

## THE CURRENT NON - COMMUNICABLE DISEASES SITUATION AND BASIC DAILY LIVING ACTIVITIES OF ELDERLY AT A HANOI NURSING CENTER IN 2024

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### ABSTRACT

A cross-sectional study describing the status of non-communicable diseases (NCDs) and basic activities of daily living (ADL) among elderly persons revealed that All participants had at least one chronic non-communicable disease (NCD), with 59% presenting multimorbidity ( $\geq 3$  conditions). Mental disorders and cognitive impairment were most prevalent (76%), particularly among those aged  $\geq 70$  years (73.6%). Musculoskeletal (68%) and cardiovascular diseases (58%) were also common, with significant age-related differences ( $p < 0.05$ ). Cardiovascular disease was reported in 17.2% of those aged 60–69 years, compared with 43.1% in the 70–79 group and 39.7% in those aged  $\geq 80$  years. Musculoskeletal disorders peaked in the 70–79 group (48.4%). Overall, 30% had BMI  $\geq 25$  kg/m<sup>2</sup> and 52% had central obesity. Functional dependence in activities of daily living was observed in 95% of participants, who were 2.25 times more likely to have  $\geq 3$  NCDs than the independent group, though this was not statistically significant ( $p > 0.05$ ).

**Keyword:** *elderly person, daily living activities, non-communicable diseases, Hanoi Nursing Center*

### I. INTRODUCTION

In line with the global trend, Vietnam is among the countries with the fastest

population aging. According to the General Statistics Office of Vietnam (GSO,2024), the aging index reached 60.2% in 2024, an increase of 11.4% compared with 2019 and 16.9% compared with 2014. The number of elderly aged  $\geq 60$  years was 14.2 million, an increase of 2.8 million (1.25-fold) from 2019. By 2030, the elderly population is projected to reach approximately 18 million, nearly 4 million more than in 2024<sup>1</sup>.

In Vietnam, recent years have seen a disease pattern among elderly dominated by Non-communicable diseases (NCDs), with a multimorbidity prevalence of 87.8%, of which Hypertension is the most common (78.1%)<sup>2</sup>. Among NCDs in older adults, cardiovascular diseases - mainly stroke and ischemic heart disease - represent the greatest disease burden, accounting for 42.8% of total mortality, with prevalence increasing with age: 26% in those aged 60–69 years, 33% in 70 - 79 years, and 38% in  $\geq 80$  years<sup>3</sup>. Cancer represents the second leading disease burden. However, the management and control of NCDs remain challenging, posing major public health concerns in the context of rapid population aging<sup>4</sup>.

To investigate the status of NCDs among older adults in the community, we conducted a study at Bach Nien Thien Duc Nursing Center, in Soc Son, Hanoi. The center is providing a friendly environment, appropriate accommodation, and professional care and nutrition for the elderly. We

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conducted this study with the following objectives:

1. *To describe the current status of non-communicable diseases among elderly living at Bach Nien Thien Duc Elderly Care Center in 2024.*

2. *To investigate the basic activities of daily living (ADL) among elderly at Bach Nien Thien Duc Nursing Center in 2024.*

## II. MATERIALS AND METHODS

### 1. Subjects

#### *Selection criteria*

- Elderly currently residing at Bach Nien Thien Duc Nursing Center.
- Elderly present at the time of the study and voluntarily consenting to participate.

#### *Exclusion criteria*

- Elderly persons who had not resided at the study site for at least 6 months.
- Elderly persons with severe psychiatric disorders.
- Elderly persons who did not cooperate during the study,

### 2. Methods

#### *Study design*

A cross-sectional study.

#### *Research time and location*

The study was conducted at Bach Nien Thien Duc Nursing Center, Hanoi, from October 2024 to December 2024.

#### *Sample size*

Convenience sampling was used. All older adults receiving full-time care at the study site during the study period and meeting the selection criteria were included. Accordingly, a total sample size of 100 participants was selected.

#### *Study variables/indicators*

- General characteristics of participants: age, gender, duration of stay at the center, number of comorbidities.

- Nutritional status: weight, height, BMI, waist circumference, waist – to – hip ratio.

- Status of non-communicable diseases (NCDs): prevalence of NCDs, prevalence stratified by age group.

- Basic activities of daily living (ADL) of older adult.

#### *Instruments*

- General information and health status were collected through a structured questionnaire administered via direct interviews with older adults and their caregivers at the center. Data on comorbidities were obtained from the residents' medical records at the center.

The pre-designed interview questionnaire consisted of three sections:

Section 1: General information and nutritional status of older adults (age, sex, duration of stay at the center, height, weight, waist-hip circumference).

Section 2: History of non-communicable diseases (NCDs).

- Cognitive impairment was assessed using the Mini-Cog scale <sup>5</sup>.

- Basic activities of daily living (ADLs) were assessed using the ADL scale, with a total score ranging from 0 to 6: 0–2 indicating complete dependence, 3–5 indicating partial dependence, and 6 indicating independence. The ADL assessment included six domains: personal hygiene, dressing, toileting, mobility, continence, and feeding <sup>6</sup>.

#### *Data analysis*

Data were entered and analyzed using SPSS version 20.0 with standard medical

statistical methods. Results were presented as means and percentages. Logistic regression was applied to estimate odds ratios (ORs), with statistical significance set at  $p < 0,05$ .

### 3. Ethical Considerations

The study was approved by the Scientific Council of Institute for Elderly Health and Public Health and the Board of Directors of

Bach Nien Thien Duc Elderly Care Center. All participants provided informed consent, and confidentiality was strictly maintained.

## III. RESULTS

### 1. General characteristics of participants

**Table 1. General characteristics of participants**

	Frequency (n)	Percentage (%)
<i>Age (Mean <math>\pm</math> SD)</i>	76,07 $\pm$ 9,62	
60 - 69	25	25
70 - 79	38	38
$\geq 80$	37	37
<i>Gender</i>		
Male	45	45
Female	55	55
<i>Length of stay at the center (Mean <math>\pm</math> SD)</i>	3,55 $\pm$ 3,23	
<i>Number of comorbidities</i>		
$\geq 3$ conditions	59	59
$< 3$ conditions	41	41

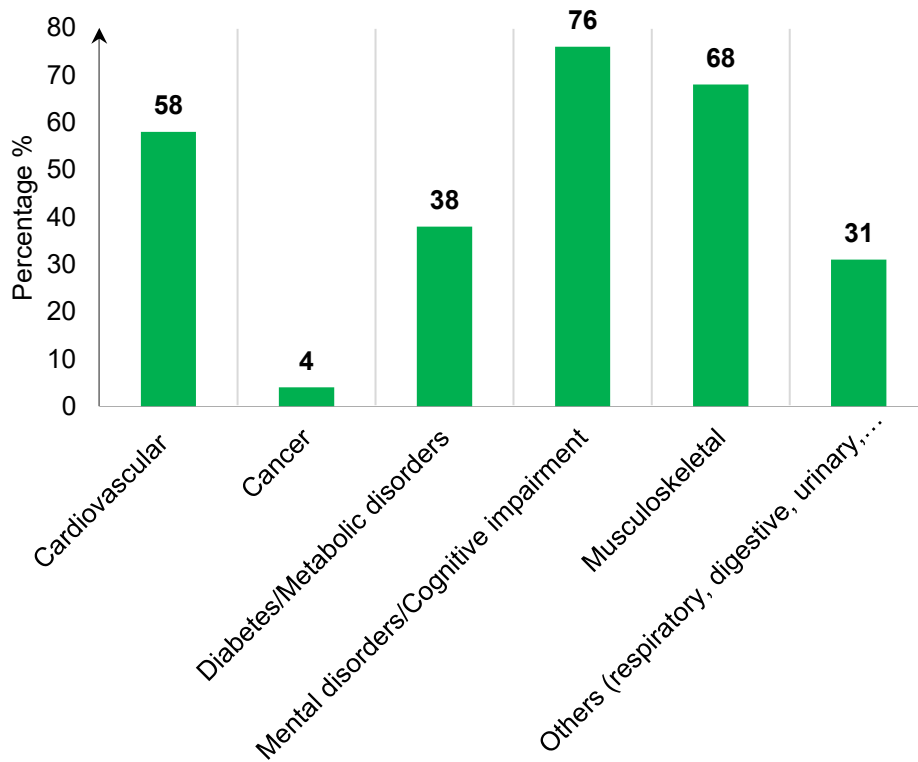
The study included 100 older adults, of whom 45% were male and 55% female. The mean age was  $76.07 \pm 9.62$  years, with the majority (75%) aged 70 years or older. The average length of stay at the care center was  $3.55 \pm 3.23$  years. Multimorbidity ( $\geq 3$  chronic conditions) was observed in 59% of participants.

### 2. The Status of Non-Communicable Diseases Among Older Adults at Bach Nien Thien Duc Elderly Care Center in 2024

**Table 2. Nutritional Status of Study Participants**

	Mean $\pm$ SD	Min - max	Underweight (n,%)	Overweight (n, %)
Body weight (kg)	52,87 $\pm$ 9,15	35,8 – 81,7	-	-
Height (cm)	150,15 $\pm$ 7,07	140 – 178,5	-	-
BMI (kg/m <sup>2</sup> )	21,84 $\pm$ 2,58	15,56 – 28,64	9 (9)	30 (30)
Waist circumference (cm)	78,35 $\pm$ 8,16	62,5 – 103,5	0 (0)	52 (52)
Waist – to – hip ratio	0,89 $\pm$ 0,04	0,77 – 1,05	9 (0)	40 (40)

Among the elderly participants in the study, 30% had a BMI  $\geq 25$  kg/m<sup>2</sup>, and 52% had an elevated waist circumference, which are high– risk factors for metabolic disorders. Additionally, 40% exhibited a high waist – to – hip ratio.



**Chart 1. Prevalence of selected non-communicable diseases among the elderly**

The study results showed that the prevalence of mental disorders and cognitive impairment among elderly individuals at the center was the highest, at 76%. Musculoskeletal and cardiovascular diseases were less common, accounting for 68% and 58%. The prevalence of diabetes, metabolic disorders and certain chronic respiratory, digestive, and urinary diseases was comparable at 38% and 31%. Cancer was the least prevalent condition among the elderly.

**Table 3. Age-groups prevalence of selected non-communicable diseases**

NCDs	60 – 69 (n = 25)		70 – 79 (n = 38)		≥ 80 (n = 37)		p
	n	%	n	%	n	%	
Cardiovascular	10	17,2	25	43,1	23	39,7	0,012
Cancer	1	25	1	25	2	50	0,465
Diabetes Metabolic disorders	8	21,1	19	50	11	28,9	0,112
Mental disorders/ Cognitive impairment	20	26,4	28	36,8	28	36,8	0,091
Musculoskeletal	13	19,2	29	42,6	26	38,2	0,040
Others (respiratory, urinary, digestive...)	5	16,1	15	48,4	11	35,5	0,056

The study results showed that among chronic diseases, the prevalence of cardiovascular and musculoskeletal diseases differed significantly across age groups ( $p < 0.05$ ). The prevalence of cardiovascular disease was only 17.2% in the 60–69 age group, while it was 43.1% and 39.7% in the

70–79 and  $\geq 80$  age groups, respectively. The prevalence of musculoskeletal disorders was highest in the 70–79 age group (48.4%).

### 3. Basic Activities of Daily Living (ADL) Function among Elderly Residents at Bach Nien Thien Duc Center in 2024

**Table 4. Basic Activities of Daily Living (ADL) Function of Participants**

ADL Function	Frequency (n)	Percentage (%)
Completely dependent (0–2 points)	14	14
Partially dependent (3–5 points)	81	81
Independent (6 points)	5	5
ADLs (Mean $\pm$ SD)	3,69 $\pm$ 1,28	

The results showed that the basic activities of daily living function among elderly residents at the center was predominantly dependent, accounting for 95%

**Table 5. Association between Basic Activities of Daily Living Function and the Prevalence of Non-Communicable Comorbidities**

	$\geq 3$ diseases (n,%)	$< 3$ diseases (n,%)	OR 95% CI	p
Phụ thuộc (0-5 điểm)	57 (57)	38 (38)	2,25 (0,38-12,35)	1,00
Độc lập (6 điểm)	2 (2)	3 (3)		
ADLs ( $\bar{X} \pm SD$ )	3,34 $\pm$ 2,17	3,65 $\pm$ 2,41		0,787

The results on the association between basic activities of daily living function and non-communicable comorbidities among the elderly showed that dependent individuals had a 2.25-fold higher risk of having  $\geq 3$  diseases compared to independent individuals. However, this difference was not statistically significant ( $p > 0.05$ ).

## IV. DISCUSSION

The study was conducted on 100 elderly residents receiving care at Bach Nien Thien Duc Elderly Care Center, with a mean age of  $76.07 \pm 9.62$  years. Seventy-five percent of participants were aged 70 or older, and the majority were female (55%).

The study showed that elderly individuals in Vietnam often have multiple NCDs simultaneously. We observed that 59% of participants had three or more non-communicable diseases, a finding similar to Karl Peltzer's study (2016) in Cambodia,

Thailand, and Vietnam, which reported 51.6%<sup>7</sup>. That mental disorders and cognitive impairment were the most prevalent conditions (76%), followed by musculoskeletal diseases (68%) and cardiovascular diseases (58%). These findings differ from the 2024 Vietnam General Statistics Office (GSO) report, which indicated that hypertension had the highest prevalence (78.1%)<sup>1</sup>. This may be due to the higher mean age of our participants ( $76.07 \pm 9.62$  years), as aging is associated with neurodegeneration and

structural and functional changes in the brain. The presence of comorbid conditions, such as cardiovascular disease, musculoskeletal disorders, diabetes, and COPD, is a risk factor that can exacerbate cognitive decline.

Elderly individuals with a BMI  $\geq 25$  kg/m<sup>2</sup> had a mean BMI of  $21.84 \pm 2.58$  kg/m<sup>2</sup>, with a wide range from 15.56 to 28.64 kg/m<sup>2</sup>. This value was lower than that reported by Nguyen Thuy Linh (2023) at Tuyet Thai Elderly Care Center, Hanoi, with a mean BMI of  $21.90 \pm 2.76$  kg/m<sup>2</sup>. However, it was higher than the mean BMI of  $21.70 \pm 3.3$  kg/m<sup>2</sup> reported by Tran Phuong Thao (2021) among elderly individuals in four hospitals in Hanoi<sup>8</sup>. This indicates that elderly individuals with multiple chronic diseases who require hospitalization have a lower prevalence of overweight and obesity compared to community-dwelling elderly. The prevalence of high waist circumference was 52%, with a mean waist circumference of  $78.35 \pm 8.16$  cm, comparable to the findings of Nguyen Thuy Linh (2023), but lower than that reported by Janice L. Atkins et al. (2014), with a mean waist circumference of  $94.20 \pm 5.50$  cm<sup>9</sup>. This difference may be due to the lower mean age in our study and variations in the characteristics of the study populations across different geographic regions.

Among non-communicable chronic diseases, the prevalence of cardiovascular and musculoskeletal diseases differed significantly across age groups ( $p < 0.05$ ). Cardiovascular disease (CVD) refers to disorders of the heart and blood vessels, including hypertension, stroke, coronary artery disease, heart failure, and peripheral vascular disease. The prevalence of CVD was 82.8% in participants over 70 years old, significantly higher than in the 60–69 age

group. These findings are consistent with most studies conducted in Vietnam and other countries. The prevalence of musculoskeletal disorders (such as osteoarthritis, osteoporosis, and back pain) was highest in the 70–79 age group (48.4%). At this age, joint degeneration, bone loss, and muscle weakness are exacerbated by natural aging, hormonal changes, and a sedentary lifestyle. Additionally, comorbid conditions such as cardiovascular disease, diabetes, and obesity further contribute to the progression of musculoskeletal disorders.

In our study, the majority of elderly residents at the center were dependent in basic activities of daily living (ADL), accounting for 95%. This rate is substantially higher than in community-based studies, indicating that nursing home residents are a vulnerable group with lower self-care ability. This may reflect the characteristics of institutionalized elderly, who often receive limited home care and have multiple chronic conditions. High dependency is largely driven by the burden of chronic diseases, particularly neuropsychiatric disorders with cognitive impairment, cardiovascular diseases, and musculoskeletal disorders, which limit mobility and cause chronic pain.

## V. CONCLUSION

The study showed that 59% of elderly individuals had three or more non-communicable chronic diseases. Mental disorders with cognitive impairment were the most prevalent (76%), commonly observed in those aged 70 and above (73.6%). Musculoskeletal and cardiovascular diseases followed, with prevalence rates of 68% and 58%, respectively, and differed significantly across age groups ( $p < 0.05$ ). Cardiovascular disease was most common in the 70–79 and



≥80 age groups (43.1% and 39.7%), while musculoskeletal disorders were highest in the 70–79 age group (48.4%). The prevalence of BMI ≥ 25 kg/m<sup>2</sup> was 30%, and 52% had high waist circumference, both being risk factors for metabolic disorders. Regarding basic activities of daily living (ADL), 95% of residents were dependent, with 14% partially dependent and 81% completely dependent.

## VI. RECOMMENDATION

To prevent non-communicable diseases and improve basic activities of daily living (ADL) function among the elderly, it is recommended to enhance screening and management of multiple chronic conditions for elderly individuals in the community and at elderly care centers.

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