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THE SITUATION OF CARDIOVASCULAR DISEASES IN THE ELDERLY IN VINH CITY, NGHE AN PROVINCE IN 2024

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ABSTRACT

Objective: To describe the common cardiovascular disease status of the elderly in Vinh city, Nghe An province, in 2024.

Methods: A cross-sectional descriptive study in the community. Research subjects are elderly individuals with cardiovascular diseases living in 5 communes of Vinh City, Nghe An Province, from 7/2024 to 12/2024.

Results: The rate of cardiovascular diseases in the elderly was 59%, in which hypertension was the most common cardiovascular disease, with the rate of 55,86%, followed by ischemic heart disease (19.57%), cerebrovascular disease (16.71%) and arrhythmia (9.71%); the rate of other cardiovascular diseases, such as, arterial and venous diseases, heart failure and cardiomyopathy, were 5.14%, 4.57% and 3.43%, respectively. The prevalence of cardiovascular disease differed significantly between educational and occupational groups. Specifically, the prevalence of cardiovascular disease was highest in the group of uneducated/illiterates (72.22%) and the group of self-employed older adults (71.54%).

Conclusion: The study has shown that it is necessary to strengthen health education communication, raise awareness of cardiovascular diseases, and improve access to health services in the elderly, especially in groups with low education and unstable occupations.

Keywords: Cardiovascular diseases, the elderly, Nghe An

1. INTRODUCTION

Cardiovascular disease (CVD) remains the leading cause of disease burden worldwide and tends to increase with age [1]. According to the World Health Organization (WHO), approximately 17.9 million people die from CVD each year, accounting for nearly 32% of all global deaths; more than three-quarters occur in low- and middle-income countries [2]. Common cardiovascular conditions include hypertension, ischemic heart disease, cerebrovascular disease (stroke), heart failure, and arrhythmias. These conditions not only reduce quality of life but also represent leading causes of disability and impose substantial healthcare costs.

In Viet Nam, the prevalence of CVD has been rising, especially in the context of rapid population ageing. Older adults are at high risk of CVD due to age-related cardiovascular changes along with the accumulation of risk factors such as hypertension, diabetes, dyslipidaemia, smoking, and physical inactivity [1], [3]. Therefore, in-depth epidemiological studies on CVD among older adults, including prevalence and related factors, are essential for developing prevention programmes, chronic disease management, and initiatives to improve cardiovascular health at the local level.

Nghe An is a populous province with a large geographic area and uneven population distribution between urban and rural settings. Access to healthcare services for older adults remains limited in many places. However, recent data on the CVD burden among older adults in this locality are scarce. Therefore, we conducted this study to assess the prevalence of common cardiovascular diseases among older adults in Vinh City, Nghe An Province, in 2024

2. METHODS

2.1. Study subjects

A total of 700 older adults in Vinh City, Nghe An Province.

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*Inclusion criteria

Individuals aged ≥60 years with permanent household registration and currently residing in the study area (≥2 years).

Voluntary participation.

*Exclusion criteria

Refusal to participate.

Difficulty completing the survey and study questionnaire.

*Ethical considerations

All participants were clearly informed by healthcare staff about the study objectives and provided written informed consent.

2.2. Study setting and period

The study was conducted in five wards/communes of Vinh City, Nghe An Province—Quang Trung, Hung Phuc, Vinh Tan, Truong Thi, and Ben Thuy—from July 2024 to December 2024.

2.3. Study design and sampling

Study design: Cross-sectional descriptive study with analytical components.

Sample size: The sample size for a descriptive study was calculated using the formula:

$$n = Z^2_{1-\alpha/2} \frac{1 - p}{\varepsilon^2 p} \times DE$$

Where:

+ n: required sample size;

+ $Z_{1-\alpha/2}$: standard normal deviate at 95% confidence level (1.96);

+ DE: design effect (chosen as 1,5);

+ ε allowable relative error (selected as 7%);

+ p: estimated prevalence of CVD among older adults in the community. According to Nguyen Tien Manh et al., the community prevalence among older adults in Ha Giang was 63% [4].

Thus, the minimum required sample size to investigate the CVD profile among older adults in Nghe An was 690. The final study sample comprised 700 participants.

* Sampling method:

Purposive selection of Vinh City, Nghe An Province.

Random selection of five wards/communes within Vinh City: Quang Trung, Hung Phuc, Vinh Tan, Truong Thi, and Ben Thuy.

Sampling unit (older adults): A complete roster of older persons in the selected wards/communes was compiled. Based on the population size and the number of older adults in each ward/commune, 140 participants were allocated to each ward/commune.

*Study variables

Sociodemographic characteristics: age, sex, ethnicity, educational attainment, occupation, household income, marital status.

Cardiovascular disease profile among older adults in the community

Factors associated with CVD prevalence among study participants.

2.4. Data collection and analysis

Data were entered and managed in Microsoft Excel 2016 and analysed using standard biostatistical procedures in IBM SPSS Statistics version 22.

3. RESULTS

3.1. General characteristics of study participants

Table 1. General characteristics of study participants (n = 700)

Characteristic		n=700	%
Age group (years)	60 – 65	282	40,29
	> 65 – 70	179	25,57
	> 70 – 75	137	19,57
	> 75 – 80	58	8,29
	> 80	44	6,29
Gender	Male	387	55,29
	Female	313	44,71
Ethnicity	Kinh	512	73,14
	Tay	105	15,00
	Muong	62	8,86
	Other	21	3,00
Educational attainment	No schooling/ illiterate	18	2,57
	Primary	271	38,71
	Lower secondary	235	33,57
	Upper secondary	130	18,57
	College/university or higher	46	6,58
Occupation	Farmer	538	76,86
	Retired	32	4,57
	Self-employed	130	18,57
Household income status	Poor	274	39,14
	Non-poor	426	60,86
Marital status	Married, cohabiting	487	69,57
	Married, living apart	61	8,71
	Divorced/widowed	152	21,72

Most participants were aged 60–65 years (40.29%), followed by 65–70 years (25.57%), 70–75 years (19.57%), and 75–80 years (8.29%); only 44 participants (6.29%) were >80 years. Males constituted 55.29%. The majority were Kinh (73.14%), followed by Tay (15.00%), Muong (8.86%), and other ethnicities (3.00%). Educational attainment was predominantly primary (38.71%) and

lower secondary (33.57%); proportions with upper secondary or higher were lower. Most participants were farmers (76.86%); 18.57% were self-employed, and 4.57% retired. Poor households accounted for 39.14%. Married and cohabiting status was reported by 69.57%.

3.2. Prevalence of common cardiovascular diseases among older adults in Nghe An, 2024

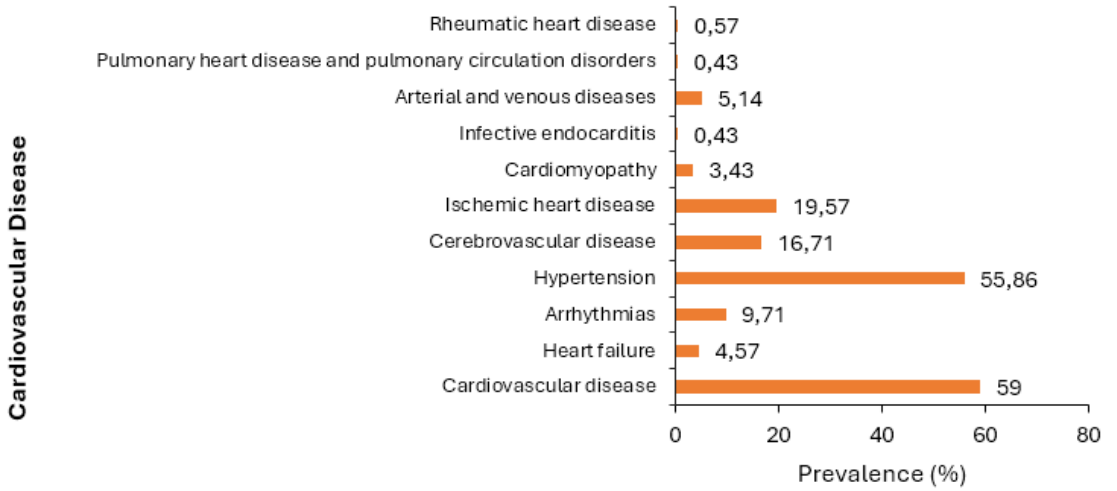

Figure 1. Prevalence of selected cardiovascular diseases among older adults in Nghe An

The overall prevalence of cardiovascular disease among older adults was 59.0%. Hypertension was most common at 55.86%, followed by ischemic heart disease (19.57%), cerebrovascular disease (16.71%), and arrhythmias (9.71%). Other conditions were less frequent: arterial and venous diseases (5.14%), heart failure (4.57%), and cardiomyopathy (3.43%).

Table 2. Prevalence of cardiovascular disease by ethnicity

Cardio-vascular disease	Ethnicity			
	Kinh (n=512)	Tay (n=105)	Muong (n=62)	Other (n=21)
Present	299 (58,4%)	68 (64,76%)	33 (53,23%)	13 (61,9%)
Absent	213 (41,6%)	37 (35,24%)	29 (46,77%)	8 (38,1%)
p	0,401			

CVD prevalence was broadly similar across ethnic groups, with no statistically significant differences.

Table 3. Prevalence of cardiovascular disease by educational attainment

Educational attainment No schooling/ illiterate	Cardiovascular disease		p
	CVD present (n=413)	CVD absent (n=287)	
Primary	13 (72,22%)	5 (27,78%)	< 0,05
Lower secondary	175 (64,58%)	96 (35,42%)	
Upper secondary	131 (55,74%)	108 (44,26%)	
Above secondary (college+)	72 (55,38%)	58 (44,62%)	< 0,05
Educational attainment	22 (47,83%)	19 (52,17%)	

There was a statistically significant difference in CVD prevalence across educational groups. The highest prevalence occurred in the no-schooling/illiterate (72.22%) and primary (64.58%) groups, followed by lower and upper secondary (55.74% and 55.38%). The lowest prevalence was in those with education above secondary level (47.83%).

Table 4. Prevalence of cardiovascular disease by occupation

Occupation Farmer	Cardiovascular disease		p
	CVD present (n=413)	CVD absent (n=287)	
Retired	299 (55,58%)	239 (44,42%)	< 0,05
Self-employed	21 (65,63%)	11 (34,37%)	
Occupation	93 (71,54%)	37 (28,46%)	

The highest CVD prevalence was among the self-employed (71.54%), followed by retirees (65.63%) and farmers (55.58%).

4. DISCUSSION

This study of 700 older adults (≥60 years) from five wards/communes in Vinh City, Nghe An Province, found an overall CVD prevalence of 59.0%. This is comparable to findings by Nguyen Xuan Kien et al. (2022) among older adults in Hanoi (59.2%) [3]. These results highlight the substantial CVD burden in Viet Nam's ageing population and the need to intensify community-based CVD screening, health education, risk-factor control, and investment in primary-level non-communicable disease management systems. Our prevalence is lower than the 2019 U.S. estimates, where men and women aged 60–79 years had CVD prevalence of 77.2% and 78.2%, respectively [5]. Differences may reflect variations in diagnostic criteria, risk factor distributions, and access to care and detection.

Among prevalent CVD conditions, hypertension was most common (55.86%), consistent with its role as both a leading risk factor and the most frequent clinical manifestation of CVD in older adults. The hypertension prevalence in our sample was lower than in the Hanoi study [3]. This may relate to the older age structure in that study (predominantly 70-79 years, 41.6%) versus our sample with a larger 60–65-year group (40.29%).

Other conditions-ischemic heart disease (19.57%), cerebrovascular disease (16.71%), and arrhythmias (9.71%)-were also observed at notable rates, higher than some reports from within and outside Viet Nam [3], [4], [6]. Nguyen Xuan Kien et al. reported ischemic heart disease, cerebrovascular disease, and arrhythmias among older adults in Hanoi at 9.2%, 9.4%, and 2.5%, respectively [3]. Another study reported that the stroke prevalence in urban China at 9.3% [6]. These differences may reflect the cumulative trajectory of CVD, where suboptimally controlled hypertension leads to target-organ damage involving the heart (ischemia, heart failure), brain (stroke), and conduction system (arrhythmias). Less frequent conditions—arterial and venous diseases (5.14%), heart failure (4.57%), and cardiomyopathy (3.43%)-still warrant attention in comprehensive geriatric cardiovascular care, as they may present late and be missed by routine screening.

CVD prevalence varied significantly by education and occupation. It was highest among those with no schooling/illiterate (72.22%) and primary education (64.58%), and lowest among those with education above secondary level (47.83%). This aligns with prior evidence linking lower educational attainment to a higher risk of CVD and chronic diseases in general [7]. Lower education may impede access to health information, adherence to preventive measures and treatment, and maintenance of healthy lifestyles, thereby elevating risk [8]. By occupation, CVD prevalence was highest in the self-employed (71.54%), followed by retirees (65.63%) and farmers (55.58%)—suggesting that those with unstable incomes or informal work may face barriers to regular healthcare access, increasing the likelihood of under-diagnosis or delayed treatment. Accordingly, CVD prevention programmes should prioritise groups with lower education and unstable occupations by enhancing cardiovascular health literacy, tailoring health communication to educational levels, and improving access to primary care services in the community.

5. CONCLUSION

In this study of 700 older adults in Vinh City, Nghe An Province, the overall prevalence of cardiovascular disease was 59.0%. Hypertension was most common (55.86%), followed by ischemic heart disease (19.57%), cerebrovascular disease (16.71%), and arrhythmias (9.71%). Other observed conditions included arterial and venous diseases (5.14%), heart failure (4.57%), and cardiomyopathy (3.43%). CVD prevalence differed significantly by educational attainment and occupation, indicating that prevention programmes for older adults should prioritise those with lower education and unstable employment.

REFERENCES

[1] Roth G. A., Mensah G. A., Johnson C. O., et al. (2020). Global Burden of Cardiovascular Diseases and Risk Factors, 1990-2019: Update From the GBD 2019 Study. J Am Coll Cardiol, 76(25): 2982-3021.

[2] World Health Organization (WHO) (2021). Cardiovascular diseases (CVDs). Geneva: WHO Press. https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds).

[3] Nguyen Xuan Kien, Hoang Thi Truong, Nguyen Van Chuyen, et al. (2023). Prevalence of common cardiovascular diseases among the elderly in Hanoi in 2022. Journal of Community Medicine, 64(3).

[4] Nguyen Tien Manh, Vu Tung Son, Nguyen Van Chuyen (2022). Prevalence of common cardiovascular diseases among the elderly in Bac Me District, Ha Giang Province, in 2021. Journal of Military Medicine and Pharmacy, 47(3): 5–12.

[5] Benjamin E. J., Muntner P., Alonso A., et al. (2019). Heart disease and stroke statistics—2019 update: a report from the American Heart Association. Circulation, 139(10): e56-e528.

[6] Ferri C. P., Schoenborn C., Kalra L., et al. (2011). Prevalence of stroke and related burden among older people living in Latin America, India, and China. Journal of Neurology, Neurosurgery & Psychiatry, 82(10): 1074-1082.

[7] Jilani M. H., Javed Z., Yahya T., et al. (2021). Social Determinants of Health and Cardiovascular Disease: Current State and Future Directions Towards Healthcare Equity. Curr Atheroscler Rep, 23(9): 55.

[8] Magnani J. W., Mujahid M. S., Aronow H. D., et al. (2018). Health Literacy and Cardiovascular Disease: Fundamental Relevance to Primary and Secondary Prevention: A Scientific Statement From the American Heart Association. Circulation, 138(2): e48-e74.