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Original Research Article

Prevalence of risk factors for non-communicable diseases among adult population residing in urban areas of Gangtok

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ABSTRACT

Background: Non-communicable diseases (NCDs) place a massive burden on global health and the economy, with cardiovascular diseases, cancer, and diabetes receiving the most focus. This study aimed to determine the prevalence of NCD risk factors among adults in urban Gangtok and identify associations between these risk factors and demographic variables.
Methods: A descriptive survey design was utilized. A sample of 375 adults aged 29–59 residing in Ranipool was selected using probability sampling. Data was collected via interviews using the Community-Based Assessment Checklist (CBAC).
Results: The point prevalence of NCD risk factors was 49.5%. Based on CBAC scores, 13.8% of respondents were at high risk (score > 4). Major risk factors included physical inactivity (71.2%) and clinical symptoms like shortness of breath (4%) and weight loss (2.9%). Risk factors were significantly associated with age, gender, religion, family income, and occupation ($p < 0.05$).
Conclusions: These findings underscore the urgent need for lifestyle-based public health interventions in urban Gangtok to improve long-term health outcomes.

Keywords: CBAC, Non-communicable diseases, Prevalence, Risk factors, Urban population

INTRODUCTION

Non-communicable diseases (NCDs) are responsible for approximately 68% of fatalities reported globally, representing a disastrous cost to human potential and health.[1] Cardiovascular disease, cancer, and diabetes currently receive the most significant clinical attention due to their high mortality rates.[2] India is undergoing a rapid epidemiological transition driven by urbanization, where increased food consumption and tobacco use, coupled with reduced physical activity, have shifted the disease spectrum from infectious to non-communicable illnesses.[3] Consequently, every fourth Indian now faces the risk of death from an NCD before the age of 70.[4]

In Northeast India, states including Manipur, Sikkim, and Nagaland have reported obesity rates exceeding the national average, which directly increases the risk of developing diabetes and hypertension.[5] In Sikkim specifically, the overall prevalence of NCDs was reported at 68.2% in 2021, with hypertension and diabetes being the most prevalent conditions.[6] Understanding localized urban trends is essential for public health planning and resource allocation to effectively target specific lifestyle risk factors.[7] Understanding these distribution patterns helps policymakers address the financial burden of NCDs on the healthcare system.[8]

The objectives of the study were to find out the prevalence of risk factors for non-communicable diseases among the adult population and to find the association between demographic variables and associated risk factors for NCDs among the study participants.

METHODS

This study utilized a community-based quantitative research approach with a descriptive survey design. The research was conducted in the urban area of Ranipool, Gangtok, Sikkim. The final data collection period spanned from November 6, 2023, to December 16, 2023.

Inclusion criteria

The study targeted adults between the ages of 29 and 59 years. Participants were included if they resided in the selected urban area, were willing to participate, and could understand English, Hindi, or Nepali.

Exclusion criteria

Individuals were excluded if they were unavailable at the time of the study or had a prior clinical diagnosis of any non-communicable disease. Using a probability sampling technique, a final sample size of 375 participants was achieved from a total identified population of 1,033 eligible adults.

Procedure and ethical approval

Data was collected on a one-time contact basis using an interview technique. The research instruments included a Demographic Proforma and the standardized Community-Based Assessment Checklist (CBAC). Prior to data collection, administrative permission was obtained from the Principal of the Sikkim Manipal College of Nursing and the local councilor of Ranipool. The study was carried out with the approval of the Institutional Research Committee (IRC) and the Institutional Ethics Committee (IEC). All participants provided informed written consent, and strict confidentiality was maintained throughout the process.

Statistical analysis

Data analysis was performed using SPSS version 24. Descriptive statistics, including frequencies and percentages, were used to describe sample characteristics. Inferential statistics, specifically Chi-square and Fisher's exact tests, were employed to determine associations between risk factors and demographic variables at a 0.05 level of significance.

RESULTS

The demographic profile showed that 69.1% of participants were between 29 and 39 years old, and 51.7% were male. Most participants were Hindu (77.6%), resided in nuclear families (74.7%), and were private employees (56.3%). Educationally, 41.1% had completed senior secondary school, and 69.3% were married.

Point prevalence calculation revealed that 49.5% of the total identified population in Ranipool possessed risk factors for NCDs. According to the CBAC risk assessment, 13.8% of respondents were classified as "high risk" with a score greater than 4. Physical inactivity was high, with 71.2% of participants engaging in less than 150 minutes of activity per week. Clinical screening for early symptoms showed that 4% experienced shortness of breath, 2.9% reported weight loss, and 1.3% had a cough lasting more than two weeks. While 10.8% reported a loss of interest or pleasure in activities, 100% used LPG fuel for cooking and reported no occupational exposure to smoke or dust. Statistical analysis revealed that age, gender, religion, family income, and occupation were significantly associated with NCD risk scores ($p<0.05$).

Table 1: Frequency and percentage distribution of demographic variables (n=375).

Demographic variables	Categories	Frequency (f)	Percentage (%)
Age in years	29-39	259	69.1
	40-49	104	27.7
	50-59	12	3.2
Gender	Male	194	51.7
	Female	181	48.3
Educational level	Senior secondary	154	41.1
	Graduate	98	26.1
Family income	20,001-25,000	135	36.0
	25,001 and above	123	32.8
Occupational status	Private employee	211	56.3
	Housewife	70	18.7

Table 2: CBAC risk category distribution (n=375).

Risk category	Score range	Frequency (f)	Percentage (%)
High risk	>4	52	13.8
Low risk	<4	323	86.2

DISCUSSION

The prevalence of NCD risk factors (49.5%) in Ranipool represents a substantial health challenge, particularly as 13.8% of the population is already at high risk based on CBAC scores.[9] The demographic distribution of participants, with 69.3% married and a significant portion in private employment, is comparable to findings by Dahal et al in urban Kathmandu.[10]

The high rate of physical inactivity (71.2%) found in this study is a critical finding, matching research by Kaur et al that linked NCD risk to inactivity and waist circumference.[11] Furthermore, the significant association observed between increasing age, sedentary lifestyle, and disease risk aligns with epidemiological findings by Negi

et al.[12] Our analysis confirmed that demographic factors such as gender and family income also play a pivotal role in determining risk profiles.[13] While current clinical symptoms like weight loss (2.9%) remain low, the high prevalence of metabolic risk factors suggests a looming health crisis in urban Sikkim that requires immediate attention.[6,14]

This study has few limitations. The study was limited to adults between the ages of 29 and 59 years. Future research should include the elderly population (60 years and above), as they may exhibit distinct risk profiles and higher morbidity rates that were not captured in this study.

CONCLUSION

Nearly half of the adult population in Ranipool possesses at least one NCD risk factor, and 13.8% are classified as high risk for future disease. These findings advance knowledge in the field by identifying specific local needs, emphasizing that targeted public health interventions particularly those promoting physical activity and weight management are urgent for adults under 40 to mitigate the long-term escalation of NCD-related mortality in Sikkim.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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