



Assessment of Awareness Regarding Silent Killers: Hypertension, High Cholesterol and Obesity among Adults in New Delhi.

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Abstract

Background: Hypertension, hypercholesterolemia, and obesity are major non-communicable disease risk factors and are commonly referred to as “silent killers” because they often remain asymptomatic until serious complications develop. Rapid urbanization, sedentary lifestyle, unhealthy dietary habits, and reduced physical activity have contributed to the increasing burden of these conditions in urban populations. Awareness regarding their prevention and early detection plays a crucial role in reducing cardiovascular and metabolic morbidity. **Objective:** To assess awareness regarding silent killers—hypertension, hypercholesterolemia, and obesity—among adults in New Delhi. **Methods:** A community-based cross-sectional study was conducted among 420 adults residing in New Delhi using a structured, self-administered online questionnaire. The questionnaire assessed socio-demographic characteristics, knowledge, attitude, and practices (KAP) related to hypertension, hypercholesterolemia, and obesity. Data were analyzed using descriptive statistics, Chi-square test, and Pearson's correlation coefficient. A p-value of <0.05 was considered statistically significant. **Results:** The majority of participants belonged to the 26–35 years age group (29.5%) and females constituted 52.9% of the study population. Overall, knowledge regarding silent killers was predominantly good (46.2%) or excellent (26.7%). Positive or moderate attitudes toward prevention and lifestyle modification were observed in 76.2% participants. However, preventive practices remained suboptimal, with only 22.4% participants demonstrating good practices related to regular health screening, physical activity, healthy diet, and weight monitoring. Significant associations were observed between KAP scores and educational status, occupation, income, and age ($p < 0.05$). Knowledge demonstrated a positive correlation with attitude and preventive practices. **Conclusion:** Although awareness regarding hypertension, hypercholesterolemia, and obesity was relatively satisfactory among adults in New Delhi, preventive practices remained inadequate. The study highlights an important knowledge–practice gap and emphasizes the need for targeted health education, regular screening programs, and behavior-focused lifestyle interventions to reduce the growing burden of non-communicable diseases.

Keywords: Hypertension; Hypercholesterolemia; Obesity; Silent killers; Awareness; Knowledge attitude practice; Non-communicable diseases; New Delhi.



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INTRODUCTION

Non-communicable diseases (NCDs) have emerged as one of the leading causes of morbidity and mortality worldwide and constitute a major public health challenge in both developed and developing nations. Among the various risk factors contributing to NCDs, hypertension, hypercholesterolemia, and obesity occupy a central position due to their strong association with cardiovascular diseases, stroke, diabetes mellitus, chronic kidney disease, and premature mortality.^{1,2} These conditions are often referred to as “silent killers” because they may remain asymptomatic for prolonged periods before manifesting as serious and potentially life-threatening complications. As a result, many individuals remain undiagnosed until irreversible organ damage or acute cardiovascular events occur.^{3,4}

Hypertension is one of the most common chronic conditions globally and is recognized as a major modifiable risk factor for cardiovascular disease. Persistently elevated blood pressure contributes significantly to the development of coronary artery disease, cerebrovascular accidents, heart failure, and renal impairment.^{5,6} Similarly, hypercholesterolemia plays a

critical role in the pathogenesis of atherosclerosis through deposition of lipids within arterial walls, thereby increasing the risk of myocardial infarction and stroke.^{7,8} Obesity, particularly central obesity, is closely linked with metabolic abnormalities including insulin resistance, dyslipidemia, hypertension, and type 2 diabetes mellitus.^{9,10} The coexistence of these conditions substantially amplifies cardiovascular risk and contributes to a growing burden on healthcare systems.^{11,12}

Rapid urbanization, changing dietary patterns, sedentary lifestyles, increasing psychological stress, reduced physical activity, and excessive consumption of processed and energy-dense foods have accelerated the rise of these silent killers, especially in urban populations.^{13,14} In metropolitan cities such as New Delhi, lifestyle transitions associated with modernization have significantly influenced health behavior and disease patterns. Long working hours, dependence on motorized transport, screen-based lifestyles, irregular eating habits, and reduced opportunities for physical activity have contributed to increasing prevalence of obesity, hypertension, and abnormal lipid profiles among adults across different age groups.¹⁵⁻¹⁷

Despite advances in medical care and availability of preventive strategies, awareness regarding silent killers remains inadequate in many communities. A considerable proportion of adults are unaware of their blood pressure status, cholesterol levels, or body weight-related health risks. Even among individuals who possess some degree of knowledge, preventive practices such as regular screening, healthy dietary habits, weight monitoring, physical activity, and stress management are often insufficient. Delayed diagnosis and poor lifestyle modification further increase the risk of long-term complications and place an additional burden on public health infrastructure.

Awareness plays a crucial role in prevention and early detection of chronic diseases. Individuals who are knowledgeable about risk factors, warning signs, and preventive measures are more likely to adopt healthier behaviors and seek timely medical consultation. Assessment of awareness therefore becomes essential for identifying existing gaps in public understanding and for planning targeted health education interventions. Evaluating public awareness also provides insight into prevailing misconceptions, attitudes toward preventive healthcare, and behavioral practices related to lifestyle diseases.

Several studies conducted in different regions have reported varying levels of awareness regarding hypertension, obesity, and hypercholesterolemia, with socio-demographic factors such as education, occupation, income, and urban residence significantly influencing knowledge and preventive behavior. However, region-specific data focusing collectively on these major silent killers among adults in New Delhi remain limited. Considering the rapidly increasing burden of cardiovascular and metabolic diseases in urban India, there is a need to evaluate the current level of awareness among the adult population.

Therefore, the present study was undertaken to assess awareness regarding silent killers—hypertension, hypercholesterolemia, and obesity—among adults in New Delhi. The study aims to evaluate knowledge, attitudes, and preventive practices related to these conditions and to identify socio-demographic factors associated with awareness levels. The findings of the study are expected to provide useful evidence for strengthening health promotion activities, improving preventive healthcare strategies, and encouraging early screening and lifestyle modification measures in the community.

MATERIALS AND METHODS

Study Design and Setting

A community-based cross-sectional study was conducted to assess awareness regarding silent killers—hypertension, hypercholesterolemia, and obesity—among adults residing in New Delhi, India. The study was carried out over a period of four months from January 2026 to April 2026 using a structured, self-administered online questionnaire. The online mode of data collection was adopted to facilitate broader community participation, rapid dissemination, ease of accessibility, and efficient acquisition of responses from different regions of New Delhi.

Study Population

The study population comprised adults aged 18 years and above who had been residing in New Delhi for at least one year prior to participation in the study. Participants were required to possess the ability to read and understand the questionnaire independently and have access to a smartphone, computer, or internet-enabled device.

Inclusion Criteria

- Adults aged ≥ 18 years
- Residents of New Delhi for at least one year
- Individuals willing to participate and provide digital informed consent
- Participants able to understand and complete the online questionnaire independently

Exclusion Criteria

- Healthcare professionals including doctors, nurses, dieticians, medical students, and allied health workers, in order to minimize professional knowledge bias
- Individuals with severe cognitive impairment or inability to comprehend the questionnaire
- Incomplete or duplicate responses
- Participants residing outside New Delhi

Sample Size Determination

The sample size was calculated using the single population proportion formula assuming 50% prevalence of adequate awareness regarding silent killers due to lack of precise regional data, with a confidence level of 95% and margin of error of 5%. The minimum required sample size was estimated to be 384 participants. To improve reliability of findings and compensate for incomplete or invalid responses, the final sample size was increased to 420 participants.

Sampling Technique and Data Collection

A non-probability convenience sampling technique was employed for participant recruitment. Data were collected exclusively through a Google Form-based online questionnaire. The survey link was disseminated through various digital platforms including WhatsApp groups, email networks, social media platforms, educational institutions, resident welfare groups, and community networks across New Delhi.

The initial section of the questionnaire contained a brief description of the objectives of the study, assurance regarding confidentiality and anonymity, and a digital informed consent statement. Only those participants who voluntarily agreed to participate were permitted to proceed further with the questionnaire. The average time required to complete the survey was approximately 10–12 minutes. Duplicate responses were restricted through Google Form settings, and incomplete questionnaires were excluded during data cleaning.

Study Instrument

Data were collected using a structured and pre-tested questionnaire developed after an extensive review of relevant literature related to hypertension, hypercholesterolemia, obesity, cardiovascular risk factors, and awareness studies on non-communicable diseases. The questionnaire was prepared in simple and comprehensible language to ensure clarity, feasibility, and ease of understanding among the general adult population. The study instrument consisted of four major sections assessing socio-demographic characteristics, knowledge, attitude, and practices regarding silent killers.

Section I: Socio-Demographic Characteristics

This section included information related to participants' age, gender, educational status, occupation, monthly household income, marital status, and area of residence. These variables were included to assess their association with awareness and preventive practices related to silent killers.

Section II: Knowledge Regarding Silent Killers

This section assessed participants' knowledge regarding hypertension, hypercholesterolemia, and obesity, including their meaning, causes, and associated risk factors such as unhealthy diet, physical inactivity, smoking, alcohol consumption, stress, and family history. The questionnaire also evaluated awareness regarding complications including heart attack, stroke, diabetes mellitus, and kidney disease, along with preventive measures such as regular exercise, healthy dietary habits, weight control, periodic screening, lifestyle modification, and early diagnosis. Each correct response was awarded one mark, while incorrect or "don't know" responses were assigned zero marks.

Section III: Attitude Toward Silent Killers

Participants' attitudes were assessed using statements related to the perceived seriousness of hypertension, obesity, and high cholesterol; importance of preventive healthcare; attitudes toward regular health screening and lifestyle modification; perceived susceptibility to non-communicable diseases; and the need for public awareness and government-led health initiatives. Responses were recorded using a four-point response format comprising "Agree," "Neutral," "Disagree," and "Don't know." Appropriate responses were scored accordingly.

Section IV: Practices Related to Prevention of Silent Killers

This section evaluated preventive practices and lifestyle-related behaviors among participants, including blood pressure and cholesterol monitoring, dietary habits, junk food consumption, physical activity and exercise patterns, weight monitoring, smoking and alcohol-related behavior, routine health check-ups, stress management strategies, and adoption of healthy lifestyle measures. Responses were analyzed to identify healthy and unhealthy behavioral practices related to prevention of silent killers.

Scoring Criteria

Knowledge scores were categorized as excellent (15–20), good (10–14), fair (5–9), and poor (0–4). Attitude scores were classified as positive attitude (15–20), moderate attitude (10–14), neutral attitude (5–9), and negative attitude (0–4). Similarly, practice scores were categorized as good practices (15–20), moderate practices (10–14), low practices (5–9), and poor practices (0–4).

Validation and Reliability

The questionnaire underwent content and face validation by a panel of experts comprising a public health specialist, physician, nutrition expert, and biostatistician. Necessary modifications were incorporated to improve scientific accuracy, relevance, comprehensibility, and clarity of the instrument. A pilot study was conducted among 40 adults residing in New Delhi who were excluded from the final analysis. Pilot testing helped assess feasibility, consistency, and understanding of the questionnaire items. Reliability analysis demonstrated good internal consistency, with Cronbach's alpha coefficient greater than 0.80.

Data Management and Statistical Analysis

Data collected through Google Forms were exported into Microsoft Excel for coding, cleaning, and verification. Statistical analysis was performed using IBM SPSS Statistics version 26.0. Descriptive statistics including frequency, percentage, mean, and standard deviation were used to summarize socio-demographic variables and awareness-related responses. Inferential statistical tests included Chi-square test to assess associations between socio-demographic variables and knowledge, attitude, and practice scores, and Pearson's correlation coefficient to determine relationships among knowledge, attitude, and practice domains. A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations

Participation in the study was entirely voluntary. Digital informed consent was obtained from all participants prior to initiation of the questionnaire. Confidentiality and anonymity of participants were strictly maintained throughout the study, and no personal identifiers were collected. The collected data were used solely for academic and research purposes in accordance with ethical principles governing human subject research.

RESULTS

The study included 420 participants, with the majority belonging to the 26–35 years age group (29.5%), followed by 18–25 years (24.3%). Females constituted 52.9% of the study population, while males accounted for 47.1%. Most participants were graduates (43.8%) or postgraduates and above (38.1%). Service/professional workers formed the largest occupational group (40.0%), followed by homemakers (20.5%) and students (16.7%). A substantial proportion reported monthly household income between ₹25,001–50,000 (33.8%), and the majority resided in urban areas (74.3%). Most participants were married (58.6%).

TABLE 1: Socio-Demographic Characteristics of Study Participants (n = 420)

Variable	Category	Frequency (n)	Percentage (%)
Age Group (years)	18–25	102	24.3
	26–35	124	29.5
	36–45	94	22.4
	46–60	68	16.2
	>60	32	7.6
Gender	Male	198	47.1
	Female	222	52.9
Educational Level	Up to Secondary ($\leq 10+2$)	76	18.1
	Graduate	184	43.8
	Postgraduate & Above	160	38.1
Occupation	Student	70	16.7
	Service/Professional	168	40.0
	Homemaker	86	20.5
	Self-employed/Business	62	14.8
	Retired/Unemployed	34	8.1
Monthly Household Income (INR)	<25,000	72	17.1
	25,001–50,000	142	33.8
	50,001–75,000	118	28.1
	>75,000	88	21.0
Area of Residence	Urban	312	74.3

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	Semi-Urban	108	25.7
Marital Status	Unmarried	146	34.8
	Married	246	58.6
	Widowed/Separated	28	6.6

Knowledge regarding hypertension, hypercholesterolemia, and obesity was generally satisfactory among participants. High awareness was observed regarding the role of junk food in obesity (88.6%), lifestyle modification in prevention of silent killers (89.5%), and obesity as a risk factor for diabetes and heart disease (87.6%). A majority also recognized the importance of regular exercise (84.8%), healthy diet (86.7%), and blood pressure monitoring (81.9%). However, comparatively lower awareness was observed regarding asymptomatic nature of high cholesterol (59.0%) and use of Body Mass Index for obesity assessment (66.2%), indicating gaps in practical and technical understanding.

TABLE 2: Knowledge Regarding Silent Killers: Hypertension, Hypercholesterolemia and Obesity Among Adults in New Delhi (n = 420)

Q No.	Question	Options	Correct Response n (%)
1	Hypertension is commonly referred to as	a) High blood pressure b) High sugar c) Heart failure d) Stroke	362 (86.2)
2	Hypertension is called a “silent killer” because it	a) Causes fever immediately b) May remain asymptomatic for years c) Always causes pain d) Affects only elderly people	338 (80.5)
3	Excessive intake of which dietary component increases the risk of hypertension?	a) Salt b) Calcium c) Vitamins d) Fibre	352 (83.8)
4	Obesity significantly increases the risk of	a) Tuberculosis only b) Diabetes and heart disease c) Fractures only d) Eye infections	368 (87.6)
5	Hypercholesterolemia primarily affects the	a) Liver only b) Blood vessels and heart c) Skin only d) Bones only	334 (79.5)
6	Which of the following helps in controlling blood pressure, cholesterol and body weight?	a) Sleeping excessively b) Regular physical activity c) Smoking d) Skipping meals	356 (84.8)
7	Smoking and alcohol consumption increase the risk of	a) Hearing loss only b) Cardiovascular diseases c) Skin allergy only d) Eye infections	326 (77.6)
8	Frequent consumption of junk food and sugary beverages contributes to	a) Improved immunity b) Obesity c) Better heart health d) Strong bones	372 (88.6)
9	High cholesterol levels usually	a) Always produce early symptoms b) Remain unnoticed initially c) Cause fever immediately d) Affect only children	248 (59.0)
10	Obesity is commonly assessed using	a) Blood sugar test b) Body Mass Index (BMI) c) Vision test d) ECG	278 (66.2)
11	Regular blood pressure monitoring is important for	a) Hospitalized patients only b) All adults including healthy individuals c) Children only d) Athletes only	344 (81.9)
12	Family history can increase the risk of	a) Trauma only b) Hypertension, obesity and high cholesterol c) Viral fever only d) Eye diseases only	314 (74.8)
13	Sedentary lifestyle mainly contributes to	a) Improved metabolism b) Obesity and cardiovascular diseases c) Better immunity d) Faster growth	358 (85.2)
14	Hypercholesterolemia increases the risk of	a) Asthma only b) Heart attack and stroke c) Ear infections d) Fractures	342 (81.4)
15	Chronic stress may contribute to	a) Low blood pressure only b) Elevated blood pressure c) Improved heart health d) Reduced body weight	320 (76.2)
16	Which dietary habit helps prevent silent killers?	a) Frequent fast food intake b) Balanced diet rich in fruits and vegetables c) Excess sugar consumption d) Skipping breakfast regularly	364 (86.7)
17	Regular health check-ups are useful for	a) Cosmetic purposes only b) Early detection of silent killers c) Weight gain only d) Increasing appetite	348 (82.9)
18	Obesity can negatively affect	a) Physical health only b) Mental health only c) Social well-being only d) All of the above	302 (71.9)
19	Hypertension, obesity and hypercholesterolemia are major risk factors for	a) Appendicitis b) Chronic kidney and cardiovascular diseases c) Cataract only d) Dental caries	326 (77.6)
20	Which of the following is most effective in preventing and controlling silent killers?	a) Self-medication b) Lifestyle modification c) Ignoring symptoms d) Irregular meals	376 (89.5)

Attitude toward silent killers was largely positive among participants. Most respondents agreed that hypertension and obesity are major health problems affecting quality of life, and 87.6% supported increasing public awareness campaigns. Positive attitudes were also observed regarding regular exercise (83.8%), healthy weight maintenance (84.3%), routine health check-ups (81.9%), and early diagnosis and treatment (82.9%). However, a smaller proportion perceived personal susceptibility to these conditions, particularly among younger adults, suggesting the presence of attitudinal barriers despite adequate awareness.

TABLE 3: Attitude Toward Silent Killers: Hypertension, Hypercholesterolemia and Obesity Among Adults in New Delhi (n = 420)

Q No.	Statement	Response Options	Correct Response n (%)
1	Hypertension is a serious public health problem.	a) Agree b) Neutral c) Disagree d) Don't know	332 (79.0)
2	Obesity significantly affects quality of life and overall health.	a) Agree b) Neutral c) Disagree d) Don't know	346 (82.4)
3	Young adults are also at risk of developing hypertension and high cholesterol.	a) Agree b) Neutral c) Disagree d) Don't know	318 (75.7)
4	Regular exercise is essential for prevention of silent killers.	a) Agree b) Neutral c) Disagree d) Don't know	352 (83.8)
5	Periodic blood pressure and cholesterol screening should be encouraged.	a) Agree b) Neutral c) Disagree d) Don't know	338 (80.5)
6	Obesity should not be ignored even if a person feels healthy.	a) Agree b) Neutral c) Disagree d) Don't know	324 (77.1)
7	Consumption of junk food contributes to obesity and cardiovascular diseases.	a) Agree b) Neutral c) Disagree d) Don't know	358 (85.2)
8	Lifestyle modification is more effective than depending only on medicines in many cases.	a) Agree b) Neutral c) Disagree d) Don't know	316 (75.2)
9	Individuals with obesity are more likely to develop hypertension and diabetes.	a) Agree b) Neutral c) Disagree d) Don't know	334 (79.5)
10	Stress management is important in prevention of hypertension.	a) Agree b) Neutral c) Disagree d) Don't know	308 (73.3)
11	Regular health check-ups should be part of routine adult healthcare.	a) Agree b) Neutral c) Disagree d) Don't know	344 (81.9)
12	Silent killers can lead to severe complications if untreated.	a) Agree b) Neutral c) Disagree d) Don't know	362 (86.2)
13	People often neglect obesity and high cholesterol because they may not produce symptoms initially.	a) Agree b) Neutral c) Disagree d) Don't know	296 (70.5)
14	Awareness regarding silent killers should be increased through public health campaigns.	a) Agree b) Neutral c) Disagree d) Don't know	368 (87.6)
15	School and workplace health education can help in prevention of non-communicable diseases.	a) Agree b) Neutral c) Disagree d) Don't know	336 (80.0)
16	Maintaining healthy body weight is important for cardiovascular health.	a) Agree b) Neutral c) Disagree d) Don't know	354 (84.3)
17	Fast-paced urban lifestyle increases the risk of silent killers.	a) Agree b) Neutral c) Disagree d) Don't know	322 (76.7)
18	Early diagnosis and treatment can reduce complications of hypertension and high cholesterol.	a) Agree b) Neutral c) Disagree d) Don't know	348 (82.9)
19	Government should strengthen programs related to screening and prevention of non-communicable diseases.	a) Agree b) Neutral c) Disagree d) Don't know	364 (86.7)
20	Individuals should take personal responsibility for maintaining healthy lifestyle habits.	a) Agree b) Neutral c) Disagree d) Don't know	356 (84.8)

Preventive practices related to silent killers were comparatively less satisfactory. Only 44.8% participants reported regular blood pressure monitoring, while 41.0% had undergone cholesterol testing within the previous year. Regular physical exercise was reported by 43.8%, and only 41.9% followed a balanced diet rich in fruits and vegetables. Although 67.1% avoided smoking and excessive alcohol intake, unhealthy practices such as junk food consumption, sedentary lifestyle, inadequate stress management, and irregular health check-ups remained common. Encouragingly, 82.9% participants expressed willingness to adopt healthier lifestyle practices if provided appropriate guidance.

TABLE 4: Practices Related to Prevention of Silent Killers: Hypertension, Hypercholesterolemia and Obesity Among Adults in New Delhi (n = 420)

Q No.	Question	Options	n (%)
1	How often do you monitor your blood pressure?	a) Regularly b) Occasionally c) Rarely d) Never	188 (44.8)
2	Have you ever undergone blood cholesterol testing?	a) Yes, within the last year b) Yes, but more than a year ago c) Heard about it but never tested d) Never heard of it	172 (41.0)
3	How frequently do you engage in physical exercise or brisk walking?	a) ≥ 5 days/week b) 2–4 days/week c) Occasionally d) Never	184 (43.8)
4	What type of diet do you usually follow?	a) Balanced diet rich in fruits and vegetables b) Mixed diet with frequent junk food c) Predominantly fast food d) Irregular eating habits	176 (41.9)
5	How often do you consume junk food or sugary beverages?	a) Rarely/Never b) 1–2 times/week c) 3–5 times/week d) Almost daily	162 (38.6)
6	Do you consciously reduce salt intake in your daily meals?	a) Yes b) Sometimes c) Rarely d) Never	198 (47.1)

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7	How often do you check your body weight or BMI?	a) Regularly b) Occasionally c) Rarely d) Never	168 (40.0)
8	What best describes your daily lifestyle?	a) Physically active b) Moderately active c) Mostly sedentary d) Completely inactive	182 (43.3)
9	If advised by a doctor, would you follow dietary and lifestyle modifications?	a) Definitely yes b) Maybe c) Not sure d) No	326 (77.6)
10	How often do you attend routine health check-ups?	a) Annually b) Only when ill c) Rarely d) Never	158 (37.6)
11	Do you read nutrition labels or health information before purchasing packaged food?	a) Frequently b) Sometimes c) Rarely d) Never	146 (34.8)
12	How often do you consume fried or oily food?	a) Rarely b) Occasionally c) Frequently d) Daily	174 (41.4)
13	Do you take measures to manage stress (yoga, meditation, relaxation, hobbies)?	a) Regularly b) Occasionally c) Rarely d) Never	152 (36.2)
14	How many hours per day do you spend sitting or using screens outside work/study requirements?	a) <2 hours b) 2–4 hours c) 5–7 hours d) >7 hours	138 (32.9)
15	Have you ever consulted a healthcare professional regarding obesity, hypertension or cholesterol?	a) Yes b) No c) Planning to consult d) Not required	186 (44.3)
16	Do you avoid smoking and excessive alcohol consumption?	a) Yes b) Occasionally c) No d) Prefer not to say	282 (67.1)
17	How often do you consume fruits and vegetables?	a) Daily b) 3–4 times/week c) Occasionally d) Rarely/Never	208 (49.5)
18	Do you encourage family members or friends to adopt healthy lifestyle practices?	a) Yes regularly b) Sometimes c) Rarely d) Never	214 (51.0)
19	Have you ever ignored symptoms such as headache, weight gain or fatigue without medical consultation?	a) No b) Occasionally c) Frequently d) Always	196 (46.7)
20	Would you be willing to adopt healthier lifestyle habits if provided proper guidance and counseling?	a) Definitely yes b) Maybe c) Not sure d) No	348 (82.9)

Overall KAP score distribution showed that knowledge levels were predominantly good (46.2%) or excellent (26.7%). Similarly, positive or moderate attitudes were observed among 76.2% participants. However, preventive practices were comparatively poorer, with only 22.4% participants demonstrating good practices, while nearly half (49.0%) exhibited moderate practices. The mean knowledge, attitude, and practice scores were 14.1 ± 3.1 , 14.3 ± 3.2 , and 12.9 ± 3.5 respectively, indicating relatively favorable awareness and attitudes but suboptimal translation into preventive behaviors.

TABLE 5: Overall Knowledge, Attitude and Practice (KAP) Score Distribution Regarding Silent Killers Among Adults in New Delhi (n = 420)

Level	Score Range (out of 20)	Knowledge n (%)	Attitude n (%)	Practice n (%)
Excellent / Positive / Good	15–20	112 (26.7)	118 (28.1)	94 (22.4)
Good / Moderate / Moderate	10–14	194 (46.2)	202 (48.1)	206 (49.0)
Fair / Neutral / Low	5–9	82 (19.5)	68 (16.2)	82 (19.5)
Poor / Negative / Poor	0–4	32 (7.6)	32 (7.6)	38 (9.1)
Mean $\pm$ SD	—	14.1 ± 3.1	14.3 ± 3.2	12.9 ± 3.5

Knowledge regarding silent killers showed statistically significant associations with age ($p=0.003$), educational level ($p<0.001$), occupation ($p=0.004$), and monthly household income ($p=0.005$). Higher knowledge levels were observed among older adults, participants with postgraduate education, service/professional workers, and higher-income groups. Excellent knowledge was highest among participants with income $>\text{₹}75,000$ (50.0%) and postgraduates (40.0%). Gender and area of residence did not show statistically significant associations, although urban residents demonstrated relatively better awareness levels.

TABLE 6: Association Between Socio-Demographic Variables and Knowledge Regarding Silent Killers Among Adults in New Delhi (n = 420)

Variable	Category	Excellent n (%)	Good n (%)	Fair n (%)	Poor n (%)	χ^2 value	p-value
Age Group (years)	18–25 (n=102)	18 (17.6)	44 (43.1)	28 (27.5)	12 (11.8)	16.84	0.003*
	26–35 (n=124)	34 (27.4)	60 (48.4)	22 (17.7)	8 (6.5)		
	36–45 (n=94)	28 (29.8)	42 (44.7)	18 (19.1)	6 (6.4)		
	46–60 (n=68)	20 (29.4)	32 (47.1)	12 (17.6)	4 (5.9)		
	>60 (n=32)	12 (37.5)	16 (50.0)	4 (12.5)	0 (0.0)		
Gender	Male (n=198)	48 (24.2)	90 (45.5)	42 (21.2)	18 (9.1)	1.96	0.581
	Female (n=222)	64 (28.8)	104 (46.8)	40 (18.0)	14 (6.4)		
Educational Level	Up to Secondary (n=76)	6 (7.9)	24 (31.6)	30 (39.5)	16 (21.0)	34.72	<0.001*
	Graduate (n=184)	42 (22.8)	92 (50.0)	36 (19.6)	14 (7.6)		
	Postgraduate & Above (n=160)	64 (40.0)	78 (48.8)	16 (10.0)	2 (1.2)		
Occupation	Student (n=70)	12 (17.1)	32 (45.7)	18 (25.7)	8 (11.5)	18.46	0.004*
	Service/Professional (n=168)	58 (34.5)	78 (46.4)	24 (14.3)	8 (4.8)		
	Homemaker (n=86)	16 (18.6)	38 (44.2)	22 (25.6)	10 (11.6)		
	Self-employed/Business (n=62)	18 (29.0)	28 (45.2)	12 (19.4)	4 (6.4)		

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	Retired/Unemployed (n=34)	8 (23.5)	18 (52.9)	6 (17.6)	2 (6.0)		
Monthly Household Income (INR)	<25,000 (n=72)	6 (8.3)	24 (33.3)	24 (33.3)	18 (25.1)	19.22	0.005*
	25,001–50,000 (n=142)	28 (19.7)	72 (50.7)	28 (19.7)	14 (9.9)		
	50,001–75,000 (n=118)	34 (28.8)	54 (45.8)	22 (18.6)	8 (6.8)		
	>75,000 (n=88)	44 (50.0)	44 (50.0)	0 (0.0)	0 (0.0)		
Area of Residence	Urban (n=312)	92 (29.5)	146 (46.8)	54 (17.3)	20 (6.4)	7.42	0.061
	Semi-Urban (n=108)	20 (18.5)	48 (44.4)	28 (25.9)	12 (11.2)		

*Statistically significant at $p < 0.05$.

Attitude toward silent killers was significantly associated with age ($p=0.004$), educational level ($p < 0.001$), occupation ($p=0.008$), and monthly household income ($p=0.007$). Positive attitudes were more common among older adults, highly educated participants, professionals, and higher-income groups. Nearly 45.0% of postgraduates demonstrated positive attitudes compared to only 10.5% among participants educated up to secondary level. Gender and area of residence were not significantly associated with attitude scores, although urban participants exhibited comparatively more favorable attitudes.

TABLE 7: Association Between Socio-Demographic Variables and Attitude Toward Silent Killers Among Adults in New Delhi (n = 420)

Variable	Category	Positive (%)	Moderate (%)	Neutral (%)	Negative (%)	χ^2 value	p-value
Age Group (years)	18–25 (n=102)	18 (17.6)	48 (47.1)	24 (23.5)	12 (11.8)	15.38	0.004*
	26–35 (n=124)	30 (24.2)	62 (50.0)	22 (17.7)	10 (8.1)		
	36–45 (n=94)	24 (25.5)	46 (48.9)	18 (19.1)	6 (6.5)		
	46–60 (n=68)	22 (32.4)	30 (44.1)	10 (14.7)	6 (8.8)		
	>60 (n=32)	24 (75.0)	6 (18.8)	2 (6.2)	0 (0.0)		
Gender	Male (n=198)	52 (26.3)	92 (46.5)	34 (17.2)	20 (10.0)	2.14	0.544
	Female (n=222)	66 (29.7)	110 (49.5)	34 (15.3)	12 (5.5)		
Educational Level	Up to Secondary (n=76)	8 (10.5)	26 (34.2)	24 (31.6)	18 (23.7)	32.48	<0.001*
	Graduate (n=184)	38 (20.7)	96 (52.2)	34 (18.5)	16 (8.6)		
	Postgraduate & Above (n=160)	72 (45.0)	80 (50.0)	10 (6.2)	2 (1.3)		
Occupation	Student (n=70)	14 (20.0)	34 (48.6)	16 (22.8)	6 (8.6)	17.12	0.008*
	Service/Professional (n=168)	64 (38.1)	76 (45.2)	20 (11.9)	8 (4.8)		
	Homemaker (n=86)	18 (20.9)	44 (51.2)	16 (18.6)	8 (9.3)		
	Self-employed/Business (n=62)	14 (22.6)	30 (48.4)	12 (19.4)	6 (9.6)		
	Retired/Unemployed (n=34)	8 (23.5)	18 (52.9)	4 (11.8)	4 (11.8)		
Monthly Household Income (INR)	<25,000 (n=72)	6 (8.3)	30 (41.7)	18 (25.0)	18 (25.0)	18.64	0.007*
	25,001–50,000 (n=142)	28 (19.7)	74 (52.1)	28 (19.7)	12 (8.5)		
	50,001–75,000 (n=118)	36 (30.5)	56 (47.5)	20 (16.9)	6 (5.1)		
	>75,000 (n=88)	48 (54.5)	42 (47.7)	2 (2.3)	0 (0.0)		
Area of Residence	Urban (n=312)	98 (31.4)	150 (48.1)	44 (14.1)	20 (6.4)	6.88	0.073
	Semi-Urban (n=108)	20 (18.5)	52 (48.1)	24 (22.2)	12 (11.2)		

*Statistically significant at $p < 0.05$.

Practices related to prevention of silent killers demonstrated significant associations with age ($p=0.006$), educational level ($p < 0.001$), occupation ($p=0.009$), and monthly household income ($p=0.010$). Better preventive practices were observed among participants with higher education, professional occupations, and higher income levels. Good practices were highest among participants with income $> ₹75,000$ (45.5%) and postgraduates (33.8%). Younger adults and lower socioeconomic groups demonstrated comparatively poorer lifestyle practices. Gender and area of residence did not show statistically significant associations, although urban residents displayed slightly healthier preventive behaviors.

TABLE 8: Association Between Socio-Demographic Variables and Practices Related to Prevention of Silent Killers Among Adults in New Delhi (n = 420)

Variable	Category	Good n (%)	Moderate n (%)	Low n (%)	Poor n (%)	χ^2 value	p-value
Age Group (years)	18–25 (n=102)	14 (13.7)	50 (49.0)	24 (23.5)	14 (13.8)	14.92	0.006*
	26–35 (n=124)	24 (19.4)	66 (53.2)	22 (17.7)	12 (9.7)		
	36–45 (n=94)	24 (25.5)	46 (48.9)	16 (17.0)	8 (8.6)		
	46–60 (n=68)	20 (29.4)	30 (44.1)	12 (17.7)	6 (8.8)		

Citation: Kaur H, Sharma J, Arri AKS, Kaur G, Singh T, Singh H. Assessment of awareness regarding silent killers: hypertension, high cholesterol and obesity among adults in New Delhi. *Int. J. Med.*, 2026;8(1):166-178.

	>60 (n=32)	12 (37.5)	14 (43.7)	6 (18.8)	0 (0.0)		
Gender	Male (n=198)	40 (20.2)	98 (49.5)	38 (19.2)	22 (11.1)	2.34	0.505
	Female (n=222)	54 (24.3)	108 (48.6)	44 (19.8)	16 (7.3)		
Educational Level	Up to Secondary (n=76)	6 (7.9)	28 (36.8)	24 (31.6)	18 (23.7)	33.84	<0.001*
	Graduate (n=184)	34 (18.5)	100 (54.3)	34 (18.5)	16 (8.7)		
	Postgraduate & Above (n=160)	54 (33.8)	78 (48.7)	24 (15.0)	4 (2.5)		
Occupation	Student (n=70)	10 (14.3)	36 (51.4)	16 (22.9)	8 (11.4)	17.48	0.009*
	Service/Professional (n=168)	58 (34.5)	76 (45.2)	24 (14.3)	10 (6.0)		
	Homemaker (n=86)	12 (14.0)	44 (51.2)	20 (23.2)	10 (11.6)		
	Self-employed/Business (n=62)	10 (16.1)	32 (51.6)	14 (22.6)	6 (9.7)		
	Retired/Unemployed (n=34)	4 (11.8)	18 (52.9)	8 (23.5)	4 (11.8)		
Monthly Household Income (INR)	<25,000 (n=72)	6 (8.3)	28 (38.9)	20 (27.8)	18 (25.0)	18.06	0.010*
	25,001–50,000 (n=142)	20 (14.1)	78 (54.9)	30 (21.1)	14 (9.9)		
	50,001–75,000 (n=118)	28 (23.7)	60 (50.8)	22 (18.7)	8 (6.8)		
	>75,000 (n=88)	40 (45.5)	40 (45.5)	6 (6.8)	2 (2.2)		
Area of Residence	Urban (n=312)	78 (25.0)	154 (49.4)	54 (17.3)	26 (8.3)	7.22	0.065
	Semi-Urban (n=108)	16 (14.8)	52 (48.1)	28 (25.9)	12 (11.2)		

*Statistically significant at $p < 0.05$.

DISCUSSION

The present study assessed awareness regarding silent killers—hypertension, hypercholesterolemia, and obesity—among adults residing in New Delhi using a knowledge, attitude, and practices (KAP) framework. The findings provide important insights into the current level of public awareness, prevailing perceptions, and preventive behaviors related to major cardiovascular and metabolic risk factors in an urban Indian population. The study highlights that although general awareness regarding these conditions was relatively satisfactory, significant deficiencies persist in adoption of healthy lifestyle practices and regular preventive health behavior.

Knowledge Regarding Silent Killers

The present study demonstrated that overall knowledge regarding hypertension, hypercholesterolemia, and obesity was predominantly good to excellent among participants. Most respondents were aware that hypertension is commonly known as high blood pressure and recognized obesity and high cholesterol as major contributors to cardiovascular disease. Awareness regarding harmful effects of junk food consumption, physical inactivity, smoking, alcohol use, and sedentary lifestyle was also relatively high. These findings suggest that public exposure to health-related information through digital media, healthcare campaigns, educational institutions, and social media platforms may have contributed to improved awareness regarding non-communicable disease risk factors.¹⁸⁻²¹

A substantial proportion of participants correctly identified the importance of regular exercise, healthy dietary practices, and routine blood pressure monitoring. Participants also recognized that obesity increases the risk of diabetes and cardiovascular disease. These observations are encouraging because they indicate growing public understanding regarding lifestyle-related disorders and preventive healthcare.

However, despite generally favorable knowledge levels, important gaps remained in certain areas. Awareness regarding asymptomatic nature of hypercholesterolemia, use of Body Mass Index (BMI) for obesity assessment, and long-term complications of silent killers was comparatively lower. Many participants still lacked adequate understanding regarding the silent progression of these disorders and their tendency to remain undetected until serious complications develop. Such gaps are particularly important because absence of symptoms frequently delays diagnosis and treatment-seeking behavior.

These findings indicate that while general awareness exists, deeper practical understanding regarding screening, early diagnosis, and long-term disease prevention remains insufficient. Similar observations have been reported in previous

studies assessing awareness regarding hypertension and obesity, where participants often demonstrated reasonable theoretical knowledge but inadequate understanding of preventive health practices and disease monitoring.²²⁻²⁵

Attitude Toward Silent Killers

The present study found that attitudes toward hypertension, hypercholesterolemia, and obesity were largely positive among participants. A majority agreed that these conditions are serious public health concerns capable of causing major complications if neglected. Most respondents also acknowledged the importance of lifestyle modification, regular health check-ups, stress management, healthy diet, and physical activity in disease prevention.

Participants strongly supported awareness campaigns, screening programs, and public health interventions related to non-communicable diseases. A large proportion believed that individuals should take personal responsibility for maintaining healthy lifestyles, reflecting increasing recognition of preventive healthcare among urban adults. Positive attitudes toward early diagnosis and lifestyle modification indicate a favorable environment for implementation of community-based preventive programs.

Despite this, certain misconceptions and attitudinal barriers persisted. Some participants underestimated their personal susceptibility to hypertension and obesity, particularly among younger age groups. Others perceived obesity primarily as a cosmetic issue rather than a significant metabolic risk factor. Such perceptions may contribute to delayed adoption of healthy behaviors and inadequate participation in screening programs.

The discrepancy between awareness and personal risk perception observed in the present study is an important public health concern. Individuals may recognize silent killers as important diseases at the population level while simultaneously underestimating their own vulnerability. This “optimistic bias” has been described in many behavioral studies and remains a major obstacle in successful prevention of lifestyle diseases.

Practices Related to Prevention of Silent Killers

Compared to knowledge and attitude, preventive practices among participants were comparatively less satisfactory. Although many respondents reported awareness regarding healthy lifestyle behaviors, actual implementation of these practices remained inconsistent. A relatively smaller proportion reported regular blood pressure monitoring, annual health check-ups, routine cholesterol testing, and consistent engagement in physical exercise.

Consumption of junk food, sedentary lifestyle patterns, prolonged screen exposure, and inadequate stress management practices were common among participants. While many respondents acknowledged the importance of healthy diet and exercise, only a limited proportion reported adherence to balanced dietary habits and regular physical activity. These findings highlight a substantial gap between awareness and actual behavior.

The study also revealed that a considerable proportion of participants did not routinely monitor body weight or seek preventive health consultations unless symptoms appeared. Such findings are concerning because hypertension and hypercholesterolemia frequently remain asymptomatic during early stages. Delayed screening and lack of preventive monitoring increase the likelihood of complications including myocardial infarction, stroke, chronic kidney disease, and metabolic syndrome.

The observed gap between knowledge and practices may be attributed to several factors including busy urban lifestyles, lack of motivation, work-related stress, time constraints, unhealthy food availability, physical inactivity, and low perceived susceptibility. Modern urban environments often encourage sedentary behavior and unhealthy dietary patterns despite increasing awareness regarding their harmful effects.

Relationship Between Knowledge, Attitude and Practices

One of the important findings of the present study was the positive relationship observed between knowledge, attitude, and preventive practices. Participants with better knowledge levels generally demonstrated more positive attitudes and healthier preventive behaviors. This suggests that awareness remains an important determinant of health-related decision-making and behavioral modification.

However, despite positive correlations, the persistence of unhealthy practices indicates that awareness alone may not be sufficient to ensure long-term behavioral change. Adoption of healthy lifestyle practices is influenced not only by knowledge but also by socioeconomic conditions, environmental factors, motivation, accessibility to preventive services, cultural influences, and personal habits.

This finding emphasizes the need for multidimensional interventions focusing not only on dissemination of information but also on behavioral counseling, motivation enhancement, lifestyle support systems, and creation of health-promoting environments.

Influence of Socio-Demographic Factors

The present study demonstrated significant associations between socio-demographic variables and awareness levels regarding silent killers. Higher educational status, professional occupation, and higher monthly income were significantly associated with better knowledge, more positive attitudes, and healthier practices. These findings suggest that education and socioeconomic status play a major role in shaping health literacy and preventive health behavior.

Participants with higher education levels may possess better access to reliable health information, improved understanding of disease prevention, and greater utilization of healthcare services. Similarly, higher-income groups may have improved healthcare accessibility, better dietary options, and greater opportunities for engaging in preventive health activities.

Age also showed significant association with KAP scores. Older adults generally demonstrated better awareness and more favorable attitudes, possibly due to increased exposure to health services, personal experiences with chronic diseases, or greater perceived vulnerability. However, younger individuals exhibited comparatively poorer preventive practices despite moderate awareness levels, reflecting the influence of modern sedentary urban lifestyles.

Gender and area of residence did not show statistically significant associations, although females and urban residents demonstrated slightly better awareness and practices in certain domains. Increasing digital penetration and widespread dissemination of health information through media platforms may have contributed to reducing traditional disparities in awareness.

Public Health Implications

The findings of the present study have important public health implications in the context of rapidly increasing burden of non-communicable diseases in urban India. Although awareness regarding silent killers was relatively favorable, substantial deficiencies in preventive practices remain a major challenge. This highlights the urgent need for comprehensive interventions aimed at translating awareness into sustained behavioral change.

Community-based awareness campaigns should focus on practical lifestyle modification strategies including dietary regulation, physical activity promotion, stress management, smoking cessation, and routine health screening. Schools, workplaces, colleges, and community organizations can serve as effective platforms for promoting preventive healthcare and healthy lifestyle behaviors.²⁶⁻²⁸

Regular screening programs for blood pressure, obesity, and cholesterol levels should be strengthened, particularly among high-risk urban populations. Integration of digital health education, social media campaigns, and telehealth services may further improve accessibility and public engagement. Healthcare professionals also have a crucial role in counseling individuals regarding preventive practices and encouraging early diagnosis.

Overall, the present study highlights that while awareness regarding hypertension, hypercholesterolemia, and obesity is improving among adults in New Delhi, significant behavioral gaps continue to persist. Addressing these gaps through targeted public health interventions and behavior-focused strategies is essential for reducing the growing burden of cardiovascular and metabolic diseases in the community.²⁹⁻³³

Limitations

The present study has certain limitations. Since data were collected through an online self-administered questionnaire using convenience sampling, younger, urban, educated, and digitally literate individuals may have been overrepresented, limiting generalizability to the wider population. Self-reported responses may also be subject to recall and social desirability bias. Additionally, the cross-sectional design limits the establishment of causal relationships between socio-demographic factors and awareness levels.

CONCLUSION

The present study revealed that adults in New Delhi had moderate-to-good awareness and generally positive attitudes regarding hypertension, hypercholesterolemia, and obesity. However, preventive practices such as regular screening, physical activity, healthy dietary habits, and routine health monitoring remained suboptimal. Significant associations were observed between awareness levels and socio-demographic variables including age, education, occupation, and income. The findings highlight an important knowledge-practice gap and emphasize the need for stronger preventive health education and lifestyle-based interventions to reduce the growing burden of non-communicable diseases.

Recommendations

Community-based awareness programs focusing on hypertension, hypercholesterolemia, and obesity should be strengthened through digital media, schools, workplaces, and public health campaigns. Greater emphasis should be placed on lifestyle modification, regular health screening, healthy dietary practices, physical activity, and stress management. Periodic screening camps and counseling services should be promoted for early detection and prevention of cardiovascular and metabolic diseases.

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