

# Assessment of Risk Factors for Non-Communicable Diseases among Adults in a Selected Rural Community, Coimbatore, India

M.Mahalakshmi<sup>1</sup> W. Chitra<sup>2</sup>, K.J. Nalini<sup>3</sup>, G. Swetha<sup>4</sup>, R. Bhuvaneswari<sup>5</sup>

<sup>1</sup>Associate Professor, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Tamil Nadu, Affiliated with the Tamil Nadu Dr. M.G.MGR Medical University, Chennai,

<sup>2</sup>HOD & Professor, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Tamil Nadu, Affiliated by the Tamil Nadu Dr. M.G.MGR Medical University, Chennai,

<sup>3</sup>Associate Professor, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Tamil Nadu, Affiliated by the Tamil Nadu Dr. M.G.MGR Medical University, Chennai,

<sup>4</sup>Lecturer, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Tamil Nadu, Affiliated with the Tamil Nadu Dr. M.G.MGR Medical University, Chennai,

<sup>5</sup>Assistant Lecturer, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Tamil Nadu, Affiliated with the Tamil Nadu Dr. M.G.MGR Medical University, Chennai

## ABSTRACT

**Background:** Non-communicable diseases (NCDs) constitute a major public health concern and are increasingly prevalent among adults in rural communities. Early identification of modifiable risk factors is essential for promoting preventive health practices and reducing the future burden of NCD-related complications. The Community-Based Assessment Checklist (CBAC) provides an effective approach for identifying individuals at risk of common NCDs at the community level.

**Objective:** To assess the prevalence of risk factors for non-communicable diseases among adults and determine the association between NCD risk factors and selected demographic variables.

**Methods:** A quantitative descriptive research design was adopted to assess NCD risk factors among adults aged 30 years and above residing in SS Kulam, a rural community. A total of 250 participants were selected using a non-probability consecutive sampling technique. Data were collected through a structured questionnaire comprising socio-demographic characteristics, lifestyle and clinical variables, and the Community-Based Assessment Checklist (CBAC). The collected data were analysed using descriptive statistics, including frequency, percentage, mean, standard deviation and inferential statistics using the Chi-square test. A *p*-value of <0.05 was considered statistically significant.

**Results:** Among 250 participants, 140 (56%) were females and 110 (44%) were males. The largest proportion of participants, 101 (40%), belonged to the 40–49-year age group. A considerable proportion, 134 (54%), reported engaging in less than 150 minutes of physical activity per week. Based on the CBAC assessment, 41 (37%) males and 49 (35%) females were classified as being at high risk of developing common NCDs. Statistically significant associations were observed between NCD risk and age group, smoking status, female waist circumference, physical activity, and family history of NCDs.

**Conclusion:** The study demonstrates a considerable burden of NCD risk factors among adults in the selected rural community. The findings highlight the importance of early identification of high-risk

individuals through community-based screening, together with appropriate health education, lifestyle modification, regular screening, counselling, referral, and follow-up.

Strengthening primary healthcare and community-based preventive services may contribute to reducing the risk and long-term burden of non-communicable diseases.

**Keywords:** Non-communicable diseases; NCD risk factors; Community-Based Assessment Checklist; Adults; Rural community; Physical activity; Community-based screening; Primary healthcare.

## Introduction

Non-communicable diseases (NCDs) are chronic conditions that develop over a prolonged period and require continuous medical care, lifestyle modification, and long-term management. The major NCDs, including cardiovascular diseases (CVDs), diabetes mellitus, cancers, and chronic respiratory diseases, are responsible for substantial morbidity, mortality, and disability worldwide. According to the World Health Organization (WHO), NCDs account for approximately 74% of all global deaths, with cardiovascular diseases being the leading contributor. India is undergoing a rapid epidemiological transition, with NCDs emerging as one of the most significant public health challenges. The Global Burden of Disease Study reported that the proportion of deaths attributable to NCDs in India increased substantially over recent decades, reflecting changes in lifestyle, demographic patterns, and environmental exposures. In India, NCDs contribute to more than half of all deaths, with cardiovascular diseases, diabetes, chronic respiratory diseases, and cancers representing the major causes. The increasing burden is associated with urbanization, economic development, sedentary lifestyles, unhealthy dietary practices, tobacco use, alcohol consumption, obesity, and population ageing. The prevalence of NCD risk factors is also rising in India. Behavioural risk factors such as tobacco and alcohol consumption, inadequate physical activity, unhealthy diet, and overweight/obesity significantly contribute to the development of chronic diseases. Biological and socioeconomic factors, including increasing age, family history, educational status, wealth status, and place of residence, further influence individual vulnerability to NCDs. Among women, these factors are particularly important because gender-related barriers, limited access to preventive healthcare, and reduced utilization of screening services may delay early detection and management. The National Family Health Survey-5 (NFHS-5, 2019–2021) further highlighted the increasing burden of hypertension among Indian adults, reporting hypertension prevalence among approximately one-fifth of women and men aged 15 years and above. Recent studies demonstrate that NCDs are no longer restricted to urban and economically advantaged populations but are increasingly affecting rural communities. A nationally representative study involving more than 1.3 million adults in India reported a diabetes prevalence of 7.5% and hypertension prevalence of 25.3%, with considerable variations across states and between rural and urban populations. Rural communities in India face additional challenges in NCD prevention and control, including limited healthcare infrastructure, low awareness regarding risk factors, inadequate screening facilities, and delayed healthcare-seeking behavior. Although national programs such as the National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD) have expanded screening and management services, community-level assessment of NCD risk factors remains essential for developing targeted preventive interventions.

The increasing burden of non-communicable diseases (NCDs) highlights the need for early identification and management of modifiable risk factors. The Makkalai Thedi Maruthuvam (MTM) Programme,

initiated by the Government of Tamil Nadu, delivers doorstep healthcare services with a focus on NCD screening, early detection, treatment, and follow-up.

Assessing NCD risk factors among adults under the MTM Programme can help identify high-risk individuals, promote healthy lifestyle practices, and strengthen community-based prevention and control strategies. Early identification of modifiable risk factors among adults provides an opportunity to promote healthy behavior, strengthen primary healthcare services, and reduce the future burden of NCD-related complications. Therefore, this study employed a quantitative descriptive research to assess the risk factors for non-communicable diseases among adults in a rural community. The findings may provide

evidence for planning community-based health education programs, screening strategies, and preventive measures for NCD control

### **Objective**

- To assess the prevalence of risk factors of non-communicable diseases among adults
- To find the association between the NCD risk factors and selected demographic variables

### **Methodology**

A quantitative research approach was adopted for this study. A descriptive research design was used to assess the risk factors of non-communicable diseases (NCDs) among adults residing in a rural community.

The study was conducted in SS Kulam, a rural community. A preliminary survey was carried out to identify the target population, of adults aged 30 years and above. The total population was 4,000 adults, consisting of 1,900 males and 2,100 females.

The study population comprised adults aged 30 years and above who met the predefined inclusion criteria. A total of 250 participants were recruited using a non-probability consecutive sampling technique.

#### **Sample Size**

The sample is the portion of the population recruited to participate in the study. The sample size was determined using the following formula:

Where:

**n** = Sample size

**p** = Expected success rate (85% or 0.85)

**q** = 1 – p (1 – 0.85 = 0.15)

**L** = Allowable error (4.52% or 0.0452)

**Calculation:**

$$n = \frac{4 \times 0.85 \times 0.15}{\frac{(0.0452)^2}{0.51}}$$
$$n = \frac{0.51}{0.002043}$$
$$n \approx 250$$

Therefore, the calculated sample size was 250 participants. Hence, a total of 250 participants were included in the study.

### Inclusion Criteria

- Adults aged 30 years and above, willing to participate and who were available during the data collection period.

### Exclusion Criteria

- Adults with cognitive impairment, communication difficulties, severely ill clients, visitors, pregnant woman and those who were known cases of NCD.

### Description of the Tool

The data collection tool consisted of two sections:

**Section A:** Demographic variables, including gender, education, occupation, and socio-economic status

**Section B:** Lifestyle and clinical variables, including diet, frequency of food consumption outside, sleep, and BMI calculation

**Section C:** Assessment of NCD risk factors by CBAC scale, including age, smoking habits, alcohol consumption, waist circumference, physical activities, and family history of NCD

### Data Collection Procedure

Data were collected using a structured questionnaire comprising three sections: socio-demographic characteristics, lifestyle and clinical variables, and the Community-Based Assessment Checklist (CBAC) for assessing the risk of non-communicable diseases (NCDs). Before data collection, permission was obtained from the local authorities. A house-to-house survey was conducted, and eligible participants were selected from each household based on the inclusion criteria.

Ethical approval was obtained from the Institutional Ethical Committee before commencement of the study. Oral informed consent was obtained; Data were collected through face-to-face interviews using the structured questionnaire. Body weight was measured using a calibrated weighing scale.

Confidentiality and anonymity of all participants were maintained throughout the study. The collected data were coded, entered into Microsoft Excel, and analyzed using descriptive statistics such as frequency, percentage, mean, and standard deviation to summarize the data. Inferential statistics such as the Chi-square test were used to determine the association between selected demographic variables and NCD risk factors. A p-value of <0.05 was considered statistically significant.

## Results and discussion

**Table-1: Frequency and percentage distribution of demographic variables( N=250)**

| S.no | Demographic variables                                                              | Frequency        | Percentage %   |
|------|------------------------------------------------------------------------------------|------------------|----------------|
| 1    | <b>Gender</b><br>a) Male<br>b) Female                                              | 110<br>140       | 44<br>56       |
| 2    | <b>Education</b><br>a) Illiterate<br>b) Literate                                   | 153<br>97        | 61<br>39       |
| 3    | <b>Marital status</b><br>a) Married<br>b) Single<br>c) Divorced                    | 229<br>18<br>3   | 92<br>7<br>1   |
| 4    | <b>No. of children</b><br>a) No children<br>b) Less than 2<br>c) More than 2       | 44<br>163<br>43  | 18<br>65<br>18 |
| 5    | <b>Nature of work</b><br>a) Sedentary<br>b) Moderate<br>c) Heavy                   | 87<br>128<br>35  | 35<br>51<br>14 |
| 6    | <b>Occupation</b><br>a) Private<br>b) Public c)Business                            | 160<br>48<br>42  | 64<br>19<br>17 |
| 7    | <b>Income</b><br>a) Less than 10,000<br>b) 10,001-20,000<br>c) More than 20,000    | 113<br>111<br>26 | 45<br>45<br>10 |
| 8    | <b>Socio-economic status</b><br>a) Upper class<br>b) Middle class<br>c)Lower class | 17<br>189<br>44  | 7<br>76<br>17  |

**Table-1:** Presents the distribution of study participants by socio-demographic characteristics. A total of 250 adults participated in the study. Of these, the majority, 140 (56%), were female, and 110 (44%) were male. 153 (61%) were illiterate, while 97 (39%) were literate, suggesting that the majority of the study population had no formal education. The vast majority of the participants were married, 229 (92%), followed by single, 18 (7%), and divorced, 3, (1%). The distribution of participants according to the number of children revealed that 45 (18%) had two children, 163 (85%) had more than two children, and 45 (18) had no children. 128 (51%) participants were engaged in moderate physical work, 87 (35%) performed sedentary work, and 35 (14%) were involved in heavy physical work. The majority, 160 (64%) participants were employed in the private sector, 48 (19%) worked in the public sector, and 42 (17%) were engaged in business. 113 (45%) participants earned less than ₹10,000 per month, 111 (45%) had a monthly income between ₹10,001 and ₹20,000, and 26 (10%) earned more than ₹20,000 per month. The majority of participants belonged to the middle socioeconomic class 189, (76%), while 44 (18%) belonged to the lower class and 17 (7%) belonged to the upper class.

**Table 2: Frequency and percentage distribution of lifestyle and clinical variables(N=250)**

| S.no | Demographic variables                                                                         | Frequency             | Percentage %        |
|------|-----------------------------------------------------------------------------------------------|-----------------------|---------------------|
| 1    | <b>Diet</b><br>a) Vegetarian<br>b) Non-vegetarian                                             | 35<br>215             | 14<br>86            |
| 2    | <b>Frequency of food consumption outside</b><br>a) Weekly once<br>b) Monthly once             | 79<br>171             | 32<br>68            |
| 3    | <b>Sleep</b><br>a) < 8 hours<br>b) > 8 hours                                                  | 130<br>120            | 52<br>48            |
| 4    | <b>BMI Classification</b><br>a) Underweight<br>b) Healthy weight<br>c) Overweight<br>d) Obese | 52<br>160<br>26<br>12 | 21<br>64<br>10<br>5 |

**Table-2:** Presents clinical and life style variables among the participants. Among 250 participants. The majority of the participants were non-vegetarians 215, (86%), whereas only 35 (14%) followed a vegetarian diet. 171 (68%) participants reported eating outside once a month, while 79 (32%) reported consuming food outside once a week. 130 (52%) participants slept for less than 8 hours per day, whereas 120 (48%) reported sleeping for more than 8 hours per day; the majority of participants had a healthy weight (160; 64%). In contrast, 52 (21%) were underweight, 26 (10%) were overweight, and 12 (5%) were obese.

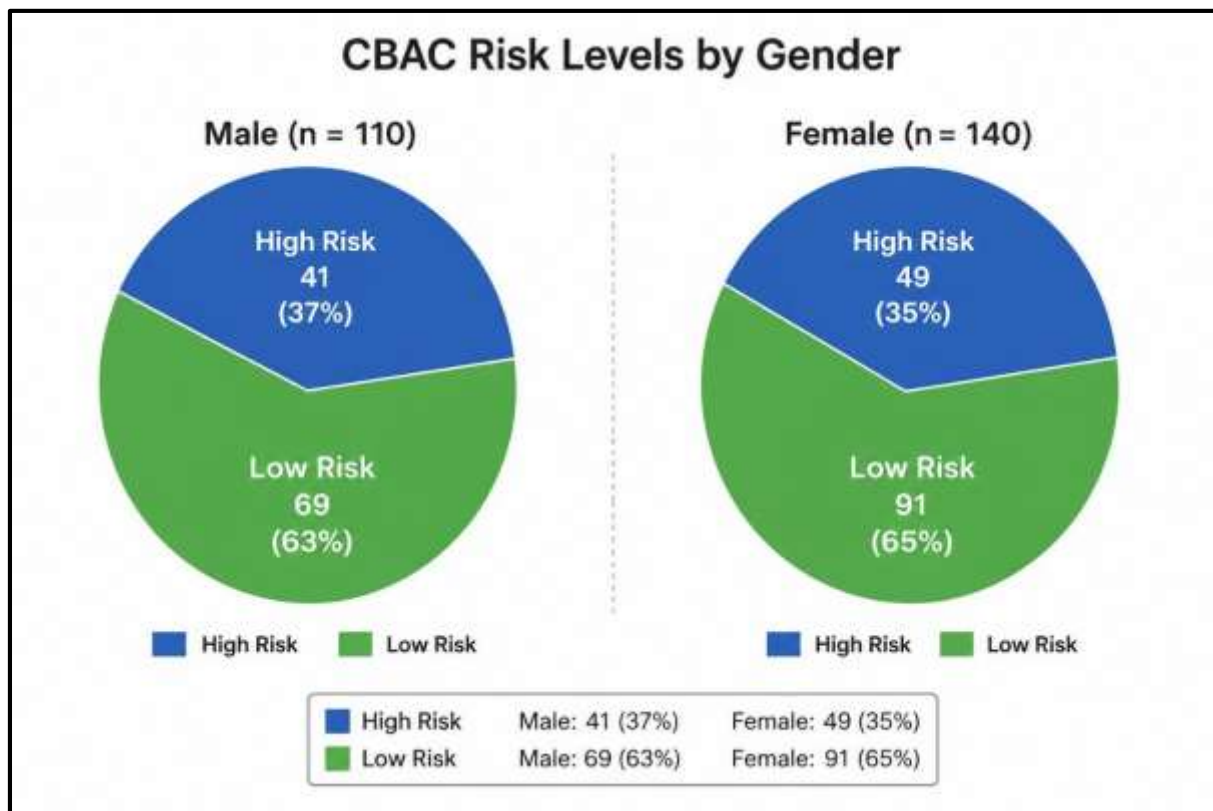
**Table 3: Distribution of study participants based on the community-based assessment checklist (CBAC)**

| CBAC Variables                                             | Range                                      | Frequency       |        | Percentage % |            |
|------------------------------------------------------------|--------------------------------------------|-----------------|--------|--------------|------------|
| Age                                                        | 30-39 years                                | 82              |        | 33           |            |
|                                                            | 40-49 years                                | 101             |        | 40           |            |
|                                                            | ≥ 50 years                                 | 67              |        | 27           |            |
| Smoking or consuming smokeless products                    | Never                                      | 152             |        | 61           |            |
|                                                            | Used to consume in the past/ Sometimes now | 46              |        | 18           |            |
|                                                            | Daily                                      | 52              |        | 21           |            |
| Consumption of alcohol                                     | No                                         | 196             |        | 78           |            |
|                                                            | Yes                                        | 54              |        | 22           |            |
| Measurement of waist (in cm)                               | Female                                     | Male            | Female | Male         | Percentage |
|                                                            | 80 cm or less                              | 90 cm or less   | 27     | 32           | 19 17      |
|                                                            | 81-90 cm                                   | 91-100 cm       | 71     | 63           | 51 46      |
|                                                            | More than 90cm                             | More than 100cm | 42     | 15           | 30 27      |
| Physical activities for a minimum of 150 minutes in a week | At least 150 minutes in a week             |                 | 117    |              | 46         |
|                                                            | Less than 150 minutes in a week            |                 | 134    |              | 54         |
| Family history of NCD                                      | No                                         |                 | 162    |              | 65         |
|                                                            | Yes                                        |                 | 88     |              | 35         |

**Table-3:** Shows distribution of study participants as per Community-based assessment checklist (CBAC) variables, most study participants, 101 (40%) belonged to the age group 40-49. 61% of the study population never had the habit of smoking in their lifetime. 52 (21%) of participants smoke daily, whereas 46 (18%) participants were used to smoke in the past or sometimes. 140 females were lifetime abstainers of alcohol, 54 male participants reported they had consumed alcohol in the past or sometimes. In comparison, 12 (4%) of male participants were daily drinkers. Among the female participants, the majority, 71 (51%), had a waist circumference of 81-90 cm. Among the male participants, 63 (46%) had a waist circumference of 91 cm – 100cm, while the majority of participants, 134 (54 %) performed physical activity less than 150 minutes/week. 162(65%) of participants did not have a family history of High Blood pressure, diabetes, and heart diseases.

**Table 4: Distribution of study participation based on risk factors for non-communicable diseases by gender**

| S.No | CBAC variables | Male Frequency | Percentage % | Female Frequency | Percentage % |
|------|----------------|----------------|--------------|------------------|--------------|
| 1    | HIGH RISK      | 41             | 37           | 49               | 35           |
| 2    | LOW RISK       | 69             | 63           | 91               | 5            |



**Figure-1 Distribution of study participants based on risk factors for non-communicable diseases by gender**

Related to fig.1, the study reveals that 37%, 35% of male and female participants were at high risk to develop common NCDs such as high blood pressure, diabetes, and heart diseases, respectively, with a CBAC score of  $\geq 4$ , while 63%, 65% of male and female participants were at low risk to develop NCDs, respectively, with a CBAC score  $< 4$

**Table 5: Association between the NCD risk factors and selected demographic variables**

| Variable           | Categories                 | $\chi^2$ value | df | p-value | Result          |
|--------------------|----------------------------|----------------|----|---------|-----------------|
| Gender             | Male, female               | 0.0283         | 1  | 0.866   | Not Significant |
| Educational status | Literate, Illiterate       | 2.474          | 1  | 3.841   | Not Significant |
| Dietary pattern    | Vegetarian. Non-Vegetarian | 7.160          | 1  | 0.0074  | Significant     |
| Nature of work     | Sedentary, moderate, heavy | 6.202          | 1  | 5.991.  | Significant     |

|                            |                                                |       |   |        |                 |
|----------------------------|------------------------------------------------|-------|---|--------|-----------------|
| Sleep                      | <8 hours, > 8 hours                            | 5.391 | 1 | 3.841: | Significant     |
| Body Mass Index (BMI)      | Underweight, Healthy weight, Overweight, Obese |       |   |        |                 |
| Age group                  | 30–39, 40–49, ≥50 years                        | 21.54 | 1 | 5.991  | Significant     |
| Smoking status             | Smoking, Past smoker, Daily smoker             | 7.72  | 2 | 5.991  | Significant     |
| Alcohol consumption        | Yes, No                                        | 1.91  | 1 | 7.879  | Not Significant |
| Female waist circumference | ≤80 cm, 81–90 cm, >90 cm                       | 7.20  | 2 | 5.991  | Significant     |
| Male waist circumference   | <90 cm, 91–100 cm, >100 cm                     | 4.61  |   | 5.991  | Not Significant |
| Physical activity          | ≥150 min/week, <150 min/week                   | 10.52 |   | 3.841  | Significant     |
| Family history of NCD      | Yes, No                                        | 34.66 |   | 3.841  | Significant     |

Table 5: shows the association between the NCD risk factors and selected demographic variables

Chi-square analysis revealed significant associations between the risk of non-communicable Chi-square analysis showed significant associations between the study outcome and age group ( $\chi^2 = 21.54$ ,  $p < 0.05$ ), smoking status ( $\chi^2 = 7.72$ ,  $p < 0.05$ ), female waist circumference ( $\chi^2 = 7.20$ ,  $p < 0.05$ ), physical activity ( $\chi^2 = 10.52$ ,  $p < 0.05$ ), and family history of non-communicable diseases ( $\chi^2 = 34.66$ ,  $p < 0.05$ ). In contrast, alcohol consumption ( $\chi^2 = 1.91$ ,  $p > 0.05$ ) and male waist circumference ( $\chi^2 = 4.61$ ,  $p > 0.05$ ) were not significantly associated with the study outcome.

## Discussion

Early detection and screening of non-communicable diseases are a crucial component of health care. The burden of NCDs is growing, and addressing it requires an early intervention strategy to improve health outcomes. A cost-effective early risk detection strategy can improve patient outcomes and quality of life. The Community-Based Assessment Checklist (CBAC) is a population-based high-risk screening strategy for NCDs introduced in India at the primary health-care level. The study found that the overall risk of common NCDs was 72% among participants with a CBAC score  $\geq 4$ , while 37% of males and 35% females had a score  $< 4$ . The present study found a higher risk of non-communicable diseases (NCDs) among rural participants. This may be due to unhealthy dietary habits, and alcohol consumption. Sarveswaran et al. (2020) conducted a population-based study among adults aged 18–69 years in rural Bengaluru, Karnataka, and reported that 56.3% of participants had three or more clustered NCD risk factors. Inadequate intake of fruits and vegetables (82.3%), physical inactivity (46.8%), and central obesity (46.4%) were among the major risk factors identified. These findings highlight the importance of health education, regular screening, and lifestyle modification to reduce the burden of NCDs in rural communities.

There were more females, 56% (140), than males, 110(44%) in this study. This finding is consistent

with the study conducted by Selvavinavagam et al. (2024) in which females 192(51.1%) outnumbered males 184(48%). Furthermore, 40% of study participants belonged to the age group 40–49 years, and this finding is in line with the study conducted by Oomen et al. (2016) where the majority (23%) of the participants were between 41–50 years. This may be because most of the individuals over 50 years surveyed from the population in our study have been diagnosed with any of the NCD, hence they were excluded. In the present study, the majority of participants (76%) belonged to the middle socioeconomic class. With regard to occupation, nearly half of the participants (49%) were employed, while the majority of female participants were homemakers. These findings are comparable with those of Kulothungan et al. (2024), who reported that 60.2% of adults aged 40–69 years in India were employed, while 65.7% of women were homemakers. The study further reported an association between occupation and risk of developing cardiovascular disease, comparately unemployed participants showing a higher risk. These findings highlight the potential influence of socioeconomic and occupational factors on health and NCD risk among adults.

In the present study, the majority of participants (61%) had not completed secondary or higher secondary education, and educational status showed a statistically significant association with the study outcome. Education is an important determinant of health literacy, health awareness, and the adoption of healthy behaviours. This finding is supported by Sankiya et al. (2024) who reported that lower educational attainment was associated with poorer awareness and adoption of healthy behaviours among rural populations. Similar observations have also been reported in the National Family Health Survey (NFHS-5, 2019–21), which demonstrated that educational status significantly influences awareness and prevention of NCD risk factors.

More than half of the participants (51%) reported moderate lifestyles, and nearly two-thirds performed less than the recommended 150 minutes of physical activity per week. Physical activity showed a highly significant association with the study outcome ( $\chi^2 = 17.57$ ,  $p < 0.001$ ). This finding is consistent with the WHO Guidelines on Physical Activity (2020), which recommend at least 150–300 minutes of moderate-intensity physical activity per week to reduce the risk of cardiovascular disease, diabetes, obesity, and certain cancers. Similar findings were reported by Oommen AM et al. (2016) in a rural population of Vellore, TamilNadu, where low physical activity was observed among 43% of rural participants and physical inactivity was associated with hypertension, overweight, central obesity, and dyslipidaemia.

Similarly, body mass index showed a strong, statistically significant relationship with the outcome ( $\chi^2 = 12.75$ ,  $p = 0.005$ ). In our sample, half of the population (50%) fell outside the healthy weight boundary, with (31%) classified as overweight and (14%) living with obesity. This high burden of overnutrition represents a major epidemiological shift. It aligns tightly with our observation that half of the participants (50%) consume outside food at least once a week, exposing them to energy-dense, hyperpalatable, and sodium-rich diets. The Global Burden of Disease Study (GBD 2019) reported unhealthy dietary patterns as one of the leading contributors to premature mortality due to cardiovascular diseases and diabetes worldwide. Similarly, the WHO (2022) emphasizes healthy dietary practices as a cornerstone of NCD prevention.

Approximately 52% of the participants had less than 8 hours of sleep. Short sleep duration showed a significant association with the study outcome ( $\chi^2 = 7.00$ ,  $p < 0.05$ ). Inadequate sleep duration and impaired sleep patterns can adversely affect the quality of life and overall health of individuals and may contribute to the development of non-communicable diseases. This finding is consistent with Banerjee

and Satpathy (2025), who conducted a study among adults in rural eastern India and reported that poor sleep quality was common among individuals with hypertension and that sleep quality was significantly associated with hypertension. These findings highlight the importance of considering sleep quality and duration as modifiable lifestyle-related risk factors in the prevention and management of non-communicable diseases in rural communities.

The present study found a statistically significant association between tobacco use and the study outcome ( $\chi^2 = 7.13$ ,  $p < 0.05$ ). More than half of the participants (18%) had a history of tobacco use, while 29% reported tobacco use and 21% were daily tobacco users. The significant association suggests that tobacco use may be an important behavioural factor influencing the study outcome. These findings are consistent with Oommen et al. (2016), who conducted a study among adults in a rural block of Vellore district, Tamil Nadu, and reported that 23% of rural participants were tobacco users. The study highlighted tobacco use as an important behavioural risk factor for non-communicable diseases in rural communities.

Similarly, alcohol consumption was more common among men, whereas almost all women were lifetime abstainers. However, alcohol consumption was not significantly associated with the study outcome. This finding is consistent with Rajkumar et al. (2020), who studied behavioural risk factors and hypertension among a rural population in India and reported that alcohol consumption was substantially higher among men than women. However, no statistically significant difference in alcohol consumption was observed between hypertensive and non-hypertensive participants. The absence of a significant association in the present study may be attributed to the relatively small proportion of regular or daily alcohol users and the predominance of abstinence among women.

The present study found that 51% of female participants had a waist circumference greater than 90 cm, while 46% of male participants had a waist circumference between 91 and 100 cm, indicating a higher prevalence of increased waist circumference among women. This finding is consistent with Meshram et al. (2024), who reported a higher prevalence of abdominal obesity among women than men in a rural Indian population. The study also demonstrated a considerable burden of overweight, obesity, and other metabolic risk factors among rural adults. The higher prevalence of abdominal obesity observed among women may be attributed to differences in physical activity, dietary practices, and other lifestyle-related factors. These findings suggest that changes in dietary patterns, reduced physical activity and the ongoing nutrition transition may contribute to the increasing prevalence of abdominal obesity even in rural populations.

The present study found a statistically significant association between the NCD status of the family and the study variable ( $\chi^2 = 7.72$ ,  $p < 0.001$ ). Participants without a family history of NCDs had higher values of the study variable than those with a family history of NCDs. This finding suggests that family history may be an important factor influencing an individual's risk of developing non-communicable diseases. Similar findings were reported by Ramesh et al. (2024) in a rural population of Karnataka, where family history of NCDs was significantly associated with a higher risk of NCDs. The study also identified other important risk factors, including increased waist circumference, daily alcohol consumption, and tobacco use. These findings emphasize the importance of identifying individuals with a family history of NCDs and promoting early screening, health education, and healthy lifestyle practices in rural communities.

## Conclusion

The present study revealed a considerable burden of non-communicable disease (NCD) risk factors among adults residing in the selected rural community of Coimbatore. More than half of the participants were identified as being at high risk of developing NCDs, with significant associations observed between NCD risk and selected demographic and behavioural factors. The findings highlight the contribution of modifiable lifestyle factors, including inadequate physical activity, unhealthy dietary practices, tobacco and alcohol use, insufficient sleep, and increased waist circumference, to the growing risk of NCDs among rural adults. The findings emphasize the importance of early identification and prevention of NCDs through regular community-based screening and risk assessment. Health education should focus on promoting balanced dietary practices, regular physical activity, adequate sleep, and avoidance of tobacco and harmful alcohol consumption. Strengthening counselling, screening, referral, and follow-up services through primary healthcare facilities and community health workers can facilitate timely intervention among individuals at increased risk.

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