Health Literacy among Older Adults: A Descriptive Cross-sectional Analysis in Vietnam

ABSTRACT

Background and Objectives: Adequate Health Literacy is particularly important for older adults, who often face complex healthcare needs. The objective of this study was to evaluate the Health Literacy levels of older adults in Da Nang city, located in central Vietnam.

Materials and Methods: A cross-sectional study was conducted involving 204 Vietnamese older adults living in Da Nang City, using convenience sampling. Health Literacy was measured using a validated Vietnamese version of the Short-Form Health Literacy Questionnaire, which evaluates four dimensions: healthcare, disease prevention, health promotion, and general Health Literacy. Statistical analysis was performed using multiple logistic regression, with variables achieving a p-value below 0.05 considered statistically significant.

Results: Overall, 60.3% of participants exhibited inadequate general Health Literacy, while only 39.7% demonstrated sufficient levels. Urban residents had 2.4 times higher Health Literacy levels than rural counterparts (AOR= 2.4, 95% CI: 1.06-5.44). Education was a strong determinant, with participants who completed secondary-high school (AOR= 3.35, 95% CI: 1.42-7.91) and upper high school (AOR= 7.75, 95% CI: 2.84-21.11) showing higher Health Literacy compared to those with primary or lower education.

Conclusion: This study provides valuable insights into the Health Literacy levels of Vietnamese older adults in central Vietnam. The findings underscore the urgent need for health education programs to enhance Health Literacy, particularly targeting rural populations and individuals with low educational attainment.

Paper Type: Research Article

Keywords: Elderly, Health Literacy, Older Adults, Related Factors.

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Introduction

Health Literacy is a term first proposed in the 1970s (1) related to the capacity and confidence of an individual to take action to improve personal and community health through changing individual lifestyles and living conditions (2). In recent years, health competencies have received more and more attention. The definition of Health Literacy was updated in 2020 as part of the Healthy People 2030 initiative introduced by the United States government. This revision includes the definition of both personal Health Literacy and organizational Health Literacy. "Personal Health Literacy is the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others" (3). However, the National Assessment of Adult Literacy findings suggest that there may be some challenges experienced by older adults in the realm of Health Literacy skills. Specifically, the data indicates that 71% of adults over the age of 60 encountered difficulty when using print materials, 80% experienced challenges with documents such as forms or charts, and 68% faced difficulties when interpreting numbers and performing calculations (4).

In 2019, Vietnam had about 11.41 million older adults, representing 11.9% of the population. By 2049, this number is expected to rise to over 28.61 million, or around 24.88% of the total population (5). Da Nang City, the largest city in the North Central Coast and Central Highlands, has approximately 12.2% of its population consisting of elderly individuals and many of these seniors require healthcare due to chronic conditions or seek support for daily activities (6). The accumulation of medical conditions, associated treatment needs, and frequent engagement with complex health systems underscores the increasing demands on Health Literacy among older people. Even in the absence of chronic health conditions, older adults may experience age-related cognitive decline, which can significantly affect their capacity to comprehend and utilize health-related information (7,8). Due to these factors, elderly individuals are especially susceptible to challenges related to their Health Literacy skills. Existing research has highlighted the critical implications of inadequate Health Literacy among older adults. Individuals with limited Health Literacy have a higher likelihood of returning to the emergency department compared to those with sufficient Health Literacy (9). Moreover, inadequate Health Literacy is linked to reduced patient satisfaction, lower adherence to preventive services, and increased healthcare utilization and expenses (10). Conversely, higher Health Literacy was significantly and positively associated with better health outcomes among older patients with chronic diseases (11).

A systemmatic review studies have also identified several sociodemographic factors associated with poor Health Literacy in this population, including older age, low educational level, and loneliness (12). Prior investigations have found that older age is negatively associated with Health Literacy, while factors like occupation are positively linked (13). Additionally, women have been shown to have lower Health Literacy scores compared to men (14).

While studies have provided Health Literacy data for older adults in Vietnam, they primarily focus on northern and southern regions (13, 15). Therefore, there is a considerable gap in the existing literature regarding health literacy among older adults in central areas, especially in Da Nang City, where demographic and socioeconomic conditions may differ significantly from those in the north and south. Understanding the level of health literacy and its determinants among older adults is crucial for developing effective strategies and public policies aimed at improving their quality of life and mitigating adverse health outcomes. Therefore, the primary objective of this study is to evaluate the health literacy levels in Đà Nẵng City's older population and explore the factors associated with it.

Materials and Methods

Study Design and Setting

A descriptive cross-sectional study was undertaken among older adults in Da Nang City between August 2023 and June 2024.

Participants

Data were collected from individuals aged 55 years and older. In Vietnam, the elderly population is defined as those aged 60 and above. However, we included participants starting at 55 years old for this study because this age is commonly used as a threshold in previous health literacy studies including in Vietnam (13, 15–19). Participants with conditions that would affect their ability to understand or respond to the survey or declined participation were excluded.

Sample size

The sample size for this research study is determined using the formula for calculating the sample size required to estimate a population mean:

$$n = Z^2_{1-\alpha/2}\frac{\sigma^2}{d^2}$$

The standard deviation (σ) utilized in the calculation is derived from a previous study in Ho Chi Minh City, which reported a standard deviation of 1.3 for the Health Literacy (15). By considering a desired absolute precision (d = 0.2), the resulting sample size for this research study is determined to be 163 older adults. Adding to a potential non-response rate of 25%, the final sample size is adjusted to 204 participants.

Sampling Method

The convenience sampling method was used to select participants.

Research Instruments

The research was conducted by direct interviews with a set of questions including 2 parts:

Part 1: General information

General information of research subjects includes age, gender, ethnicity, marital status, education level, occupation, living area, and economic conditions.

Part 2: Health Literacy (HL-SF12)

The level of Health Literacy of older adults in Da Nang City was assessed using the 12-item Short-Form Health Literacy Questionnaire (HL-SF12) developed from the European Health Literacy Scale, including 12 questions, tested for reliability and used in 6 countries in Asia including Vietnam. The value of Cronbach's alpha and the goodness-of-fit index of HLS-SF12 in the general Vietnamese population are 0.87 and 0.97, respectively (Duong et al., 2019). The validation indicates that the HLS-SF12 is culturally appropriate for

use in Vietnam. This is crucial for ensuring that the questions resonate with the local population, capturing relevant health literacy dimensions that reflect the unique context of Vietnamese healthcare and communication. The items of the HL-SF12 are intended to assess three domains of Health Literacy: Health care, Disease prevention, and Health promotion. Participants are required to rate the level of difficulty for each task using a four-point Likert scale: 1 = very difficult, 2 = difficult, 3 = easy, and 4 = very easy. To simplify the comparison of health capacity levels, the standardized Health Literacy index (GEN-HL) is calculated according to the formula: GEN-HL index= (average -1) * 50/3. Thus, the GEN-HL index ranges from 0 to 50 and higher scores indicate better Health Literacy levels. To assess the level of Health Literacy, the GEN-HL index score is classified into 4 levels: inadequate (0-24), problematic (25-33), sufficient (34-42), and excellent level (43-50). This study combines the first two levels into "inadequate Health Literacy" (20–22).

Data Analyses

Analysis was conducted by using Statistical Package for Social Sciences version 25.0 and descriptive statistics methods including frequency, frequency percentage, mean and standard deviation were used to describe each of the demographic variables and Health Literacy. Binary logistic regression was used to measure the association between independent variables and Health Literacy level. Those variables with a statistically significant association with health literacy and were subsequently included in the multiple logistic regression model. Variables with a p-value of below 0.05 were considered statistically significant factors. Finally, the crude and adjusted odds ratios with the respective 95% confidence intervals were reported and interpreted.

Results

The research involved 204 elderly individuals in Da Nang City (Table 1), with an average age of 65.07 ± 6.57 years (ranging from 55 to 93 years). The majority were female (60.8%). A large proportion of participants did not identify with any religious group (88.2%) and resided in urban areas (78%). In terms of education, over half had completed secondary or high school education (53.4%), while 21.6% had finished upper high school education. The majority of participants were married (86.8%), with 0.5% divorced. In relation to occupation, the highest percentage were retired (33.8%), and full-time employment was the least common (11.3%).

Table 2 presents the scores of general Health Literacy and three dimensions: healthcare, disease prevention, and health promotion. It was observed that a significant proportion of Vietnamese older adults exhibited low levels of general Health Literacy, accounting for 60.3% of the participants, while 39.7% demonstrated a good level, with a mean score of 29.02 ± 9.18. The highest Health Literacy score was observed in health promotion (31.17 ± 11.03), whereas the lowest score was recorded in disease prevention (26.31 ± 9.88).

Multiple logistic regression analysis (Table 3) indicates that gender, residence, and level of education were significant in the bivariable logistic regression.

Table 1. General information of participants (N = 204)

Charisteristic		Frequency (n)	Percent (%)
Age		Mean ± SD: 65.07 ± 6.57 (55 – 93)	
Gender	Male	80	39.2
	Female	124	60.8
Religion	Yes	24	11.8
	No	180	88.2
Residence	Urban	159	78
	Rural	45	22
Level of education	Primary and lower	51	25.0
	Secondary – High school	109	53.4
	Upper High school	44	21.6
Marital status	Not married	27	13.2
	Married	177	86.8
Occupation	Unemployed	149	73
	Employed	23	11.3

Table 2. Health Literacy level of participants (N = 204)

Parameter		Characteristics	Frequency	Percentage (%)
Healthcare	Mean ± SD: 29.58 ± 10.13	Inadequate	97	47.5
		Sufficient	107	52.5
Disease prevention	Mean ± SD: 26.31 ± 9.88	Inadequate	137	67.2
		Sufficient	67	32.8
Health promotion	Mean ± SD: 31.17 ± 11.03	Inadequate	85	41.7
		Sufficient	119	58.3
General Health Literacy	Mean ± SD: 29.02 ± 9.18	Inadequate	123	60.3
		Sufficient	81	39.7

However, in the multivariable logistic regression analysis, residence and level of education were independent predictors of self-care practices.

The results have indicated that older adults living in urban areas had 2.4 times higher Health Literacy levels compared to their rural counterparts (AOR= 2.4, 95% CI: 1.06-5.44).

Additionally, education level was strongly associated with Health Literacy, with participants who had completed secondary – high school (AOR= 3.35, 95% CI: 1.42-7.91), and upper high school (AOR= 7.75, 95% CI: 2.84-21.11) demonstrating the higher levels of Health Literacy compared to those with primary or lower education. On the other hand, factors such as marital status, and occupational status did not show significant relationships with Health Literacy in this sample.

Discussion

This study aimed to determine the level of Health Literacy among elderly individuals in Da Nang City and to explore the associations between Health Literacy and various influencing factors. As the aging population faces distinct health challenges, understanding Health Literacy is essential for promoting better health outcomes and enhancing the quality of life.

The findings from this study reveal a concerning trend in Health Literacy levels among older adults in the central region of Vietnam.

Table 3. Association between Demographic Data and Health Literacy

Variable	Categories	Health Literacy Level		COR (95% CI)	AOR (95%CI)	p
		Inadequate	Sufficient			
Age	55 - <60	22	17	1		
	Above 60	101	64	0.82 (0.41 – 1.66)		
Gender	Male	44	36	1	1	
	Female	79	45	0.7 (0.4 – 1.23)*	0.87 (0.42 – 1.48)	0.45
Religion	No	109	71	1		
	Yes	14	10	1.1 (0.46 – 2.6)		
Residence	Rural	35	10	1	1	
	Urban	88	71	2.82 (1.31 – 6.09)*	2.4 (1.06 – 5.44)*	0.037
Level of education	Primary and lower	43	8	1	1	
	Secondary – High school	64	45	3.78 (1.62 – 8.8)*	3.35 (1.42 – 7.91)*	0.006
	Upper High school	16	28	9.41 (3.56 – 24.89)*	7.75 (2.84 – 21.11)*	0.000
Marital status	Not married	15	12	1		
	Married	108	69	0.8 (0.35 – 1.81		
Occupation	With no job	89	60	1		
	With job	34	21	0.916 (0.49 – 1.73)		

* Significant at $p < 0.05$

A substantial proportion of participants (60.3%) exhibited inadequate Health Literacy, with a mean score of 29.02 ± 9.18. Notably, health promotion scored the highest (31.17 ± 11.03), while disease prevention recorded the lowest score (26.31 ± 9.88). Comparative analysis with previous research in Vietnam indicates similar challenges. A study involving 300 elderly individuals aged 55 years and above in northern Vietnam reported general Health Literacy scores of 29.70 ± 8.20, with even lower scores in disease prevention (21.97 ± 10.06) (13). In the southern region, another study found an average Health Literacy score of 24.5 ± 1.3, categorizing it as low on a scale of 0 to 50 (15). This underscores a critical public health issue, as low Health Literacy is associated with poorer health outcomes, including inadequate management of chronic diseases and lower engagement with healthcare services (11). When contextualizing our results internationally, the prevalence of limited Health Literacy in our study appears higher than that reported in Singapore, where the weighted prevalence of limited Health Literacy was 42.0% (23). Similary, in Thailand, 57.7% of older individuals were identified as having moderate or limited Health Literacy (24). In Switzerland, only 31.4 % of respondents had inadequate or problematic Health Literacy, with 68.6% classified as having sufficient Health Literacy (25). Finnish data also reflect better Health Literacy outcomes, with a mean score of 35.05 and only 36.3 % of participants categorized as having inadequate or problematic Health Literacy (26). Conversely, our findings show a lower prevalence of inadequate Health Literacy compared to China, where 78.3% of older adults reported limited Health Literacy (27). These comparisons highlight the variability of Health Literacy levels across different contexts, suggesting that cultural, educational, and healthcare system factors significantly influence Health Literacy. The higher prevalence of low Health Literacy in our study emphasizes the need for

interventions in Vietnam, particularly in disease prevention.

Another important finding of this study is the significant relationship between Health Literacy and factors such as residence, and level of education among community-dwelling older adults. Our research indicates that older adults residing in urban areas exhibit 2.4 times higher Health Literacy levels compared to their rural counterparts ($p < 0.05$). This observation aligns with a systematic review indicating that urban populations generally have higher Health Literacy than rural populations (28). In China, similar trends have been observed, with multiple logistic analyses have similarly shown that geographic region significantly influences Health Literacy levels, with rural residents facing substantial health inequities and barriers to accessing preventive services and healthcare (29). These barriers can include limited availability of health resources, lower levels of health education, and reduced access to healthcare facilities, which disproportionately affect rural populations. Rural residents suffer significant health inequities and encounter tangible and perceptual barriers to preventive services, health care, and health research which often are overlooked (30). To address these disparities, we recommend implementing community-based programs specifically designed for the unique needs of rural populations. This includes digital health initiatives that provide access to healthcare professionals and educational resources directly within rural communities. By enhancing Health Literacy in these communities, we can empower older adults to make informed health decisions, ultimately leading to improved health outcomes and reduced disparities.

Additionally, there was a strong correlation between level of education and Health Literacy. Participants who had completed secondary - high school, demonstrated health literacy levels that were 3.35 times higher ($p < 0.05$) than those with primary or lower education. Those who completed upper high school had health literacy levels that were 7.75 times higher ($p < 0.01$) compared to the same group. This finding is consistent with previous research indicating a strong association between educational attainment and Health Literacy. A study by Cuong et al. (2018) noted that Health Literacy was significantly higher among individuals with more advanced education ($B = 2.86$, $p = 0.00$) (15). Further, older adults with lower educational levels were found to have a higher risk of limited Health Literacy (23). A systematic review also highlighted the link between poor Health Literacy in older adults and low educational (12). Similarly, a cross-sectional study in Chengdu, China, identified education level as a key factor influencing Health Literacy (31). In Switzerland, significant associations were also found between Health Literacy and education, with higher educational levels correlating positively with adequate Health Literacy (25). These findings underscore the importance of education as a foundational element in enhancing Health Literacy among older adults. Improving educational opportunities and providing targeted health education programs can empower this demographic, enabling them to better navigate health information and make

informed decisions regarding their healthcare.

Study Limitations and Strengths: The study's cross-sectional design limits the ability to draw causal conclusions about the relationship between health literacy and various factors. Besides that, the use of convenience sampling may introduce bias, as participants who are more willing to engage may not represent the entire population. This can limit the generalizability of the findings to broader demographics. Health Literacy was determined through self-reporting, which may be liable to recall and social desirability bias.

Conclusion

In this study, we found that a significant proportion of older adults in central Vietnam exhibit limited Health Literacy, particularly among those residing in rural areas and with lower levels of education. Enhancing educational programs and resources, particularly in rural communities, can improve health literacy among older adults. Additionally, stakeholders should consider implementing community-based initiatives that foster Health Literacy and provide support tailored to the unique challenges faced by older adults. Future research should employ longitudinal designs to better understand the causal relationships between health literacy and various demographic factors. Improving the sampling method and expanding the sample to include a more diverse population could enhance generalizability. Moreover, qualitative studies exploring the specific barriers to health literacy in rural communities could provide deeper insights.

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Thi Thu Trieu: Contributed to the literature review, provided expertise in methodology.

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