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Research Article

A Study to Determine the Prevalence of Non-Communicable Diseases and Their Associated Risk Factors Among Adults in Selected Community in Delhi

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A B S T R A C T

Background: Non-communicable diseases (NCDs) constitute a major public health challenge globally and in India, contributing significantly to the burden of morbidity, mortality, and healthcare expenditure. Early detection of NCDs and identification of modifiable risk factors form the cornerstone of preventive strategies under the National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD). Objectives: To screen adults for common NCDs, to assess the prevalence of NCDs and lifestyle-related risk factors, to determine the association between selected demographic variables and lifestyle-related risk factors and to find the association between NCDs and lifestyle-related risk factors.

Methods: A community-based cross-sectional survey was conducted among adults aged 18 years and above. Socio-demographic details, dietary patterns, and lifestyle behaviours were recorded. Screening for common NCDs such as hypertension, diabetes mellitus, cardiovascular disease, and obesity was carried out using standard protocols.

Results: A total of 200 participants were surveyed. The results show that obesity (54%) was the most prevalent NCD, followed by hypertension (24.0%). Among the risk factors, physical inactivity was highly prevalent (71.0%), followed by tobacco use (14.0%) and alcohol consumption (8.0%). The findings indicate a substantial burden of NCDs and modifiable risk factors in the study population. The study showed no statistically significant association between lifestyle-related risk factors and selected socio-demographic characteristics. Furthermore, no significant association was found between non-communicable diseases and lifestyle-related risk factors ($p>0.05$), respectively.

Conclusion: The study highlights the urgent need for strengthening community-based screening, lifestyle modification, and health promotion activities under NP-NCD to reduce the growing burden of NCDs.

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Keywords: Non-Communicable Diseases, Community-Based Survey, Risk Factors, Np-Ncd, India

Introduction

Non-communicable diseases (NCDs) represent one of the most significant public health challenges of the 21st century, accounting for a substantial proportion of global morbidity, mortality, and disability-adjusted life years (DALYs). According to the World Health Organization (WHO), NCDs are responsible for approximately 74% of all deaths worldwide, with cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes mellitus being the leading contributors.[1] Of particular concern is the disproportionate burden borne by low- and middle-income countries (LMICs), which account for nearly 77% of all NCD-related deaths, often affecting individuals during their most productive years of life.[1,2] This epidemiological transition from communicable to non-communicable diseases poses profound implications for health systems, economic development, and social well-being.

India is undergoing a rapid demographic, epidemiological, and nutritional transition, which has resulted in a sharp rise in the prevalence of NCDs over the past few decades. Recent estimates suggest that NCDs account for more than 60% of total deaths and nearly 55% of the total disease burden in the country.[3] Cardiovascular diseases alone contribute to over one-quarter of all deaths, followed by chronic respiratory diseases, cancers, and diabetes mellitus.[4] The increasing life expectancy, urbanisation, mechanisation, and changing lifestyle behaviours have collectively accelerated the NCD epidemic in both urban and rural populations.[5]

The growing burden of NCDs in India is largely driven by a complex interplay of modifiable behavioural risk factors, including unhealthy dietary practices, physical inactivity, tobacco use, and harmful use of alcohol. These behaviours are closely associated with intermediate metabolic risk factors such as overweight and obesity, hypertension, hyperglycemia, and dyslipidaemia, which substantially increase the risk of developing cardiovascular diseases and diabetes.[6,7] Evidence from national surveys indicates that physical inactivity and unhealthy diets are becoming increasingly prevalent across all age groups, particularly among young and middle-aged adults.[8]

Hypertension has emerged as one of the most important public health problems in India, affecting nearly one in four adults, with a significant proportion remaining undiagnosed or inadequately treated.[9] Similarly, the prevalence of diabetes mellitus has risen alarmingly, with India currently home to the second-largest number of adults with diabetes globally.[10] Obesity, once considered a problem of affluent societies, is now widely prevalent in both urban and rural settings, further exacerbating the NCD burden.[11] The coexistence of multiple risk factors in individuals, often referred to as "risk factor clustering», amplifies the likelihood of adverse cardiovascular and metabolic outcomes.[12]

Tobacco use remains a major preventable cause of NCD-related morbidity and mortality in India. Despite the implementation of tobacco control policies, approximately 28.6% of Indian adults use tobacco in some form, contributing significantly to cardiovascular diseases, cancers, and chronic respiratory illnesses.[13] Alcohol consumption, though variable across regions and socio-cultural contexts, has also been linked to an increased risk of hypertension, liver disease, and cardiovascular disorders.[14] Together, these behavioural risk factors underscore the urgent need for population-based prevention strategies.

Recognising the escalating burden of NCDs, the Government of India launched the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS) in 2010, which has since been integrated into the broader National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD).[15] The NP-NCD adopts a comprehensive approach encompassing health promotion, early diagnosis through screening, capacity building of healthcare personnel, and strengthening of referral and treatment services at all levels of care.[15,16] A key component of this programme is opportunistic and population-based screening of adults aged 18 years and above for common NCDs and their risk factors.

Community-based screening has been widely recognised as an effective strategy for early detection of NCDs, particularly in resource-limited settings where access to healthcare services may be suboptimal.[17] Early identification of asymptomatic individuals with hypertension, diabetes, or obesity enables timely intervention, thereby reducing complications, healthcare costs, and premature mortality.[18] Moreover, community-based surveys provide valuable epidemiological data that help in understanding local disease patterns, identifying high-risk groups, and tailoring context-specific preventive interventions.[19]

Despite the availability of national guidelines and frameworks, several studies have highlighted gaps in the implementation of NCD screening and preventive services at the community level.[20] Limited awareness, inadequate health-seeking behaviour, and socio-cultural barriers often result in delayed diagnosis and poor disease control.[21] Furthermore, there is considerable regional and socio-demographic variation in the prevalence of NCDs and their risk factors, necessitating localised data to inform public health planning.[22] In light of these facts, the researchers undertook the present study to assess the prevalence of common non-communicable diseases and associated

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lifestyle-related risk factors among adults aged 18 years and above through a community-based screening approach. In alignment with the National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD), the study also determines the association between the prevalence of NCDs with selected demographic variables and between NCDs and lifestyle-related risk factors.

Methodology

A community-based cross-sectional study was conducted to screen adults aged 18 years and above for common non-communicable diseases (NCDs) and associated lifestyle-related risk factors. The study was carried out in the selected urban community of South Delhi. The survey was conducted between July and September 2025. The study population comprised adult residents aged 18 years and above who were present in the community during the study period. Pregnant women, individuals with acute severe illness at the time of the data collection and those unwilling to participate were excluded. A total of 200 adults were included in the study. The sample size was determined based on feasibility and operational considerations of the community-based screening activity. Participants were selected using the purposive sampling method in their homes. Data were collected using a structured questionnaire adapted from the Community-Based Assessment Checklist recommended under NP-NCD guidelines.[15] The questionnaire included the following components: socio-demographic details (age, sex, and marital status), behavioural risk factors such as tobacco use and alcohol consumption, physical activity status, and self-reported history of diagnosed non-communicable diseases. The data were collected through face-to-face interaction by trained investigators in the local language to ensure clarity and accuracy of responses. At the time of data collection, blood pressure, height and weight were checked. Blood pressure was measured using a calibrated digital sphygmomanometer following standard procedures. Participants were seated comfortably, and measurements were taken after at least five minutes of rest. Two readings were recorded, and the average value was used for analysis. Height and weight were measured using standard portable stadiometers and weighing scales, with participants wearing light clothing and no footwear. Body mass index (BMI) was calculated as weight in kilograms divided by height in metres squared (kg/m²). Administrative approval was obtained from the Member of the Legislative Assembly (M.L.A.) of the study constituency of Delhi. Written informed consent was obtained from all participants before enrolment. Participants identified with previously undiagnosed hypertension, diabetes, or other health conditions were counselled and referred to the nearest health facility for further evaluation and management. Data were entered into Microsoft Excel and analysed using SPSS Version 28 by IBM Corp. statistical software. Descriptive statistics were used to summarise the data. Categorical variables were expressed as frequencies and percentages.

Results

Section 1: Socio-Demographic Characteristics of the Study Participants

The socio-demographic profile of the study participants is summarized in Table 1.

Table no.1 depicted that out of the 200 participants surveyed, 31.5% were in the age group of 18-28 years, more than half (54.5%) were females, mostly were married (78.5%) and majority (60.0%) of participants were non-vegetarian diet.

Section 2: Prevalence of Non-Communicable Diseases

Obesity was the most prevalent non-communicable disease (56.0%), followed by hypertension (24.0%) and diabetes mellitus (13.5%).

Section3: Prevalence of Lifestyle-Related Risk Factors

Assessment of lifestyle-related risk factors showed that physical inactivity was the most prevalent risk factor, affecting 71.0% of participants.

Section 4: Finding related to Association Between Modifiable Lifestyle Risk Factors and selected socio-demographic variables.

Table 4 shows that there is no significant association between alcohol consumption and selected socio-demographic variables among 200 participants ($p>0.05$).

Table 5 shows that there was no statistically significant association between tobacco consumption and any of the sociodemographic variables.

Table 6 shows that there was no statistically significant association of physical activity with any of the selected socio-demographic or dietary variables

Section 5: Finding related to Association Between Modifiable Lifestyle Risk Factors and NCDs.

Table 7 presents that alcohol consumption showed no statistically significant association with selected NCDs.

Table 8 presents that there is no statistically significant association between tobacco consumption and NCDs.

Table no. 9 presents that there is no statistically significant association between physical activity and NCDs.

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Table 1.Frequency and percentage distribution of socio-demographic characteristics of the study participants

n=200

Socio-demographic variables	Frequency	Percentage (%)
Age		
18-28	63	31.5
29-38	38	19
39-48	50	25
49-59	33	16.5
≥60	16	8
Sex		
Male	91	45.50%
Female	109	54.50%
Marital Status		
Married	157	78.50%
Unmarried	43	21.50%
Dietary pattern		
Vegetarian	80	40.00%
Non-Vegetarian	120	60.00%

Table 2.Frequency and percentage distribution of the prevalence of NCD

n=200

Prevalence Of Ncd	Frequency	Percentage (%)
Hypertension	48	24
DM	27	13.5
Obesity	112	56.0
No complaints of HT/DM/Obesity	13	6.5

Table 3.Frequency and percentage distribution of the prevalence of lifestyle-related risk factors

n=200

Lifestyle-Related Risk Factors	Frequency	Percentage (%)
Tobacco use	28	14.0
Alcohol use	16	8.0
Physical inactivity	142	71.0
None of the above-mentioned risk factors	14	7.0

Table 4.Association between alcohol consumption and selected socio-demographic variables

n=200

Variables	Alcohol		χ^2-value	df	p-value
	Yes	No			
Age (in Years)	-	-	-	-	-
18-28	2	61	4.689	4	0.321^{NS}
29-38	5	33			
39-48	6	44			
49-59	2	31			
≥60	1	15			

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Sex	-	-	-	-	-
Female	5	104	3.79	1	0.052^{NS}
Male	11	80			
Marital status	-	-	-	-	-
No	2	41	0.835	1	0.361^{NS}
Yes	14	143			
Dietary	-	-	-	-	-
Non Vegetarian	12	108	1.63	1	0.202^{NS}
Vegetarian	4	76			

NS- not significant at 0.05 level

Table 5.Association between tobacco consumption and selected socio-demographic variables

n=200

Variables	Tobacco		χ^2-value	df	p-value
	Yes	No			
Age (in Years)	-	-	-	-	-
18-28	8	55	1.562	4	0.816^{NS}
29-38	7	31			
39-48	8	42			
49-59	3	30			
≥60	2	14			
Sex	-	-	-	-	-
Female	11	98	3.04	1	0.081^{NS}
Male	17	74			
Marital status	-	-	-	-	-
No	6	37	2.76	1	0.976^{NS}
Yes	22	135			
Dietary	-	-	-	-	-
Non-Vegetarian	16	104	0.111	1	0.739^{NS}
Vegetarian	12	68			

NS- not significant at 0.05 level

Table 6.Association between physical inactivity and selected socio-demographic variables

n=200

Variables	Physical Activity		χ^2-value	df	p-value
	Yes	No			
Age (in Years)	-	-	-	-	-
18-28	23	40	8.701	4	0.069^{NS}
29-38	6	32			
39-48	19	31			
49-59	7	26			
≥60	3	13			

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Sex	-	-	-	-	-
Female	31	78	0.036	1	0.849^{NS}
Male	27	64			
Marital status	-	-	-	-	-
No	12	31	0.032	1	0.859^{NS}
Yes	46	111			
Dietary	-	-	-	-	-
Non-Vegetarian	33	87	0.328	1	0.567^{NS}
Vegetarian	55	25			

NS- not significant at 0.05 level

Table 7.Association between alcohol consumption and NCDs

n=200

	Alcohol		χ^2-value	df	p-value
	Yes	No			
Hypertension	-	-	-	-	-
Yes	3	45	0.263	1	0.608^{NS}
No	13	139			
Diabetes mellitus	-	-	-	-	-
Yes	1	26	0.783	1	0.376^{NS}
No	15	158			
Obesity	-	-	-	-	-
Yes	9	104	0.081	1	0.776^{NS}
No	7	80			

NS- not significant at 0.05 level

Table 8.Association between tobacco consumption and NCDs

n=200

	Tobacco		χ^2-value	df	p-value
	Yes	No			
Hypertension	-	-	-	-	-
Yes	5	43	0.674	1	0.412^{NS}
No	23	129			
Diabetes mellitus	-	-	-	-	-
Yes	2	25	1.127	1	0.288^{NS}
No	26	147			
Obesity	-	-	-	-	-
Yes	13	100	1.344	1	0.246^{NS}
No	15	72			

NS- not significant at 0.05 level

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Table 9.Association between physical inactivity and NCDs

n=200

	Physical Activity		χ^2-value	df	p-value
	Yes	No			
Hypertension	-	-	-	-	-
Yes	14	34	0.001	1	0.977^{NS}
No	44	108			
Diabetes mellitus	-	-	-	-	-
Yes	5	22	1.665	1	0.197^{NS}
No	53	120			
Obesity	-	-	-	-	-
Yes	31	82	0.31	1	0.578^{NS}
No	27	60			

NS- not significant at 0.05 level

Discussion

The present community-based cross-sectional study assessed the prevalence of common non-communicable diseases (NCDs) and associated lifestyle-related risk factors among adults aged 18 years and above. The findings reveal a considerable burden of hypertension, obesity, and diabetes mellitus, along with a high prevalence of modifiable behavioural risk factors, particularly physical inactivity. These results underscore the growing public health challenge posed by NCDs in community settings and highlight the importance of early detection and preventive strategies under the National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD).

The socio-demographic profile of the study population revealed a predominance of young and middle-aged adults, a group that is increasingly affected by NCDs due to early exposure to behavioural risk factors. The higher proportion of married individuals and non-vegetarian dietary practices observed in the study may also influence lifestyle behaviours and health outcomes. Dietary transitions characterised by increased consumption of calorie-dense and processed foods have been widely documented in India and are closely linked to the rising burden of NCDs. 23

The present study included 200 adults, with the highest proportion belonging to the 18–28 years age group (63%), followed by the 39–48 years age group (50%). Females (54.50%) slightly outnumbered males (45.50%), and most participants were married (78.50%) and consumed a non-vegetarian diet (60%). These findings are comparable with the NFHS-5 report, which stated similar demographic patterns in community-based health surveys in India. 24 The participation of younger adults highlights the importance of early screening and health promotion to prevent future non-communicable diseases (NCDs).

Obesity was the most prevalent NCD (56%), followed by hypertension (24%) and diabetes mellitus (13.5%). The high prevalence of obesity reflects the growing impact of unhealthy diets and sedentary lifestyles, which increase the risk of metabolic disorders. Similar trends have been reported by the ICMR, the India study and the World Health Organization (WHO), emphasising obesity as a major contributor to the rising burden of NCDs. 1,8 In the present study, obesity was identified as the most prevalent NCD, affecting more than half (56%) of the study population. Obesity is a well-established risk factor for multiple NCDs, including hypertension, diabetes mellitus, and cardiovascular diseases, and its rising prevalence is a cause for concern due to its long-term health implications.[25]

In the present study, hypertension was identified as the most prevalent NCD, affecting nearly one-quarter (24.0%) of the study population. This finding is consistent with reports from several community-based studies conducted across India, which have documented hypertension prevalence ranging from 22% to 30% among adults. 26, 27 The high prevalence of hypertension reflects the silent nature of the disease, as many individuals remain asymptomatic and undiagnosed until screened. This emphasises the critical role of population-based screening programmes in identifying individuals with elevated blood pressure at an early stage.

Diabetes mellitus was present in 13.5% of the study participants, which is comparable to findings from other community-based studies in India conducted by Anjana RM et.al. and Mohan V reporting prevalence rates between 10% and 15%, respectively. 28. India is currently witnessing a rapid increase in diabetes prevalence, attributed to genetic predisposition combined with lifestyle and environmental factors.[33] The coexistence of diabetes with other NCDs,

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particularly hypertension and obesity, further increases the risk of cardiovascular complications and premature mortality.

Among lifestyle-related risk factors, physical inactivity emerged as the most prevalent, affecting 71.0% of the study population. This finding aligns with national data indicating a high prevalence of insufficient physical activity among Indian adults.[8] Physical inactivity is a major contributor to obesity, hypertension, diabetes, and cardiovascular diseases, and its high prevalence reflects the impact of urbanisation, mechanisation, and changing occupational patterns.[10] Addressing physical inactivity through community-level interventions and behaviour change communication should be a priority under NP-NCD.

Tobacco use was reported by 14.0% of participants, which is lower than the national prevalence reported by the Global Adult Tobacco Survey (GATS) 2016–17.[13] However, even this level of tobacco use remains a significant public health concern due to its strong association with cardiovascular diseases, cancers, and chronic respiratory illnesses.

In the present study, no statistically significant association was observed between lifestyle-related risk factors and socio-demographic variables. Although alcohol and tobacco use were relatively higher among males and non-vegetarians, the differences were not statistically significant. These findings suggest that unhealthy lifestyle behaviours are widespread across different population groups and reinforce the need for universal health promotion strategies rather than targeting only specific demographic categories.[9]

The present study shows that no statistically significant association was found between alcohol consumption, tobacco use, physical inactivity, and NCDs, including hypertension, diabetes mellitus, and obesity. This finding may be influenced by the limited sample size and the cross-sectional design of the study, which does not establish temporal relationships. However, extensive evidence from longitudinal studies has consistently demonstrated that these behavioural factors contribute to the development and progression of non-communicable diseases. 1.8 Thus, lifestyle modification remains a key strategy for reducing the future burden of NCDs.

The findings of this study reinforce the relevance and necessity of community-based NCD screening as envisaged under the NP-NCD framework. Such initiatives not only facilitate early detection of undiagnosed cases but also provide opportunities for counselling, risk factor modification, and referral to appropriate healthcare services. Strengthening community-level interventions, improving awareness, and promoting healthy lifestyles are essential to curb the growing NCD epidemic.

Conclusion

The community-based NCD study revealed a significant burden of non-communicable diseases and modifiable risk factors among adults aged 18 years and above. Hypertension and obesity were the most prevalent conditions, while physical inactivity emerged as the dominant behavioural risk factor. These findings highlight the need for early detection and sustained preventive efforts at the community level. Strengthening population-based screening and health promotion activities under the NP-NCD is essential to reduce the growing NCD burden.

Recommendations

Regular community-level screening for common NCDs should be strengthened under NP-NCD. Health promotion activities emphasising physical activity, a healthy diet, and avoidance of tobacco and alcohol should be prioritised. Capacity building of primary healthcare workers and strengthening referral mechanisms are recommended to improve early diagnosis and long-term management.

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