Research Article

Health Literacy among Young Filipino Adults At-Risk of Cardiovascular Disease: Evidence from a Community-Based Cross-Sectional Study

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Abstract

Health literacy plays an important role in cardiovascular disease (CVD) prevention by enabling individuals to access, understand, evaluate, and apply health information. However, evidence concerning health literacy among young Filipino adults with identifiable cardiovascular risk factors remains scarce. This study assessed the level of health literacy across three domains—healthcare, disease prevention, and health promotion—and examined differences according to demographic characteristics and cardiovascular risk classifications. A community-based cross-sectional design was employed involving 360 adults aged 20–29 years with at least one identifiable cardiovascular risk factor in Barangay Sinalhan, Santa Rosa City, Laguna, Philippines. Data were collected using the 12-item Health Literacy Scale–Short Form (HLS-SF12) and analyzed using descriptive statistics, the Kruskal–Wallis H test, and the Mann–Whitney U test. Findings revealed generally favorable self-reported health literacy, with respondents demonstrating strong understanding of health promotion information and adequate understanding of healthcare and disease prevention information. However, comparatively lower competencies were identified in accessing mental health information, understanding medication instructions, and evaluating treatment alternatives. No statistically significant differences in health literacy were observed according to age or sex. In contrast, disease prevention literacy differed significantly across educational attainment groups and reported cardiovascular risk classifications. These findings stress the importance of strengthening preventive health literacy through accessible, targeted, and community-based educational interventions. The study provides empirical support for developing literacy-sensitive health education strategies that address specific information-processing challenges and promote informed cardiovascular disease prevention among young Filipino adults.

Keywords: health literacy, cardiovascular disease risk, young Filipino adults, disease prevention, health promotion

1. Introduction

Cardiovascular diseases (CVDs) remain a major public health concern, contributing substantially to morbidity, premature mortality, and the growing burden of noncommunicable diseases worldwide. Although cardiovascular conditions are commonly associated with older populations, their underlying risk factors may develop during early adulthood, when individuals establish health behaviors that can persist throughout their lives.

Unhealthy dietary practices, physical inactivity, tobacco use, excessive alcohol consumption, and other modifiable risk factors may increase susceptibility to cardiovascular conditions over time. Family history and other nonmodifiable factors further underscore the importance of early risk awareness and preventive health practices. Within this context, health literacy has emerged as an important consideration in cardiovascular disease prevention, particularly among young adults who may be exposed to cardiovascular risk factors despite having no clinically diagnosed cardiovascular condition.

Playing an essential role in shaping a person's health and well-being, health literacy (HL) refers to the ability to access, comprehend, evaluate, and apply health information (Doğan et al., 2026; Dauletkaliyeva et al., 2025). It encompasses the knowledge, motivation, and competencies necessary to access, understand, appraise, and apply health information in making decisions concerning healthcare, disease prevention, and health promotion (Sansom-Daly et al., 2016; Uysal et al., 2020; Kühn et al., 2022).

Beyond the ability to comprehend medical information, it involves the capacity to evaluate health-related messages, navigate healthcare services, recognize potential health risks, and translate relevant information into informed health decisions. Individuals with adequate health literacy may be better positioned to recognize cardiovascular risk factors, understand preventive recommendations, and engage in health-promoting behaviors. Conversely, limited health literacy may constrain their ability to interpret health information, assess the credibility of available resources, and adopt appropriate preventive measures.

These challenges are particularly relevant among individuals who have yet to develop symptoms or receive a formal diagnosis, as the perceived absence of illness may influence their engagement in preventive healthcare.

The importance of health literacy in addressing cardiovascular disease is consistent with the United Nations Sustainable Development Goal (SDG) 3, which seeks to ensure healthy lives and promote well-being for all ages. Specifically, Target 3.4 aims to reduce premature mortality from noncommunicable diseases by one-third through prevention and treatment by 2030 (The Global Goals, n.d.).

Achieving this objective requires sustained attention to preventive healthcare, equitable access to reliable health information, and the development of competencies that enable individuals to make informed health decisions. Accordingly, strengthening health literacy among populations with identifiable cardiovascular risk factors represents a potentially important component of community-based disease prevention and health promotion.

In the Philippines, cardiovascular disease prevention has been a significant public health priority since time immemorial, particularly given the influence of lifestyle-related and socioeconomic factors on health outcomes. Health literacy is especially relevant in this setting, where differences in educational attainment, access to healthcare services, and availability of reliable health information may shape individuals' capacity to comprehend and respond to health risks.

The Philippines' Department of Health (DOH) has introduced public health initiatives, including Healthy Pilipinas and Pilipinas Go4Health, to encourage healthier lifestyles and improve public awareness of noncommunicable disease prevention (Department of Health, 2023). Nevertheless, the availability of health information does not automatically ensure that people can understand, critically evaluate, and apply such information to their everyday circumstances.

This is why assessing health literacy at the community level is important, particularly among young adults who may benefit from early preventive interventions.

Present literature has established the relevance of health literacy to health-related decision-making and preventive practices. Ma et al. (2024), in their investigation of health literacy and community health outcomes in China, emphasized the relationship between individuals' health literacy competencies and their capacity to understand and utilize health information. Their findings further emphasized the contribution of social support networks to the practical application of health-related knowledge. These observations suggest that health literacy operates within a broader social environment in which access to information, interpersonal relationships, and community resources may influence health decisions.

Similarly, Beasant et al. (2022), through a systematic scoping review examining health literacy in cardiovascular disease prevention, underscored the importance of individuals' ability to understand preventive recommendations, make informed health decisions, and explore healthcare services. The review identified restrictions in health literacy as potential barriers to accessing and applying information relevant to cardiovascular risk reduction.

In the Philippine context, Tolabing et al. (2022) examined health literacy among adults at risk for diabetes in a remote community, highlighting its relevance to preventive health practices and disease management. Collectively, these studies support the importance of health literacy in addressing noncommunicable diseases while emphasizing the need to examine how such competencies manifest across different populations and community settings.

Despite these contributions, further investigation is necessary, especially concerning health literacy among young adults who possess cardiovascular risk factors but have not been formally diagnosed with cardiovascular disease. Much of the literature concerning cardiovascular health literacy has examined individuals with established cardiovascular conditions, clinical populations, or broader adult groups.

Although these investigations provide meaningful insights into disease management and health-related decision-making, their findings may not fully capture the preventive health literacy needs of younger individuals who remain outside routine cardiovascular care. Moreover, the extent to which health literacy differs across healthcare, disease prevention, and health promotion domains among at-risk young adults requires closer examination. Understanding these distinctions is important because individuals may demonstrate adequate competencies in accessing healthcare information while experiencing difficulties in evaluating disease prevention strategies or applying health promotion recommendations.

Cardiovascular risk assessment provides an additional perspective for understanding the preventive health needs of this population. Established risk factors, including family history, elevated body mass index, unhealthy lifestyle practices, and certain clinical indicators, may help identify individuals who could benefit from preventive health education.

Body mass index, although insufficient as an independent predictor of cardiovascular disease, is commonly used as an anthropometric indicator associated with cardiometabolic risk and related health conditions (Khanna et al., 2022).

Similarly, cardiovascular risk assessment instruments may support the identification of risk profiles, although their applicability depends on the age range and population for which they were developed and validated. For young adults aged 20–29 years, the assessment of identifiable cardiovascular risk factors is particularly relevant because conventional short-term cardiovascular risk prediction instruments may not adequately capture their longer-term susceptibility. Examining health literacy alongside cardiovascular risk characteristics may therefore provide a more contextualized understanding of preventive health needs within this age group.

The present study is anchored in Nutbeam's (2000) Health Literacy Model, which conceptualizes health literacy through three progressively complex levels: functional, interactive, and critical health literacy. Functional health literacy refers to basic reading, comprehension, and communication competencies necessary to understand health-related information. Interactive health literacy involves more advanced cognitive and social skills that enable individuals to participate actively in health-related interactions and apply information in changing circumstances. Critical health literacy encompasses the ability to critically analyze health information and exercise greater control over decisions and circumstances affecting health.

These three levels provide a theoretical foundation for understanding health literacy as a multidimensional competency extending beyond the acquisition of basic medical knowledge.

Within cardiovascular disease prevention, functional health literacy may be reflected in an individual's ability to understand information about blood pressure, body mass index, cardiovascular risk factors, and preventive recommendations. Interactive health literacy may involve communicating with healthcare professionals, seeking clarification regarding cardiovascular risks, and utilizing information obtained through consultations and community health activities.

Critical health literacy, meanwhile, may enable individuals to evaluate conflicting health claims, assess the reliability of cardiovascular health information, and make informed decisions concerning lifestyle modification and preventive healthcare. These competencies are particularly important among young adults who frequently encounter health-related information through digital platforms, social networks, and other informal sources.

While Nutbeam's framework explains the levels of competencies involved in understanding and using health information, the present study operationalizes health literacy across three domains: healthcare, disease prevention, and health promotion. Healthcare literacy concerns the ability to access, understand, evaluate, and use information related to healthcare services and medical decisions. Disease prevention literacy focuses on competencies associated with recognizing health risks, interpreting preventive information, and making decisions intended to reduce susceptibility to illness.

Health promotion literacy pertains to the capacity to understand and apply information that supports healthier lifestyles and well-being. These domains are conceptually consistent with the multidimensional health literacy framework advanced by Sørensen et al. (2012), which integrates health information-processing competencies across healthcare, disease prevention, and health promotion. Thus, Nutbeam's model provides the broader theoretical explanation of health literacy competencies, while the framework of Sørensen et al. offers a more direct conceptual basis for the domains assessed in the study.

The relationship between health literacy and cardiovascular risk may also be understood in relation to demographic and contextual characteristics. Educational attainment may influence exposure to health information and the development of competencies necessary to interpret preventive recommendations. Likewise, age and sex may be associated with differences in health-related experiences, information-seeking practices, and preventive healthcare engagement.

Community conditions, including the accessibility of health services and the availability of health education resources, may further shape opportunities to acquire and apply health information.

Examining these characteristics is therefore important in identifying possible disparities in health literacy and informing community-responsive interventions.

As such, the study assessed health literacy among Filipino adults aged 20-29 years who were identified as being at risk of cardiovascular disease but had no formal diagnosis of the condition. Conducted in Barangay Sinalhan in the Provice of Laguna, Philippines, the assessment, using a community-based cross-sectional research design, specifically examined health literacy in terms of healthcare, disease prevention, and health promotion.

It also described the respondents' demographic characteristics and cardiovascular risk profiles and determined whether significant differences in health literacy existed when respondents were grouped according to age, sex, educational attainment, and cardiovascular risk classifications.

Through this assessment study on health literacy among young adults with identifiable cardiovascular risk factors, it sought to contribute empirical evidence with regard to preventive health competencies within a Philippine community setting. Its findings were intended to identify areas of relative strength and potential gaps across the three health literacy domains and provide an empirical basis for developing a targeted, community-based health literacy enhancement plan.

Finally, from the findings, the study conceptualized contextually appropriate health education strategies that strengthen cardiovascular risk awareness, support informed health decisions, and encourage preventive health practices among young Filipino adults.

2. Methodology

2.1. Research Design

This study employed a quantitative, community-based cross-sectional design to assess health literacy among young Filipino adults at risk of cardiovascular disease (CVD). The design facilitated the assessment of health literacy across three domains—healthcare, disease prevention, and health promotion—and the examination of differences in health literacy according to respondents' demographic characteristics and cardiovascular risk classifications. Data were collected at a single point of participation using structured questionnaires and a cardiovascular risk assessment instrument. The study was observational, with no experimental intervention or manipulation of variables.

2.2. Participants

The study was conducted in Barangay Sinalhan, Santa Rosa City, Laguna, Philippines, from August 2025 to January 2026. The community was selected following preliminary community immersion activities conducted by the researchers, during which lifestyle-related cardiovascular risk factors, including physical inactivity, unhealthy dietary practices, smoking, and stress, were identified as relevant community health concerns. The setting provided an opportunity to examine health literacy among young adults who had identifiable cardiovascular risk factors but had not been formally diagnosed with cardiovascular disease.

The target population comprised community residents aged 20–29 years who were considered at risk of cardiovascular disease. Eligible participants were required to be residents of Barangay Sinalhan, fall within the specified age range, have at least one identifiable cardiovascular risk factor, possess the capacity to understand and respond to the research instruments, and voluntarily provide informed consent. Cardiovascular risk factors considered in determining eligibility included family history of cardiovascular disease and lifestyle-related factors, such as physical inactivity.

Individuals outside the specified age range, those with a previously diagnosed cardiovascular condition, and those unable to provide informed consent or complete the questionnaire were excluded. The original study protocol also specified pregnancy, lactation, and certain health-related conditions as exclusion criteria. Participants retained the right to discontinue participation at any stage without penalty or adverse consequences.

2.3. Sampling Procedure and Sample Size

The target population was identified using demographic records obtained from the local health center, which indicated approximately 4,347 residents aged 20–29 years in Barangay Sinalhan. The minimum sample size was estimated using the Raosoft sample size calculator, with a 95% confidence level, 5% margin of error, and 50% response distribution. The initial sample size estimate was 354 participants, and the researchers targeted 360 respondents to obtain adequate representation of the study population.

The researchers utilized simple random sampling in the selection of the participants from the target population. Recruitment covered different zones of Barangay Sinalhan to facilitate geographic representation within the community. Eligible residents were approached for participation, informed about the study, and invited to complete the survey following informed consent. Thus, a total of 360 respondents participated in the study.

2.4. Research Instruments

Two instruments were employed to examine the participants' cardiovascular risk and health literacy: General Cardiovascular Disease Risk Prediction Tool developed by D'Agostino et al. (2008) and the Health Literacy Scale–Short Form 12 (HLS-SF12) developed by Duong et al. (2017).

Cardiovascular Risk Assessment. The General Cardiovascular Disease Risk Prediction Tool was used to characterize respondents according to cardiovascular risk. The instrument incorporates established cardiovascular risk indicators such as age, sex, systolic blood pressure, antihypertensive treatment, smoking status, diabetes status, and either lipid measurements or body mass index, depending on the equation employed.

The original study protocol specified three risk categories: low risk (below 10%), intermediate risk (10%–20%), and high risk (above 20%). The instrument was originally developed to estimate the 10-year probability of cardiovascular disease among adults within its validated age range.

Health Literacy Assessment. Health literacy was assessed using the HLS-SF12 developed by Duong et al. (2017), a 12-item instrument designed to measure perceived difficulty in accessing, understanding, appraising, and applying health information. The instrument evaluates three domains: healthcare (Items 1–4), disease prevention (Items 5–8), and health promotion (Items 9–12). Each item was rated using a four-point response scale: 1 = very difficult, 2 = fairly difficult, 3 = fairly easy, and 4 = very easy. Higher scores indicated greater perceived ease in performing health information-related tasks. Domain scores were derived from the corresponding four items, while the overall health literacy score reflected responses across all 12 items.

For descriptive interpretation, the researchers adopted the following mean-score intervals: 1.00–1.75 (very difficult or minimal understanding of health information), 1.76–2.50 (fairly difficult or limited understanding of health information), 2.51–3.25 (fairly easy or adequate understanding of health information), and 3.26–4.00 (very easy or strong understanding of health information).

2.5. Instrument Adaptation and Validation

The HLS-SF12 has demonstrated satisfactory psychometric properties in previous studies involving Asian populations (Duong et al., 2017). Permission to use the instrument was requested from its developer. For the present study, the questionnaire was translated into Filipino to facilitate comprehension among community respondents. The translated version was subjected to expert review involving three validators to assess the appropriateness, clarity, and comprehensibility of the items.

Meanwhile, the General Cardiovascular Disease Risk Prediction Tool was adopted from the established Framingham cardiovascular risk assessment framework (D'Agostino et al., 2008). Its original validation and predictive performance were considered in interpreting cardiovascular risk estimates, particularly given the age characteristics of the study population.

2.5. Data Collection

Data collection was undertaken following the required institutional and community-level authorization procedures. Ethical approval was obtained from the Institutional Ethics Review Board before participant recruitment. Administrative permission was subsequently secured from the Office of the City Health Officer of Santa Rosa, Laguna. The researchers also coordinated with barangay officials and the Barangay Health Center to facilitate community access and the implementation of the data collection activities.

Potential respondents were screened according to the study's eligibility criteria. Individuals who qualified were provided with information concerning the research objectives, procedures, expected duration, voluntary nature of participation, and confidentiality safeguards. Written informed consent was obtained before administering the research instruments.

Data were collected through a one-time survey session. Respondents completed the 12-item HLS-SF12, which required approximately 10–15 minutes. Information relevant to demographic characteristics and cardiovascular risk assessment was also obtained using the study's data collection procedures. Participants were not required to attend follow-up sessions or undergo experimental interventions. Completed questionnaires were reviewed for completeness and subsequently encoded for statistical processing. The collected information was used exclusively for the stated research purposes.

2.6. Data Analysis

Data were encoded, organized, and initially screened using Microsoft Excel before statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequencies and percentages, were used to summarize respondents' demographic characteristics and cardiovascular risk classifications. Means and standard deviations were computed to describe overall health literacy and scores across the healthcare, disease prevention, and health promotion domains. Inferential analyses were conducted to examine differences in health literacy according to demographic characteristics and cardiovascular risk classifications.

The Mann-Whitney U test was employed for comparisons involving two independent groups, while the Kruskal-Wallis H test was used for comparisons involving three or more independent groups. These nonparametric procedures were used to assess differences in health literacy scores across the relevant respondent categories.

2.7. Ethical Considerations

The study was conducted in accordance with applicable institutional research ethics requirements and the principles of voluntary participation, informed consent, confidentiality, and respect for participants' rights. Ethical approval was obtained from the CEU Institutional Ethics Review Board before the commencement of data collection. Participants received information regarding the study's purpose, procedures, expected participation time, and their right to decline or withdraw without penalty. Written informed consent was secured before participation. Research data were handled confidentially and used solely for academic purposes, with safeguards implemented to prevent unauthorized access to participants' information in accordance with Republic Act No. 10173, or the Data Privacy Act of 2012.

3. Results and Discussion

3.1. Sociodemographic characteristics and cardiovascular risk profile

The study included 360 young Filipino adults aged 20–29 years residing in Barangay Sinalhan, Santa Rosa City, Laguna. As presented in Table 1, the largest proportion of respondents belonged to the 20–23-year age group (40.56%), followed by those aged 27–29 years (32.78%) and 24–26 years (26.67%). Female respondents constituted approximately two-thirds of the sample (67.22%), while males accounted for 32.78%. Educational attainment varied considerably, with high school graduates (23.61%), individuals with some college education (21.11%), and senior high school graduates (18.89%) comprising the largest educational groups.

Table 1. Sociodemographic characteristics and reported cardiovascular risk classifications

Demographic Profile	*f*	%
Age		
20-23 years old	146	40.56
24-26 years old	96	26.67
27-29 years old	118	32.78
Sex		
Female	242	67.22
Male	118	32.78
Educational Attainment		
Elementary Level	18	5.00
Elementary Graduate	11	3.06
High School Graduate	85	23.61
High School Level	35	9.72
Senior High School Level	21	5.83
Senior High School Graduate	68	18.89
College Level	76	21.11
College Graduate	41	11.39
Others	5	1.39
General CVD Risk Prediction (SN)		
Low Risk (<10%)	333	92.50
Intermediate Risk (10-20%)	27	7.50
High Risk (>20%)	0	0.00

The distribution of educational attainment reflects the heterogeneous academic backgrounds of the respondents, an important consideration in examining health literacy. Educational experiences may influence individuals' opportunities to acquire health information, interpret medical recommendations, and evaluate preventive health messages. However, educational attainment alone does not necessarily establish an individual's capacity to make appropriate health decisions. Health literacy encompasses several competencies that are also shaped by the accessibility, complexity, and relevance of health information.

In the first National Health Literacy Survey in the Philippines, Tolabing et al. (2022) found that 51.5% of 2,303 respondents aged 15–70 years had limited health literacy. The prevalence differed across sociodemographic groups, geographic locations, and health literacy domains, indicating substantial heterogeneity in health information-related competencies. These findings underscore the importance of community-specific assessments rather than assuming that educational attainment or other demographic characteristics adequately represent health literacy.

Regarding cardiovascular risk, 333 respondents (92.50%) were categorized as having low risk, while 27 (7.50%) were classified as having intermediate risk. No respondent was classified as having high risk. Although this distribution suggests that the applied scoring procedure generated predominantly low estimates, it should not be interpreted as demonstrating that the respondents had negligible cardiovascular vulnerability. The study population was selected on the basis of identifiable cardiovascular risk factors, including family history and lifestyle-related exposures, which may remain relevant despite low short-term risk estimates.

Moreover, D'Agostino et al. (2008) developed the Framingham General Cardiovascular Risk Profile using participants aged 30–74 years. Consequently, the application of the instrument to respondents aged 20–29 falls outside the population in which the original prediction equation was developed. The resulting estimates may not accurately characterize the absolute 10-year cardiovascular risk of the participants.

It is worth noting that cardiovascular prevention among young adults should extend beyond immediate event prediction. Magnani et al. (2018), in an American Heart Association scientific statement, emphasized that health literacy is relevant to cardiovascular risk recognition, preventive decision-making, and the management of cardiovascular risk factors. The findings of the present study therefore support continued attention to preventive health education among young adults, irrespective of the predominantly low classifications generated by the applied risk equation.

3.2. Self-Perceived Health Literacy among the Young Adults At-Risk of Cardiovascular Disease

The respondents demonstrated generally favorable self-reported health literacy, with an overall mean score of 3.28 on the four-point HLS-SF12 response scale. Health promotion obtained the highest domain mean (3.39), followed by healthcare (3.25) and disease prevention (3.21).

Table 2. Level of Health Literacy in terms of Healthcare

Indicators	Mean	V.I.
1. Finding information about treatments for illnesses or health conditions of concern.	3.28	Strong understanding
2. Understanding the information provided in medication leaflets or package inserts.	3.20	Adequate understanding
3. Evaluating the advantages and disadvantages of different treatment options.	3.14	Adequate understanding
4. Understanding when it is necessary to call an ambulance during a medical emergency.	3.37	Strong understanding
Total Mean	3.25	Adequate understanding

Healthcare literacy obtained an overall mean of 3.25, indicating that respondents demonstrated an adequate understanding of health information. The highest mean was recorded for understanding when an ambulance should be called during a medical emergency (M = 3.37), followed by finding information about treatments for health conditions of concern (M = 3.28), both reflecting a strong understanding of health information. On the other hand, understanding medication leaflets (M = 3.20) and evaluating the advantages and disadvantages of different treatment options (M = 3.14) were classified as indicating adequate understanding, with the latter obtaining the lowest mean.

These findings reveal differences in respondents' perceived competencies in accessing, understanding, and critically evaluating healthcare information. Their strong understanding of health information concerning emergency situations and treatment-related information suggests relatively favorable competencies in recognizing healthcare needs and locating relevant information. However, their adequate understanding of medication instructions and treatment alternatives indicates that tasks requiring more detailed interpretation and critical appraisal may warrant further attention.

Evaluating treatment alternatives requires consideration of potential benefits, limitations, and other relevant factors, while interpreting medication leaflets may involve understanding technical terminology, dosage instructions, precautions, and possible adverse effects. The findings therefore suggest that an adequate overall level of healthcare literacy does not necessarily reflect equally developed competencies across all healthcare-related tasks.

The findings are aligned with the study of Berkman et al. (2011), whose systematic review identified associations between limited health literacy and adverse health-related outcomes, including difficulties in understanding health information and exploring healthcare services. Although the present study did not directly assess medication adherence or clinical outcomes, the comparatively lower scores for medication comprehension and treatment appraisal identify potential areas for targeted health literacy interventions.

Similarly, Magnani et al. (2018) stressed the importance of health literacy in cardiovascular care, specifically in understanding treatment recommendations, participating in healthcare decisions, and managing cardiovascular risk factors. Among young adults without diagnosed cardiovascular disease, strengthening these competencies may support informed participation in preventive consultations and the early recognition of health conditions requiring professional assessment.

Accordingly, the said findings show the importance of healthcare education initiatives that strengthen both comprehension and critical appraisal of medical information. Interventions may incorporate simplified medication information materials, practical exercises in interpreting medical instructions, and guided discussions on evaluating treatment recommendations. Such approaches may enhance respondents' existing healthcare literacy competencies and support more informed healthcare decisions.

Table 3. Level of Health Literacy in terms of Disease Prevention

Indicators	Mean	V.I.
1. Finding information on managing mental health concerns, such as stress or depression.	2.98	Adequate understanding
2. Understanding the importance of undergoing health screenings, such as breast examinations, blood glucose tests, and blood pressure monitoring.	3.26	Strong understanding
3. Evaluating which vaccinations are appropriate based on one's age and health condition.	3.26	Strong understanding
4. Evaluating which health-related advice from family members or friends is beneficial to one's health.	3.35	Strong understanding
Total Mean	3.21	Adequate understanding

Disease prevention literacy obtained the lowest overall mean among the three domains (M = 3.21), indicating an adequate understanding of health information. Among the indicators, evaluating health-related advice received from family members or friends recorded the highest mean (M = 3.35), reflecting a strong understanding of health information. Similarly, understanding the importance of health screenings (M = 3.26) and evaluating appropriate vaccinations according to age and health condition (M = 3.26) were both classified as indicating strong understanding.

In contrast, finding information about managing mental health concerns, particularly stress and depression, obtained the lowest mean (M = 2.98), corresponding to adequate understanding. Notably, this indicator also registered the lowest mean across all 12 health literacy items.

The comparatively lower overall score in disease prevention literacy is particularly relevant because preventive health literacy involves recognizing potential health risks, understanding preventive recommendations, and identifying appropriate sources of health information before the onset of disease. Although respondents demonstrated a strong understanding of information concerning screening, vaccination, and health advice from informal sources, their adequate understanding of information related to mental health management suggests an area requiring additional support. This variation indicates that favorable competencies in certain preventive health activities may not necessarily extend to other aspects of disease prevention.

These findings may be understood through the multidimensional health literacy framework of Sørensen et al. (2012), which identifies accessing, understanding, appraising, and applying health information as essential competencies across healthcare, disease prevention, and health promotion. From this perspective, the differences observed among the disease prevention indicators suggest that respondents' perceived competencies may vary depending on the nature and complexity of the information-related task.

Their comparatively lower score in accessing mental health information highlights the importance of strengthening information-seeking competencies alongside the ability to understand and evaluate preventive health recommendations.

The findings also correspond with comprehensive research emphasizing the essence of mental health literacy among young people. Özparlak et al. (2023), in a systematic review and meta-analysis involving 12 studies and 4,659 young people, reported positive correlation between mental health literacy and help-seeking attitudes (r = .48) and intentions (r = .23).

However, the authors found no significant association with mental well-being, while evidence concerning actual help-seeking behavior remained insufficient. These findings suggest that strengthening mental health literacy may support favorable attitudes toward seeking assistance, although improved understanding does not necessarily translate directly into better mental health outcomes.

Meanwhile, finding information on managing mental health concerns received the lowest mean, suggesting that respondents experienced relatively greater difficulty accessing mental health information than other disease prevention resources. This finding may be contextualized by Riparip et al. (2026), who examined the wellness status and coping mechanisms of 404 Filipino college students during the COVID-19 pandemic. In the said study, although mental wellness was relatively favorable among Filipino college students, positive wellness behaviors were inconsistently sustained, while emotional disclosure and interpersonal help-seeking remained limited, underscoring the need to strengthen mental health literacy and accessible psychosocial support.

Within the context of cardiovascular disease prevention, the respondents' adequate understanding of disease prevention information underscores the importance of targeted educational initiatives that reinforce existing competencies while addressing comparatively weaker areas. Community-based interventions may incorporate accessible information about stress management, mental health services, preventive screening, and appropriate help-seeking pathways. These activities may complement established cardiovascular prevention strategies concerning physical activity, nutrition, smoking cessation, and the early identification of cardiovascular risk factors.

Table 4. Level of Health Literacy in terms of Health Promotion

Indicators	Mean	V.I.
1. Finding information about activities, such as meditation, exercise, walking, or Pilates, that may benefit one's mental health.	3.26	Strong understanding
2. Understanding information from media sources, such as the internet, newspapers, and magazines, about ways to improve one's health.	3.53	Strong understanding
3. Evaluating how everyday habits, including eating, drinking, and physical activity, are related to one's health.	3.43	Strong understanding
4. Finding and understanding information about sports clubs or exercise classes that one may join.	3.32	Strong understanding
Total Mean	3.39	Strong understanding

Health promotion literacy obtained the highest overall mean among the three domains (M = 3.39), indicating that respondents demonstrated a strong understanding of health information. Understanding media-based information about healthy living recorded the highest mean (M = 3.53), followed by evaluating the relationship between daily habits and health (M = 3.43).

Finding and understanding information about sports clubs or exercise activities obtained a mean of 3.32, while identifying activities beneficial to mental well-being registered a mean of 3.26. All four indicators were classified as reflecting a strong understanding of health information.

These findings suggest that respondents demonstrated consistently strong perceived competencies in accessing, understanding, and evaluating health promotion information. Their particularly high score in understanding media-based health information indicates relative confidence in interpreting messages concerning healthy lifestyles and personal well-being. Similarly, their strong understanding of the relationship between everyday habits and health suggests familiarity with information concerning lifestyle-related health practices, including dietary choices and physical activity. These competencies may provide a foundation for community-based cardiovascular prevention initiatives that emphasize the practical application of health promotion information.

Nevertheless, a strong understanding of health information should not be interpreted as direct evidence of the consistent adoption of health-promoting behaviors. Although respondents reported favorable competencies in interpreting lifestyle-related information, the HLS-SF12 did not directly measure the frequency of physical activity, adherence to dietary recommendations, or other actual preventive health practices. Consequently, the findings establish respondents' perceived health literacy competencies rather than their behavioral compliance with cardiovascular disease prevention recommendations.

The distinction between understanding health information and applying it to everyday health decisions is emphasized in the framework of Sørensen et al. (2012), which identifies the application of health information as an essential dimension of health literacy. Similarly, Magnani et al. (2018) highlighted the importance of cardiovascular health literacy in supporting informed decision-making, preventive healthcare engagement, and the management of cardiovascular risk factors. These perspectives suggest that strong health promotion literacy may serve as an important foundation for preventive health initiatives, although additional strategies may be necessary to facilitate the translation of health information into sustained behavioral practices.

The relatively high score for understanding health information from media sources is particularly relevant in developing health communication interventions for young adults. However, a strong understanding of media-based health information does not necessarily establish the ability to distinguish scientifically reliable recommendations from inaccurate or misleading health claims. Accordingly, community health education should reinforce critical media appraisal competencies, including identifying credible sources, evaluating health-related claims, and recognizing circumstances requiring professional healthcare guidance.

In general, the findings indicate that health promotion represents the strongest domain of perceived health literacy among the respondents, with all indicators reflecting a strong understanding of health information. This provides an opportunity to develop community-based initiatives that build upon existing competencies while strengthening the practical application of health promotion information.

At the same time, the comparatively lower scores observed in healthcare and disease prevention literacy suggest the need for targeted interventions addressing medication comprehension, treatment appraisal, and mental health information-seeking. These findings may inform the proposed Activities for Health Educational Awareness Development (A.H.E.A.D.) Plan, particularly in developing accessible, evidence-based, and literacy-sensitive cardiovascular disease prevention initiatives for young Filipino adults.

3.3. Differences in health literacy according to demographic characteristics and cardiovascular risk classifications

Differences in health literacy according to age, sex, educational attainment, and cardiovascular risk classification were examined using the Kruskal–Wallis H test and Mann–Whitney U test at a 0.05 level of significance.

3.3.1 Health Literacy According to Age Groups

Table 3. Differences in Health Literacy According to Age Groups

Health Literacy Domain	H Statistic	df	p-value	Results
Healthcare	2.007	2	0.367	Not significant
Disease Prevention	5.240	2	0.073	Not significant
Health Promotion	2.698	2	0.259	Not significant

Table 3 shows no statistically significant differences in healthcare (H = 2.007, p = .367), disease prevention (H = 5.240, p = .073), or health promotion literacy (H = 2.698, p = .259) across age groups. These findings suggest that respondents aged 20–23, 24–26, and 27–29 years exhibited comparable health literacy score distributions. The relatively narrow age range may partly explain the absence of significant differences.

This finding is consistent with Çelik (2025) and Alqahtani et al. (2024), who similarly reported nonsignificant age-related differences in health literacy among their respective study populations. Nevertheless, the results do not establish that age is unrelated to health literacy in broader populations.

3.3.2. Health Literacy According to Sex

Health Literacy Domain	H Statistic	df	p-value	Results
Healthcare	2.007	2	0.367	Not significant
Disease Prevention	5.240	2	0.073	Not significant
Health Promotion	2.698	2	0.259	Not significant

Note. Mann–Whitney U test; α = .05. Comparison: Male and female respondents.

As presented in Table 4, no statistically significant differences were observed between male and female respondents in healthcare (U = 14,364.500, p = .923), disease prevention (U = 15,192.000, p = .304), or health promotion literacy (U = 14,469.500, p = .828). These findings indicate that sex was not associated with statistically distinguishable health literacy scores in the study sample. Similar findings were reported by Munangatire et al. (2022) and Yuen et al. (2024), who found no significant sex-related differences in health literacy within their respective populations. Accordingly, community health literacy interventions may adopt inclusive educational approaches while remaining responsive to individual information needs.

3.3.3 Health Literacy According to Educational Attainment

Health Literacy Domain	H Statistic	df	p-value	Results
Healthcare	14.053	8	0.080	Not significant
Disease Prevention	20.242	8	0.009	Significant
Health Promotion	10.328	8	0.243	Not significant

Note. Kruskal–Wallis H test; α = .05. Groups: elementary level, elementary graduate, high school level, high school graduate, senior high school level, senior high school graduate, college level, college graduate, and others.

Table 5 reveals a statistically significant difference in disease prevention literacy across educational attainment groups (H = 20.242, p = .009), whereas healthcare (H = 14.053, p = .080) and health promotion literacy (H = 10.328, p = .243) showed no significant differences. This suggests that educational attainment may be particularly relevant to competencies involving the understanding and evaluation of preventive health information. The finding is consistent with Sørensen et al. (2012), who identified education as an important social determinant within the multidimensional health literacy framework.

However, the significant omnibus test does not establish which educational groups differed or whether higher educational attainment corresponded to higher literacy scores. Post hoc comparisons are necessary to determine these patterns. Nevertheless, the findings support the development of accessible, literacy-sensitive preventive health education materials for individuals with varying educational backgrounds.

3.3.4. Health Literacy According to Cardiovascular Risk Classification

Table 6. Differences in Health Literacy According to General Cardiovascular Disease Risk Prediction

Health Literacy Domain	U Statistic	p-value	Results
Healthcare	5,416.000	0.066	Not significant
Disease Prevention	5,899.500	0.005	Significant
Health Promotion	4,307.500	0.703	Not significant

Note. Mann–Whitney U test; α = .05. No respondents were classified as high risk. Comparison: Low risk (n = 333) and intermediate risk (n = 27)

Table 6 indicates a statistically significant difference in disease prevention literacy between respondents classified as having low and intermediate cardiovascular risk (U = 5,899.500, p = .005). However, no significant differences were observed in healthcare (U = 5,416.000, p = .066) or health promotion literacy (U = 4,307.500, p = .703). These findings suggest that disease prevention literacy varied between the reported cardiovascular risk groups, potentially reflecting differences in preventive health awareness or exposure to health information.

Magnani et al. (2018) emphasized the importance of health literacy in cardiovascular risk recognition and preventive healthcare engagement. Nevertheless, the present findings should be interpreted cautiously because the cardiovascular risk prediction equation used was developed for an older population and is not validated for respondents aged 20–29 years. Furthermore, the statistical results do not establish which risk group obtained higher disease prevention literacy scores. Thus, the observed difference represents an exploratory association rather than evidence of a validated relationship between cardiovascular risk and health literacy.

The findings demonstrate that health literacy did not differ significantly according to age or sex, whereas disease prevention literacy differed significantly according to educational attainment (p = .009) and the study's cardiovascular risk classification (p = .005). These results highlight disease prevention as a particularly relevant domain for targeted community health education.

The proposed community health literacy plan may therefore prioritize accessible preventive health information, risk awareness, and practical information-appraisal activities while accommodating differences in educational backgrounds.

3.3.5. Proposed Community Health Literacy Plan

The findings provide an empirical basis for the proposed Activities for Health Educational Awareness Development (A.H.E.A.D.) Plan. Although respondents reported relatively favorable overall health literacy, the domain- and item-level results revealed specific areas requiring further attention, particularly mental health information-seeking, treatment appraisal, and medication information comprehension.

Instead of implementing a general awareness campaign alone, the proposed plan could adopt a targeted, competency-oriented approach that addresses the particular health literacy tasks respondents perceived as comparatively difficult. Such an approach is aligned with the recommendation of Tolabing et al. (2022) that health literacy interventions be responsive to differences across population groups and health literacy dimensions.

The A.H.E.A.D. Plan may prioritize accessible community education sessions addressing cardiovascular risk factors, practical interpretation of health information, medication instructions, preventive screening, and mental health resources. Complementary activities may include guided physical activity, nutrition education, smoking cessation information, and stress-management sessions. Community health workers may serve as facilitators of these activities, while barangay communication channels may support the dissemination of accessible and culturally appropriate information.

Importantly, the proposed intervention should distinguish between improving health literacy and reducing cardiovascular disease risk. The former may be assessed through changes in health literacy scores, while the latter requires appropriate behavioral or clinical indicators and sufficient follow-up. As the present study did not evaluate implementation outcomes, the effectiveness of the A.H.E.A.D. Plan remains to be established through subsequent intervention research.

4. Conclusions and Recommendations

This community-based cross-sectional study involving 360 young Filipino adults at risk of cardiovascular disease revealed an overall mean health literacy score of 3.28, indicating a strong understanding of health information. Health promotion literacy obtained the highest mean (M = 3.39), reflecting strong understanding, while healthcare (M = 3.25) and disease prevention literacy (M = 3.21) indicated adequate understanding. Despite these favorable findings, comparatively lower scores were observed in accessing mental health information, understanding medication instructions, and evaluating treatment alternatives.

No significant differences were found according to age or sex, although disease prevention literacy varied significantly across educational attainment ($p = .009$) and cardiovascular risk classifications ($p = .005$). The latter finding warrants caution because the cardiovascular risk prediction equation used was developed for an older population.

These findings highlight the need for targeted community-based interventions that strengthen preventive health literacy and critical appraisal of healthcare information. The proposed Activities for Health Educational Awareness Development (A.H.E.A.D.) Plan may prioritize mental health awareness, medication comprehension, preventive screening, and informed healthcare decision-making through accessible Filipino-language materials, interactive educational activities, and evidence-based health communication. Educational strategies should accommodate varying educational backgrounds while building on respondents' relatively strong health promotion literacy to encourage healthier lifestyle practices.

The A.H.E.A.D. Plan should undergo feasibility assessment and empirical evaluation using measurable health literacy, behavioral, and appropriate cardiovascular health indicators. Future studies should involve more diverse populations, employ age-appropriate cardiovascular risk assessment methods, and adopt longitudinal or intervention-based designs to examine whether improvements in health literacy translate into sustained preventive behaviors and better cardiovascular health outcomes.

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Conflict of Interest

The authors declare that there is no conflict of interest.

Data Availability Statement

Research data are available upon request.

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