



Original Article

## Knowledge, Attitude, and Practice Regarding Non-Communicable Disease Prevention among Adults in an Urban Slum Population

Jithu SJ Nathm<sup>1</sup>, Jyothi MV<sup>2</sup>

<sup>1</sup>Assistant Professor, Sree Gokulam, Community Medicine, Kerala University of Health Sciences

<sup>2</sup>Junior Consultant, Gynecologist Health Services Government of Kerala, India.

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### Corresponding Author:

**Dr. Jithu SJ Nathm**

Assistant professor Sree Gokulam,  
Community Medicine, Kerala  
University of Health Sciences, India,  
Email: jithusjnath@gmail.com

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### ABSTRACT

**Background:** Non-communicable diseases (NCDs) including hypertension, diabetes mellitus, cardiovascular diseases, chronic respiratory diseases, and cancers are emerging as major public health concerns worldwide. Rapid urbanization, unhealthy dietary habits, sedentary lifestyle, tobacco consumption, alcohol intake, and poor health awareness have significantly contributed to the increasing burden of NCDs in urban slum populations. Adults residing in urban slums are particularly vulnerable due to overcrowding, poverty, limited healthcare accessibility, poor sanitation, inadequate health education, and delayed health-seeking behavior. Assessment of knowledge, attitude, and practice (KAP) regarding NCD prevention is essential for identifying existing gaps and planning effective community-based preventive interventions.

**Aim:** To assess the knowledge, attitude, and practice regarding prevention of non-communicable diseases among adults residing in an urban slum population.

#### Objectives

1. To evaluate the level of knowledge regarding risk factors and prevention of non-communicable diseases among adults in urban slums.
2. To assess the attitude of the study population towards lifestyle modification and preventive measures for NCDs.
3. To determine the preventive health practices adopted by the study participants.
4. To identify the association between socio-demographic variables and KAP regarding NCD prevention.

**Methods:** A hospital-linked community-based cross-sectional observational study was conducted over a period of 12 months among adults residing in urban slum areas attached to the field practice area of a tertiary care teaching hospital. The study included 320 adults aged 18 years and above selected using systematic random sampling. Data were collected using a predesigned, semi-structured, and prevalidated questionnaire comprising socio-demographic details and KAP-related components regarding NCD prevention. Knowledge was assessed using questions related to risk factors, warning symptoms, and preventive measures of NCDs. Attitude assessment included perceptions regarding healthy lifestyle practices and regular screening, while practice assessment included dietary habits, physical activity, tobacco and alcohol use, and health check-up behavior. Data were analyzed using appropriate statistical methods and associations were evaluated using chi-square test with p-value <0.05 considered statistically significant.

**Results:** The majority of participants belonged to the age group of 31–50 years, with females constituting a slightly higher proportion of the study population. Most participants had heard about hypertension and diabetes mellitus; however, awareness regarding obesity, physical inactivity, and stress as important risk factors was comparatively lower. Approximately two-thirds of participants demonstrated moderate knowledge regarding NCD prevention, while positive

attitude towards healthy lifestyle modification was observed among a substantial proportion of respondents. Despite favorable attitudes, preventive practices such as regular exercise, periodic health screening, and consumption of balanced diet were inadequately followed. Tobacco consumption and sedentary lifestyle were significantly associated with poor preventive practices. Higher educational status and better socioeconomic condition showed statistically significant association with improved knowledge and positive preventive behavior.

**Conclusion:** The evidence suggests that there is, to some extent, moderate awareness of and support for preventing noncommunicable diseases among adult residents of urban slum areas, but the use of preventive health measures was too low compared with the knowledge and beliefs that motivated the people to engage in prevention behaviours. It was therefore necessary to support the continuing development of community health education programs, their integration into routine primary health care and establishment of regular screening activities and opportunities to use the means of behaviour change communications, and provide targeted interventions to encourage healthy lifestyle changes among at-risk populations living in urban slum settings. The cumulative effect of such efforts would result in greater levels of awareness about the growing threat of noncommunicable diseases, better access to preventive health care, and enhanced public health improvements at both the community and national levels.

**Keywords:** Non-communicable diseases; Knowledge; Attitude; Practice; Urban slum; NCD prevention; Lifestyle modification; Community health; Adults; Public health awareness.

## INTRODUCTION

The emergence of non-communicable diseases (NCDs) has contributed significantly to the increase in morbidity and mortality throughout the world. The increased occurrence of NCDs has resulted in a disproportionate number of premature deaths and long-term disabilities associated with these diseases. Further, the shift from communicable to non-communicable diseases has been clearly seen in developing countries, such as India, as a result of rapid urbanization, industrialization, demographic transitions, and changes in lifestyle patterns [1]. Examples of NCDs that contribute significantly to the overall global burden of disease include cardiovascular disease, diabetes, chronic respiratory disease, hypertension, stroke, obesity and cancers [2]. The World Health Organization (WHO) estimates that nearly three-quarters of all deaths on a global level are attributable to NCDs, with low- and middle-income countries accounting for a disproportionate burden of these deaths [3]. There are several factors that have contributed to the rise in the prevalence of NCDs in India, including sedentary lifestyle, poor diet, tobacco use, alcohol use, psychological stress, decreased physical activity, and environmental factors. Urban areas of India, especially those with slum populations, are at greater risk because of living in substandard housing conditions, overcrowding, lower levels of education, limited access to healthcare, poverty and low levels of awareness about health-promoting practices [4]. Urban slums present a distinct challenge to public health because they are often populated by individuals who are exposed to a variety of behavioral and environmental risk factors associated with the likelihood of developing NCDs. For example, a number of common behaviours occur in slum communities that may contribute to NCDs, including high consumption of calorie-dense processed foods, reduced intake of fruits and vegetables, stress associated with their job environment, low levels of physical activity and use of addictive substances [5]. In addition, there is a lack of awareness about screening regularly for health issues, signs of health issues early on, and ways to prevent health problems, which can make it easier for someone to miss a diagnosis or to develop complications due to NCDs [6].

Knowledge of how to prevent disease influences a person's health and can therefore be an important factor affecting someone's behavior related to his or her health, as well as whether or not they participate in preventive health practices. A better understanding of a person's modifiable risk factors (e.g., smoking, alcohol consumption, unhealthy diet, obesity, and sedentary lifestyle) will in turn encourage that person to adopt a healthier lifestyle [7]. Similarly, having a favorable attitude towards preventive healthcare and regular health screening will have a positive influence on the individual's ability to identify and manage his or her NCDs early on. However, although a person may have a good knowledge base and a good attitude towards preventive healthcare practices, their ability to put these practices into action may still be limited due to socioeconomic constraints, lack of motivation, cultural beliefs, or a lack of access to healthcare [8].

KAP assessments of knowledge, attitudes, and practices (KAP) regarding NCD prevention will provide a detailed understanding of the behavioral determinants affecting health within the population. KAP assessments will help identify the gap between what you know and experience when it comes to practicing prevention, as well as to assist in developing specific health education programs. KAP assessments are particularly vital in vulnerable urban slum populations that suffer from substantial socioeconomic inequalities and disparities that affect disease prevention and management [9].

Numerous studies conducted across India have shown that poor lifestyle practices and low awareness regarding NCD prevention exist in urban populations, yet there is very limited research specific to urban slum communities associated with

tertiary care hospitals. To enhance the efficacy of any community-based intervention designed for these urban slum communities, it is essential to understand what their level of awareness and preventive behaviors are [10].

Given the increasing burden of NCDs and the desire to promote preventive healthcare, the current study was designed to assess the KAP of adults living in an urban slum community associated with a tertiary care teaching hospital regarding NCD prevention. The results will assist in identifying effective strategies for enhancing community awareness of health and increasing the use of preventive healthcare services within at-risk populations.

#### **Aim**

To assess the knowledge, attitude, and practice regarding non-communicable disease prevention among adults residing in an urban slum population.

#### **Objectives**

1. To evaluate the knowledge regarding risk factors, symptoms, and prevention of non-communicable diseases among adults in urban slums.
2. To assess the attitude of the study participants towards lifestyle modification and preventive healthcare practices.
3. To determine the level of preventive practices adopted by the study population regarding non-communicable diseases.

To identify the association between socio-demographic variables and knowledge, attitude, and practice regarding NCD prevention.

## **MATERIALS AND METHODS**

### **Study Design**

The present study was a hospital-linked community-based cross-sectional observational study conducted to assess the knowledge, attitude, and practice regarding non-communicable disease prevention among adults residing in urban slum areas.

### **Study Setting**

The study was conducted in the urban slum field practice area attached to the Department of Community Medicine of a tertiary care teaching hospital. The selected urban slum population comprised residents belonging predominantly to lower socioeconomic strata with varying levels of literacy and healthcare accessibility.

### **Study Duration**

The study was conducted over a period of 12 months from January 2025 to December 2025.

### **Study Population**

The study population included adult residents of the selected urban slum areas aged 18 years and above who were available during the period of data collection and willing to participate in the study.

### **Sample Size**

The sample size was calculated using the standard formula for prevalence studies considering adequate precision and confidence interval. Based on previous community-based studies assessing awareness regarding non-communicable disease prevention and assuming prevalence of adequate knowledge as 50% for maximum sample size estimation, with 95% confidence interval and allowable error of 5%, the calculated sample size was approximately 384. Considering feasibility and non-response rate, a final sample size of 400 participants was included in the study.

### **Sampling Technique**

Systematic random sampling method was used for selection of study participants. Households in the selected urban slum areas were visited systematically, and one eligible adult participant from each selected household was interviewed. In households with more than one eligible participant, one individual was selected using simple random method.

### **Inclusion Criteria**

1. Adults aged 18 years and above residing in the selected urban slum area for at least six months.
2. Individuals willing to participate in the study.
3. Participants able to provide reliable responses to the questionnaire.

### **Exclusion Criteria**

1. Individuals who were seriously ill at the time of data collection.
2. Participants with cognitive impairment or communication difficulties preventing proper interview.
3. Individuals unwilling to provide informed consent.

### **Study Tool**

The investigators utilized an interviewer-administered questionnaire that was created prior to data collection to gather data for this study on non-communicable disease prevention through reviewing appropriate literature and international guidelines. Initially, the questionnaire was designed in English and translated into the primary language of the participants for easier understanding. A small group of participants outside the sample selected to participate in the study completed pretesting on the questionnaires to evaluate their ability to understand the questions, as well as determine how easy or difficult each question was to answer and whether they would be able to provide accurate answers consistently throughout the questionnaire based on their experiences and knowledge of non-communicable diseases.

The questionnaire consisted of four major sections:

1. Socio-demographic characteristics.
2. Knowledge regarding non-communicable diseases and their risk factors.

3. Attitude towards preventive healthcare and lifestyle modification.
4. Practice regarding healthy behaviors and preventive measures.

### **Knowledge Assessment**

Knowledge-related questions included awareness regarding:

- Common non-communicable diseases.
- Risk factors such as tobacco use, alcohol intake, obesity, unhealthy diet, physical inactivity, and stress.
- Warning symptoms and complications.
- Preventive strategies including healthy diet, exercise, regular screening, and cessation of harmful habits.

Each correct response was assigned one mark and incorrect or “don’t know” responses were assigned zero marks. Based on total score obtained, participants were categorized as having poor, moderate, or good knowledge.

### **Attitude Assessment**

Attitude assessment included participant perceptions regarding:

- Importance of healthy lifestyle practices.
- Need for regular health check-ups.
- Role of physical activity and balanced diet.
- Preventability of non-communicable diseases.
- Willingness to modify unhealthy behaviors.

Responses were assessed using Likert scale-based statements and categorized into positive or negative attitude based on cumulative scores.

### **Practice Assessment**

Practice-related variables included:

- Tobacco and alcohol consumption.
- Dietary practices.
- Frequency of physical activity.
- Routine health screening behavior.
- Salt and oil intake patterns.
- Consumption of fruits and vegetables.
- Stress management practices.

Participants were categorized as having satisfactory or unsatisfactory preventive practices based on predefined scoring criteria.

### **Data Collection Procedure**

Once Institutional Authority Approval & informed consent was obtained from the participant, house- visits in the urban slums where we conducted our study were carried out. There was a high emphasis on maintaining a level of confidentiality and privacy throughout the interview process. After the completion of the interview, participants received health education on preventing NCDs.

### **Statistical Analysis**

All collected data was recorded in a Microsoft Excel spreadsheet and analysed utilizing appropriate statistical software. Descriptive statistics for the presented data included frequency, percentage, mean and standard deviation, as well as the association between socio-demographic variables and Knowledge, Attitude and Practice (KAP) scores using the chi-square test. Statistically significant results were defined as having a p-value of less than 0.05.

### **Ethical Considerations**

The study protocol was approved by [insert appropriate ethical institution for the study, including any specifics of the ethics approval obtained]. Informed consent was obtained from all participants who agreed to participate in the study. The study explained to the participants their right to keep their participation confidential and Anonymous Information gathered from the participants will be kept confidential and will not be accessible to anyone outside of the research team.

## **RESULTS**

The study included 400 adults who live in urban slums. They were enrolled at the field practice site of a tertiary care university hospital. The majority of participants were middle-aged and slightly more women than men. This group had a large number of participants from the lower socioeconomic and lower education levels, similar to what has been documented in prior studies for urban slum populations. While there was a higher level of awareness about the common non-communicable diseases of hypertension and diabetes mellitus, there was a lower level of awareness about the potential risk factors of obesity, stress, and physical inactivity.

The study found that while a large number of the participants had heard of non-communicable diseases, many did not have an adequate understanding of prevention strategies and early warning symptoms of such diseases. Most participants had positive attitudes towards the adoption of healthy lifestyle habits and regular medical screening; however, few participants actually translated their awareness of non-communicable diseases into preventive behaviour. Also, it was found that the participants had relatively low rates of tobacco use, insufficient physical activity, unhealthy dietary habits, and infrequent medical check-ups.

Higher educational attainment and better socioeconomic status were associated with higher knowledge scores and greater adoption of healthy preventive behaviours. Additionally, participants with greater awareness of modifiable risk factors were demonstrated to have more positive attitudes towards lifestyle change. Nevertheless, a lack of implementation of knowledge into preventive behaviours is evident from the findings. Therefore, community-based health education and behavioural change programmes specifically addressing urban slum populations are warranted to enhance prevention and early detection of non-communicable diseases.

**Table 1: Age-wise Distribution of Study Participants**

Table 1 shows that the highest proportion of study participants belonged to the 31–40 years age group followed by the 41–50 years age group.

Age Group (Years)	Number of Participants	Percentage (%)
18–30	96	24.0
31–40	118	29.5
41–50	94	23.5
51–60	58	14.5
>60	34	8.5
Total	400	100.0

**Table 2: Gender-wise Distribution of Study Participants**

Table 2 depicts that females constituted a slightly higher proportion of the study population compared to males.

Gender	Number of Participants	Percentage (%)
Male	186	46.5
Female	214	53.5
Total	400	100.0

**Table 3: Educational Status of Study Participants**

Table 3 demonstrates that a considerable proportion of participants had education up to primary and secondary level, while a smaller proportion had higher education.

Educational Status	Number of Participants	Percentage (%)
Illiterate	68	17.0
Primary School	102	25.5
Secondary School	138	34.5
Higher Secondary	62	15.5
Graduate and Above	30	7.5
Total	400	100.0

**Table 4: Awareness Regarding Common Non-Communicable Diseases**

Table 4 shows that hypertension and diabetes mellitus were the most commonly recognized non-communicable diseases among the study participants.

Awareness Regarding NCDs*	Number of Participants	Percentage (%)
Hypertension	328	82.0
Diabetes Mellitus	314	78.5
Heart Disease	248	62.0
Obesity	186	46.5
Stroke	142	35.5
Cancer	174	43.5

**Table 5: Knowledge Regarding Risk Factors for Non-Communicable Diseases**

Table 5 reveals that tobacco use and unhealthy diet were commonly identified risk factors, whereas stress and physical inactivity were less frequently recognized.

Risk Factors Identified	Number of Participants	Percentage (%)
Tobacco Consumption	322	80.5
Alcohol Consumption	266	66.5
Unhealthy Diet	294	73.5
Obesity	214	53.5
Physical Inactivity	196	49.0
Stress	168	42.0

**Table 6: Attitude Towards Prevention of Non-Communicable Diseases**

Table 6 demonstrates that most participants believed that lifestyle modification and regular health screening are important for prevention of non-communicable diseases.

Attitude-related Responses	Number of Participants	Percentage (%)
Believed NCDs are preventable	302	75.5
Favored Regular Exercise	286	71.5
Supported Healthy Diet	318	79.5
Considered Regular Health Check-up Important	304	76.0
Willing to Modify Lifestyle Habits	248	62.0

**Table 7: Preventive Practices Adopted by Study Participants**

Table 7 indicates that although some participants adopted healthy lifestyle measures, preventive practices remained inadequate among a substantial proportion of the population.

Preventive Practices	Number of Participants	Percentage (%)
Regular Physical Activity	146	36.5
Consumption of Fruits and Vegetables Daily	172	43.0
Regular Health Check-up	118	29.5
Avoidance of Tobacco Use	244	61.0
Avoidance of Alcohol Consumption	286	71.5
Stress Management Practices	104	26.0

**Table 8: Overall Knowledge Grading Regarding NCD Prevention**

Table 8 shows that the majority of participants demonstrated moderate knowledge regarding prevention of non-communicable diseases.

Knowledge Grade	Number of Participants	Percentage (%)
Poor Knowledge	96	24.0
Moderate Knowledge	214	53.5
Good Knowledge	90	22.5
Total	400	100.0

**Table 9: Overall Attitude Grading Regarding NCD Prevention**

Table 9 depicts that positive attitude towards non-communicable disease prevention was observed among a majority of participants.

Attitude Grade	Number of Participants	Percentage (%)
Negative Attitude	104	26.0
Positive Attitude	296	74.0
Total	400	100.0

**Table 10: Overall Practice Grading Regarding NCD Prevention**

Table 10 demonstrates that satisfactory preventive practices were present among less than half of the study participants.

Practice Grade	Number of Participants	Percentage (%)
Unsatisfactory Practice	238	59.5
Satisfactory Practice	162	40.5
Total	400	100.0

**Table 11: Association Between Educational Status and Knowledge Regarding NCD Prevention**

Table 11 reveals statistically significant association between educational status and knowledge regarding non-communicable disease prevention.

Educational Status	Good/Moderate Knowledge n (%)	Poor Knowledge n (%)	Total	p-value
Illiterate	32 (47.1)	36 (52.9)	68	
Primary School	70 (68.6)	32 (31.4)	102	
Secondary School and Above	202 (87.1)	30 (12.9)	232	<0.05
Total	304	96	400	

**Table 12: Association Between Knowledge and Preventive Practices**

Table 12 demonstrates that participants with better knowledge regarding non-communicable diseases showed comparatively better preventive practices.

Knowledge Level	Satisfactory Practice n (%)	Unsatisfactory Practice n (%)	Total	p-value
Poor Knowledge	18 (18.8)	78 (81.2)	96	

Moderate Knowledge	82 (38.3)	132 (61.7)	214	
Good Knowledge	62 (68.9)	28 (31.1)	90	<0.05
Total	162	238	400	

**Table 1** demonstrated that the highest proportion of participants belonged to the 31–40 years age group with 118 participants (29.5%), followed by the 41–50 years age group with 94 participants (23.5%). Younger adults aged 18–30 years constituted 96 participants (24.0%), while elderly individuals above 60 years accounted for the lowest proportion with 34 participants (8.5%). The findings indicate that the study predominantly represented economically productive middle-aged adults who are commonly exposed to lifestyle-related risk factors associated with non-communicable diseases. **Table 2** showed that females constituted 214 participants (53.5%), whereas males accounted for 186 participants (46.5%). The slight female predominance suggests comparatively better participation of women in community-based health surveys and reflects the demographic accessibility during household visits conducted in urban slum settings. **Table 3** revealed that secondary school education was observed among 138 participants (34.5%), followed by primary school education among 102 participants (25.5%). Illiteracy was present in 68 participants (17.0%), while only 30 participants (7.5%) had graduate-level education or above. The findings indicate limited educational attainment among urban slum residents, which may adversely influence health awareness and preventive behavior related to non-communicable diseases. **Table 4** demonstrated that hypertension was recognized by 328 participants (82.0%) and diabetes mellitus by 314 participants (78.5%), making them the most commonly identified non-communicable diseases. Awareness regarding heart disease was observed among 248 participants (62.0%), whereas comparatively lower awareness was noted for obesity, cancer, and stroke. The findings suggest that diseases frequently discussed in routine healthcare settings were more commonly recognized than other chronic health conditions. **Table 5** showed that tobacco consumption was identified as a major risk factor by 322 participants (80.5%), followed by unhealthy diet by 294 participants (73.5%) and alcohol consumption by 266 participants (66.5%). Awareness regarding obesity, physical inactivity, and stress was comparatively lower. These findings indicate that participants possessed relatively better understanding regarding conventional behavioral risk factors but lacked adequate awareness regarding lifestyle and psychological contributors to non-communicable diseases. **Table 6** revealed that 318 participants (79.5%) supported adoption of healthy diet, while 304 participants (76.0%) considered regular health check-ups important for prevention of non-communicable diseases. Belief regarding preventability of NCDs was present among 302 participants (75.5%), and 248 participants (62.0%) expressed willingness to modify unhealthy lifestyle habits. The findings demonstrate an overall favorable attitude toward disease prevention and health promotion practices. **Table 7** demonstrated that avoidance of alcohol consumption was practiced by 286 participants (71.5%), while avoidance of tobacco use was reported by 244 participants (61.0%). Daily fruit and vegetable consumption was observed among 172 participants (43.0%), and regular physical activity was practiced by only 146 participants (36.5%). Regular health check-up behavior and stress management practices were notably inadequate. These findings highlight the substantial gap between awareness and implementation of healthy lifestyle practices. **Table 8** showed that moderate knowledge regarding non-communicable disease prevention was present among 214 participants (53.5%), while good knowledge was observed among 90 participants (22.5%). Poor knowledge was identified among 96 participants (24.0%). The findings indicate that although general awareness existed among many participants, comprehensive understanding regarding NCD prevention remained insufficient in a considerable proportion of the population. **Table 9** demonstrated that positive attitude regarding prevention of non-communicable diseases was observed among 296 participants (74.0%), whereas 104 participants (26.0%) exhibited negative attitude. The findings suggest relatively good acceptance of preventive healthcare concepts among urban slum residents despite socioeconomic limitations. **Table 10** revealed that satisfactory preventive practices were present among only 162 participants (40.5%), whereas unsatisfactory practices were observed among 238 participants (59.5%). The findings indicate that actual adoption of healthy lifestyle behavior remained inadequate despite moderate knowledge and positive attitude regarding disease prevention. **Table 11** demonstrated a statistically significant association between educational status and knowledge regarding non-communicable disease prevention ( $p < 0.05$ ). Good or moderate knowledge was observed among 202 participants (87.1%) with secondary education and above compared to only 32 participants (47.1%) among illiterate participants. The findings suggest that educational attainment plays an important role in improving awareness regarding non-communicable disease prevention. **Table 12** revealed statistically significant association between knowledge level and preventive practices ( $p < 0.05$ ). Satisfactory preventive practices were present among 62 participants (68.9%) with good knowledge compared to only 18 participants (18.8%) with poor knowledge. The findings indicate that improved awareness regarding non-communicable diseases positively influences adoption of healthy preventive behavior among urban slum populations.

## DISCUSSION

There is currently a global epidemic of Noncommunicable Diseases (NCD) that is becoming an important issue for public health. Urbanizing developing countries with changing lifestyles experience many NCD issues, particularly in low socioeconomic areas. Urban poor populations are extremely at-risk populations, primarily due to poverty, overcrowding, lack of access to adequate health care, lack of good sanitation, poor environmental exposures, and low levels of health awareness [11]. This study evaluated how much knowledge, attitudes and practices of adults that reside in the urban slums and that attended a tertiary care teaching hospital regarding the prevention of NCD [12]. The majority of participants were

between 31-50 years of age. The demographic data support other community studies, where the primary population of the study was found to be middle-aged populations in urban areas. Middle age is the time when lifestyle-related risk factors and behavioral determinants associated with NCDs are typically developed [9]. This study had a slightly higher percentage of female participants. The likelihood that this is due to females being available for participation in household surveys and a greater likelihood of female participant willingness to participate in community health surveys. A number of other urban slum KAP studies found that females generally had higher levels of participation than the male populations due to employment migration and being predominantly employed during the day [5]. Most participants reported they had only received education through grade school or high school. Many respondents were also illiterate. The relationship between educational level and health status, health awareness, health care use, and primary prevention are well documented. People with minimal educational background usually have a poor understanding of chronic disease prevention and do not know where to find up-to-date health information. The current study revealed a much better awareness regarding hypertension & diabetes, versus other non-communicable diseases like strokes, Obesity, and Cancer. Prior studies have shown similar results, where hypertension and diabetes were found to be the most recognized chronic diseases because they have such high prevalence rates, as well as being highly discussed in clinical practice settings. Awareness of stress, obesity, and physical inactivity as major risk factors contributing to chronic disease is significantly lower than the awareness of the conventional risk factors of tobacco, alcohol, and unhealthy diets. These findings indicate the need for strengthening health education activities to include not just substance-related risk factors but also the psychosocial and behavioral contributors to chronic disease. Although a reasonable level of knowledge about conventional risk factors was observed among study participants, many respondents did not have adequate awareness of how physical inactivity, stress, and obesity increase the risk of developing chronic diseases. This finding indicates the need to strengthen health education programs regarding both the conventional risk factors associated with chronic disease and psychosocial and behavioral determinants of chronic disease.

Most participants believed that non-communicable diseases could be prevented and expressed strong support for healthy eating, exercising regularly, and receiving annual health checks. Having a positive attitude toward preventive healthcare is very positive because having a positive perception of disease prevention will likely result in later proactivity with regard to changing unhealthy behaviours. Research on urban populations shows that even though participants understand the importance of healthy choices, they do not practice what they know [16]. This research also shows that people were aware of a healthy lifestyle but still displayed inadequate preventative measures toward health within the population. Unfortunately, many respondents among the study population were not regularly engaged in physical activity or eating fruits and vegetables, nor did they practice stress management or health screening regularly.

The awareness and practice gap seen in this study has been widely documented in other KAP studies looking at lifestyle diseases. Barriers to achieving a healthy lifestyle in urban slum communities could include financial inability, lack of motivation, traditional cultural practices, stress from their job, or limited access to preventative healthcare [18].

In addition, the current study identified a statistically significant correlation between education level and the knowledge of non-communicable disease prevention. Those who graduated from high school or higher had a significantly greater understanding of the risk factors and preventative measures associated with developing a non-communicable disease than those who did not [19]. In addition, a statistically significant correlation was established between knowledge and preventative health practices. Persons with high levels of knowledge regarding non-communicable diseases engaged in healthier lifestyle behaviors than did those with low levels of knowledge. These findings illustrate the importance of community education and health education as interventions to facilitate changes in behaviors and, therefore, improve health behaviours and improve health practices.

The urgent need for a comprehensive health promotion strategy aimed at urban slum populations is clear. Community-based educational programs, regular screening clinics, individual behavioural counselling sessions, lifestyle modification programs, and enhanced primary healthcare services are all effective means to reduce non-communicable disease burden. By utilising community health workers, local health authorities, and health care institutions, awareness and access to preventative healthcare services can be significantly improved and will increase an urban slum population's overall participation and early detection of non-communicable diseases.

#### **Limitations of the Study**

1. Being a cross-sectional study, causal relationship between knowledge, attitude, and preventive practices could not be established.
2. Information obtained from participants was self-reported and may be subject to recall bias and social desirability bias.
3. The study was conducted in urban slum areas attached to a single tertiary care teaching hospital, which may limit generalizability of findings to other populations.
4. Certain lifestyle practices such as dietary intake and physical activity could not be objectively verified.
5. Cultural beliefs and psychological determinants influencing preventive behavior were not explored in detail.

#### **CONCLUSION**

The present study revealed that adults residing in urban slum populations possessed moderate knowledge and generally positive attitude regarding prevention of non-communicable diseases; however, actual preventive practices remained inadequate among a substantial proportion of participants. Awareness regarding hypertension and diabetes mellitus was relatively better compared to awareness regarding obesity, stress, and physical inactivity as important risk factors.

Educational status showed significant association with knowledge regarding non-communicable disease prevention, and participants with better knowledge demonstrated comparatively healthier preventive practices. Despite favorable perception regarding healthy lifestyle modification and preventive healthcare, implementation of regular exercise, healthy dietary behavior, stress management, and routine health screening remained suboptimal.

Targeted health education programs and effective approaches to change behaviors will facilitate the development of significant health improvement programs with an emphasis on community involvement by continuing to develop community-based programs with the focus on achieving the highest level of health possible for all individuals in the community utilizing the already established and well-known principles of disease prevention through understanding the causes of non-communicable diseases, the need for early detection, the need for continuous health education, the importance of implementing personal behavior change solutions and incentives to improve individual and community health and promote early detection of disease.

### Recommendations

1. Regular community-based awareness campaigns should be conducted regarding modifiable risk factors and prevention of non-communicable diseases.
2. Periodic screening camps for hypertension, diabetes mellitus, obesity, and other chronic diseases should be organized in urban slum areas.
3. Health education interventions promoting physical activity, balanced diet, tobacco cessation, and stress management should be strengthened.
4. Community health workers should be actively involved in behavioral counseling and early identification of high-risk individuals.
5. School and community-level programs focusing on healthy lifestyle promotion should be encouraged to improve long-term preventive behavior.
6. Strengthening of primary healthcare services and accessibility to preventive healthcare facilities is essential for effective NCD control in urban slum populations.

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