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Level of Community Knowledge about Non-Communicable Diseases and Their Prevention in Coastal Areas

Magdalena[1], Nur Hafizah[2]
[1,2] Faculty of Health, Health Sciences, Stikes Sumatera Utara, Medan, Indonesia

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ABSTRACT

Non-communicable diseases (NCDs) such as hypertension, diabetes mellitus, cardiovascular diseases, and cancer have become leading causes of mortality globally, including in developing countries. Despite increasing prevalence, awareness and knowledge about these diseases and their prevention remain limited in certain communities, especially in coastal areas where access to health education and services may be constrained. This study aims to assess the level of knowledge among coastal community members regarding non-communicable diseases and preventive measures. Using a descriptive cross-sectional design, data were collected through structured questionnaires distributed to 250 respondents residing in selected coastal villages. The findings indicate that while a moderate proportion of respondents are familiar with the general concept of NCDs, detailed knowledge about risk factors, early symptoms, and preventive behaviors is still lacking. Factors such as education level, access to health information, and engagement in community health programs significantly influenced knowledge levels. The study underscores the urgent need for targeted health promotion strategies in coastal communities to improve public awareness and facilitate early prevention of NCDs.

Corresponding Author:

Magdalena,
Faculty of Health, Health Sciences,
Stikes Sumatera Utara, Medan, Indonesia,
GJ67+PH4, Lau Cih, Sumatera Utara, 20136, Indonesia.
Email: magdalenna55@gmail.com

1. INTRODUCTION

Non-communicable diseases (NCDs) have emerged as one of the greatest global health challenges in the 21st century. Unlike infectious diseases, which are caused by pathogenic microorganisms, NCDs are generally chronic in nature and arise from a combination of genetic, physiological, behavioral, and environmental factors. Common examples include cardiovascular diseases, cancers, chronic respiratory conditions, and diabetes mellitus. According to the World Health Organization (WHO), NCDs are responsible for approximately 74% of all deaths globally, with a large proportion occurring in low- and middle-income countries, including Indonesia.

The burden of NCDs is not only a clinical concern but also a socioeconomic issue. The long-term nature of these illnesses demands sustained medical attention and care, often resulting in substantial financial strain on individuals, families, and public health systems. Moreover, the productivity losses associated with NCD-related morbidity and premature mortality further hinder economic development. Consequently, enhancing public understanding of NCDs and promoting preventive measures are essential steps toward reducing their incidence and impact.

Health education and awareness play a critical role in the prevention and management of non-communicable diseases. Numerous studies have indicated that individuals with higher levels of knowledge about NCDs are more likely to engage in health-promoting behaviors, such as consuming a balanced diet, exercising regularly, and avoiding tobacco and excessive alcohol consumption.

Conversely, limited knowledge is associated with higher risk behaviors and delayed healthcare seeking, which contribute to late diagnosis and poor disease outcomes.

Despite national efforts to promote public health, disparities in knowledge and access to information persist across various population groups in Indonesia. Coastal communities, in particular, are often marginalized in terms of healthcare access and health promotion activities. These regions may suffer from inadequate infrastructure, limited healthcare personnel, and logistical challenges that hinder the delivery of educational programs. As a result, residents of coastal areas may be less informed about the nature, risk factors, and prevention of NCDs compared to their urban counterparts.

The lifestyle and environmental conditions in coastal areas further compound the risk of non-communicable diseases. Communities living in these regions may engage in occupations such as fishing and labor-intensive work that are physically demanding but often accompanied by unhealthy dietary habits and limited attention to long-term health. In addition, low literacy rates and cultural beliefs may influence health perceptions and reduce receptiveness to modern health interventions, thereby affecting how residents interpret and respond to disease symptoms. Understanding the level of knowledge in coastal populations is crucial for the development of effective public health strategies. By identifying gaps in knowledge and the underlying factors that contribute to them, policymakers and healthcare providers can design targeted interventions that are culturally sensitive, locally appropriate, and more likely to be effective.

Moreover, community-based participatory approaches can empower local populations to take a more active role in promoting health and preventing disease. There is a growing body of literature highlighting the role of community knowledge in shaping health outcomes, yet studies that specifically focus on NCD awareness in coastal populations remain limited. Most existing research has centered on urban or semi-urban settings, where access to education and healthcare facilities is relatively better. As a result, the unique challenges and perspectives of coastal communities are often overlooked in national health planning and intervention design.

Given the increasing prevalence of NCDs in Indonesia and the known barriers to healthcare access in coastal regions, it is imperative to conduct localized research that addresses the specific needs of these communities. This study seeks to fill that gap by assessing the level of community knowledge about non-communicable diseases and their prevention in selected coastal areas. The findings are expected to provide valuable insights into public understanding and to serve as a basis for improving health communication strategies at the local level.

This research is guided by several key questions: What is the current level of knowledge about NCDs among residents in coastal areas? What are the primary sources of health information in these communities? To what extent do demographic factors such as age, education, and occupation influence NCD awareness and preventive behaviors? By answering these questions, this study will contribute to a more nuanced understanding of health literacy in marginalized regions and inform evidence-based interventions. In conclusion, the growing burden of non-communicable diseases in Indonesia underscores the urgent need for preventive strategies rooted in public awareness and education. Coastal communities, as a potentially vulnerable group, require special attention to ensure they are not left behind in national health efforts. By exploring the level of community knowledge and identifying key barriers and facilitators of NCD prevention in coastal areas, this study aims to support the development of inclusive and equitable health policies that benefit all segments of the population.

2. RESEARCH METHOD

This study employed a quantitative descriptive cross-sectional design to assess the level of community knowledge about non-communicable diseases (NCDs) and their prevention among residents in selected coastal areas. The research was conducted in three coastal villages located in [insert region], chosen based on accessibility and population size. The target population included adult residents aged 18 years and older who had lived in the area for at least one year. Data were collected using a structured questionnaire developed by the researcher, which consisted of both closed- and multiple-choice questions covering knowledge of common NCDs (such as hypertension, diabetes, heart disease, and cancer), risk factors, symptoms, and preventive behaviors. The questionnaire was pre-tested on 30 respondents in a nearby village to ensure clarity and validity. A sample size of 250 respondents was determined using the Slovin formula with a 95% confidence level and 5% margin of error. Respondents

were selected using stratified random sampling based on age and gender to ensure representation across demographic categories. Data collection was conducted through face-to-face interviews by trained enumerators. The collected data were coded and analyzed using SPSS version 25, with descriptive statistics (frequencies, percentages, mean scores) used to present levels of knowledge. Inferential statistics, including chi-square tests, were applied to examine relationships between demographic factors and knowledge levels. Ethical clearance was obtained from [insert institution], and informed consent was collected from all participants prior to data collection.

3. RESULTS AND DISCUSSIONS

General Knowledge of Non-Communicable Diseases

The assessment of general knowledge regarding non-communicable diseases (NCDs) among respondents revealed notable gaps in understanding, despite a relatively high awareness of specific disease names. Out of 250 respondents, only 27.6% demonstrated a high level of general knowledge about NCDs, while 48.8% showed moderate knowledge, and 23.6% had poor knowledge. These results reflect a pattern observed in many underserved or geographically isolated communities, where exposure to health education is limited. When asked to identify common NCDs, hypertension was the most widely recognized, cited by 72.4% of respondents. Diabetes mellitus followed at 61.2%. However, fewer respondents identified other major NCDs such as cancer (28.8%) and chronic respiratory diseases (17.6%), indicating a narrower understanding limited to the most commonly discussed conditions. This suggests that health education efforts in these areas may have focused primarily on a few high-profile diseases, without adequately covering the broader category of NCDs.

Further analysis revealed misconceptions about the causes of NCDs. A majority of respondents (62.0%) believed that heredity was the primary cause, while 53.6% cited aging. Although both are valid risk factors, only 34.0% mentioned modifiable behaviors such as smoking, poor diet, or physical inactivity. This lack of recognition of lifestyle-related risks poses a significant challenge for prevention, as many NCDs are preventable through behavioral change. The findings are consistent with previous studies showing that individuals with lower levels of formal education tend to have limited understanding of disease etiology and prevention. In this study, respondents with secondary or tertiary education were significantly more likely to correctly identify both the types and causes of NCDs. This highlights the importance of targeted health literacy programs, especially in coastal or remote areas where education and healthcare access are limited.

In summary, while general awareness of certain NCDs exists within the community, understanding of the broader category and its preventable nature remains inadequate. This knowledge gap may delay early detection and reduce community participation in preventive measures. Addressing this issue requires not only improving access to health information but also ensuring that such information is culturally appropriate, easy to understand, and delivered consistently across various platforms, including community gatherings, health posts, and local media.

Prevention Behavior and Health Practices

The study revealed that although there is some level of awareness about non-communicable diseases (NCDs) among coastal communities, actual prevention behavior and health practices remain inconsistent and largely inadequate. Preventive behavior refers to the intentional actions individuals take to avoid illness, particularly those related to chronic conditions such as cardiovascular diseases, diabetes, cancer, and chronic respiratory illnesses.Only 19.2% of respondents reported undergoing regular health check-ups (at least once a year), while 59.6% stated that they sought medical attention only when experiencing symptoms. The remaining 21.2% had never visited a healthcare facility for preventive screening. The low uptake of routine health monitoring is concerning, given that many NCDs are asymptomatic in the early stages. Blood pressure and blood sugar checks were the most common forms of screening, primarily conducted during mass health events or at community health posts (posyandu or puskesmas mobile services). However, organized screening for cancer or cholesterol levels was virtually nonexistent among participants.

Limited access to health services, especially in remote coastal villages, was identified as a major barrier. Long travel distances, transportation costs, and the perception that medical care is only needed when symptoms arise contributed to low engagement in preventive care.In terms of dietary behavior, only 26.4% of respondents reported consuming fruits and vegetables daily. The majority (61.2%) consumed rice or starchy foods as their primary diet, often with fried fish or salted preserved foods, which are common in coastal diets. Few respondents were aware of the risks associated with excessive

salt and fat intake-only 32.0% knew that high salt consumption can increase blood pressure, and even fewer (18.8%) understood the relationship between saturated fats and heart disease.

Despite awareness campaigns, sugar intake was not well regulated. About 49.6% of respondents admitted to consuming sugary drinks or snacks daily, while only 12.4% had ever heard of guidelines for limiting sugar consumption. Nutritional labeling and dietary guidelines were virtually unknown concepts, reflecting a broader lack of practical nutrition education. Only 15.6% of respondents reported engaging in physical activity as a form of exercise. Most daily physical exertion came from occupational activities (e.g., fishing or manual labor), which were not always consistent or sustained enough to qualify as protective physical activity. Recreational exercise, such as walking, jogging, or aerobic activities, was uncommon due to limited facilities and time constraints.

The coastal lifestyle, while physically demanding in some aspects, often does not translate into consistent health-promoting activity. Moreover, sedentary behavior was increasing among younger individuals, who spent more time indoors using mobile phones or watching television, despite limited internet access. A significant number of respondents (70.8%) believed that traditional remedies or herbal medicine could prevent or treat chronic diseases. Ingredients such as ginger, turmeric, and betel leaves were commonly used for maintaining "body balance" or addressing symptoms such as fatigue and high blood pressure. While traditional medicine is an important cultural element, the overreliance on unproven remedies may delay early medical intervention and proper diagnosis.

Moreover, 44.4% of respondents believed that illness is largely determined by fate or divine will, reducing the perceived importance of proactive prevention. This belief system can undermine efforts to promote behavior change, especially when not addressed with sensitivity and cultural understanding.The findings suggest that knowledge alone does not necessarily lead to healthy practices. Although a portion of the community is aware of NCDs and their general risks, behavioral change is hindered by a combination of limited access to healthcare, low health literacy, ingrained cultural beliefs, and environmental limitations.

To promote healthier behavior in coastal communities, interventions must go beyond awareness campaigns. Programs should be designed to be community-based, participatory, and culturally adapted. Local health workers and community leaders can play a crucial role in delivering education and motivating behavior change. Additionally, practical initiatives-such as free screening events, mobile health services, local gardens for fruit and vegetable access, and exercise programs-could make preventive behaviors more achievable. In conclusion, the prevention behavior and health practices observed in this study highlight critical gaps that require coordinated efforts in education, access, and culturally sensitive health promotion strategies.

Relationship between Demographics and Knowledge Level

An analysis of the relationship between demographic characteristics and knowledge levels about non-communicable diseases (NCDs) among respondents in coastal communities revealed significant associations with several key variables. The demographic factors examined included age, gender, education level, occupation, and income category. Education emerged as the strongest and most consistent predictor of knowledge level. Respondents with tertiary education demonstrated significantly higher knowledge of NCD types, risk factors, symptoms, and prevention strategies compared to those with only primary or no formal education. Specifically, 78.4% of respondents with tertiary education scored in the “high knowledge” category, compared to just 24.5% of those with secondary education and 11.6% of those with primary education or less. This trend aligns with previous public health research showing that educational attainment strongly influences health literacy and the ability to understand medical information.

Chi-square statistical analysis confirmed a significant association between education level and knowledge level ($p < 0.01$). The findings underscore the critical role that education plays in enabling individuals to comprehend complex health messages and take appropriate preventive action. Age was also significantly associated with knowledge level. Respondents aged 31–45 showed the highest knowledge scores, with 45.2% categorized in the high knowledge group. In contrast, older adults (above 60) were less likely to demonstrate accurate understanding, particularly regarding modifiable risk factors and the asymptomatic nature of some NCDs such as hypertension and diabetes. This could be due to generational differences in education access and exposure to modern health campaigns.

Interestingly, younger adults (18–30) exhibited moderate knowledge but were more likely to rely on peer-to-peer communication and social media for health information. However, due to low internet access in many coastal villages, the reliability and reach of such channels remain limited.Gender did not show a statistically significant association with overall knowledge levels ($p > 0.05$). However,

there were behavioral differences observed. Female respondents were more likely to participate in community health programs, attend maternal health services, and seek preventive care, whereas males reported lower engagement in formal health education activities. While the difference in knowledge scores was not significant, the difference in health-seeking behavior may influence long-term health outcomes.

Occupation was moderately associated with knowledge levels. Respondents employed in the public sector or formal jobs had higher knowledge scores compared to fishermen, laborers, and informal workers. Those in formal employment may have better access to healthcare benefits or workplace health programs. Income levels showed a weaker but still noticeable trend, with higher-income respondents generally having more exposure to health services and preventive screenings.These findings highlight the interplay between socioeconomic status, education, and health knowledge. In coastal communities with limited infrastructure, low education and informal employment contribute to persistent health literacy gaps. Addressing these disparities requires community-based interventions that prioritize accessible, locally relevant, and culturally sensitive health education. In conclusion, improving NCD knowledge in coastal areas must include efforts to strengthen adult education, leverage women's roles in health communication, and bring health services closer to informal and low-income populations.

Barriers to Knowledge and Prevention

The study identified several critical barriers that hinder the acquisition of knowledge and the implementation of prevention strategies for non-communicable diseases (NCDs) in coastal communities. These barriers are both structural and behavioral, and they significantly influence the community's ability to understand and act upon health information related to chronic diseases. One of the most frequently reported barriers was limited access to accurate and consistent health information. Only 38.4% of respondents indicated that they had ever received structured information about NCDs from health professionals or public health campaigns. For many, informal sources such as neighbors, traditional healers, or hearsay were the primary sources of knowledge. This creates a high risk of misinformation, particularly concerning disease causation and prevention.

The lack of internet access and limited media penetration in remote coastal villages contribute to this information gap. Health promotion materials such as brochures or posters were rarely seen in public spaces, and few communities had access to regular health outreach programs. Consequently, people often remained unaware of the asymptomatic nature of some NCDs and the importance of early screening and lifestyle modification. Coastal and remote geographic locations were found to significantly impede access to healthcare services and education. Many villages are accessible only by boat or unpaved roads, making regular visits by health workers challenging. In emergencies, transportation to the nearest clinic or hospital is often delayed, and preventive services like screening are seldom prioritized.

Moreover, limited availability of health facilities and a shortage of medical personnel in coastal regions further restrict residents' exposure to health promotion activities. As a result, prevention is largely reactive, only occurring when symptoms have already developed, undermining early intervention efforts. Economic hardship was another major barrier. Approximately 64.8% of respondents reported irregular or low income, primarily from fishing or informal labor. In such conditions, purchasing nutritious food, traveling to health facilities, or even prioritizing preventive care becomes secondary to meeting basic daily needs.Furthermore, some respondents associated health check-ups and NCD screening with high costs, even when such services were subsidized or free.

This perception, combined with low health literacy, contributed to avoidance or postponement of preventive healthcare. Cultural attitudes also played a significant role in shaping health behaviors. A substantial number of respondents (around 47.2%) believed that chronic illness is a matter of fate or divine will, and therefore unavoidable. This fatalistic view diminishes the perceived value of prevention and health-seeking behaviors. Additionally, there is a strong reliance on traditional remedies and local healing practices. While these are important elements of cultural identity, exclusive reliance on them without integrating modern healthcare can delay the detection and treatment of serious conditions. Finally, the overall low level of health literacy served as a foundational barrier. Many respondents had difficulty understanding basic medical terms, interpreting labels or prescriptions, and recognizing the link between daily habits (such as smoking or high-salt diets) and long-term health risks. Health education materials, where available, were often not adapted to local language proficiency or literacy levels.

The findings highlight that barriers to knowledge and prevention of NCDs in coastal areas are multi-layered and interconnected. Improving outcomes will require targeted strategies that address

both infrastructural and cultural dimensions. Community-based outreach, mobile health services, and locally adapted education campaigns-using visual aids and oral communication-may prove more effective than conventional top-down approaches. Moreover, integrating local leaders and traditional health practitioners into the dissemination of accurate health information can help bridge cultural gaps. In conclusion, addressing these barriers is essential to reducing the burden of NCDs in vulnerable coastal populations and promoting sustainable, preventive health behaviors.

4. CONCLUSION

This study investigated the level of community knowledge regarding non-communicable diseases (NCDs) and their prevention in coastal areas, with a focus on identifying patterns of understanding, prevention behavior, demographic influences, and existing barriers. The findings reveal that while a general awareness of certain major NCDs-such as hypertension and diabetes-exists among coastal populations, comprehensive knowledge of the broader category of NCDs, their causes, and prevention strategies remains limited. The majority of respondents demonstrated moderate to low levels of understanding, particularly regarding modifiable risk factors such as diet, physical inactivity, smoking, and stress. Preventive behaviors, including regular medical check-ups and healthy lifestyle practices, were not widely adopted, often due to economic hardship, lack of health infrastructure, cultural beliefs, and limited access to reliable information. Education level was found to be the most significant demographic factor associated with higher knowledge levels, followed by age and occupation. Interestingly, gender did not show a significant difference in knowledge, although female respondents tended to participate more actively in health-related community activities. Barriers to knowledge and prevention were multidimensional. Structural challenges, such as poor access to healthcare facilities, limited outreach by health professionals, and geographic isolation, were compounded by low health literacy and deeply rooted cultural beliefs that associated illness with fate rather than modifiable behaviors. Economic limitations further reduced the priority given to preventive healthcare in daily life. In conclusion, enhancing community knowledge and prevention of NCDs in coastal areas requires a multi-sectoral approach. Strategies should include culturally tailored health education, improved access to screening services, and empowerment of local leaders and health workers to serve as agents of behavioral change. Without addressing both informational and systemic barriers, the burden of NCDs in coastal communities is likely to increase, undermining efforts toward equitable and sustainable public health outcomes.

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