despite the challenges in delivery services, the utilization of ANC and PNC services is satisfactory. These findings underscore the need to allocate resources to enhance the birthing center infrastructure including diagnostic facilities to improve utilization of delivery services from the birthing center.

**Keywords**

Maternal Health Services, Utilization, Antenatal, Delivery, Postnatal and Birthing Centers.

# WIDER DETERMINANTS OF HEALTH

## ORAL PRESENTATION

### **Exploring the health, resilience, and community initiatives of informal settlers in Nepal using participatory methods**

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### **Introduction**

South Asia has the highest rates of urban poverty in Asia and the Pacific, with informal settlement populations reported in high numbers in Bangladesh (71%), Nepal (59%), and India (32%). Existing studies have revealed that significant proportions of people living in informal settlements in low and middle-income countries are more likely to experience poverty, health risks and social challenges with lack of services. We aim to understand how these people access services, their resilience towards the adversities and understanding about accountability.

### **Methods**

We conducted stakeholder analysis, social mapping and transect walk with people living in informal settlements in Manohara and Namuna Basti in Kathmandu valley and Khudikhola and Barahi Tole in Pokhara in January 2024, one event each in each settlement. Detailed notes and maps were produced from these processes, presented, and validated with the people who participated in this process. A thematic analysis approach was used in analyzing the data, using a qualitative data management software NVivo 12.

### **Findings**

We found that there are difficulties to access health, education, and other essential services across all settlements. Primary health services and community health workers were absent increasing reliance on private medical facilities. Disaster risk was perceived as common and expressed fears of eviction due to land conflicts and harsh governmental rules. While some

settlements noted improvements in government accountability and support, others faced bureaucratic hurdles and a lack of recognition of their rights and needs. However, amidst these challenges, communities showed resilience by addressing their own needs and maintaining intricate social networks and support systems.

### **Conclusion**

Despite common challenges such as limited access to health care, education, fear of disasters and concerns about eviction their resilience towards the adversities and their intricate social networks and support systems is invaluable for people living in these settlements, which needs to be strengthened.

### **Keywords**

Participatory, informal settlement, stakeholder analysis, transect walk

## **Community Engagement in Prospective Cohort Study of Typhoid Conjugate Vaccine in Lalitpur, Nepal**

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### **Background**

Community engagement (CE) is ongoing for the prospective cohort study assessing the medium-term efficacy of a typhoid conjugate vaccine (TCV) in Lalitpur, Nepal. This study follows up with participants of a phase III trial of TCV. CE has played a vital role in the successful completion the TCV trial, ultimately leading to the inclusion of TCV in the routine immunization schedule of Nepal. The objectives of CE are to engage with community stakeholders, communicate updates, address community concerns regarding the study, and disseminate information about available services through community clinics of the study to the catchment area of the study.

### **Methodology**

CE adopts a three-tier model for this study. The first tier involves municipality-level stakeholders, the second tier involves ward-level stakeholders, and the third tier involves

community-level stakeholders including mother's groups, and school children from the 17 wards where the study is being conducted.

### **Results**

CE in this study has played a crucial role in dispelling misconceptions about the study and disseminating study findings to local stakeholders and community members. CE helps build trust, keeping the community informed about available services from community clinics and helps to stay in touch with participants.

CE materials like flip charts, pamphlets, videos, and presentations, coupled with diverse methods such as lectures and group discussions, are being used to meet the community's research literacy level. The Public Engagement (PE) team maintains flexibility, conducting sessions at participants' convenience. Continuous interaction across all three levels has contributed in achieving study objectives and facilitating participant follow-up.

### **Conclusion**

Consistent engagement across all three tiers has been bridging the gap between researchers and community members and promoting a research culture within the community. CE has contributed to well-informed participation, has helped for decision making and has increased retention in the study.

### **Keywords**

Community engagement, stakeholders, typhoid, typhoid vaccine

## **POSTER PRESENTATION**

### **Nutritional awareness and behavior in adolescents: A focus on micronutrients rich food**

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#### **Background**

Micronutrients include vitamins and minerals that are required in lesser amounts but are very essential to carry out bodily functions. These are vital for the growing age of adolescents. This study aims to assess the level of knowledge, attitude, and practices among adolescents regarding the consumption of micronutrients rich foods that lays the foundation of their good health.

#### **Methodology**

A cross sectional study was conducted from August 2022 to February 2023 among 755 school-going adolescents. Data was collected using a structured questionnaire among school-going adolescents of Madhyabindu Municipality of Nawalpur district. Study participants were selected using a multi-stage sampling technique. Logistic regression analysis was used to evaluate the associated factors, and a p-value of  $\leq 0.05$  was considered statistically significant.

#### **Results**

Respondent with adequate level of knowledge was 51.52% (95% CI: 47.95-55.09), positive level of attitude was 47.94% (95% CI: 44.37-51.51), and good level of practice was 42.38% (95% CI: 38.85-45.91). Belonging to the Brahmin/Chhetri ethnic group, with higher monthly income of family, children of mothers with a primary or secondary level of education, children of fathers being literate and involved in the business or service sector had a greater likelihood of having adequate knowledge and good practice regarding micronutrients rich foods. Likewise, adolescents studying in grade ten also had the higher odds of having an adequate level of knowledge and positive attitude as well. Knowledge and attitude was found to be associated with the consumption of micronutrients rich foods.

## **Conclusion**

It is vital to design integrated and comprehensive nutritional intervention to promote knowledge, attitude, and practices regarding the consumption of micronutrients rich foods incorporating familial elements as they seem to be affecting the behavioral determinants of adolescents for consumption of micronutrient rich foods. Equipping adequate knowledge regarding these issues on nutrition might help in increasing the consumption among adolescents.

## **Keywords**

Knowledge, Attitude, Practice, Micronutrients, Dietary Patterns, Nutrition, Adolescents

## **Exploring local perspectives on climate change and its impacts on health: Photovoice in Kathmandu and Illam district, Nepal**

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## **Background**

Climate change is a threat to global health, particularly with the increased spread and prevalence of infectious diseases. Changes in climatic conditions have extended transmission seasons and broader geographical ranges for malaria and dengue. Its impact on food and water security has contributed to malnutrition and undernutrition, affecting vulnerable populations like women, children, and marginalized communities disproportionately. In addition, climate change threatens social determinants of health, including livelihoods, equality, and access to healthcare, especially for people with underlying health conditions. We conducted a study to explore the lived experiences and perception of relationships between climate and health in the Kathmandu and Illam districts of Nepal.

## **Methodology**

Digital diaries (photovoice) are used to comprehend subjective experiences. Digital diaries are a qualitative method used in community-based participatory research to gather information and use participant photography and narratives to capture personal

experiences. Participants were asked to express their points of view or represent their communities by photographing scenes that highlight themes related to climate and health which were collaboratively interpreted to develop narratives. These photovoice narratives were transcribed, summarized, and analyzed using NVivo, applying content analysis.

### **Results**

10 Participants were interviewed and 10 contributed photo stories. Participants were aware of scientific accounts of climate change such as greenhouse gas emissions and ozone layer depletion. Lived experiences of climate change included shifting rainfall patterns disrupting agriculture and exposing ecosystems, and increasing health risks through the proliferation of pathogens and vectors in warmer temperatures. Participants were also aware of mitigation measures such as renewable energy and conservation efforts.

### **Conclusion**

Growing public concern about climate change and health can be utilized to mobilise efforts at individual, community, and governmental levels to address the multifaceted challenges posed by climate change.

### **Keywords**

Climate change, perception, health

## **Respirable dust and crystalline silica concentrations among workers at a brick kiln in Bhaktapur, Nepal**

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Exposure to respirable dust and crystalline silica (SiO<sub>2</sub>) has been linked to chronic obstructive pulmonary disease, silicosis, cancer, heart disease, and other respiratory diseases. Relatively few studies have measured respirable dust and SiO<sub>2</sub> concentrations among workers at brick kilns in low- and middle-income countries. The purpose of our study was to measure personal breathing zone (PBZ) respirable dust and SiO<sub>2</sub> concentrations among workers at brick kiln in Bhaktapur, Nepal. A cross-sectional study among 49 workers in five job categories: administration, fire master, green (unfired) brick hand molder, green brick machine molder, and top loader was conducted. PBZ air samples from each worker following Methods 0600 (respirable dust) and 7500 (respirable crystalline SiO<sub>2</sub>: cristobalite, quartz, tridymite) of the U.S. National Institute for Occupational Safety and Health was collected. Furthermore eight-hour time-weighted average (TWA) respirable dust and quartz concentrations were calculated. SiO<sub>2</sub> percentage in one bulk sample each of wet clay, the release agent used by green brick hand molders, and top coat soil at the brick kiln were measured. Geometric mean (GM) sample and TWA respirable dust concentrations were 0.20 (95% confidence interval [CI]: 0.16, 0.27) and 0.12 (95% CI: 0.09, 0.16) mg/m<sup>3</sup>, respectively. GM sample and TWA quartz concentrations were 15.28 (95% CI: 11.11, 21.02) and 8.60 (95% CI: 5.99, 12.34) µg/m<sup>3</sup>, respectively. Job category was significantly associated with GM sample and TWA respirable dust and quartz concentrations (all p < 0.0001). Top loaders had the highest GM sample and TWA respirable dust concentrations of 1.49 and 0.99 mg/m<sup>3</sup>, respectively. Top loaders also had the highest GM sample and TWA quartz concentrations of 173.08 and 114.39 µg/m<sup>3</sup>, respectively. Quartz percentages in bulk samples were 16%-27%. Interventions including using wet methods to reduce dust generation, administrative controls, personal protective equipment, and education and training should be implemented to reduce brick kiln workers' exposures to respirable dust and SiO<sub>2</sub>.

### **Keywords**

air quality; brick worker; exposure assessment; international occupational health

### **Probiotics and their Postbiotics for Mitigating Aflatoxin Contamination in Food Grains: An Innovative Approach to Enhance Food Safety**

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## **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**

Probiotics and Postbiotics, Aflatoxin, Food grains, and Food safety

## **Plant-Derived Bioactive Compounds: Innovative Functional Foods for Preventive Medicine, Health Promotion, and Longevity**

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## **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 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**

Plant-derived bioactive compounds, Functional foods, Probiotics and Human health.

## **Nutritional Assessment of children from birth to 24 months of age and associated factors in selected wards of Pokhara Metropolitan city.**

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## **Background**

Malnutrition is a major public health problem in developing countries. The period from birth to 2 years is very crucial for brain development, physical growth and development. Various factors affect the nutritional status of the children including the condition of the mother during pregnancy to birth and up to 2 years. Identifying factors associated can help prevent malnutrition and develop child's health and nutritional status.

## **Objectives**

To assess the nutritional status of children between birth to 24 months and associated factor in selected wards of Pokhara Metropolitan City.

## **Methodology**

Descriptive cross-sectional study design was used for the research. Purposive sampling technique is used to select 385 samples from the wards selected with lottery method of Pokhara Metropolitan City. Semi-structured face to face Interview schedule was used for data collection from parents and anthropometric measurement was used to determine if the children were underweight (Weight for age), Wasting (Weight for Height), and stunting (height for age) based on WHO reference. Then obtained data was coded and entered in Ms excel and descriptive and inferential analysis was done through SPSS and WHO Anthro 3.2.2 software.

## **Result**

The study revealed that, 34.3%, 28.3% and 38.2% of children were stunted, underweight and wasted, respectively. The main associated factor of stunting was education status of mother and frequency of meal per day. Similarly, underweight was associated with education status of mother, frequency of meal per day and diarrheal episode. age of mother during first pregnancy, education status of father, education status of mother, occupation of father and frequency of meal per day was associated with wasting.

## **Conclusion**

The study concluded that under nutrition is still an important problem among children aged from Birth to 24 months in Pokhara Metropolitan City.

## Keywords

Nutritional Assessment, Malnutrition, Children

## Association of food environment with diet quality and Body Mass Index (BMI) among school-going adolescents in Budanilkantha municipality

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### Background

Adolescents are becoming more prone to non-communicable diseases (NCDs). A healthy food environment results in a rich dietary pattern and improved health outcomes. This study aimed to determine the association of home food environment with diet quality and BMI of school-going adolescents.

### Methods

We conducted a cross-sectional analytical study among school-going adolescents aged 15-19 years in Budanilkantha municipality. We assessed home availability of food items in the past day, walking time to reach the nearest shops from home, parental modeling and parenting style. We assessed diet quality with Global Dietary Recommendations (GDR) Score using Diet Quality Questionnaire. We measured height and weight of participants to calculate BMI. Multiple regression models were used and all statistical analyses were performed using STATA-14.

### Results

Of the 678 participants, 51.9 % were males and the mean age was 15.6 years. Those who had to walk > 20 minutes to reach the nearest vegetable shop had on average 1.44 points lower GDR Score (95 % CI: - 2.08, - 0.19) compared to those with vegetable shops at their own home. Those who had Processed Meat at home had 1.61 points (95% CI: - 1.95, - 1.28), and those with fruits and vegetables had 0.74 points (95% CI: 0.48, 1.00) lower GDR Score as compared to those who didn't have. Participants with starchy staple available had 5.59 kg/m<sup>2</sup> lesser BMI Score than those who didn't have (95 % CI: - 10.78, - 0.40) and when two participants whose parental modeling scores differed by a unit were compared, one with the higher score had on an average 0.19 kg/m<sup>2</sup> greater BMI (95 % CI: 0.01, 0.37).

## **Conclusion**

Mixed findings from this study represent that food environment and its influence on diet for adolescents is unique and complex; thus, future research is needed to identify other important influences of diet among this group.

## **Keywords**

Adolescents, Diet Quality, Food Environment, Home Food Accessibility, Home Food Availability, Obesity, Parental Modeling

## **Knowledge and Practice of Household-Based Waste Management among Indigenous Tharu and In-migrated Communities of Dangisaran Municipality, Dang**

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## **Background**

Household waste, also known as residential waste is disposable materials generated by households. Household-based waste management has been a major challenge for municipal authorities. Waste management had been an emerging issue in the Kathmandu Valley as well as other municipalities including Dangisaran rural municipality of Nepal. Some comparative studies were found on household based waste management across the globe but only a few studies in Nepal and rare studies among indigenous Tharu and in-migrated communities.

## **Objective**

The objective of this study was to compare the level of knowledge and practice of household based waste management among indigenous Tharu communities and in-migrated communities.

## **Methodology**

A comparative cross-sectional study design was carried out in Dangisaran Municipality, Dang; by using stratified proportionate random sampling technique. Total number of sample size was 184. Semi-structured questionnaire was used to collect the data and data were collected using the software Kobo Toolbox. The data were examined using descriptive statistics including frequency, percentage, mean, median and standard deviation. Chi square test was used to determine the association between level of knowledge and practice of waste management and selected variables.

## **Results**

Almost all the participants stated that there is no availability of waste collecting vehicle. The good level of knowledge and practice were 50% and 65% respectively in Tharu communities

whereas it was 60% and 77% respectively in in-migrated communities. The level of knowledge and practice had association with physical context and educational status.

### **Conclusion**

The level of knowledge and practice of household-based waste management were higher in in-migrated communities. The study revealed that level of practice increases with the increase in knowledge level and better physical context.

### **Impact of Nepal's 2015 earthquake on childhood nutrition: a quasi-experimental analysis**

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### **Background**

In April and May 2015, Nepal experienced massive earthquakes measuring more than 7 Richter Scale. Prior studies have evaluated short-term effects of 2015 earthquake on acute child health outcomes such as cough, fever, diarrhea, and childhood nutrition. In this study, I aimed to analyze the long-term impacts of Nepal's 2015 earthquake on childhood nutrition.

### **Methodology**

Utilizing four waves of Nepal Demographic Health Survey Data (2006, 2011, 2016, 2022), I employed quasi-experimental approaches (difference-in-difference (DID) and triple differences) to estimate the causal effects of the 2015 earthquake on childhood nutrition. I used height-for-age (HAZ) and stunting as primary outcomes because they are indicators of chronic malnutrition. Eleven out of 14 severely affected districts are considered the treatment group, whereas all other districts not from the Terai region, Karnali, and Sudur Paschim province were assigned to the control group. I empirically tested the parallel trend assumptions and confirmed that they were not violated. Furthermore, I conducted several robustness checks, including placebo tests, false treatment groups, and false treatment times, and the results were consistent with the main findings.

## **Results**

On average, Nepal's 2015 earthquake had null effects on children's HAZ and stunting. However, it increased stunting and severe stunting among female children by 15.6 percentage points and 11.6 percentage points, respectively. Further, the earthquake caused an average decline of -0.708 standard deviations in HAZ and an increase in stunting by 18.8 percentage points among children from Brahmin/Chhetri ethnicity compared to non-Brahmin/Chhetri. This heterogeneous effect among Brahmin/Chhetri children was observed especially among female children and children from poor households.

## **Conclusion**

The increased vulnerability of female children suggests that the negative health and development consequences of natural disasters, like the 2015 earthquake, can persist for generations. The key stakeholders should design appropriate measures to address the needs of vulnerable populations throughout the disaster management cycle.

## **Keywords**

Earthquake, Height-for-Age, Stunting, Child Health, Nepal

## **Level of health literacy on COVID-19 and its association among teachers of community schools in Gandaki province, Nepal**

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### **Background**

The coronavirus disease (COVID-19) caused significant loss of lives, disrupted livelihoods, and undermined the well-being of human beings across the world. It also underscored the readiness of the health system and the achievement of sustainable development goals. Now, COVID-19 is in the control stage in our society. Health literacy concerns individuals' critical ability to make appropriate health decisions. teachers' health literacy on COVID-19 contributes to imparting knowledge and developing skills among students and community people through schools. hence, this study aims to assess health literacy (knowledge, understanding, and skills) on COVID-19 and its association.

### **Methodology**

This cross-sectional survey was among teachers of community schools in Gandaki province in Nepal. Sample size was 732. Multistage proportionate cluster sampling was used.

Pretested and culturally adapted health literacy tool on COVID-19 was self-administered to collect data. The summative score of health literacy on COVID-19 was categorized into adequate and inadequate by the mean value. The association of health literacy on COVID-19 with independent variables was tested by chi-square test at 0.05 p-value.

### **Results**

In univariate analysis, the majority of study participants were below 40 years of age, female, Brahmin/Chhetri, secondary school level, and COVID-19 vaccines accessible to schools. Descriptively, the category of favorable combined community and policy-related variables, and inadequate health literacy on COVID-19 was major. In bivariate analysis, gender, availability of nursing care services in schools, school location, combined policy, and combined community-related variables were significantly associated with health literacy on COVID-19.

### **Conclusion**

This study showed inadequate health literacy on COVID-19 among teachers of community schools in Gandaki province. Interventions from authorities of health and school focusing on personal, school, community, and policy level-related variables help to promote health literacy on COVID-19 among teachers. Health literacy improvement makes the healthcare system and whole society resilient to future pandemics, reduces healthcare costs, and increases the chance of achieving sustainable development goals.

### **Keywords**

Health literacy, Understanding, Teachers, Knowledge, Skills, COVID-19

## **Anemia and factors affecting among adolescent girls of Kathmandu Metropolitan City**

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### **Background**

World Health Organization defines anemia as condition of reduced red blood cells or low hemoglobin concentration in blood. It is one of the global public health problems that affects women, girls, and children in majority. Effects of anemia encircles around health, educational performance, and empowerment of girls. The objective of the study was to access prevalence

of anemia among adolescent girls and factors affecting in Kathmandu metropolitan city of Nepal

### **Methodology**

A cross-sectional study was carried out using quantitative methods such as laboratory test, semi-structured interview among adolescent girls aged 14-16 years. Kathmandu Metropolitan City was divided into three areas namely core, periphery, and semi. Three schools were randomly selected representing them. Simple random sampling was applied to select girls. Statistical analysis was performed in IBM SPSS statistics 26. Univariate analysis was conducted through calculation of percentages, mean, standard deviation while bivariate analysis was conducted applying chi-square test.

### **Results**

The overall prevalence of anemia among adolescent girls was 29.9% when applying the WHO cut off point (<12 gm/dl hemoglobin concentration). Around every one in three girls are anemic. Out of the total adolescent girls, 70.1 percent girls were categorized no anemia, 25.2% had mild anemia, 3.4% had moderate anemia and 1.4 % had severe anemia. The factors associated with anemia were found as girl's age, father's education, mothers' occupation, number of pads use during menstruation, history of anti-helminthic tablets intake, iron rich foods related knowledge.

### **Conclusion**

Anemia was identified as moderate public health problem in Kathmandu Metropolitan City. Age of girls, education of parents, occupation of mother, having knowledge of iron rich foods, having taken anti-helminthic tablets intake were key factors of anemia. Therefore, study suggests government to focus upon them. Educational sessions incorporating contents about iron rich foods and importance, effective implementation of IFA program adolescents is recommended.

### **Keywords**

Anemia, Adolescent, Iron

### **Co-existence of extended spectrum beta lactamases bla CTX-M-1, bla CTX-M-9, bla TEM and bla SHV in Escherichia coli from Bagmati river**

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## **Background**

Water not only contains harmful pathogens but is also a significant contributor to antibiotic-resistant organisms when contaminated. The Bagmati River, which runs through the Kathmandu Valley, is heavily polluted. Consequently, this research aims to analyze the *Escherichia coli* found in the Bagmati River. Top of Form

## **Methodology**

From 2020 to 2021, a cross-sectional study was undertaken. Water samples were gathered in triplicate from 88 locations spanning the upstream, midstream, and downstream, tributaries of the Bagmati River, stone spouts, and shallow wells within the Kathmandu valley. Identification of *E. coli* was conducted through standard microbiological techniques. Antibiotic susceptibility testing adhered to the guidelines provided by the Clinical Laboratory Standard Institute. Detection of ESBL gene types was accomplished using multiplex PCR methods. All samples underwent processing at the Microbiology laboratory of the central department of microbiology, Tribhuvan University.

## **Results**

Out of 264 samples, 797 coliforms were identified, of which 36.1% (n=288) were *E. coli*. *E. coli* was isolated from all water samples except two upstream sampling sites and one site each from stone spouts and shallow wells. Among all the *E. coli* isolates, 27.7% (n=40) were ESBL-producing *E. coli*, confirmed across 26 sites within midstream, downstream, and tributaries. The most probable count of coliforms was highest in tributaries and lowest in upstream water sources. All *E. coli* isolates were multidrug-resistant, with over 90% resistant to antibiotics in the penicillin, tetracycline, and macrolide categories. Beta-lactamase gene types, including *bla CTX-M-1*, *bla CTX-M-9*, *blaTEM*, and *blaSHV* were identified

## **Conclusion**

Drug-resistant *E. coli* was detected in both the Bagmati river source and other naturalized water bodies within the Kathmandu Valley. This organism is known to resist second-line treatment drugs and antibiotics reserved for treating human infections. Effective sewage and waste management are required to prevent the transmission of AMR bacteria within the human community.

## **Keywords**

Water, ESBL *E. coli*, antibiotics, human

## **Policy context and understanding of climate resilient health system in two municipalities in Nepal**

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### **Background**

Nepal is one of the most vulnerable countries for climate change and health sector has already been impacted by the climate change. Nepal has initiated key policy responses to climate change. Integrating a climate-resilient strategy into healthcare systems plays an important role in ensuring the effectiveness of the system. Local levels are more responsible for implementation of policies at their level and their capacity and understanding on climate change and health remains vital. In this study, we assessed and reviewed the current policies and aimed to understand the local actors' understanding about climate change and health in the context of climate resilient health system.

### **Methods**

We conducted policy and literature review and gathered primary data collection through qualitative data with 16 key informant interviews. We carried out this study among local stakeholders in Kapilvastu municipality in Kapilvastu district and Patarasi municipality in Jumla district, Nepal.

### **Results**

The policies on climate change and health target to reduce the impact of climate-induced disasters on human health and develop climate resilient capacity of systems, emphasize integrated response measures and health adaptation. Findings show that the stakeholders in health and related sectors have lack of information and awareness on national climate change policies and plans. Moreover, gaps exist in understanding of climate change impact and mitigation, information and coordination and there is lack of dedicated tools for integration of climate change in the annual work plans.

### **Conclusion**

Nepal has developed policies for responding to climate change challenges. However, gaps remain in information and awareness about climate change and health at the local levels and they need to be more empowered to pave the path for building a climate resilient health system.

### **Keywords**

Climate change and health, climate resilient health system, local health system

## **Factors Associated with Utilization of Growth Monitoring Service by Under-2-year Children of Kapilvastu Municipality, Kapilvastu Nepal**

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### **Background**

Growth monitoring is crucial for the assessment of health and nutritional status of children under 2 years of age. However, there is poor understanding about the factors that might contribute to the utilization of Growth monitoring services among Nepali household. This study aims to find status of growth monitoring service utilization and its associated factors among residents of Kapilvastu Municipality, Nepal, having children under-2 year of age.

### **Methods**

A cross-sectional study was employed among 321 randomly selected households with children under-2 years using systematic random sampling. Data was collected from the mothers, using a pretested semi-structured questionnaire through face-to-face interview. Descriptive data were analyzed and presented in frequency and percentage. The chi-square test was used to find the association between independent and dependent variables at 5% level of significance.

### **Result**

Study found that coverage of growth monitoring service (at least one visit) was 75.4% but only 37.2% were found to have complete utilization of GM service as per age of child. Age of child ( $\chi^2= 7.563$ , p-value: 0.006), age of mother ( $\chi^2= 7.563$ , p-value: 0.006), mother's education ( $\chi^2= 18.811$ , p-value: <0.001), father's education ( $\chi^2= 15.522$ , p-value: <0.001), ethnicity ( $\chi^2= 11.749$ , p-value: 0.003), family type ( $\chi^2= 15.595$ , p-value: <0.001), economic

status( $\chi^2= 29.016$ , p-value:  $<0.001$ ), institutional delivery( $\chi^2= 22.158$ , p-value:  $<0.001$ ), utilization of PNC service ( $\chi^2= 11.603$ , p-value:  $<0.001$ ), behavior of health worker( $\chi^2= 46.872$ , p-value:  $<0.001$ ), health workers counseling regarding GM ( $\chi^2= 28.165$ , p-value:  $<0.001$ ), and Maternal knowledge regarding GM( $\chi^2= 112.955$ , p-value:  $<0.001$ ), were significantly associated with utilization of GM service.

### **Conclusion**

There is a poor utilization of GM services as per the protocol. Maternal knowledge on GM, behavior of health workers, quality of service, and utilization of maternal health services were found to be associated with GM service utilization. Thus, these factors should be considered while designing strategies for improving utilization of growth monitoring services.

### **Keywords**

Keywords Used: Growth Monitoring, Nutrition, Health service, Under-2 Year, Kapilvastu

### **Factors Influencing Minimum Acceptable Diet Intake among Children Aged 6-23 Months in Malikarjun Rural Municipality, Darchula Nepal**

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### **Introduction**

Ensuring intake of Minimum Acceptable Diet (MAD) is crucial for children aged 6 to 23 months to optimize their growth and development. Failure to meet this requirement renders them undernutrition, impaired cognitive development, growth retardation, and weakened immune response. However, there is a lack of evidence regarding MAD intake at the local level. Therefore, this study aims to assess the prevalence of minimum acceptable diet intake and associated factors among children aged 6-23 months in Malikarjun Rural Municipality, Darchula.

### **Methods**

A cross-sectional study was conducted among mothers of all 404 children aged 6-23 months residing in Malikarjun Rural Municipality. Child health and nutrition questionnaire from the

Nepal Demographic Health Survey (NDHS) was used to measure MAD intake. Data were collected by face-to-face interviews with mothers of children aged 6-23 months from September to October 2023. Binary logistic regression was applied to identify the factors associated with MAD intake.

### **Results**

The prevalence of MAD intake among children aged 6-23 months was 48.5%. Children aged 12-23 months (aOR: 5.358, 95% CI: 2.072 – 13.852), children from relatively advantaged ethnic groups (aOR: 2.921, 95% CI: 1.046 – 8.160), children from households having monthly income  $\geq$  25000 NPR (aOR: 18.029, 95% CI: 6.828 – 47.604), children from food secure households (aOR: 9.170, 95% CI: 2.888 – 29.123) had higher odds of receiving MAD. Furthermore, mothers having sufficient media exposure (aOR: 5.128, 95% CI: 2.156 – 12.194), mothers having adequate knowledge on complementary feeding (aOR: 17.575, 95% CI: 6.954 – 44.413), and mothers having workload of  $<6$  hrs/day (aOR: 6.563, 95% CI: 2.793 – 15.422) were more likely to provide MAD to their children.

### **Conclusion**

More than half of the children had not received the minimum acceptable diet. The results indicate an urgent need to increase maternal knowledge on complementary feeding, address socio-economic disparities, and promote household food security to improve child feeding practices.

### **Keywords**

IYCF, MAD, complementary feeding, 6-23 months children, Darchula

## **Perceived social support and professional quality of life of health professionals during covid-19 pandemic in Nepal: A cross-sectional study**

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### **Background**

The objective of the study was to assess the perceived social support and professional quality of life (ProQOL) among health professionals during the covid-19 pandemic in Nepal, encompassing both positive (Compassion Satisfaction) and negative (Compassion Fatigue) dimensions, as well as the factors associated with them.

### **Methodology**

We conducted a descriptive cross-sectional web-based study among health professionals aged 18-60 years, working in public and private health facilities of all levels in Nepal between December 2021 and March 2022. We carried out a convenience sampling technique to enroll the required number of samples and ProQOL version 5 and Multidimensional Scale of Perceived Social Support (MSPSS) questionnaires were deployed to assess professional quality of life and perceived social support.

### **Results**

The study included a total of 313 participants, mostly (85%) consisting of frontline health workers and more than one-third of them were working in the workplace where precautionary measures were insufficient. The majority of health professionals (73.8%) had high social support. Concerning the professional quality of life, the percentage of health professionals that had moderate Compassion Satisfaction (CS), moderate Burnout (BO), and moderate Secondary Traumatic Stress (STS) were 57.5%, 58.5%, and 75.4% respectively. Factors like sex, marital status, profession, work shift, type of health institution they were working at, and status of precautionary measures at the workplace were associated with the different dimensions of professional quality of life.

### **Conclusion**

This study's findings revealed a considerable proportion of BO and STS among health professionals during the covid-19 pandemic in Nepal. Addressing the identified challenges, such as the impact of work-related factors and socio-demographic characteristics on different dimensions of ProQOL could aid in the development of tailored strategies, and interventions aimed at enhancing the well-being of healthcare professionals during health emergencies like covid-19 pandemic.

### **Keywords**

Social support, Compassion Satisfaction, Burnout, Health Professionals

**Assessing the availability and necessity of Menstruation- Friendly Toilets in banks, hospitals, government offices and restaurants in Banke and Surkhet districts in Nepal.**

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Access to facilities and services that enable menstruators to clean their hands and bodies as well as change and dispose used menstrual products is a fundamental component of menstrual health. This study assessed whether the eight basic facilities necessary to make toilets menstruation-friendly are available in public and private sites in the study districts. The eight basic facilities of the menstrual-friendly toilets include sex segregated toilet; door with lock; window; light; running water; soap; hook and dustbin. A quantitative descriptive cross-sectional research design with a purposive random sampling method was used to identify a total of 40 study sites which covered a range of public and private sites, comprising government buildings, banks, hospitals, and restaurants across Surkhet and Banke districts. Sex-segregated toilets; hooks and dustbins are the only three of the eight basic facilities for menstruation-friendly toilets that directly address the needs of females. The study revealed that only 23% of private sector toilets were segregated by sex; 69% lacked dustbins to throw used menstrual products and 70% did not have hooks or a place to hang bags inside the toilets. In public sector toilets, only 11% were not segregated by sex; 83% lacked dustbins and 94% did not have hooks. These findings indicate that while more public sector sites have sex-segregated toilets; both private and public sectors perform dismally when addressing the other two indicators that directly inform the needs of menstruators. This study reveals low accountability towards menstruators from both the private and public sector indicating minimal consideration of menstrual needs by Nepalese society at large. This discourse is compounded by the fact that since the majority of menstruators are females, gender plays a deciding role in access to menstruation-friendly toilets.

### **Keywords**

Menstruation, Menstruation-friendly toilets, Gender, WASH, Public Toilets

### **Health Literacy among Elected Leaders of Municipalities in Nawalparasi West**

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### **Background**

Health literacy describes a person's capacity to apply health services and information in making wise decisions about their health. The local government is highly responsible in taking major decisions in formulating laws, policies and procedures related to the upliftment of health. This study assessed the level of health literacy among elected leaders and the factors influencing it.

### **Methodology**

This descriptive cross-sectional study was conducted among 192 elected officials including ward chairs, dalit female ward members, female ward members and ward members elected from local level election of 2079 in 4 municipalities of Nawalparasi West. This study used a short version of the European health literacy survey questionnaire containing 16 items. Bivariate and multivariate analysis was done by using logistic regression to evaluate the association between level of health literacy and gender, ethnicity, level of education, occupational involvement, elected post and self-rated self esteem with the level of significance less than 0.05. Statistical analyses were performed using IBM SPSS Statistics 25.

### **Results**

The health literacy scores were dichotomized where 55.2% had adequate and 44.8% had limited health literacy scores. Leaders scored high on competency dealing with applying health information [Mean (SD): 3.22(0.69)] while they scored low on competency dealing with appraising health information [Mean (SD): 2.74(0.74)] In particular, male (OR = 1.961, CI 1.096-3.511), Brahmin/chhetri (OR = 6.366, CI 2.290-17.699), leaders having bachelors (OR = 8.437, CI 2.112-33.715), involvement in service sectors (OR = 3.877, CI 1.082-13.886), ward chairs (OR = 1.153, CI 0.533-2.498) and high self-rated self esteem (aOR = 6.475, CI 2.201-19.04) were more likely to have adequate health literacy.

### **Conclusion**

Leaders with schooling for educational purposes and high/medium self-esteem were more likely to have adequate health literacy. The local governments need to orient leaders on the importance of health literacy and interventions in collaboration with health institutions.

## **Keywords**

Health literacy, local government, elected leaders

## **Socioeconomic Determinants Influencing Adherence to Secondary Prophylaxis in Patients with Rheumatic Heart Disease- A Systematic Review**

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Rheumatic heart disease (RHD) poses a significant global health challenge, particularly affecting resource-limited countries. With over 40.50 million reported cases in 2019, it remains a leading cause of morbidity and mortality, emphasizing the crucial role of Benzathine penicillin in both primary and secondary prevention. Secondary prophylaxis, delivered through Intramuscular Benzathine Penicillin, is key to managing RHD and preventing recurrent infections. However, adherence to secondary prophylaxis is influenced by socioeconomic factors, which this systematic review aims to identify and stratify. Following PRISMA guidelines, we systematically searched Medline, Google Scholar, and Embase databases from 1990 to 2022 for studies on secondary prophylaxis in RHD. Our review, is registered with PROSPERO (ID: CRD42023456482). For observational studies, the New Castle Ottawa Scale was utilized to assess study quality in terms of bias. This scale evaluates studies under three main domains: selection, comparability, and exposure/outcome. Studies scoring five or higher were considered eligible for inclusion, while those scoring more than seven were categorized as high-quality studies. Any discrepancies encountered during data extraction and quality assessment were resolved through consensus among all authors. Education plays a crucial role in adherence to secondary prophylaxis in Rheumatic

Heart Disease (RHD), with varying impacts noted. Socially disadvantaged environments significantly affect adherence, influenced by education, socioeconomic status, and geographical location. Surprisingly, lower education levels were linked to better adherence in some cases. Factors contributing to decreased adherence included forgetfulness, injection-related fears, and healthcare provider-related issues. Conversely, higher adherence was associated with younger age, latent disease onset, increased healthcare resources, and easy access.

Patient education and awareness are vital for improving adherence, emphasizing the need for structured frameworks, community initiatives, and outreach healthcare programs. Overcoming barriers like long-distance commutes, waiting time, injection fears, and costs can enhance adherence and, consequently, prevent RHD complications more effectively.

### **Keywords**

Rheumatic Heart Disease, RHD, Socio Economic Factors

### **Cross sectional study on behavioral determinants associated with sugary foods and beverages and its correlates with Body Mass Index (BMI) among adolescents**

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### **Background**

Adolescence is the period that demands high nutrients with changes in dietary habits making the age group vulnerable. Foods high in calories increase risk for overweight. The habits are guided by multiple factors including behavioral determinants. Therefore, this study aims to identify the effects of such behavioral determinants on adolescents and their relationship with body weight.

### **Methodology**

A cross-sectional study was conducted among 768 adolescent students of Nagarjun Municipality. This study used a multistage random sampling to recruit the participants. Factors associated with behavioral determinants were examined using the Chi-square tests

followed by logistic regression analyses in SPSS V.16. The statistical significance was set at p-value < 0.05 and 95% confidence intervals (CIs).

## **Results**

Adequate level of knowledge regarding sugary foods and beverages was found among 84.11% (95% CI: 81.52-86.70) of the adolescents. Exactly three fifths' (95% CI: 56.55-63.49) respondents had positive attitude. The percentage of adolescent consuming sugary foods and beverages was 84.50% (95% CI: 81.94-87.07). Odds of having adequate knowledge among respondents was twice (AOR=2.05, 95% CI: 1.12-3.76) more likely for those living with parents. Female adolescents (AOR=2.51, 95% CI: 1.61-3.89), whose mother are homemaker (AOR=1.99, 95% CI: 1.04-3.58) and father engaged in foreign employment (AOR = 2.09, 95% CI: 1.04–4.21) were more likely to consume sugary foods and beverages. The prevalence of overweight/obesity was 6.38% (95% CI: 4.64-8.11). Consumption of sugary foods and beverages was seen to be significant to model of overweight versus normal [OR=11.95 (95% CI: 1.61-88.42)] with higher odds of being overweight among the adolescents consuming sugary items.

## **Conclusion**

Presence of adequate knowledge wasn't the only and adequate factor for food selection among adolescents. Family indulged interventions can be useful as familial factors seem to be affecting behavioral characteristics. Sugary foods and beverages are associated with high BMI among adolescents. Hence interventions focusing on dietary discipline is also recommended.

## **Keywords**

Sugar, Sugary foods, Sugary beverages, Knowledge, Attitude, Practice, Overweight, Obesity, Adolescents

## **Impact of the COVID-19 pandemic on the nutritional status of graduate and postgraduate students in the Dhanusha district of Nepal**

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## **Background**

COVID-19 (Coronavirus disease 2019) is an infectious disease caused by corona virus which was first identified in December 2019 in Wuhan, China. As COVID-19 pandemic rapidly swept across the world, it led to considerable degree of fear, worrying anxiety, depression in people with underlying health conditions. This study aimed to determine nutritional status of university students using MNA tool and provision of proper dietary advice.

## **Methodology**

This was a cross-sectional study conducted among 384 university students of Dhanusha district within 15<sup>th</sup> Oct 2021 to 15<sup>th</sup> Jan 2022. Nutritional status was assessed by using MNA score which evaluates three different aspects: anthropometric measures (body mass index [BMI]; general assessment (signs of depression) and short dietary assessment (number of meals, food, and fluid intake). Data were entered using the SPSS (Version 22). Frequencies and percentages were obtained for categorical variables. Chi-square was applied to see any association between variables.

## **Results**

Among 384 students, 250 were females and 134 were males. The mean age of students was 27 years. The majority of students are pursuing post-graduate i.e., 236(61%). By using MNA it was found that most students are at risk of developing malnutrition (220, 57%) however, only 18 (5%) students were malnourished. In this study, most malnourished students belong to aged >30 years (11,2.8%). BMI was found to be significantly associated with MNA ( $p<0.002$ ).

## **Conclusion**

MNA is an easy and reliable tool that can be used for nutritional assessment approach. This is helpful in nutritional planning and prevention of malnutrition.

## **Keywords**

COVID-19, Nutritional Status, Nutritional Assessment, MNA 1. Department of Microbiology, Universal College of Medical Sciences, Bhairahawa 2. Social Development and Research Center, Janakpur, Nepal 3. Plan International Nepal, Kathmandu, Nepal

## **Counseling for Smoking cessation by female community health volunteers in rural Nepal: Utilizing a two-phase mixed-methods approach**

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### **Background**

Female Community Health Volunteers (FCHVs) can be crucial in delivering smoking cessation counseling in rural Nepal. We assessed FCHV's knowledge, self-efficacy, and barriers to smoking cessation counseling before and after delivering phase wise training and educational intervention.

### **Methodology**

Using Health Belief Model, we conducted a two-phase mixed-methods study among 28 FCHVs in rural mid-Western Nepal in eight Focused Group Discussions (FGDs) exploring FCHVs' knowledge, self-efficacy, and barriers in counseling about smoking cessation in Phases 1 and 2 ten months apart. After phase 1 FGDs, we conducted a training on smoking-cessation using didactics and role play and a refresher training after phase 2 FGDs. We concurrently administered two surveys, one before phase 1 and another after phase 2 training, for complementarity. We used thematic analysis for qualitative data and descriptive statistics for quantitative data and mixed them during interpretation.

### **Results**

FCHV's mean age was  $48 \pm 6.8$  years, 1/3<sup>rd</sup> had secondary education, and 3/4<sup>th</sup> were working as FCHVs for >10 years. Qualitative analysis revealed 18 codes, yielding six themes under 3 domains i.e. Knowledge, Self-efficacy and Barrier. During phase 1, FCHVs demonstrated comprehensive knowledge of tobacco, its health-effects, and measures and medications for tobacco cessation but stressed the necessity for training to enhance counseling skills. In thematic analysis from phase 2, we found moderate improvement in knowledge and

confidence. However, community's receptivity to counseling remained a notable barrier, contrasting with some individuals who valued FCHVs' persistent counseling endeavors. Quantitative analysis revealed a marginal improvement in the already substantial knowledge and confidence levels among FCHVs regarding smoking cessation counseling alongside a notable decrease in perceived barriers.

### **Conclusion**

FCHVs expressed good knowledge and counseling skills for smoking cessation, which was reinforced by training. Yet, community's receptivity to counseling emerged as a significant barrier, highlighting the necessity for acceptable strategies to garner community support.

### **Keywords**

Female community Health Volunteers (FCHV), Smoking Cessation Counselling, Mixed Method Analysis

### **Nutritional awareness and behavior in adolescents: A focus on micronutrients rich food**

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### **Background**

Micronutrients include vitamins and minerals that are required in lesser amounts but are very essential to carry out bodily functions. These are vital for the growing age of adolescents. This study aims to assess the level of knowledge, attitude, and practices among adolescents regarding the consumption of micronutrients rich foods that lays the foundation of their good health.

### **Methodology**

A cross sectional study was conducted from August 2022 to February 2023 among 755 school-going adolescents. Data was collected using a structured questionnaire among school-going adolescents of Madhyabindu Municipality of Nawalpur district. Study participants were selected using a multi-stage sampling technique. Logistic regression analysis was used

to evaluate the associated factors, and a p-value of  $\leq 0.05$  was considered statistically significant.

### **Results**

Respondent with adequate level of knowledge was 51.52% (95% CI: 47.95-55.09), positive level of attitude was 47.94% (95% CI: 44.37-51.51), and good level of practice was 42.38% (95% CI: 38.85-45.91). Belonging to the Brahmin/Chhetri ethnic group, with higher monthly income of family, children of mothers with a primary or secondary level of education, children of fathers being literate and involved in the business or service sector had a greater likelihood of having adequate knowledge and good practice regarding micronutrients rich foods. Likewise, adolescents studying in grade ten also had the higher odds of having an adequate level of knowledge and positive attitude as well. Knowledge and attitude was found to be associated with the consumption of micronutrients rich foods.

### **Conclusion**

It is vital to design integrated and comprehensive nutritional intervention to promote knowledge, attitude, and practices regarding the consumption of micronutrients rich foods incorporating familial elements as they seem to be affecting the behavioral determinants of adolescents for consumption of micronutrient rich foods. Equipping adequate knowledge regarding these issues on nutrition might help in increasing the consumption among adolescents.

### **Keywords**

Knowledge, Attitude, Practice, Micronutrients, Dietary Pattern, Nutrition, Adolescents

### **Knowledge, attitude and practice of personal hygiene among secondary level students of grade nine and ten government school of Jumla**

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## **Background**

Personal hygiene is crucial for a healthy life, especially for school children who are more susceptible to diseases due to poor hygiene. This study was design to determine the existing knowledge, attitude and practice of personal hygiene among secondary students of grade nine and ten of a government school of Jumla.

## **Methods**

A school-based cross-sectional study was conducted in a Government Secondary school situated in a rural area of Jumla. By complete enumeration method, 368 adolescent girls and boys of class nine and ten were included. Pre-tested, self-administered questionnaire were used. Data were collected and analyzed in SPSS version 16. Chi-square test was applied to compare the proportions of quantitative variables.

## **Results**

Among 368 students, there were 43.3% males and 52.7% females. The mean age of the participants was  $14.98 \pm 1.34$  years. Study found that 94.8% students had good knowledge where as 82.3% of them had negative attitude towards personal hygiene and only 63.6% of them had good personal hygiene practice. Participants who had positive attitude on personal hygiene had higher percentage of good personal hygiene practices. Knowledge and attitude on personal hygiene had no statistically significant association.

## **Conclusion**

The study revealed that the majority of the students had a good level of personal hygiene knowledge among the school's students. Boys appeared to be more knowledgeable than the girls; though these knowledge and attitude were not reflected in their practices. Knowledge and attitude did not relate to each other, but they both impacted hygiene behaviors. The study proposed that health education should target changing knowledge and attitude to improve hygiene among rural youth.

## **Keywords**

Personal hygiene; Knowledge; Attitude; Practices; Rural government school

## **Dietary Practice among Pregnant Women in Pokhara, Nepal: a cross-sectional study**

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## **Introduction**

Optimal dietary practice during pregnancy plays a vital role; it significantly impacts maternal and fetal health, whereas poor dietary practices during pregnancy have been linked to increased risk of preterm birth, stillbirths, intrauterine growth retardation, low birth weight as well as maternal and perinatal death. This study aimed to assess the dietary practice and its associated factors among pregnant women in Pokhara metropolitan.

## **Methods**

A community-based cross-sectional study was conducted among 265 pregnant women through multistage sampling techniques between Sep-Oct 2023. Data were collected by using a pre-tested semi-structured questionnaire through face-to-face interviews. Data were entered in epi-data and analyzed by using SPSS. Chi-square test was applied to find the factors associated with dietary practice. All variables with p-values <0.05 were considered statistically significant.

## **Results**

The mean age of participants was  $27.11 \pm 4.61$  years, and 63.2% of them were in their 3<sup>rd</sup> trimester of pregnancy. 72.8% of pregnant women had adequate dietary practice (mean dietary score:  $75.20 \pm 20.41$ ) from the chi-square test; age of the participant ( $\chi^2 = 8.581$ , p-value: 0.003), household wealth status ( $\chi^2 = 25.720$ , p-value: <0.001), dietary diversity ( $\chi^2 = 24.946$ , p-value: <0.001), and food taboos ( $\chi^2 = 5.774$ , p-value: 0.016) were found statistically significant with adequate dietary practices.

## **Conclusion**

Nearly three-fourths of participants had adequate dietary practice. Economic status, dietary diversity, and food taboos should be considered while planning and implementing strategies aiming to improve dietary practices among pregnant women.

## **Keywords**

Dietary practice, Pregnant women, Nutrition, Pokhara

## **Assessing the Availability and Necessity of Menstruation-Friendly Toilets in Banks, Hospitals, Government Offices, and Restaurants in the Selected District of Nepal**

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Inclusive WASH facilities that cater to the needs of menstruators. This study addresses the critical issue of menstrual health and hygiene, particularly focusing on the challenges faced by menstruators in Banke and Surkhet districts, Nepal. It aims to assess the perceived importance of menstruation-friendly toilets in various public spaces in these districts. The findings provide insights into accessibility and importance of menstruation-friendly facilities, informing future initiatives and advocating for improved menstrual hygiene infrastructure.

Using a cross-sectional approach, 800 respondents were selected using purposive random sampling from 40 sites across various public spaces, including banks, government buildings, hospitals, and restaurants in the study area.

Findings indicate that discomfort in using public toilets during menstruation is prevalent, with 69% of Banke respondents and 41% of Surkhet respondents reporting discomfort. With a majority of respondents from Banke (93%) and Surkhet (76%) reporting using disposable pads, toilets need to cater to the needs of menstruators. Banke respondents cited inadequate facilities like dustbins (62%), soap (59%), water (86%), doors with a working lock (70%) and sex separated toilets (59%) playing a decisive role in them using toilets. Similar findings in Surkhet revealed issues like lack of sex-segregated toilets (46%); doors with proper locks (57%); and proper running water (43%) deters menstruators from using toilets. Overall, findings reveal that unavailability of basic amenities impacts the willingness and comfort of menstruators to use toilets during menstruation.

Availability of sex segregated toilet; door with lock; window; light; running water; soap; hook and dustbin are the eight basic facilities that indicate menstrual friendly toilets. Access to these comprise basic rights of menstruators across Nepal that need to be guaranteed and realized.

## **Keywords**

Menstrual health, Menstruation-friendly toilets, Public toilets, Menstruators, Sanitation facilities, WASH, Gender

**Factors associated with health Service utilization among people with disabilities: A community-based cross-sectional study from Beni Municipality, Myagdi district, Nepal**  
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### **Background**

Despite UNCRPD and SDG Goal 3 call for UHC emphasizing "leaving no one behind," people with disabilities identified as a particularly vulnerable and socially excluded they faces significant challenges in access to health services in Nepal. This study was conducted to explore the status of health service utilization, disability-related characteristics, and association of predisposing, enabling, and need factors( based on Anderson's behavioural model) with service utilization among people with disabilities in Beni Municipality.

### **Methods**

A quantitative-method study was conducted through household surveys and face-to-face interview using a semi-structured questionnaire among 190 PwDs falling under the Washington Group of Questionnaire using probability proportionate random sampling. Relationships between the utilization of health services and associated factors were explored using bivariate analysis.

### **Results**

Among 190 respondents (38.4% physical, 7.4% vision, 32% hearing, 2.1% voice and speech,3.7% mental/psychosocial,6.8% intellectual,0.5%genetic bleeding 8.9% multiple disabilities),61.1% of them had utilized health services from the health care facilities in the past one year. A majority (96.3%) of them reported that the nearest health facility was not disabled-friendly(80.3%)specifically referring to the inaccessible road and lack of ramp in health facility(56.8%) .Educational status (p=0.000), use of assistive device (p=0.000), family type (p=0.000), household size(p=0.000), educational status of caretaker(p=0.000), use of internet (p=0.000), independence in daily activities of living(p=0.000), perceived-health status (p=0.001), type of disability (p=0.001), enrollment to health insurance(p=0.002), family support (p=0.03), household wealth (p=0.03), marital status (p=0.004), onset of disability (p=0.006), self-perceived health status (p=0.010), source of family income(0.013), awareness of free health service (p=0.014), awareness of health insurance (p=0.014), dependence on health care expenses (p=0.016) and severity of disability (0.034) showed significant association with health service utilization.

### **Conclusion**

This study reveals low utilization of health services among People with Disabilities (PwDs) in Beni Municipality, highlighting the need for the promotion of health insurance program, assistive device usage, and disabled-friendly health facilities.

### **Keywords**

Disabilities, People with disabilities, Health services, Health care utilization, Nepal, Predisposing factor, Enabling factor, Need factor,

### **Status of Physical Activity and its Associated Factors among School Adolescents of Lalitpur Metropolitan City**

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### **Introduction**

Physical activity is any movement of the body produced by skeletal muscles that requires the expenditure of energy. It has been shown to aid in the prevention and management of non-communicable diseases (NCDs). This study was conducted with the objective of identifying the status of physical activity and its associated factors that influence the physical activity of school-going adolescents in Lalitpur Metropolitan City.

### **Methodology**

This was a cross-sectional descriptive study conducted among 289 school-going adolescents from 5 selected schools in Lalitpur Metropolitan City. The GPAQ (Global Physical Activity Questionnaire) was used to assess the status of physical activity. Data related to socio-demographic, personal, academic and environmental characteristics were also collected. The association between physical activity and the above-mentioned characteristics was identified by using Chi-square test.

### **Result**

The level of total physical activity was low among 62.6%, moderate among 25.6%, and high among 11.8%. It was found that 62.6% of the respondents did not meet the WHO recommended guideline on physical activity for adolescents (1680 MET min/week), while 37.4% of the respondents met the WHO recommended guideline for physical activity. The median sitting time of the respondents was 210 minutes/day. Significant difference was found in sex, family type, screen time perday, sleeping hour in weekday, physical activity

enjoyment, class of study, total hours spend in school, game/PT class in school, playground/park near home, access to garden, encouragement by parents and peers.

**Conclusion**

The study revealed that the level of physical activity was low among majority of the respondents. Median MET-minutes per week in recreational activity was higher, followed by travel-related activity and, lastly, work-related activity. The recreational-related activity domain was the main contributor to the total physical activity score.

**Keywords**

Physical Activity, School-going Adolescents, Sedentary behavior, Students

# ENVIRONMENT HEALTH AND CLIMATE CHANGE

## ORAL PRESENTATION

### **Integrating Gender, and Sexual Reproductive Health in Local Climate Policies: Insights from Sudurpaschim and Lumbini Province**

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#### **Introduction**

Nepal faces high vulnerability to climate change, with increasing evidence highlighting its adverse effects on the sexual and reproductive health of women and girls, particularly in areas with high vulnerability and low adaptability to climate impact. However, little is known about the extent of integration of climate change, gender, and Sexual and Reproductive Health and Rights (SRHR) in local adaptation initiatives. Thus, this study explores current efforts to integrate gender and SRHR into local climate policies.

#### **Methods**

A qualitative cross-sectional study employing thematic analysis was conducted. Ethical approval was obtained from the Nepal Health Research Council (Ref. number: 627). Fourteen key experts (including local government and community workers) from Lumbini and Sudurpaschim provinces were interviewed using semi-structured KII guidelines. Transcribed interviews in Nepali were translated into English and analyzed through inductive coding using NVivo12 software. Manifest analysis was conducted to interpret the data; sub-themes and themes were developed and presented. Written consent was obtained from the participants before the interview, and ethical considerations were followed throughout the study.

#### **Results**

Climate change exacerbates women's workload, as they travel long distances for resources and support their families in agriculture, facing worsened sexual and reproductive health post-disasters. Women and girls face challenges accessing services due to disasters, lacking contraception, antenatal care, safe abortion services, and enduring cultural practices like 'chhaupadi'. Local governments have initiated steps to integrate gender and SRHR into Local

Adaptation Plans of Action (LAPA) following six key steps based on LAPA directives 2019. Local governments have implemented locally led climate adaptive solutions such as gender-sensitive labor technologies, construction of outreach clinics and deployment of reproductive health camps.

### **Conclusion**

Enhancing evidence on gender, SRHR, and climate linkages; building community agency and awareness; orienting local government on importance of climate adaptive policies; and responsiveness of local government are critical for integrating gender and SRHR into local climate policies.

### **Keywords**

Climate Change; Gender; Sexual and Reproductive Health; Integration; Climate Adaptation; Local climate policies

### **Integrated assessment of self-reported pesticide toxicity, farmer's knowledge and practices, and occupational health safety: a mixed method study**

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### **Background**

Nepal, mainly an agricultural country, used a considerable amount of chemical fertilizer (227,836 metric tons) in 2077/2078, with Banke district contributing significantly (4,582 metric tons). Banke also uses 142 gm of pesticides per hectare, totaling 40.14 kg of active ingredients. Pesticide overuse is a major health concern in Nepal despite the Integrated Pest Management program. Farmers, including those in Banke, still improperly and excessively apply pesticides.

### **Methods**

A mixed methods study was applied where self-reported health effects were obtained by the quantitative method and knowledge and practice of pesticide and IPM use was assessed by qualitative method. The study was focused on the Banke district, especially in Nepalgunj, Khajura, and Duduwa.

## **Findings**

The study found that headaches affected the largest portion of participants (20.93%), followed by muscle and back pain, which both affected the same percentage of people (20.33%). Hypertension was the most common chronic condition reported, affecting 13.33% of participants, followed by neuropathic pain (11.4%) and COPD (10%). Qualitative findings revealed that while participants were aware of the harmful effects of pesticide use on health and the environment, they tended to ignore minor health issues after pesticide application. Although participants used personal protective equipment (PPE) and spray tanks, disposal of these items was often done haphazardly, though some were recycled. Most participants were familiar with integrated pest management (IPM) tools like sticky traps, pheromone traps, and how to prepare jholmol, a neem-based pesticide.

## **Conclusion**

In conclusion, this study highlights the health challenges faced by farmers following pesticide application. The findings underscore the critical need for increased awareness and education regarding safe pesticide handling and disposal practices among farmers.

## **Keywords**

Pesticide Use, Knowledge, Health Effects, Integrated Pest Management

## **A Scoping Review of Climate Impacts on Human Health in Nepal**

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## **Background**

Amidst global polycrisis and threats to the SDGs by climate change, Nepal faces significant climate risks impacting over 80% of its population, evident in the Climate Risk Index and the INFORM Risk Index, leading to alarming mortality rates from carbon monoxide poisoning in 2021. Gender disparities, illuminated by the National Adaptation Programme of Action (NAPA), deepen the complexity of the situation. Urgent action is crucial amidst crises like climate change, geopolitical conflicts, economic fragility, and the enduring effects of COVID-19. Safeguarding nature and addressing disproportionate impacts on the poorest, notably in Nepal, is paramount. This study aims to comprehensively assess climate change's health impacts in Nepal within given complex context.

## **Methodology**

A systematic examination of climate change's health effects in Nepal from 2013 to 2023 was conducted. Screening 147 articles from four databases resulted in 31 meeting inclusion criteria, focusing on infectious diseases, Non-Communicable Diseases (NCDs), and neurosensory disorders.

## **Results**

The study reveals concerning projections, suggesting a potential 2.2% annual GDP loss by 2050 due to climate change, exacerbating water and foodborne diseases, cardiovascular diseases, cancers, malnutrition, injuries, and mental health issues. Climate change intensifies infectious diseases, NCDs, malnutrition, and injuries in the Hindu Kush Himalaya region. Climatic variables, including rainfall, temperature, and humidity, are crucial indicators for the spread of VBDs. Notably, residents of Kathmandu valley face double the risk of Chronic Obstructive Pulmonary Disease (COPD) due to escalating air pollution. Vulnerable populations, especially women, children, and the elderly, bear the disproportionate burden of climate change-induced health impacts.

## **Conclusion**

The review underscores the urgent need for collaborative efforts among stakeholders to address the health crisis exacerbated by climate change in Nepal. Prioritizing climate resilience strategies in public health policies and interventions is imperative to combat the rising prevalence of mental health disorders, infectious diseases, NCDs, VBDs, and malnutrition.

## **Keywords**

Climate change, Health, Nepal

## **Fluoride Level in Drinking Water Sources of Sudurpashchim Province, Nepal**

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## **Background**

Fluoride, a naturally occurring element found in varying concentrations in water, confers preventive effects in dental caries around a concentration of 1 ppm. The study aimed to assess the level of fluoride in drinking water sources in the Sudurpashchim Province of Nepal.

## **Methods**

A cross-sectional study was conducted from April to July 2023 with water samples from natural, municipal, and packaged sources collected in polypropylene plastic bottles from all 9 districts of the province. Three samples from each district's two most populous municipalities (one urban and one rural municipality) were taken. Water samples from the only sub-metropolitan city in the province (Dhangadhi) were also included. Fifty-seven samples were sent to a Nepal Standard-certified lab in Kathmandu for fluoride estimation using the American Public Health Association-approved method. Data were entered in Microsoft Excel and analysed using the Statistical Package for Social Sciences v 22. A p-value less than 0.05 was taken as significant. Ethical approval was obtained before the commencement of the study.

## **Results**

Most of the water samples had fluoride levels below 0.1 ppm. The highest fluoride concentration was seen in a sample from a hand pump in the rural municipality of Kanchanpur (0.9 ppm). No significant differences were observed between water samples according to different water sources, geographical regions, and categories of water resources.

## **Conclusions**

Fluoride concentration in water sources of Sudurpashchim is well below the recommended level for caries protection. Measures should be taken to ascertain people get adequate fluoride are needed.

## **Keywords**

Fluoride; Nepal; Sudurpashchim; Water Sources; Water Fluoridation

# EMERGENCY PREPAREDNESS AND MENTAL HEALTH

## ORAL PRESENTATION

### **Mental health of LGBT of Kathmandu Valley: the role of victimization, discrimination connectedness, identity affirmation**

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#### **Background**

LGBT (lesbian, gay, bisexual, and transgender) individuals are among the most oppressed, least visible, and marginalized groups in Nepal. They endure persistent social marginalization, harsh discrimination, and violence which affect their mental health condition. This study assessed the mental health of LGBT people due to victimization, discrimination, connectedness, and identity affirmation.

#### **Methodology**

A cross-sectional study was conducted among 115 LGBT populations in the Kathmandu Valley. The standard tools, "Gender minority and stress resilience measure" and "Depression, anxiety and stress scale" (DASS 21) were used to collect the data through snowball sampling. The collected data were entered and analyzed using SPSS IBM 22.

#### **Results**

The participants in the study reported experiencing mild, moderate, severe, and extremely severe forms of stress (68.1%), anxiety (81.7%), and depression (63.5%). The study found that over 78% of LGBT individuals experienced gender-related discrimination, with significant associations with stress ( $p=0.000$ ), anxiety ( $p=0.009$ ), and depression ( $p=0.006$ ). There is a significant association between internalized transphobia and stress ( $p=0.014$ ), anxiety ( $p=0.003$ ), and depression ( $p=0.006$ ). Additionally, more than 87% reported facing gender-related rejection, which is significantly associated with stress ( $p=0.048$ ), anxiety ( $p=0.002$ ), and depression ( $p=0.001$ ). The results suggest that experiencing rejection at some point in life is significantly associated with increased odds of depression by 6.01 times (AOR=6.081,  $p=0.010$ , 95% CI=1.541-23.992) compared to those without rejection.

Victimization at some point in life was also non-significantly associated with depression (AOR=.616, p=.687, 95% CI=.058-6.500).

### **Conclusion**

Based on the results of this research it can be concluded that a high percentage of LGBT individuals experience stress, anxiety, and depression as a result of gender-related discrimination, rejection, victimization, and internalized transphobia. Therefore, policymakers, healthcare professionals, and society as a whole need to take steps to address and prevent discrimination and victimization based on gender identity and sexual orientation.

### **Keywords**

Mental health, gender minority, gender-related discrimination, rejection, victimization, internalized transphobia, LGBT, minority stress

### **Mental health disorders and associated factors among people living in informal settlements of Kathmandu and Pokhara Valley of Nepal**

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### **Background**

Mental health is a major public health concern worldwide. Existing studies linked mental health status and different factors such as poverty, gender, low socioeconomic status and living conditions. There are very few studies regarding mental health among people living in informal settlements in Nepal. This study aimed to assess the status of mental health and to identify sociodemographic factors associated with mental health among people living in informal settlements in Nepal as a basis for developing interventions.

### **Methodology**

A cross-sectional survey was conducted among people living in informal settlements in Kathmandu and Pokhara, that included 2009 participants. Mental health status was assessed using the General Health Questionnaire (GHQ-12), and a score of  $\geq 3$  by binary method was taken as having common mental disorders. Crude and adjusted Odds Ratios were estimated using regression analysis.

## **Results**

Of the total 2009 people living in informal settlement, 18.3% had common mental disorders. Common mental disorder was observed mostly among female, people with older age, and those who were married, illiterate and unemployed. Higher odds of common mental disorders were found among people who were widowed (OR 2.11, 95% CI 1.07-4.16) and divorced/separated (OR 3.06, 95% CI 1.07-8.74), compared to those with unmarried. People living in informal settlement who were unemployed and had informal employment had a significantly 1.6-fold increased risk of mental disorders than those who were formally employed.

## **Conclusion**

The risk of mental health is high among people living in informal settlements in Nepal. The study results suggest increased risk among people who were unemployed or with informal employment and those who were widowed or separated. These findings underscore the urgent need for targeted mental health interventions tailored to the unique socio-demographic characteristics and circumstances of informal settlers in Nepal.

## **Keywords**

Mental health, informal settlement, socio-demographic factors, Nepal

## **Impact of national ban on highly hazardous pesticides on mortality from suicide by pesticide in Nepal**

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## **Background**

Intentional pesticide self-poisoning is a public health problem in agricultural communities in LMICs like Nepal. Banning highly hazardous pesticides (HHPs) is a cost-effective

intervention to reduce mortality from pesticide suicide. Eight mostly HHPs were banned in Nepal in 2019 while aluminium was reformulated. The objective of the study is to monitor the impact of the ban on pesticide suicide numbers and the agriculture yields.

### **Methodology**

We analyzed autopsy data from August 2021 to January 2024 from the National Forensic Science Laboratory and Nepal Police Central Forensic Science Laboratory following a two-year phase-out period. The pesticide responsible for suicide was identified from laboratory analysis. The findings were compared to data from an earlier study (HOPE GRID 2017-2019) to compare the proportion of compounds involved in pesticide suicide cases. Data on agriculture yields were collected from publications of Ministry of Agriculture and Livestock Development (July 2005 -July 2022). Simple descriptive analysis was undertaken.

### **Results**

There were 1,764 pesticide suicides reported by toxicology laboratories, of which 51.3 % were males. The most common pesticides were phosphine gas (48.9%), organophosphorus insecticides (29.1%) and the combination of organophosphorus and cypermethrin (17.9%). In 2021-23, compared to 2017-19, a smaller proportion of cases were the banned pesticides dichlorvos (n=70/1089 ;6.4% and n=273/450;60%, respectively) and aluminium phosphide (n=304/1089; 27.9% and n= 299/891;33%, respectively). The proportion of cases where the pesticide was not identified was missing in 19.3 % of cases, compared to 46% in 2017-19. Analysis of agricultural data indicated that the bans had no impact on agricultural yield.

### **Conclusion**

OP insecticides and aluminum phosphide were responsible for most pesticide suicides in Nepal. However, the number and proportion of deaths from these pesticides has declined. There has been an increase in identification of the individual compounds from the forensic science laboratories and more improved data can help guide further pesticide regulation.

### **Keywords**

Pesticide poisoning, Suicide, Organophosphorus, Aluminum phosphide

### **Clinical and social factors contributing to postpartum mental health among women during 6-12 months of childbirth in Nepal: A mixed methods study**

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### **Background**

Postpartum mental health (PMH) issues such as, depression and anxiety, are significant public health challenges globally including in Nepal. The problem is often neglected, underdiagnosed, and untreated, affecting the health and well-being of mothers and infants. Limited research to date has examined the specific clinical and social determinants contributing to disparities in PMH among postpartum women along with their lived experiences in Nepal. Thus, this study aimed to examine the positive and negative effects clinical and social determinants of health contributing to PMH (i.e., depression and anxiety) during 6-12 months postpartum in Nepal. This study also explored women's perspective of factors contributing to PMH after 6-months of childbirth.

### **Methodology**

This cross-sectional, mixed-method, multi-site study used convenience sampling to enroll 200 mothers of normal and low birth weight (LBW) infants aged 6 to 12 months from immunization clinics of two tertiary hospitals of Kathmandu Nepal. Quantitative data were collected with a survey of postpartum mothers using standardized questionnaires. Qualitative in-depth interviews were conducted among 15 purposively selected postpartum mothers. The quantitative data were analyzed using SPSS 28.0. Qualitative data were analyzed using the Colaizzi method.

### **Results**

Participants were ethnically and socioeconomically diverse. Regression analysis showed that LBW, prenatal mental health, food insecurity, violence experience, and lack of social support significantly predicted postpartum depression and anxiety among women after controlling for a range of variables. Similarly, the qualitative findings identified multiple clinical and social factors including spouse substance use status, economic hardship, spouse and/family support, infants' developmental problems contributed for PMH during critical stages of infant development.

### **Conclusion**

These findings have important implications for obstetric and pediatric providers for screening, early identification, and referral of women at-risk of PMH issues. Findings also support the need for evidence-based interventions for women to reduce PMH issues and achieve sustainable developmental goals targets in Nepal.

### **Keywords**

postpartum depression, anxiety, low birth weight, preterm, mental health issues, social support

### **Psychological supportive care needs interventions for cervical cancer patients: A systematic review**

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### **Aims**

Different types of psychological interventions help to increase psychological well-being and to alleviate physical symptoms. The study aimed to evaluate the effect of psychological supportive care needs on anxiety and depression among cervical cancer patients.

## **Methods**

This systematic review, covering English-published articles from January 1999 to April 2023 from PubMed; Science Direct; Wiley online library; Google Scholar; Cochrane Library; and JSTOR after getting registered in PROSPERO International's prospective register of systematic reviews. The extraction of data was done by two independent authors and a third independent author checked the data extraction. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement was adopted. The population, intervention, comparator, and outcomes (PICO) search strategy was applied. Effective Public Health Practice Project (EPHPP) tool was used to assess the quality of selected articles.

## **Results**

Twenty-six experimental studies (13 -Randomized controlled trials, 12 –Quasi experimental and 1- one group pre posttest design) with 11,638 cervical cancer patients were included in this review. Various interventions, such as psychological nursing, exercise, counselling, psycho-curative approaches, peer and family education, psychotherapy, and medication, were identified. Two studies incorporated homework sessions, predominantly administered by nursing staff. Self-Rating Depression Scale (SDS) and Self-Rating Anxiety Scale (SAS) were commonly used instruments. Statistical analysis revealed a significant difference in anxiety and depression scores between treatment and control groups ( $p < 0.005$ ) post-intervention across all studies. A subsequent meta-analysis of eight homogeneous studies, utilizing a random-effects model, showed a moderate-to-high overall effect size (1.346, 95% CI: 0.751 to 1.942), indicating a statistically significant positive impact. Various studies exhibited variability in effect sizes ranging from low to high. While the meta-analysis included 936 participants, the forest plot visually represents individual study effect sizes and the combined effect size.

## **Conclusions**

Psychological interventions in any form are found effective for the reduction of psychological supportive care needs, especially anxiety and depression.

## **Keywords**

Cancer, Cervix, Intervention, Psychology, Supportive care, anxiety, Depression

# RESILIENT HEALTH SYSTEM FOR COMBATING HIV, TB, MALARIA AND COVID-19

## ORAL PRESENTATION

### **Trend of Influenza before and during the COVID-19 pandemic in Nepal - a study from 2018 to 2022**

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#### **Background**

A significant reduction in the incidence of Influenza during the early days of COVID-19 pandemic was reported worldwide. This study aims to understand the effect of COVID-19 pandemic response including the social and public health measures on the circulation of influenza in the country. This is the first national research of influenza seasonality patterns and epidemiology spanning five years, with a comparison between the pre-COVID-19 and COVID-19 periods.

#### **Method**

We have used the Influenza sentinel surveillance data in Nepal from 2018 to 2022 acquired from the National influenza Centre (NIC) at National Public Health Laboratory, Nepal. We also used the publicly available national COVID-19 case data released by the Ministry of Health and Population, Nepal. The data was analyzed for the trend of influenza cases, seasonality and the distribution of subtypes/lineages. Further, we compared the trend of Influenza with that of COVID-19 and the social and public health measures imposed in the country as part of the COVID-19 response.

#### **Results**

The average Influenza positivity rate has seen a drop from 39% to 14% during the COVID 19 period in comparison to pre-COVID-19. Additionally, during the time of COVID 19 there has been a shift in the influenza bimodal seasonal pattern with one peak observed from July

to October only. Influenza type A shows consistent dominance with variation of its subtype from year to year. Interestingly there was one reported case of Influenza A/H5 in 2019.

### **Conclusion**

This study shows that the influenza positivity rates decreased substantially after the COVID-19 pandemic began which may be related to the increasingly stringent public health and social measures implemented during the pandemic.

### **Keywords**

Influenza, COVID-19, Public health, and social measures

### **Exploring barriers and facilitators in Implementation Fidelity of Malaria Screening Intervention at Nepal-India Border Point-of-entry Health Desks**

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### **Purpose**

This research aims to identify the barriers and facilitators in implementation fidelity of malaria screening at Nepal-India border point of entry health desks.

### **Method**

We used a mixed-methods approach guided by an implementation fidelity framework. We studied epidemiological records of reported malaria cases at selected border posts and facility level of Sudurpaschim and Lumbini province along with observation. We incorporated

qualitative inquiries with the health workers, development partners and migrant populations at specific border posts and administrative levels. Descriptive and trend analysis was done for secondary data while thematic analysis was performed for qualitative data.

### **Results**

There were fluctuating testing trends over two consecutive years from March 2021 to December 2022, due to discontinuation and presence of multiple entry points. In this period, ten malaria cases were identified at POE health desks in two provinces. Adherence to malaria screening protocols was only partial. Frequent transfer of security personnel, lack of support from transportation authorities, and inconvenient locations of the health desks hindered the screening of migrants. The screening was facilitated because of the presence of improved infrastructures, perceived risk, and monthly review meetings at the local level health facility.

### **Conclusion**

The screening and identification capacity for malaria cases among migrants at the border need to be strengthened by prioritizing the detection of malaria cases, addressing barriers and leveraging facilitators through coordination at all levels and raising awareness among the migrant population.

### **Keywords**

Border malaria, screening, implementation, fidelity