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The Silent Epidemic: Unmasking Community Risk Factors For Non-Communicable Diseases

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ABSTRACT

Non-communicable diseases (NCDs) such as cardiovascular illnesses, diabetes, cancer, and chronic respiratory conditions have emerged as a silent epidemic, affecting millions globally and increasingly impacting Filipino communities. This study, titled "The Silent Epidemic: Unmasking Community Risk Factors for Non-Communicable Diseases", aimed to identify and analyze the behavioral, environmental, socioeconomic, and healthcare-related risk factors contributing to the prevalence of NCDs in selected communities within the Cagayan Valley Region. A quantitative descriptive research design was employed, using a structured questionnaire administered to adult residents aged 18 and above through purposive sampling. The instrument gathered data on lifestyle practices, environmental conditions, access to healthcare, and cultural influences. Statistical analysis, including descriptive statistics and chi-square tests, was conducted using SPSS to identify significant trends and associations among variables. Findings revealed that limited access to healthy food options, sedentary lifestyles, economic hardship, and inadequate healthcare access are key contributors to increased NCD risk in the region. Social norms and cultural perceptions were also found to influence individual health behaviors, either promoting or hindering healthy living. The study underscores the urgent need for community-based health education, improved infrastructure, and targeted interventions that address the root causes of NCDs. By highlighting these risk factors, the research aims to support policymakers, health professionals, and community leaders in developing strategies to prevent and reduce the burden of non-communicable diseases in vulnerable populations.

Keywords: Non-communicable Diseases, Community Health, Risk factors, Cagayan Valley, Public Health, Lifestyle Behavior

Background

Non-communicable diseases (NCDs) such as cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes are the major causes of death across the world, accounting for around 74% of all deaths globally (1) . In the Philippines, NCDs contribute to over two-thirds of total deaths, presenting a priority public health problem. In the Cagayan Valley region, the prevalence of NCDs is obvious. The second leading morbidity cause in the area is hypertension with a rate of 892.0 per 100,000 population (2). These statistics reflect the need to investigate and respond to the inherent risk factors in communities.

Nestled in the southernmost part of Cagayan province, Enrile is a predominantly agricultural municipality known for its rich soil and resilient farming community. With a population of approximately 36,705 as of the 2024 census, Enrile's residents primarily rely on agriculture, cultivating crops such as rice, corn, peanuts, and tobacco. Yet, beneath this vibrant

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and industrious way of life, a silent health crisis is emerging—one that does not spread through infection, but through daily habits, lifestyle choices, and unaddressed social determinants. According to the Rural Health Unit of Enrile, there were 472 reported cases of non-communicable diseases (NCDs) in 2023, which increased to 543 cases in 2024—reflecting a concerning upward trend in NCD prevalence among its clientele.

Non-communicable diseases (NCDs) such as hypertension, diabetes melitus, heart disease, and certain cancers are increasingly affecting families across Enrile. Despite being preventable in many cases, these chronic illnesses are often detected late, managed poorly, and misunderstood by the general population. Risk factors such as unhealthy diets, physical inactivity, tobacco use, excessive alcohol consumption, and lack of access to regular health screenings are contributing to a growing burden on the local health system and on families themselves.

Several modifiable risk factors unhealthy diet, lack of physical activity, smoking, and excessive alcohol drinking are prevalent among Filipino adults (3). Noted the link between high intake of meat and sweetened drinks and higher risks of obesity, hypertension, and diabetes. Among the residents of Cagayan Province, according to the 2018 Expanded National Nutrition Survey, most of the elderly were current smokers and drinkers (4), which are risk factors that expose them to NCDs. Socioeconomic and environmental factors add to the risk as well. According to the latest data as of 2021, 15.11% of the population in Cagayan Valley is living on or below the 3.65-per-day poverty line, affecting their capacity for access to healthy nutrition, preventive services, and health education. Although healthcare facilities are coming on line—such as the recent restoration of health centers in Tuguegarao and Cauayan (5).community programs addressing NCD prevention and management are lacking.

Methods

This study employed a quantitative descriptive research design to examine the community-level risk factors contributing to non-communicable diseases (NCDs) in selected barangays of the Municipality of Enrile, Cagayan, in the Cagayan Valley Region. The quantitative approach was appropriate as it allowed for the systematic collection and analysis of numerical data to describe existing health-related behaviors, environmental conditions, socioeconomic factors, cultural influences, and access to healthcare services without manipulating variables or establishing causal relationships. The descriptive design provided a clear and accurate snapshot of the current health risk profile of the community, serving as a foundation for evidence-based public health interventions.

The study population consisted of adult residents aged 18 years and above who had been permanent residents of the selected barangays for at least one year. A purposive sampling technique was utilized to select participants who were capable of understanding and answering the questionnaire and who voluntarily agreed to participate in the study. The sample size was determined based on the population of the selected communities and the need for adequate representation across different demographic sectors, including farmers, workers, homemakers, and informal settlers, to ensure a comprehensive understanding of community-level NCD risk factors.

Data were collected using a researcher-developed structured questionnaire anchored on

existing literature and frameworks from the World Health Organization and other validated public health tools (1). The instrument gathered information on demographic characteristics, lifestyle behavioral risk factors, environmental and socioeconomic conditions, healthcare access and utilization, and cultural and social influences. Content validation was conducted by experts in public health and adult health nursing, and a pilot test involving respondents not included in the final sample yielded a Cronbach's alpha coefficient of 0.89, indicating very good reliability. Data collection was carried out ethically and systematically, following approval from relevant authorities and informed consent from all participants. Questionnaires were administered either face-to-face or through self-administration, with instructions provided in both English and Filipino to ensure comprehension.

All completed questionnaires were reviewed for completeness, encoded, and securely stored to maintain confidentiality, with coded identifiers used in place of personal information. The data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondents' profiles and community-level risk factors. Mean scores from Likert-scale items were interpreted using predefined ranges to describe levels of agreement. Inferential statistics, such as the Chi-square test, Pearson's r, and Spearman's rho, were employed as appropriate to determine significant associations between selected demographic variables and identified NCD risk factors. The findings were interpreted to identify prevalent community-level risks, providing evidence-based insights to support the development of targeted, community

Results

Respondent demographic data

Table 1. Profile of the Respondents

Demographic Variable	Category	Frequency (n)	Percentage (%)
1. Age (Years)	Under 18	10	2.8%
	18–30	80	22.7%
	31–45	120	34.0%
	46–60	90	25.5%
	61 and above	53	15.0%
2. Sex	Male	160	45.3%
	Female	180	51.0%
	Other	5	1.4%
	Prefer not to say	8	2.3%
3. Educational Attainment	Elementary	20	5.7%
	High School	100	28.3%
	College	150	42.5%
	Postgraduate	60	17.0%
	Other	23	6.5%
4. Civil Status	Single	120	34.0%
	Married	180	51.0%
	Widowed	20	5.7%

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Demographic Variable	Category	Frequency (n)	Percentage (%)
	Separated	20	5.7%
	Other	13	3.7%
5. Occupation	Employed (Private/Gov't)	170	48.2%
	Self-employed	60	17.0%
	Unemployed	50	14.2%
	Student	40	11.3%
	Retired	33	9.3%
6. Monthly Household Income	Below ₱10,000	90	25.5%
	₱10,000 – ₱20,000	100	28.3%
	₱20,001 – ₱30,000	70	19.8%
	₱30,001 – ₱50,000	50	14.2%
	Above ₱50,000	30	8.5%
	Prefer not to say	13	3.7%

Table 1 presents the demographic profile of the respondents, which provides essential baseline information for understanding patterns related to non-communicable disease (NCD) risk factors within the community. In terms of age, the majority of respondents belonged to the 31–45 age group (34.0%), followed by those aged 46–60 years (25.5%) and 18–30 years (22.7%). Respondents aged 61 years and above comprised 15.0%, while those below 18 years accounted for only 2.8% of the total sample. These results indicate that most participants were within the economically productive age range. With regard to sex, 51.0% of the respondents identified as female, while 45.3% identified as male. A small proportion selected "Other" (1.4%) or preferred not to disclose their sex (2.3%). This distribution shows a slight predominance of female respondents in the study.

In terms of educational attainment, the largest proportion of respondents were college graduates (42.5%), followed by high school graduates (28.3%), postgraduate degree holders (17.0%), and those who attained only elementary education (5.7%). These findings indicate that a majority of the respondents had at least secondary education. Regarding civil status, more than half of the respondents were married (51.0%), while 34.0% were single. Widowed and separated respondents each comprised 5.7%, and 3.7% selected other categories. This suggests that most respondents were in stable family arrangements. In terms of occupation, nearly half of the respondents (48.2%) were employed in either the private or government sectors. The remaining respondents were self-employed (17.0%), unemployed (14.2%), students (11.3%), or retired (9.3%). This distribution reflects a workforce-dominated sample.

Finally, the monthly household income data revealed that 28.3% of respondents earned between ₱10,000 and ₱20,000, while 25.5% earned below ₱10,000. A smaller proportion reported higher income levels, with only 8.5% earning above ₱50,000 per month. This indicates that a substantial portion of the respondents belonged to low- to middle-income households.

Community-level risk factors contributing to the prevalence of non-communicable diseases

Lifestyle Behavioral Risk Factor

Table 2. Lifestyle Behavioral Risk Factor

Item	Behavioral Risk Factor Statement	Weighted Mean	Standard Deviation	Interpretation
1	I regularly consume fruits and vegetables in my daily meals.	3.62	0.95	Agree

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Item	Behavioral Risk Factor Statement	Weighted Mean	Standard Deviation	Interpretation
2	I eat fast food or processed foods more than three times a week.	3.40	1.12	Neutral
3	I engage in at least 30 minutes of physical activity five days a week.	3.10	1.05	Neutral
4	I spend most of my free time in sedentary activities.	3.70	0.98	Agree
5	I smoke cigarettes or use tobacco products regularly.	2.25	1.30	Disagree
6	I am exposed to secondhand smoke in my home or workplace.	2.80	1.10	Neutral
7	I consume alcoholic beverages more than once a week.	2.90	1.18	Neutral
8	I read food labels to make healthier choices.	3.35	1.01	Neutral
9	I skip meals due to lack of time or resources.	3.20	1.07	Neutral
10	I try to reduce my intake of salt, sugar, and fat.	3.75	0.92	Agree

The table presents ten statements describing lifestyle behaviors associated with non-communicable disease (NCD) risk, interpreted using weighted mean and standard deviation values. Results show that respondents generally agreed that they consume fruits and vegetables regularly ($\bar{x}$ = 3.62), and that they make efforts to reduce salt, sugar, and fat intake ($\bar{x}$ = 3.75). However, neutral responses were observed for frequent fast-food consumption ($\bar{x}$ = 3.40) and reading food labels ($\bar{x}$ = 3.35), indicating inconsistent healthy eating practices.

Engagement in physical activity was rated neutral ($\bar{x}$ = 3.10), while respondents agreed that they spend most of their free time in sedentary activities ($\bar{x}$ = 3.70). Tobacco use was generally disagreed upon ($\bar{x}$ = 2.25), although exposure to secondhand smoke was rated neutral ($\bar{x}$ = 2.80). Alcohol consumption also received a neutral rating ($\bar{x}$ = 2.90). Meal-skipping behavior was rated neutral ($\bar{x}$ = 3.20), suggesting irregular eating patterns among some respondents.

Environmental Risk Factor

Table 3. Environmental Risk Factor

Item	Environmental Risk Factor Statement	Weighted Mean	Standard Deviation	Interpretation
11	My neighborhood has safe sidewalks or parks for physical activity.	3.55	1.00	Agree
12	There are affordable healthy food options near my home.	3.10	1.08	Neutral
13	Junk food is more accessible than fresh food in my area.	3.80	1.00	Agree
14	My community lacks facilities like gyms or recreational centers.	3.65	1.05	Agree
15	I feel safe walking in my neighborhood during the day.	3.90	0.88	Agree
16	My community is free from industrial pollution or environmental hazards.	3.25	1.10	Neutral
17	Advertising for alcohol and tobacco is common in my area.	4.10	0.85	Agree
18	Public spaces promote healthy living (e.g., no-smoking zones, wellness campaigns).	3.00	1.02	Neutral
19	Street vendors often sell unhealthy food in my neighborhood	3.03	1.09	Neutral
20	The design of my living area encourages a physically active	3.27	1.14	Neutral

The table analyzes environmental risk factor statements based on respondents' perceptions, focusing on how their surroundings either support or hinder healthy living.Built Environment and Access to Physical Activity Respondents generally agreed that their neighborhood has safe sidewalks or parks for physical activity ($\bar{x}$ = 3.55, SD = 1.00), and that they feel safe walking in their neighborhood during the day ($\bar{x}$ = 3.90, SD = 0.88). Food Environment Findings on food accessibility present a mixed picture. Respondents were neutral on the availability of affordable healthy food options ($\bar{x}$ = 3.10, SD = 1.08), but agreed that junk food is more accessible than fresh food in their area ($\bar{x}$ = 3.80, SD = 1.00). Environmental Safety and Pollution Perceptions regarding pollution were neutral ($\bar{x}$ = 3.25, SD = 1.10), suggesting moderate concerns about environmental hazards such as industrial waste or air quality.

Environmental pollution contributes to the burden of NCDs, especially respiratory and cardiovascular conditions Ambiguity in responses may stem from varied local experiences or limited awareness of environmental risks. Exposure to Harmful Advertising and Health Promotion Respondents agreed that alcohol and tobacco advertising is common in their area ($\bar{x}$ = 4.10, SD = 0.85), which is concerning. Research consistently shows that such advertising increases the likelihood of consumption, particularly among adolescents and young adults Conversely, respondents were neutral regarding the presence of public health-promoting spaces and initiatives ($\bar{x}$ = 3.00, SD = 1.02).

Socioeconomic Factor

Table 4. Socioeconomic Factor

Item	Socioeconomic Factor Statement	Weighted Mean	Standard Deviation	Interpretation
21	I can afford regular health check-ups or screenings.	3.05	1.10	Neutral
22	My income allows me to purchase healthy food regularly.	3.15	1.08	Neutral
23	I have access to stable housing with proper sanitation.	3.75	0.95	Agree
24	I experience financial stress that affects my health choices.	3.60	1.12	Agree
25	I feel that my level of education helps me make healthy decisions.	3.85	0.90	Agree
26	My job or daily responsibilities leave me with little time for self-care.	3.55	1.00	Agree
27	Health education was part of my formal schooling.	3.20	1.05	Neutral
28	I feel economically secure enough to prioritize health.	2.95	1.15	Neutral
29	I can afford medications or treatments if needed.	3.10	1.07	Neutral
30	Lack of transportation prevents me from seeking healthcare.	2.85	1.18	Neutral

Socioeconomic conditions are recognized as key social determinants of health. They shape individual choices, access to care, and overall well-being, especially in relation to the prevention and management of non-communicable diseases (NCDs). Financial Access to Healthcare and Healthy Living respondents gave neutral responses regarding their ability to afford regular health check-ups ($\bar{x}$ = 3.05, SD = 1.10), healthy food ($\bar{x}$ = 3.15, SD = 1.08), and

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medications or treatments ($\bar{x}$ = 3.10, SD = 1.07). They also neutrality regarding overall economic security to prioritize health ($\bar{x}$ = 2.95, SD = 1.15). These findings indicate a moderate to uncertain level of affordability, with some individuals experiencing financial barriers. Living Conditions and Basic ServicesRespondents agreed that they have access to stable housing and proper sanitation ($\bar{x}$ = 3.75, SD = 0.95).

Financial Stress and Occupational Constraints Respondents also agreed that financial stress affects their health-related choices ($\bar{x}$ = 3.60, SD = 1.12), and that their job or daily responsibilities leave little time for self-care ($\bar{x}$ = 3.55, SD = 1.00). These stressors reflect the indirect pressures of socioeconomic inequality. Education and health decision-making A positive finding is that respondents agreed their level of education helps them make healthy decisions ($\bar{x}$ = 3.85, SD = 0.90).

This suggests that education plays a crucial role in shaping health literacy and informed behaviors. Research shows that individuals with higher education levels are more likely to engage in preventive health behaviors and access healthcare. However, responses about whether health education was included in formal schooling were only neutral ($\bar{x}$ = 3.20, SD = 1.05), indicating potential gaps in early health promotion.Transportation barrier neutral responses were also given for the impact of transportation on healthcare access ($\bar{x}$ = 2.85, SD = 1.18). While not a major concern for all respondents, transportation remains a recognized barrier in rural and underserved communities. Lack of reliable transport can hinder timely access to services such as diagnostic tests or follow-up care, contributing to delayed disease management

Healthcare Access

Table 5. Healthcare Access

Item	Healthcare Access Statement	Weighted Mean	Standard Deviation	Interpretation
31	There is a health clinic or hospital near my home.	3.85	0.95	Agree
32	I find it easy to schedule medical appointments when needed.	3.40	1.05	Neutral
33	The cost of healthcare prevents me from visiting a doctor regularly.	3.35	1.10	Neutral
34	I am aware of local programs for NCD prevention.	3.10	1.08	Neutral
35	Health services in my area offer regular screening for NCDs.	3.25	1.03	Neutral
36	I trust the quality of healthcare in my community.	3.50	0.98	Agree
37	I have health insurance or access to financial support for medical care.	2.90	1.15	Neutral
38	Language or cultural differences make it hard for me to seek healthcare.	2.75	1.12	Disagree
39	I feel that healthcare professionals listen to and respect my concerns.	3.70	0.92	Agree
40	Public health campaigns in my area are informative and accessible.	3.45	0.96	Agree

Healthcare access is a key pillar in the prevention, early detection, and management of

non-communicable diseases (NCDs). It not only involves physical proximity to healthcare facilities but also includes financial, informational, and social dimensions. availability and accessibility of healthcare facilities Respondents generally agreed that a health clinic or hospital is near their home ($\bar{x}$ = 3.85, SD = 0.95), indicating good physical access to healthcare infrastructure. However, when asked about the ease of scheduling appointments, the response was neutral ($\bar{x}$ = 3.40, SD = 1.05), suggesting potential limitations in appointment availability, administrative barriers, or long waiting times that hinder timely access to care financial barriers and health insurance cost-related concerns were evident, with respondents expressing neutral views on whether the cost of healthcare prevents regular visits to a doctor ($\bar{x}$ = 3.35, SD = 1.10), and whether they have health insurance or financial support ($\bar{x}$ = 2.90, SD = 1.15). Preventive services and public health awareness the respondents were neutral about their awareness of local NCD prevention programs ($\bar{x}$ = 3.10, SD = 1.08) and the availability of regular screenings for NCDs in local health services ($\bar{x}$ = 3.25, SD = 1.03).

Conversely, respondents agreed that public health campaigns are informative and accessible ($\bar{x}$ = 3.45, SD = 0.96), highlighting the effectiveness of health communication initiatives in some areas. This suggests that information dissemination may be occurring, but may need to be better targeted or expanded to improve program visibility and uptake. Trust and quality of care respondents expressed agreement in trusting the quality of healthcare in their community ($\bar{x}$ = 3.50, SD = 0.98) and feeling that healthcare professionals listen to and respect their concerns ($\bar{x}$ = 3.70, SD = 0.92). Cultural and linguistic barriers Respondents generally disagreed that language or cultural differences hinder their ability to seek healthcare ($\bar{x}$ = 2.75, SD = 1.12), implying that the healthcare environment is largely inclusive. This is particularly important in multicultural communities where communication gaps can negatively affect care quality and outcomes.

Cultural and Social Norm

Table 6. Cultural and Social Norm

Item	Cultural and Social Norm Statement	Weighted Mean	Standard Deviation	Interpretation
41	Healthy eating is valued in my culture or community.	3.50	0.97	Agree
42	Physical activity is encouraged in my social circle.	3.30	1.02	Neutral
43	Smoking is socially accepted in my community.	3.65	1.05	Agree
44	Drinking alcohol is part of most social gatherings I attend.	3.40	1.08	Neutral
45	People around me influence my health choices.	3.75	0.95	Agree
46	Obesity is not viewed negatively in my culture.	2.85	1.10	Neutral
47	There is social stigma attached to people with chronic diseases.	3.20	1.07	Neutral
48	Community leaders promote healthy behaviors.	3.05	1.00	Neutral
49	Traditional beliefs sometimes conflict with medical advice in my community.	3.10	1.12	Neutral
50	I feel supported by my family and friends in making healthy lifestyle choices.	3.90	0.88	Agree

Cultural and social norms play a critical role in shaping health behaviors and attitudes, often determining whether individuals adopt or resist lifestyle practices that affect their risk for

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non-communicable diseases (NCDs). The responses below reflect how these norms influence diet, physical activity, substance use, body image, and social support. Community values and health behaviors Respondents generally agreed that healthy eating is valued in their culture ($\bar{x}$ = 3.50, SD = 0.97), indicating that dietary health is culturally reinforced. However, physical activity was only neutral ($\bar{x}$ = 3.30, SD = 1.02) in social encouragement, suggesting that while healthy eating is appreciated, exercise may not be strongly embedded in social expectations.

Substance use in social contexts the data show agreement that smoking is socially accepted in the community ($\bar{x}$ = 3.65, SD = 1.05), while alcohol consumption at social gatherings was rated neutral ($\bar{x}$ = 3.40, SD = 1.08). Social influence and support respondents strongly agreed that people around them influence their health choices ($\bar{x}$ = 3.75, SD = 0.95) and that they feel supported by family and friends in making healthy lifestyle choices ($\bar{x}$ = 3.90, SD = 0.88). Body image and stigma the perception of obesity received a neutral rating ($\bar{x}$ = 2.85, SD = 1.10), suggesting that body weight may not be strongly stigmatized in the community. While cultural tolerance for different body sizes can reduce harmful body shaming, it may also inadvertently reduce urgency to address obesity-related health risks. Similarly, the presence of neutral views regarding stigma toward chronic disease ($\bar{x}$ = 3.20, SD = 1.07) suggests that while overt discrimination may not be prevalent, subtle forms of social bias may still exist. Cultural beliefs and health leadership There was neutral agreement about whether community leaders actively promote healthy behaviors ($\bar{x}$ = 3.05, SD = 1.00) and whether traditional beliefs sometimes conflict with medical advice ($\bar{x}$ = 3.10, SD = 1.12). This implies the potential for mixed messaging and cultural tension, which could affect treatment adherence.

Summary Mean

Table 7 Overall mean

Section	Category	Weighted Mean	Standard Deviation	Interpretation
1. Behavioral Risk Factors	Lifestyle behaviors	3.31	1.07	Neutral
2. Environmental Risk Factors	Neighborhood environment	3.52	1.00	Agree
3. Socioeconomic Factors	Financial & social status	3.31	1.06	Neutral
4. Healthcare Access	Health service availability	3.33	1.03	Neutral
5. Cultural and Social Norms	Norms and support systems	3.37	1.02	Neutral

The summary above provides a synthesized view of the community's risk profile based on average weighted means across different domains. Behavioral risk factors ($\bar{x}$ = 3.31, sd = 1.07 – neutral) Lifestyle behaviors—including diet, physical activity, tobacco and alcohol use—received a neutral rating. This suggests moderate adherence to healthy behaviors, but with significant room for improvement. Respondents showed agreement with positive habits like consuming fruits and vegetables and reducing salt/sugar intake, but also revealed tendencies toward sedentary lifestyles and frequent consumption of processed food. Environmental Risk Factors ($\bar{x}$ = 3.52, SD = 1.00 – Agree) Respondents agreed that their neighborhood environment supports health, particularly in terms of safety and walkability.

However, accessibility to healthy food and the presence of junk food and tobacco advertising remain concerns. Socioeconomic factors ($\bar{x}$ = 3.31, sd = 1.06 – neutral) this neutral score highlights a mixed socioeconomic environment. While participants benefit from housing

stability and educational attainment, many face financial stress and limited time for self-care due to work or economic constraints. Healthcare access ($\bar{x}$ = 3.33, sd = 1.03 – neutral) while physical proximity to health facilities and provider trust are strong, neutral responses regarding affordability, health insurance coverage, and awareness of NCD screening programs reflect systemic access issues. Cultural and social norms ($\bar{x}$ = 3.37, sd = 1.02 – neutral) Cultural and social factors were also rated neutral, though family support and the value of healthy eating were positively perceived. However, the social acceptance of smoking and mixed messages from traditional beliefs show the complexity of changing health norms. Cultural alignment in public health strategies is essential for their effectiveness

Test of Significant Difference

Table 8 Inferential Table: One-Way ANOVA Results on Community-Level Risk Factors for NCDs by Profile (N = 353)

Profile Variable	F-value	p-value	Interpretation
Age Group	3.21	0.015*	Significant difference
Sex	1.45	0.230	Not significant
Educational Attainment	4.05	0.003*	Significant difference
Civil Status	2.18	0.075	Not significant
Occupation	3.87	0.009*	Significant difference
Monthly Household Income	5.22	0.001*	Significant difference

- *p-value < 0.05 Significant difference exists among the groups.*
- *p-value ≥ 0.05 No significant difference found.*

The analysis of the relationship between demographic profile variables and non-communicable disease (NCD) risk factors revealed several significant findings. Age showed a statistically significant difference (p = 0.015), indicating that health behaviors and exposure to risk factors vary across different age groups.

Educational attainment also showed a significant difference (p = 0.003), suggesting that respondents' level of education influences their health decisions and lifestyle behaviors. Individuals with higher education levels are more likely to understand health information and adopt healthier practices. Occupation was another variable with a significant relationship (p = 0.009), indicating that employment status or the nature of one's work may affect lifestyle habits, such as physical activity levels, stress management, and access to healthcare. Monthly household income yielded the most significant difference (p = 0.001), emphasizing the impact of financial capacity on health. Lower-income individuals may face challenges in affording healthy food, regular check-ups, or preventive services.

In contrast, sex (p = 0.230) and civil status (p = 0.075) did not show statistically significant differences in relation to NCD risk factors. This suggests that in the studied population, men and women, as well as individuals of different marital statuses, may share similar health behaviors and risk profiles, which could be influenced by broader community norms and shared environmental conditions.

Overall, the analysis highlights that age, education, occupation, and income are key factors influencing the risk of NCDs. These findings underscore the importance of designing targeted interventions that address socioeconomic disparities and prioritize health education and

resource accessibility, especially for the most vulnerable groups.

Test of Significant Relationship

Table 9. Inferential Table: Significant Relationship Between Profile and Community-Level Risk Factors for NCDs (N = 353)

Profile Variable	Test Used	Correlation Coefficient / χ^2 Value	p-value	Interpretation
Age	Pearson's r	0.276	0.004*	Significant positive relationship
Sex	Chi-square	5.82	0.212	No significant relationship
Educational Attainment	Spearman's rho	0.312	0.001*	Significant positive relationship
Civil Status	Chi-square	7.35	0.118	No significant relationship
Occupation	Spearman's rho	0.289	0.007*	Significant positive relationship
Monthly Household Income	Spearman's rho	0.335	0.000*	Significant positive relationship

- *p-value < 0.05 Significant positive relationship exists.*
- *p-value ≥ 0.05 No significant relationship found.*

The analysis uses Pearson's r for continuous variables (like age) and Chi-square test or Spearman's rho for ordinal/categorical variables, depending on the nature of the data. The analysis examined the relationship between various profile variables and risk factors for non-communicable diseases (NCDs), using Pearson's r, Spearman's rho, and chi-square tests where appropriate. The findings reveal several statistically significant associations, particularly with socioeconomic and educational indicators.

Discussion

The age distribution of the respondents suggests that a significant proportion of individuals are within the 31–60 age range, which is commonly associated with increased exposure to lifestyle-related risk factors such as physical inactivity, unhealthy diet, occupational stress, and prolonged sedentary behavior. According to the World Health Organization, cumulative exposure to these factors during adulthood significantly increases the risk of developing non-communicable diseases. This highlights the importance of early and sustained preventive interventions targeting individuals in their productive years (1). The slight predominance of female respondents is consistent with findings from previous community-based health studies, which indicate that women are generally more willing to participate in health-related research (6). Gender differences may also influence the prevalence and management of NCDs, as biological, behavioral, and sociocultural factors vary between males and females.

These differences should be considered when designing gender-responsive health programs (1).Educational attainment emerged as an important demographic characteristic, with a majority of respondents having completed college or higher education. Higher educational levels are often associated with better health literacy, increased awareness of disease

prevention, and healthier lifestyle choices (7). Emphasized that education is a key social determinant of health, influencing individuals' ability to access health information and healthcare services, which may help mitigate NCD risk. Civil status also plays a role in health outcomes. Married individuals often benefit from emotional, social, and financial support, which may contribute to healthier behaviors and better disease management. Conversely, widowed and separated individuals may experience psychological stress and social isolation, factors that have been linked to increased risks of hypertension, cardiovascular disease, and other chronic conditions (8).

Occupational status further influences NCD risk through work-related stress, physical inactivity, and economic stability. Employed individuals, particularly those in sedentary jobs, may be exposed to stress and limited physical activity, both of which are established risk factors for NCDs (9). Meanwhile, unemployment and retirement may be associated with financial insecurity and reduced access to healthcare, increasing vulnerability to chronic illnesses.

Lastly, household income significantly affects health outcomes. A large proportion of respondents reported low to middle income levels, which may limit access to nutritious food, preventive healthcare services, and safe living environments noted that financial constraints contribute to health inequities and increase susceptibility to non-communicable diseases through stress and unhealthy coping behaviors. These findings underscore the need for community-based and economically sensitive health interventions aimed at reducing NCD risk among vulnerable populations (10).

Although respondents demonstrated awareness of healthy dietary practices, the coexistence of unhealthy behaviors such as fast-food consumption and limited use of food labels may increase the risk of non-communicable diseases (NCDs). Regular intake of fruits and vegetables is protective against NCDs; however, frequent consumption of foods high in sodium, sugar, and unhealthy fats can diminish these benefits neutral engagement in physical activity combined with high sedentary behavior is concerning (11), as physical inactivity is a major risk factor for cardiovascular disease and diabetes, particularly when individuals do not meet recommended activity levels (12).

While tobacco use was generally low, exposure to secondhand smoke remains a significant health concern, as it increases the risk of cardiovascular and respiratory diseases even among non-smokers(13). Alcohol consumption was reported as moderate; however, evidence indicates that even regular moderate alcohol intake is associated with an increased risk of certain cancers and liver disease over time(14). Additionally, irregular meal patterns, including meal skipping, may contribute to metabolic disturbances and poor energy regulation, further elevating NCD risk (15). These findings emphasize the need for integrated community-based health promotion strategies that address diet, physical activity, substance use, and structural barriers to healthy living.

This reflects a positive aspect of the built environment, as perceived safety and infrastructure encourage physical activity, which is essential for NCD prevention (16). However, there was also agreement that communities lack formal facilities like gyms or recreational centers ($\bar{x}$ = 3.65, SD = 1.05), indicating a gap in institutional support for structured exercise, particularly for those needing accessible indoor alternatives. This suggests a prevalence of "food swamps"—areas where unhealthy food is more accessible than nutritious

options (17). Limited access to healthy, affordable food is a known risk factor for obesity, diabetes, and cardiovascular diseases (18). These findings highlight the need for food policy interventions and better urban planning to balance the local food environment. This implies a lack of visible wellness campaigns, no-smoking zones, or public health signage, which are proven to nudge communities toward healthier behaviors (19).

According to research result, limited financial resources can lead individuals to delay or forgo preventive care and make unhealthy compromises in diet or medication adherence, increasing the risk of chronic diseases, which is a foundational component of public health (10). Safe housing conditions help reduce exposure to environmental risks and enable better personal hygiene and food preparation, factors critical in managing NCD (7). Chronic stress is closely linked to poor mental health, unhealthy coping mechanisms (e.g., overeating, smoking), and the development of hypertension and cardiovascular disease

This is an encouraging finding, as geographical proximity is critical for timely diagnosis and treatment of NCDs These findings suggest that economic barriers continue to be a deterrent for many. According to the WHO, financial hardship due to out-of-pocket health spending is a key barrier to universal health coverage, especially in low- and middle-income settings (20). This indicates a gap in health communication or service provision that may delay early detection of chronic conditions. The neutral rating here supports findings, which emphasize the importance of strengthening community outreach and screening efforts for better NCD control (21). Trust in healthcare providers is essential for patient adherence to medical advice, continuity of care, and long-term health outcomes (22).These results are promising and suggest that the interpersonal dimension of healthcare is functioning effectively in the community.

This positive cultural perception supports the promotion of nutritious food choices and aligns with findings, who emphasize the importance of cultural relevance in health promotion strategies (23). Social acceptability of smoking is a key public health concern, as it normalizes harmful behavior and increases youth initiation rates (20). The neutrality around alcohol implies variable norms, which may lead to inconsistent behaviors and health risks. Community-level interventions to shift these norms can be highly effective in reducing substance use (18). These are encouraging findings, as strong social support systems are associated with improved adherence to health behaviors and better outcomes for individuals with chronic conditions (24). Social influence can also work as a facilitator or barrier, depending on the prevailing norms in the immediate environment. Stigma can discourage individuals from seeking timely care or disclosing their condition, leading to worse outcomes (25). Aligning public health messages with local beliefs and engaging respected community figures can improve trust and uptake of health services. This aligns with WHO findings that lifestyle modifications are among the most challenging yet critical areas for NCD prevention environmental influences, including the availability of recreational spaces and food deserts, have been shown to significantly impact community health behaviors (20),(16). According to research result social inequalities are deeply intertwined with disparities in health outcomes, particularly for chronic conditions (10). These barriers can delay early detection and management of NCDs, consistent with global health access challenges.

This aligns with WHO, which notes that the risk of developing NCDs increases with age

due to the accumulation of behavioral and physiological risk factors over time (20). . Individuals with higher education levels are more likely to understand health information and adopt healthier practices, who found that education is one of the strongest predictors of long-term health outcomes (26). This is consistent, who found that job-related stress and long working hours are associated with increased risk of cardiovascular diseases (27). This supports the findings of highlight income inequality as a major determinant of health disparities(7). This suggests that in the studied population, men and women, as well as individuals of different marital statuses, may share similar health behaviors and risk profiles, which could be influenced by broader community norms and shared environmental conditions (28)(8).

Conclusions and Recommendations

The demographic profile of the respondents reveals multiple layers of social determinants that may influence the prevalence and severity of non-communicable diseases in the community. These findings emphasize the need for targeted health interventions that consider age, gender, education, economic status, and occupation to effectively address the growing burden of NCDs.

The analysis identifies age, educational attainment, occupation, and monthly household income as significant demographic variables influencing NCD risk factors. These findings emphasize the need for targeted health promotion strategies that consider the socioeconomic and educational backgrounds of individuals. Meanwhile, sex and civil status did not show significant associations in this context, suggesting a more uniform distribution of risk across these groups within the studied population.

The results of the correlational analysis highlight the significant influence of certain demographic and socioeconomic variables on the risk factors associated with non-communicable diseases (NCDs). Specifically, age, educational attainment, occupation, and monthly household income were found to have statistically significant positive relationships with NCD risk factors. These findings suggest that as individuals grow older, attain higher levels of education, engage in more stable employment, and earn higher incomes, their exposure to or awareness of NCD-related risk factors also increases. This reflects both improved health literacy and, in some cases, greater access to healthcare and preventive measures. In contrast, sex and civil status did not exhibit significant relationships, indicating that these factors may not independently influence NCD risk within the studied population. This may point to a more uniform distribution of health-related behaviors across gender and marital categories, possibly due to shared cultural, environmental, or community norms. Overall, the findings emphasize the critical role of socioeconomic determinants—particularly education and income—in shaping health outcomes. In light of the study's findings, several key recommendations are proposed to effectively address the identified risk factors and mitigate the burden of non-communicable diseases (NCDs) within the community. Develop Age-Specific Health Programs. Given the significant influence of age on NCD risk, local health agencies and stakeholders should design and implement age-appropriate interventions. Younger age groups may benefit from early preventive education, while middle-aged and older adults should be targeted with regular screenings and lifestyle management programs to reduce cumulative health risks.

Enhance Health Education Through Formal and Community-Based Channels**.** As educational attainment was shown to significantly affect health behavior, integrating comprehensive health education into school curricula and adult literacy programs is essential. Community seminars and workshops should also be conducted, focusing on nutrition, physical

activity, and the dangers of smoking and alcohol consumption, particularly in lower-education communities.

Address Socioeconomic Disparities Through Inclusive Health Strategies**.** Since occupation and monthly household income were significant predictors of NCD risk, it is crucial to ensure that health services and information are accessible regardless of employment or financial status. This includes offering free or subsidized health check-ups, access to affordable healthy food options, and targeted outreach to low-income and unemployed populations.

Promote Workplace Wellness Programs. Employers, both public and private, should be encouraged to implement workplace wellness initiatives that promote physical activity, healthy eating, stress management, and routine medical check-ups. These programs can help mitigate health risks among the employed population, who may otherwise neglect self-care due to job demands.

Maintain Gender-Inclusive and Culturally Sensitive Interventions**.** Although sex and civil status did not show significant relationships with NCD risk in this study, interventions should remain inclusive and sensitive to gender roles and cultural contexts to ensure broad community engagement and support.

Strengthen Community Health Systems and Policy Support. Local government units, in collaboration with health institutions, should strengthen policy frameworks that support NCD prevention. This includes increasing funding for community-based health programs, promoting healthy public environments, and enforcing regulations on tobacco, alcohol, and unhealthy food marketing.

Encourage Multi-Sectorial Collaboration**.** Tackling NCDs requires coordination across sectors—education, labor, housing, agriculture, and health. Partnerships among local governments, NGOs, schools, and businesses can foster environments that support healthier choices and reduce NCD risks at the population level. Future reference. Interested future researchers may use this as their reference and add other possibly variable related.

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