# HIGHLIGHT OF THIS ISSUE

**Development of a Hypertension Risk Prediction Model using Nationally Representative Survey Data: A Machine Learning Approach**

**Introduction:**
Hypertension is a major preventable cause of cardiovascular disease in Nepal. Predictive models can enable early identification of at-risk individuals, yet such tools remain scarce in the country.

**Key Message:**
This study marks Nepal's first open-access hypertension risk prediction tool bridging data science and public health practice. It offers a scalable, low-cost approach for early screening and prevention of cardiovascular disease.

**Methodology:**
Using data from 5,593 participants in the 2019 WHO STEPS Survey Nepal, six machine learning models were developed and compared. Logistic Regression demonstrated the best performance (AUC = 0.718) and was deployed as a web application.

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# NCD - RESEARCH ROUNDUP

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**Roundup Summary**

In October 2025, our search on non-communicable diseases and mental health-related literature in Nepal yielded seventeen published articles. Most of the studies covered non-communicable diseases, mental health, substance abuse, COPD and Heart health.

## Psychological wellbeing and occupational stress among public secondary school teachers in Beni Municipality, Nepal: a cross-sectional study

**DOI:** https://link.springer.com/article/10.1186/s12889-025-24677-x

**Context:** The teaching profession often involves challenges that impact psychological well-being and occupational stress. This study aimed to assess these factors and their associated influences among secondary school teachers in Beni Municipality, Nepal.

**Methodology:** A census approach included 231 secondary school teachers who were interviewed face-to-face using the General Health Questionnaire-12 (GHQ-12) and the Teacher Stress Scale (TSS). Bivariate and multivariable logistic regression analyses were used to identify associated factors.

**Key message:** A significant proportion of teachers reported psychological distress (60.2%) and occupational stress (51.1%). Better psychological well-being was associated with secondary-level teaching designation and job satisfaction, while higher occupational stress was linked to older age ($\geq$ 50 years), salary dissatisfaction, and perceiving the job as highly demanding. The findings highlight an urgent need for targeted interventions, such as improved salary, clearer job roles, and mental health support, to enhance teacher well-being.

## Maternal Mortality in a Tertiary Hospital in Nepal: An Eight-year Review

**DOI**: https://doi.org/10.70241/njog167

**Context:** Maternal mortality is a critical indicator of a country's healthcare system and remains high in low and low-middle-income countries. This study aimed to estimate the maternal mortality ratio (MMR) and identify the causes of maternal deaths in a Nepalese tertiary center.

**Methodology:** This was a retrospective study conducted from July 2015 to July 2023, analyzing data from case records and Maternal Death Surveillance and Response forms. The WHO International Classification of Disease – Maternal Mortality (ICD-MM) tool was used, and descriptive methods analyzed causes, contributing factors (delays), and socio-demographics.

**Key message:** The study recorded 42 maternal deaths, yielding an MMR of 24.6 per 100,000 live births, which is low compared to the national average. The primary causes were other obstetric complications (35.7%), obstetric hemorrhage (23.8%), and non-obstetric complications (16.7%), with COVID-19 being the leading non-obstetric cause. The most frequent contributing factor was "delay in seeking care" (first delay, 70%), followed by "delay in receiving care" (third delay, 62%). Effective measures against complications and ensuring accessibility to high-quality care are crucial for further reduction.

## A Study On The Prevalence Of Diabetic Mellitus And Its Effects Among 60-Year-old Women Of Shankhu, Kathmandu

**DOI:** https://doi.org/10.3126/jaar.v12i1.85152

**Context:** Diabetes mellitus is a major and growing global health concern with significant cultural, well-being, and economic impacts, driven largely by factors like obesity and aging. This study aimed to assess the prevalence of diabetes and analyze its effects on women's lives in a specific area of Nepal.

**Methodology:** A mixed-methods study was conducted from March to July 2025 in Shankhu, Kathmandu, Nepal, on over 70 randomly selected women aged 60 and above. Usual surveys and other research tools were employed to gather knowledge on risk factors.

**Key message:** The study identified the primary causes of diabetes in the area as genetic effects, lack of exercise, calorie-based food consumption, and hectic lifestyles. Diabetic patients commonly experienced weight loss, frequent urination, thirst, blurred vision, and various internal problems, including those specific to women. Additionally, patients reported less interest in physical activity, fatigue, and high stress levels. The conclusion emphasizes that a healthy lifestyle is essential to mitigate the health problems caused by diabetes.

## The study of cervical cancer screening using pap test and correlation with high-risk genotypes

**DOI:** https://doi.org/10.3126/jpn.v15i1.73581

**Context:** Cervical cancer is a significant health concern in India, making early detection crucial. This study aimed to evaluate the prevalence and genotype of Human Papillomavirus (HPV) in abnormal Pap smears and correlate the findings with subsequent histopathology.

**Methodology:** A one-year prospective study at Santosh Medical College screened 3194 cases. HPV

 testing was performed on all participants, and biopsies were taken for those with abnormal epithelial lesions. The study included sexually active women or those presenting with specific complaints (abdominal pain, abnormal discharge/bleeding) but excluded cases with unsatisfactory smears, unmarried, pregnant, lactating, or previously treated cervical carcinoma.

**Key message:** The abstract primarily concludes that implementing Pap and HPV co-testing from the initial visit could be a cost-effective strategy that reduces the need for multiple follow-up appointments.

## Thyroid dysfunction among individuals visiting a diagnostic center in Lalitpur, Nepal: A descriptive cross-sectional study

**DOI:** https://doi.org/10.3126/jpn.v15i1.81988

**Context:** Thyroid dysfunction is a common global endocrine issue, exacerbated in Nepal by socio-environmental factors like iodine deficiency and limited healthcare access. The condition is defined by altered serum Thyroid Stimulating Hormone (TSH) with normal or altered Free Tri-iodothyronine (FT3) and Free Thyroxine (FT4) levels. The study aimed to find its prevalence among individuals visiting a diagnostic center in Lalitpur, Nepal.

**Methodology:** This was a descriptive cross-sectional study conducted at the Genesis Diagnostic and Clinic in Lalitpur, Nepal, from July 2022 to December 2024. Patients who underwent a thyroid function test (measuring FT3, FT4, and TSH) were enrolled using enumeration sampling.

**Key message:** Out of 520 patients, thyroid dysfunction was observed in 118 individuals (22.69%). Subclinical hypothyroidism was the most common type (17.88%), followed by subclinical hyperthyroidism (2.50%), hypothyroidism (1.20%), and hyperthyroidism (1.20%). There was a female predominance (female:male ratio 1.51:1), with the highest number of cases in the 30-39 age group. The study concludes that the prevalence of thyroid dysfunction remains high in this population, similar to other studies in comparable settings.

## Assessment of drug-related problems among breast cancer patients in a cancer specialty center in Nepal

**DOI:** https://doi.org/10.1371/journal.pone.0334703

**Context:** Breast cancer treatment, a complex combination of surgery, radiotherapy, and chemotherapy, significantly increases the risk of Drug-Related Problems (DRPs), which negatively affect patient outcomes, healthcare costs, and quality of life. Research on DRPs in Nepalese breast cancer patients is limited.

**Methodology:** A cross-sectional study was conducted at Bhaktapur Cancer Hospital, Nepal, from February to May 2024. Medical records of 92 patients were reviewed. DRPs were identified using the Pharmaceutical Care Network Europe V9.1 tool and verified by two oncologists. Chi-square tests assessed associations with socio-demographic and clinical characteristics.

**Key message:** DRPs were found to be highly prevalent, occurring in 91 out of 92 patients (98.9%), with a total of 104 events. Most DRPs (87.5%) related to treatment safety, and the main causes were patient-related factors (43.4%) and drug selection (33.3%). Common adverse effects included alopecia (88.0%) and anorexia (84.8%). A significant association was found between adverse drug reactions (ADRs) and DRPs (p=0.011). The study calls for larger studies and the integration of oncology pharmacy services to optimize pharmaceutical care.

## Hypertension Among the Elderly Population and its Associated Factors in Nepal: Analysis from Nepal Demographic and Health Survey 2022

**DOI:** https://doi.org/10.33314/jnhrc.v23i02.4783

**Context:** Hypertension and its associated health burden are increasing among the older population in Nepal, yet there is a gap in literature on its prevalence and associated factors among older adults ($\geq$ 65 years).

**Methodology:** The study used data from the 2022 Nepal Demographic and Health Survey (NDHS) for older adults aged 65 years and above (n=725). Multiple logistic regression was employed to analyze the association of sociodemographic and lifestyle factors (e.g., obesity, food insecurity, salt use) with hypertension.

**Key message:** The prevalence of hypertension was 37.4%. Key risk factors were obesity (overweight aOR=2.03, obesity aOR=2.71) and using non-iodized kitchen salt (aOR=3.38). Higher odds of hypertension were also found among greater age and marginalized ethnic groups (Dalits and Terai Janajatis). Conversely, being in the richest wealth quintile had lower odds (aOR=0.42). The findings emphasize the need for targeted screening and improved healthcare access for lower-income and marginalized households.

## Vitiligo and Depression in Western versus South Asian Countries: Cultural Background Should Be Considered

**DOI:** https://doi.org/10.1016/j.jid.2025.09.021

**Context:** Psychosocial outcomes of vitiligo vary significantly across cultural and geographic contexts. This narrative review aimed to compare the psychological and social impact of vitiligo between South

Asian countries (India, Pakistan, Bangladesh, Sri Lanka, Nepal) and Western countries (Europe, US, Canada, Australia).

**Methodology:** A narrative review was conducted using publications from 2000 to 2025 across major databases (PubMed, Scopus, Web of Science, PsycINFO). Evidence was categorized across five thematic domains, including psychological outcomes, social consequences, and cultural frameworks.

**Key message:** Psychiatric morbidity was highest in South Asian populations, with depression and anxiety rates reaching up to 60%. This contrasts with rates of 15–30% in European cohorts and 20–30% in North American and Australian samples. Stigma in India was intensified by cultural beliefs (contagion, impurity, karma, dietary taboos), especially for individuals with darker skin. Western patients primarily reported issues with self-image and social withdrawal but faced fewer institutional barriers. Future interventions should focus on shifting vitiligo from a socially disabling condition to a manageable chronic difference.

## Women's Reproductive Mental Health in Nepal

**DOI:** https://link.springer.com/chapter/10.1007/978-981-96-9219-4_6

**Context:** Women's reproductive mental health is vital for maternal health, but the maternal population in Nepal faces a high prevalence of mental health issues (depression, anxiety, suicide, substance use) with limited available services. These problems are amplified by factors like gender-based violence, economic dependency, and socio-cultural pressures.

**Methodology:** This chapter aims to explore the epidemiology of mental health disorders, suicide, and domestic violence among the maternal population of Nepal, and discuss the current scenario, challenges, and solutions for women's reproductive psychiatry in the country.

**Key message:** Nepal's healthcare system struggles to integrate mental health into maternal care. Most specialized services are concentrated in urban centers, and there is a critical shortage of specialized professionals in reproductive or perinatal psychiatry. Major challenges include stigma, lack of trained professionals, and inadequate screening and intervention mechanisms. The discussion focuses on mapping the current issues, particularly the high rates of mental health disorders, suicide, and domestic violence, and proposing strategies to improve reproductive mental health care.

## Assessment and management of suicidality in a mental health survey among poverty affected adolescents in Nepal

**DOI:** https://link.springer.com/article/10.1186/s12889-025-24943-y

**Context:** Adolescent suicidality is the third leading cause of death globally among this age group, notably in low- and middle-income countries (LMICs) like Nepal. This study explores the assessment of suicidality as an adverse event in adolescent mental health research and provides guidance on integrating suicide management protocols (SMPs).

**Methodology:** This was part of a cross-sectional survey with 490 adolescents aged 13–15 in Kathmandu valley. A three-step SMP was used: initial screening via the MMAPP tool, confirmation with a suicide screening tool by researchers, and clinical assessment by a psychosocial counselor using the Beck Suicide Intent Scale (BSIS) to categorize risk and provide management.

**Key message:** A Suicide Management Protocol (SMP) was successfully integrated into mental health surveys in Nepal. This protocol identified 5.1% of adolescents as positive for suicidality, with 40% of those categorized as High Risk. The real-time management provided through the SMP was effective, with all participants safely managed, demonstrating that this strategy is feasible and essential for prevention in LMICs.

## Depression among wives of migrant workers in Shuklagandaki Municipality, Tanahun District: A cross-sectional study in Nepal

**DOI:** https://doi.org/10.1371/journal.pmen.0000484

**Context:** International migration often leads to isolation, household, and childcare responsibilities for left-behind wives, increasing their risk of depression. This study aimed to assess the prevalence of depression and associated factors among wives of migrant workers in a Nepalese municipality

**Methodology:** A cross-sectional study was conducted among 255 wives of migrant workers in Shuklagandaki municipality, Tanahun, using a multistage sampling method and face-to-face interviews. The Center for Epidemiologic Studies Depression Scale (CES-D) was used to assess depression. Multivariate logistic regression determined associated factors.

**Key message:** Nearly one-fourth (23.5%) of wives whose husbands migrated experienced depression. The risk was strongly associated with financial stress (family debt, AOR: 2.23, the highest risk factor), alcohol consumption (AOR: 1.76), family type, and emotional support. The findings necessitate urgent targeted interventions, including financial and mental health support programs.

## Prevalence and Predictors of Obesity, Undernutrition, and Anemia in Women of Reproductive Age Living in Nepal: A Scoping Review

**DOI:** https://doi.org/10.1155/jnme/8897249

**Context:** Malnutrition is a critical public health issue among Women of Reproductive Age (WRA) in Nepal, characterized by a triple burden of undernutrition, overnutrition, and anemia. This review aimed to map the scope of research on the prevalence and predictors of these conditions in WRA (15–49 years).

**Methodology:** A scoping review was conducted, searching four major databases for studies published between January 1, 2000, and June 15, 2024. Studies reporting the prevalence and/or predictors of underweight, obesity, or anemia were included. Studies relying only on secondary analysis of NDHS data were excluded. Sixteen studies met the inclusion criteria.

**Key message:** Prevalence estimates were highly variable due to differing definitions and measurement methods: underweight ranged from 2.0% to 30.3%; overweight/obesity from 4.8% to 55.0%; and anemia from 12.83% to 66.8%. Malnutrition was associated with numerous demographic and socioeconomic factors (age, ethnicity, education, occupation). Anemia, specifically, was linked to ethnicity, deworming medication, and reproductive health factors (menarcheal status, antenatal visits). The findings underscore the need for multisector-targeted interventions to address the diverse factors contributing to all forms of malnutrition.

## Prevalence of Hypertension and its Associated Factors among School Teachers

**DOI:** https://www.jnhrc.com.np/index.php/jnhrc/article/download/4723/4634

**Context:** The burden of hypertension is increasing, particularly in LMICs like Nepal, and occupation is a known risk factor. This study aimed to identify the prevalence and associated factors of hypertension among school teachers in Amargadhi Municipality, Nepal, where limited evidence exists.

**Methodology:** A school-based cross-sectional study was conducted using a two-stage stratified random sampling technique among 223 school teachers. Data on socio-demographic, behavioral factors, medical history, and blood pressure were collected using standardized methods. Stepwise regression was used to analyze associations.

**Key message:** The overall prevalence of hypertension was 14.7% (with 8.9% already on medication). After excluding those on medication, a high prevalence of pre-hypertension was found: 41% systolic and 53.7% diastolic. Mean blood pressures were $115 \pm 11.93$ mmHg (systolic) and $76.98 \pm 8.72$ mmHg (diastolic). Both diastolic and systolic blood pressure were significantly

associated with sex and Body Mass Index (BMI). The study emphasizes the high burden of pre-hypertension and hypertension and the need to prioritize teachers in public health initiatives.

## When communities face malnutrition: how context shapes the factors related to relevant health advice in nepal

**DOI:** https://www.researchgate.net/

**Context:** Despite existing programs, children with Severe Acute Malnutrition (SAM) often do not receive the necessary support. This paper argues that community psychology can effectively address malnutrition by focusing on community health advice provided to caregivers.

**Methodology:** A questionnaire survey was conducted in two distinct Nepalese districts (Saptari and Nuwakot) to examine factors associated with receiving relevant health advice from community members. Variables measured included individual beliefs/emotions and contextual variables (e.g., perceived community emotions, wealth, access to communication).

**Key message:** Factors associated with health advice differed between the two districts, with the role of access to communication being opposite. The best predictors were contextual (e.g., perceived emotions by community members, access to communication), not individual. These findings suggest that tackling malnutrition requires action at a more global level, targeting community and national representations of malnutrition and empowering communities through strategies offered by community psychology.

## Socio-Demographic Characteristics and Clinical profile in Sickle Cell Disease Patients

**DOI:** https://doi.org/10.33314/jnhrc.v23i02.4702

**Context:** Sickle Cell Disease (SCD) is a major public health issue in Nepal, predominantly affecting the Tharu community in the Mid-Western and Sudurpaschim provinces. This study aimed to understand the socio-demographic characteristics and symptoms of SCD patients in this region.

**Methodology:** A cross-sectional study was conducted at Seti Provincial Hospital in Sudurpashchim Province during a free health camp. Demographic, epidemiological, and clinical profiles were recorded using a structured questionnaire for 119 enrolled patients.

**Key message:** SCD was seen in younger patients (mean age 22.58 years), with a majority being female (58.8%) and belonging to the upper lower socioeconomic class (45.37%). The most common

symptom cluster was musculoskeletal pain, weakness, and fever (30.5%), followed by jaundice, chest pain, and vertigo (21.84%). The disease disproportionately affects the Tharu communities in Kailali and Kanchanpur Districts. The findings call for government policies focused on treatment and pain management to minimize the high burden of SCD in these communities.

## Determinants of anemia among children aged 6-23 months in Nepal: an alternative Bayesian modeling approach

**DOI:** https://link.springer.com/article/10.1186/s12889-025-24581-4

**Context:** Anemia is a major public health concern among children under two years old in LMICs, linked to impaired cognitive abilities and delayed growth. This study used a Bayesian analytical framework to identify key determinants of anemia among children aged 6–23 months in Nepal.

**Methodology:** This cross-sectional study analyzed data from 685 children aged 6–23 months from the 2022 Nepal Demographic and Health Survey (NDHS). A Bayesian binary logistic regression model was used to identify significant determinants, incorporating a noninformative normal prior.

**Key message:** The study, using Bayesian analysis of NDHS data, identified key determinants of anemia among children aged 6–23 months in Nepal. Anemia was significantly associated with younger age (6–12 months: 3.15x higher odds), second birth order, maternal failure to take deworming medication during pregnancy (1.57x higher odds), residence in the Terai region (2.45x higher odds), and Dalit (2.29x higher odds) and Janajati (2.73x higher odds) ethnicities. These findings highlight the need for targeted interventions addressing maternal health and geographic/ethnic disparities.

## Cognitive Impairment Among Chronic Obstructive Pulmonary Disease Patients of Nepal: A Cross-Sectional Study

**DOI:** https://doi.org/10.1002/hsr2.71315

**Context:** Chronic Obstructive Pulmonary Disease (COPD) is associated with cognitive impairment (memory loss, executive dysfunction), which significantly affects quality of life. The prevalence and determinants of this condition in Nepalese COPD patients are largely unexplored.

**Methodology:** A cross-sectional study included 203 admitted COPD patients at a tertiary hospital. The Nepali-translated Rowland Universal Dementia Assessment Scale (RUDAS) was used to assess cognitive functions. Logistic regression was performed to identify associated factors.

**Key message:** A very high prevalence of cognitive decline was found, affecting nearly 90% of COPD patients in a Nepalese tertiary hospital (46.3% mild impairment, 42.9% dementia). Significant predictors

of impairment were increasing age (≥ 65 years) (OR: 2.72), frequent COPD exacerbations (OR: 3.90), and lower blood $PaCO_2$ levels (OR: 0.26). The study concludes that routine cognitive screening and integrated rehabilitation strategies are essential to improve outcomes for COPD patients in Nepal.

We thank you all for joining our initiative to promote evidence-informed policymaking and promote public awareness of the non-communicable disease (NCDs) and related issues in Nepal- we are committed to staying up to date with the latest NCD research in Nepal.

This issue covers a summary of scientific publications on NCDs in Nepal for the month of October 2025.

Should you have colleagues who'd like to receive these updates via email (ncdwatchnepal@gmail.com)

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**Publications**

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