

Awareness on Non-Communicable Diseases among Service Recipients in a Municipal Health Center of Dang District, Nepal

Arun.Kumar Pokhrel

Lecturer, Public Health

NSU, Janta Vidhyapith Bijauri dang

arunpokhrel26@gmail.com

<https://doi.org/10.3126/haimaprabha.v25i01.96654>

Abstract

Non-communicable diseases (NCDs) such as hypertension, diabetes, and obesity are emerging as major public health challenges in Nepal. Rapid urbanization, lifestyle changes, and limited awareness have accelerated their prevalence, particularly in semi-urban communities. These conditions often remain undiagnosed until complications arise, underscoring the importance of early detection and preventive strategies.

A descriptive cross-sectional screening study was conducted at Tulsipur Municipal Health Center, Ward-5 Buspark, Dang District, Nepal. A total of 226 individuals (149 female, 77 male) voluntarily participated. Standardized diagnostic tools including weighing scales, blood pressure apparatus, glucometers, and urine test strips were used to assess overweight, hypertension, elevated blood sugar, and proteinuria. Data were analyzed using descriptive analysis. The screening revealed a considerable burden of NCD risk factors. Of the participants, 44.7% were overweight, 25.7% had elevated blood sugar, 14.6% were hypertension, and 12.8% showed proteinuria. Female participants consistently demonstrated higher absolute numbers across most indicators, while the proportion of hypertension was slightly higher among males. These findings highlight the silent progression of chronic conditions within the community and the urgent need for early intervention.

This study demonstrates that NCD risk factors are widespread in semi-urban Nepal, reflecting both national and global trends. The high prevalence of overweight, hyperglycemia, hypertension, and proteinuria emphasizes the necessity of routine screening, awareness campaigns, and gender-sensitive interventions. Despite limitations such as convenient sampling and absence of detailed behavioral data, the study provides valuable insights into community health status. Strengthening primary healthcare services, promoting healthy lifestyles, and integrating NCD prevention into routine care are critical steps to reduce the growing burden of chronic diseases in Nepal.

Key Words: Public Health, Non Communicable Disease Screening Hypertension, Diabetes, Overweight,

Introduction:

Non-communicable diseases (NCDs) are chronic conditions that are not transmitted from person to person and arise from complex interactions of genetic, physiological, environmental, and behavioral factors (World Health Organization [WHO], 2013; Park, 2021). Major NCDs include cardiovascular diseases, diabetes mellitus, chronic respiratory diseases, and cancers, which collectively account for a significant proportion of global deaths .

In developing countries such as Nepal, the burden of NCDs is increasing rapidly (Ministry of Health and Population Nepal [MoHP], 2014, 2015). Increasing urbanization, changing lifestyles, and greater exposure to risk factors such as unhealthy diets, physical inactivity, tobacco consumption, and alcohol use have contributed significantly to this trend . Nepal is currently experiencing an epidemiological transition, in which communicable diseases are gradually being replaced by chronic diseases as the primary health concern .

One of the most challenging aspects of NCDs is their silent progression. Many individuals remain asymptomatic for long periods and seek medical care only after complications develop. Conditions such as hypertension and diabetes frequently go undetected, leading to serious health outcomes including heart disease, stroke, kidney failure, and visual impairment

Awareness plays a vital role in preventing and managing these diseases. Individuals who understand risk factors and preventive measures are more likely to adopt healthier behaviors. However, awareness levels remain limited in many semi-urban and rural communities due to inadequate health education and restricted access to screening services .

In developing countries such as Nepal, the burden of NCDs is increasing rapidly (Ministry of Health and Population Nepal [MoHP], 2014, 2015).. Strengthening community-based health programs is essential to improving awareness and expanding access to preventive services .

General Objective:

To assess the level of awareness and prevalence of risk factors related to non-communicable diseases (NCDs) among service recipients attending a municipal health center in Dang District, Nepal.

Specific Objectives:

1. To determine the level of awareness regarding major non-communicable diseases (such as hypertension, diabetes, and obesity) among the participants.

2. To identify the prevalence of key NCD risk factors including overweight, hypertension, elevated blood sugar, and proteinuria.
3. To compare the distribution of NCD risk factors between male and female participants.
4. To assess the association between awareness levels and the presence of NCD risk factors.
5. To identify individuals at risk of developing chronic diseases for early intervention.

Methodology:

Research Design: This study employed a descriptive cross-sectional screening design, which is widely used in public health research to capture the prevalence of risk factors at one time. A cross-sectional approach was chosen because it allows for rapid assessment of health conditions in a community setting without requiring long-term follow-up. This design is particularly suitable for identifying undiagnosed or uncontrolled non-communicable disease (NCD) risk factors, which often remain hidden until complications arise. By focusing on immediate screening outcomes, the study provides valuable baseline data that can inform future interventions and policy decisions.

Study Area: The research was conducted at Tulsipur Municipal Health Center, Ward-5 Buspark, Dang District, Nepal. This health center serves a semi-urban population characterized by diverse backgrounds, ranging from low-income households to middle class families. The area was selected because it represents a transitional community where traditional lifestyles are increasingly influenced by urbanization, dietary changes, and physical activity. Such settings are often at higher risk of NCDs due to limited awareness and inadequate access to preventive health services.

Study Period : The study was conducted during the year 2082 BS

Study Population: The study population was all service recipients who attended the screening program during the study period. Participation was voluntary, and individuals were informed of the purpose of screening before enrollment. The population included both male and female participants across different age groups, providing a snapshot of NCD risk factors in a semi-urban Nepalese community.

Sampling Method: A convenient sampling technique was used, as the study relied on individuals who were present at the health center during the screening program. While this method does not ensure representativeness of the entire population, it is practical for community-based health assessments where resources and time are limited. The maximize participation despite unfavorable weather conditions, resulting in a total sample size of 221 individuals.

Data Collection: Data was collected through a combination of screening registers and direct using diagnostic tools. Trained health workers and students from the Health Assistant program assisted in recording information and conducting tests. Each participant underwent a brief health assessment that included anthropometric measurements, blood pressure monitoring, blood sugar testing, and urine analysis.

Data Collection Tools: To ensure accuracy and reliability, standardized diagnostic instruments were used:

- **Weighing scale:** For weighing body weight individuals based on standard criteria.
- **Blood pressure apparatus:** For detecting hypertension, defined as elevated systolic or diastolic blood pressure.
- **Glucometer:** For measuring blood sugar levels, identifying individuals at risk of diabetes mellitus.
- **Urine test strips:** For detecting proteinuria, which may indicate kidney dysfunction or complications related to hypertension and diabetes.

Each tool was calibrated prior to use, and procedures were explained to participants to minimize anxiety and ensure cooperation.

Ethical Considerations: Ethical principles were strictly observed. Verbal consent was obtained from all participants before screening, and confidentiality of personal data was maintained throughout the study. No invasive procedures were performed, and the screening was conducted solely for public health. Participants with abnormal findings were advised to

seek follow-up health care center or other medical facilities.

Data Analysis: Collected data were entered, tabulated, and analyzed using simple descriptive statistics. Frequencies and proportions were calculated. For example, the prevalence of overweight, hypertension, elevated blood sugar, and proteinuria was expressed in absolute

numbers and percentages. This approach provided an accessible summary of the health status of the screened population, making the results useful for local health authorities and policy making process.

Limitations of Methodology:

While the methodology valuable insights, certain limitations must be acknowledged:

- The use of convenient sampling may selection bias, as participants were limited to those who attended the health center.

- The study did not include detailed behavioral assessments (e.g., diet, physical activity, tobacco use), which are important determinants of NCD risk.
- The

cross-sectional design captures prevalence but does not establish causality or track changes over time.

Results :

A total of 226 individuals participated in the screening program at the municipal health center. Among them, 149 were female and 77 were male.

A total of 226 individuals participated in the screening program.,

Indicator Female Male Total

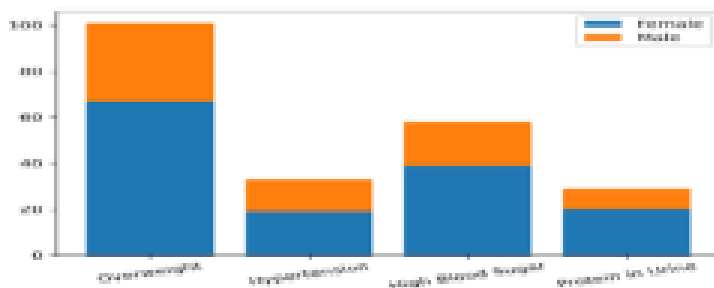
Total screened 149 77 226

Overweight 67 34 101

Hypertension 19 14 33

High Blood Sugar 39 19 58

Protein in Urine 20 9 29



Bar Diagram of Overweight Hypertension ,High blood sugar and Protein in urine The collected data were systematically organized and analyzed using SPSS method. Frequencies and percentages were calculated to present the distribution and magnitude of non-communicable disease (NCD) risk factors in the study population. Total participants, 44.7% were overweight, indicating a substantial prevalence of excess body weight. Elevated blood sugar levels were observed in 25.7% of individuals, suggesting a growing risk of diabetes mellitus. Hypertension was identified in 14.6% of participants, while 12.8% showed proteinuria, which may indicate underlying kidney related complications.

Genderwise analysis revealed that female participants had higher absolute numbers across most indicators, whereas the proportion of hypertension was slightly higher among males.

Overall, the descriptive analysis considerable burden of undetected or unmanaged NCD risk factors in the community, emphasizing the importance of routine screening and early intervention strategies.

Key Findings:

- Overweight: 101 participants (44.7%)
- Hypertension: 33 participants (14.6%)
- Elevated blood sugar: 58 participants (25.7%)
- Proteinuria: 29 participants (12.8%)

Female participants showed higher absolute numbers in most categories, male had a slightly higher proportion of hypertension.

These findings indicate a significant burden of undiagnosed NCD risk factors in the community.

Prevalence of Risk Factors:

The screening revealed a significant burden of non-communicable disease (NCD) risk factors within the study population.

- **Overweight:** Total of 226 participants, 101 individuals (44.7%) were classified as overweight. Among them, 67 were female (44.9% of screened) and 34 were men (44.1% of all men screened). This finding indicates that overweight is a widespread issue across both gender reflecting lifestyle changes, dietary patterns, and reduced physical activity in semi-urban communities.
- **Hypertension:** A total of 33 participants (14.6%) elevated blood pressure. Of these, 19 were female (12.8% of women screened) and 14 were male (18.2% of men screened). Although the absolute number of hypertensive cases was higher among women, the proportion of hypertensive men was slightly greater, suggesting that men may be at relatively higher risk of hypertension in this community.
- **High Blood Sugar:** Elevated blood sugar levels were detected in 58 individuals (25.7%). Among them, 39 were female (26.2% of women screened) and 19 were male (24.7% of men screened). This finding highlights the growing risk of diabetes mellitus in the population, with women showing a marginally higher prevalence.
- **Proteinuria:** Protein in urine, a marker of possible kidney dysfunction, was observed in **29 participants (12.8%)**. Of these, 20 were female (13.4% of women screened) and 9 were male (11.7% of men screened). This suggests that kidney related complications may already be present in a subset of the population, potentially linked to uncontrolled hypertension or diabetes.

- **Differences:** Female participants consistently showed higher absolute numbers across all categories—overweight, hypertension, high blood sugar, and proteinuria. This may reflect both biological and socio-cultural factors. Women in semi-urban Nepal often face limited opportunities for physical activity due to household responsibilities and social norms. Dietary practices and hormonal influences may contribute to higher prevalence rates. The findings underscore the need for gender

sensitive interventions that address the specific challenges faced by women maintaining healthy lifestyles.

Interpretation of Findings :

The results of this study provide a snapshot of the health status of a semi-urban Nepalese society. The high prevalence of overweight and elevated blood sugar levels is particularly concerning, as these are major risk factors for diabetes, cardiovascular disease, and hypertension is associated with stroke and heart disease. While proteinuria is less common, it signals potential kidney complications that could escalate if left untreated.

These findings are consistent with national surveys such as the STEPS Survey Nepal 2013, which reported increasing prevalence of obesity, hypertension, and diabetes across the country (MoHP, 2014), which reported rising prevalence of obesity, hypertension, and diabetes across the country. Results also align with global trends, where NCDs are increasingly affecting populations in low- and middle-income countries due to urbanization, lifestyle changes, and limited access to preventive healthcare.

Theoretical Framework:

Non-communicable diseases (NCDs) represent a growing global health challenge, and their prevention and control require a strong theoretical foundation rooted in public health principles. The central concept guiding this study is that early detection of risk factors such as overweight, hypertension, hyperglycemia, and proteinuria is essential to reducing morbidity and mortality. These conditions often progress silently, with individuals remaining asymptomatic until severe complications arise. By identifying risk factors early, health systems can intervene before irreversible damage occurs, thereby improving quality of life and reducing healthcare costs.

Early Detection as a Public Health Strategy:

The theoretical basis for early detection lies in the preventive model of healthcare, which emphasizes proactive measures rather than reactive treatment. According to the World Health Organization (2013), screening programs are among the most effective tools for identifying individuals at risk of NCDs. For identifying individuals

at risk of NCDs. Detecting hypertension before it leads to stroke, or identifying elevated blood sugar before the onset of diabetes complications, allows for timely lifestyle modifications and medical interventions. This approach aligns with the primary prevention, which seeks to reduce exposure to risk factors, and secondary prevention, which focuses on early diagnosis and prompt treatment.

Risk Factor Identification:

The framework also draws on the concept of risk factor epidemiology, which highlights the importance of measurable indicators in predicting overweight and obesity are strongly associated with cardiovascular disease, diabetes, and certain cancers. Hypertension is a leading cause of heart disease and stroke, hyperglycemia signals the onset of diabetes mellitus. Proteinuria is a critical marker of kidney dysfunction and often reflects uncontrolled hypertension or diabetes. By systematically identifying these risk factors, public health programs can prioritize interventions for individuals risk..

Discussion:

The findings of this study reveal a considerable burden of non-communicable disease (NCD) risk factors among individuals attending a primary health center. This is consistent with global evidence indicating that NCDs are leading causes of morbidity and mortality worldwide (WHO, 2013; Park, 2021).

The high prevalence of overweight individuals observed in this study aligns with global trends, where obesity has become a major public health concern (Park, 2021; WHO, 2013). Overweight and obesity are well-established risk factors for hypertension, diabetes, and cardiovascular diseases (Park, 2021).

Elevated blood sugar levels indicate a growing risk of diabetes mellitus, which is associated with long-term complications such as neuropathy, retinopathy, and kidney disease (Park, 2021). Similarly, hypertension remains undiagnosed in many individuals and contributes significantly to cardiovascular morbidity (WHO, 2013).

The detection of proteinuria suggests possible early kidney damage, often associated with uncontrolled hypertension and diabetes. These findings highlight the importance of integrated screening approaches recommended by national and international health authorities (MoHP, 2019; WHO, 2013).

The results are also consistent with the STEPS Survey Nepal 2013, which reported increasing prevalence of NCD risk factors throughout the country (MoHP, 2014). This reflects the broader epidemiological transition occurring in Nepal (MoHP, 2015).

Conclusion

The findings of this study highlight the growing burden of non-communicable diseases in semi-urban Nepal. The results are consistent with national and global evidence indicating increasing prevalence of NCD risk factors (MoHP, 2014, 2015; WHO, 2013).

Early detection through routine screening and awareness programs is essential to reduce morbidity and mortality associated with chronic diseases (MoHP, 2019; WHO, 2013). Strengthening primary healthcare systems and promoting healthy lifestyles are critical strategies for addressing this public health challenge.

The study demonstrates that even small-scale community screening programs can identify substantial numbers of individuals at risk and contribute to the prevention and control of NCDs in Nepal.

confirming that Nepal is undergoing an epidemiological transition where chronic diseases are replacing infectious diseases as the dominant health challenge.

Despite limitations such as the use of convenient sampling and the absence of detailed behavioral data, the study provides valuable insights into the health status of the community. It demonstrates that even small-scale screening programs can reveal significant public health concerns and serve as a foundation for larger interventions. The findings emphasize the urgent need for integrated approaches that combine medical screening, lifestyle modification, and community-based awareness campaigns.

Recommendations:

Based on the study outcomes, several recommendations can be made to strengthen NCD prevention and control Municipality corporation of Tulsipur dang

1. Regular Community-Based Screening Programs

- a. Establish routine screening services at municipal health centers and community outreach sites.
- a. Incorporate blood pressure, blood sugar, and urine protein testing into primary healthcare visits.
- a. Ensure follow-up care for individuals identified with abnormal results.

2. Health Education and Awareness Campaigns

- a. Develop culturally appropriate education materials focusing on diet, exercise, and stress management.
- a. Use local media, schools, and community groups to disseminate information about NCD risk factors.

- b. Target vulnerable groups such as women, older adults, and individuals with pre-existing conditions.

3. Promotion of Healthy Lifestyles

- a. Encourage balanced diets with reduced salt, sugar, and fat intake.
- b. Promote physical activity by creating safe spaces for exercise and community fitness programs.
- c. Address harmful behaviors such as tobacco use and alcohol consumption through counseling and regulation.

4. Strengthening Primary Healthcare Services

- a. Train healthcare workers to identify and manage NCD risk factors effectively.
- b. Integrate NCD prevention into routine health services, ensuring accessibility for all socio-economic groups.
- c. Provide affordable diagnostic tools and medications at the community level.

5. Policy Development and Implementation

- a. Align local health initiatives with national strategies such as the Nepal Health Sector Strategy and National Health Policy.
- b. Advocate for government investment in preventive health infrastructure.
- c. Establish monitoring and evaluation systems to track progress in reducing NCD prevalence.

6. Community Participation and Empowerment

- a. Involve local leaders, women's groups, and youth organizations in promoting healthy behaviors.
- b. Encourage peer support networks for individuals managing chronic conditions.
- c. Foster ownership of health initiatives within the community to ensure sustainability.

7. Future Research Directions

- a. Conduct longitudinal studies to assess the progression of NCD risk factors over time.
- b. Explore behavioral determinants such as diet, physical activity, and stress in greater detail.
- c. Investigate gender-specific influences and socio-economic disparities in NCD prevalence.

Acknowledgment

I would like to express my sincere gratitude to the Tulsipur Municipal Health Center, Ward-5 Buspark, Dang District, for providing the platform and support to conduct this screening study. I am deeply thankful to the third-year Health Assistant students of Rapti Life Care, batch 2082 B.S., and the health workers who assisted in data collection, screening procedures, and ensured the smooth execution of the program.

I extend my heartfelt appreciation to all the participants who voluntarily took part in the screening and contributed valuable information that made this study possible. Their cooperation and willingness to engage in preventive health initiatives are commendable. Special thanks are due to my colleagues and peers for their encouragement, constructive feedback, and valuable perspectives during the research process. I am also grateful to my

family for their patience, motivation, and unwavering support throughout the fieldwork and manuscript preparation.

Finally, I acknowledge the broader community of Dang District, whose participation and engagement highlight the importance of collective action in addressing the growing burden of non-communicable diseases in Nepal.

References

- Park, K. (2021). *Park's textbook of preventive and social medicine* (26th ed.). Banarsidas Bhanot.
- Ministry of Health and Population Nepal. (2014). *Noncommunicable disease risk factors: STEPS survey Nepal 2013*. Government of Nepal.
- Ministry of Health and Population Nepal. (2015). *Nepal health sector strategy 2015–2020*. Government of Nepal.
- Ministry of Health and Population Nepal. (2019). *National guidelines for management of noncommunicable diseases in Nepal*. Government of Nepal.
- Ministry of Health and Population Nepal. (2019). *National health policy 2019*. Government of Nepal.
- World Health Organization. (2013). *Global action plan for the prevention and control of noncommunicable diseases 2013–2020*. World Health Organization.