ORIGINAL ARTICLES

Factors associated with depression among the elderly living in Chuong My district, Ha Noi, 2019

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ABSTRACT

Background: Population aging is one of the most important trends of the 21st century. Evidence shows an increase in morbidity, hospitalization, mortality, and functional impairment associated with mental disorders in the elderly, in which depressive disorder is one of the most common mental disorders.

Objectives: This study aims to 1) describe the situation of depression and 2) analyze some associated factors in the elderly with depression in Chuong My district, Ha Noi, 2019.

Methods: A cross-sectional study was conducted on 376 elderly people (aged 60 years and older) who were randomly selected in Chuong My district, Ha Noi, 2019.

Results: The results show that the prevalence of elderly people with depression was 26.1% (18.6% of mild depression, 6.1% of moderate depression and 2.4% of severe depression). Factors associated with depression in the elderly including gender, education level, family economy, living arrangement, current job, the need for psychological support and participation in social activities were statistically significant ($p< 0.05$).

Conclusion: Recognizing depression among the elderly is crucial to help us design public health programs. Proper screening for early depression, enhancing social supports and increasing accessibility to the mental health services may improve the mental life of the elderly.

Key words: *depression, elderly people, PHQ-9*

BACKGROUND

Population aging is one of the most important trends of the 21st century that has been challenges for each country on social, economic and health aspects, including Viet Nam. More and more elderly people are suffering from losing their ability to live independently because of limited mobility, frailty or other physical or mental health problems, which require some form of long-term care. Evidence shows an increase in morbidity, hospitalization, mortality, and functional impairment associated with mental disorders in the elderly (1), in which depressive disorder is one of the most common mental disorders, with the prevalence ranging from 17.2% to 86% (2–10), especially in nursing houses. At least 20% of elderly people suffer from a mental or neurological disorder and

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these disorders account for 17.4% of their Years Lived with Disability (YLD). The most common presentation of mental and neurological disorders in this age group is depression, which affects approximately 7% of the world's elderly population (11). Depression is not a normal part of aging, rather it is a true and treatable medical condition, but older adults are still at an increased risk for experiencing depression. Depression symptoms in the elderly are often under-estimated because they occur at the same time with other common health problems (12).

In Viet Nam, those people aged 60 years or older are defined as elderly people. The burden of disease from neurological and mental illness is measured by years of life lost, mainly due to a disability, with depression making up 17% of the burden in Viet Nam (13). In Ha Noi, a previous research has documented that the prevalence of depression among older people living in urban areas was 66.9% (14). Meanwhile, in findings of another recent study among older people residing in a rural setting, there were 26.4% of participants at risk for depression (9). For females, those with lower education levels and economic difficulties were found with a higher risk for depression (9,15).

To the best of our knowledge, despite the increase attention on mental health in elderly population in Viet Nam, there are still limited studies around the prevalence of depression among this population, particularly in rural areas. As it is essential to pay devoted attention to the mental health of older people, this study aims to provide the powerful evidence about the prevalence of depression and its associated factors among the elderly living in Chuong My district, Ha Noi, 2019.

METHODS

Study design and setting

This cross-sectional study was conducted from July to October 2019 in Chuong My district – a rural district located in the West of Ha Noi, the capital city of Viet Nam.

Study participants

The study participants were the elderly people (aged 60 years and older) who had been living for the last 12 months in Chuong My district and were able to understand and answer questions.

Sample size, sampling and data collection methods

The sample size was calculated based on the formula for estimating a population proportion. The required sample size was 380 participants. A total of 376 elderly people (aged 60 years and older) agreed to participate in the study showing the response rate of 98.9%.

The two-stage sampling technique was employed: (1) Selected randomly 2 communes from a list of 33 communes divided in two groups of income (high and low income). As a result, Dai Yen and Tot Dong communes were included in the study; (2) 190 older adults were chosen randomly in each commune. Then, all elderly people were invited to participate in a face-to-face interview.

Measurements

A structured questionnaire was developed with the following parts of information:

Socioeconomic information: Seven demographic questions including age, religion, education

level, employment status, marital status, family member, and economic status for both genders; one question about the health seeking behavior over the last 12 months; one question about the desire for psychological support and one question about the social activity participation.

Depression status: The Patient Health Questionnaire (PHQ-9) was used to assess the mental health status of elderly people. It comprises nine items which cover major depressive symptoms in the previous 2 weeks. Each item of the PHQ-9 is rated on a 4-point scale, ranging from 0 (not at all) to 3 (nearly every day). The total score of PHQ-9 ranges from 0 to 27. A cut-off score of 10 or higher is identified as high-risk with the recommendation to refer for further diagnosis of depression by a psychotherapist. In details, the depression level is categorized as follows: (1) score 5-9: Minimal symptoms, risk of depression; (2) score 10-14: Mild depression; (3) score 15-19: Moderate depression and (4) score 20-27: Severe depression.

Data analysis and statistical methods

Raw data were entered using Epidata 3.1 software and analysed using STATA software, (version 14.0, Stata Corp. LP, College Station, TX, USA). *T*-test and Chi-square test were employed to measure the difference in demographic characteristics, depressive symptoms amongst elderly people with and without depressive symptoms. Multivariable logistic regression was used to identify factors associated with the depression status and PHQ-9 score among respondents. P-value less than 0.05 was used to define statistical significance.

Ethical considerations

The ethical approval of our study was obtained from the Hanoi University of Public Health Ethics Committee in Viet Nam (Decision No. 406/2019/YTCC-HD3). Participants' information was completely kept confidential and only served for the study purposes. Participants' involvement was voluntary without any incentives.

RESULTS

Sociodemographic characteristics of respondents

Table 1 illustrates sociodemographic characteristics of 376 elderly people living in Chuong My district, Ha Noi (33.5% male and 66.5% female). The mean age of study participants was 71.6 (SD=7.9) with the proportion of people aged 70 years or older was 52.7%. The majority of respondents were non-religious, while those who were Catholics accounted for only 5.1%. Most respondents obtained under-high school education (85.9%), in which the proportion of illiteracy was 13.8%. The study also shows a statistically significant difference between the respondent's education levels by gender ($p = 0.004$).

In terms of the marital status, 75.5% of the elderly were married, 22.3% widowed, and the remainder never married or divorced. Differences in marital status by gender were statistically significant ($p = 0.000$). In addition, the majority of respondents were living together with the family and relatives (93.1%), and this rate was higher among men ($p < 0.05$).

About current employment status, 50.3% of respondents were still working, and the percentage was quite similar in both genders (51.6% male and 49.6% female). In addition, most respondents had a non-poor household economic status (94.4%)

Table 1: Sociodemographic characteristics of respondents (N=376)

Factors	Total n (%)	Male n (%)	Female n (%)	p-value
Total	376 (100)	126 (33.5)	250 (66.5)	
Mean ± SD (age)	71.6 ± 7.9			
Age group				
60-69	178 (47.3)	63 (50)	115 (46)	0.46
70-95	198 (52.7)	63 (50)	135 (54)	
Religion				
Non-religious	293 (77.9)	100 (79.4)	193 (77.2)	0.63
Religious	83 (22.1)	26 (20.6)	57 (22.8)	
Education level				
Below High school	323 (85.9)	99 (78.6)	224 (89.6)	**0.004**
High school and higher	53 (14.1)	27 (21.4)	26 (10.4)	
Marital status				
Never married/Divorced/Widowed	92 (24.5)	7 (5.6)	85 (34.0)	**0.000**
Married	284 (75.5)	119 (94.4)	165 (66.0)	
Occupation				
Unemployment	187 (49.7)	61 (48.4)	126 (50.4)	0.72
Employment	189 (50.3)	65 (51.6)	124 (49.6)	
Living arrangement				
Living alone	26 (6.9)	4 (3.2)	22 (8.8)	**0.042**
Living with family members	350 (93.1)	122 (96.8)	228 (91.2)	
Household economic status				
Poor/near poor	25 (6.6)	7 (5.6)	18 (7.2)	0.55
Non-poor	351 (93.4)	119 (94.4)	232 (92.8)	

Prevalence of depression among the elderly in Chuong My district

The assessment of depression levels among the elderly using the PHQ-9 scale is illustrated in ***Table 2***. The prevalence of depression was 26.1% (of which 18.6% was mild depression, 6.1% moderate depression and 2.4% severe depression). If respondents with minimal depression symptoms are included, the proportion may reach 66.2%. In particular, the female respondents were much higher at risk of depression than male respondents in all levels of depression.

Table 2: Depression levels of respondents measured by PHQ-9 scale (N=376)

Depression level	Total		Male		Female	
	N	%	n	%	n	%
No depression (Score 0-4)	127	33.8	62	49.2	65	26
Minimal depression (Score 5-9)	151	40.2	46	36.5	105	42.0
Mild depression (Score10-14)	70	18.6	14	11.1	56	22.4
Moderate depression (Score 15-19)	19	5.0	3	2.4	16	6.4
Severe depression (Score >19)	9	2.4	1	0.8	8	3.2

Factors associated with depression among elderly people

Table 3 shows several associated factors to depression among the elderly, including:

Gender: The female was at a higher risk of depression then the male with OR = 2.82 (1.58-5.03), and the difference was significant with p = 0.0002.

Education level: Elderly people who had higher education levels were much less likely to develop depressive symptoms, OR = 3.88 (1.48-10.2). The difference was significant with p = 0.003.

Household economic status: The rate of depression in the elderly poor or near-poor group was 3.39 times higher than that of the elderly group with non-poor household economic status, and the difference was statistically significant with p = 0.002.

Living arrangement: The rate of depression in the elderly group living alone was 6.3 times higher than that of the elderly group living with family members or relatives, and the relation is statistically significant with p <0.001.

Occupation: The elderly who were not working were identified as having a higher depression level than that of the elderly group who were working with OR = 1.87 (1.17-3.02), and the difference was statistically significant with p. = 0.008.

Desire for psychological support: The elderly who were looking for psychological support had a higher rate of depression than that of the other elderly people with OR = 2.39 (1.48-3.85). The difference was statistically significant with p <0.001.

Access to health care services in the last 12 months: The rate of depression in the elderly who have been given health care services in the past 12 months was 3.72 times higher than that in the other group. The difference was statistically significant with p = 0.01.

Participating in social activities: Participation in social activities in later life was significantly associated with fewer depressive symptoms among the elderly with OR = 1.89 (1.17-3.02), and the difference was statistically significant with p <0.01.

Then, we continued to conduct Multivariable logistic regression analysis with the output variable as depression. The results show a significant Multivariable model with the following variables of gender,

current household economic status, living conditions, expectation of psychological support, health examination and treatment in the last 12 months. They are significantly related to depression in the elderly in Chuong My district.

Table 3. Factors associated with depression among elderly people (N=376)

Characteristics		Depression	Logistic regression		Multivariable logistic regression	
			OR	**p (95% CI)**	**OR**	**p (95% CI)**
Gender	Male	18 (14.3)				
	Female	80 (32.0)	**2.82**	**0.0002** (1.58–5.03)	**2.72**	**0.006 (0.25-1.51)**
Age group	60-69	41 (23.0)				
	70-95	57 (28.8)	1.35	0.2 (0.85-2.15)	-	-
Education level	Below high school	5 (9.43)				
	High school and higher	93 (28.8)	**3.88**	**0.003** (1.48-10.2)	**2.29**	**0.02 (0.18-2.34)**
Religion	Non-religious	72 (24.6)				
	Religious	26 (31.3)	1.4	0.21 (0.82-2.39)	-	-
Household economic status	Normal	85 (24.2)				
	Poor/near poor	13 (52)	**3.39**	**0.002** (1.47-7.8)	**2.62**	**0.009 (0.32-2.24)**
Marital status	Married	68 (23.9)				
	Never married/ Divorced/ Widowed	30 (32.6)	1.54	0.1 (0.92-2.68)	-	-
Living arrangement	Living with family member	81 (23.1)				
	Living alone	17 (65.4)	**6.3**	**0.000** (2.62-15.0)	**4.32**	**0.000 (1.3-3.46)**
Occupation	Employment	38 (20.1)				
	Unemployment	60 (32.9)	**1.87**	**0.008** (1.17-3.02)	**-**	**-**
Desire to access psychological services	No	43 (19.2)				
	Yes	55 (36.18)	**2.39**	**0.0002 (1.48-3.85)**	**3.54**	**0.000 (0.44-1.53)**

Characteristics		Depression	Logistic regression		Multivariable logistic regression	
			OR	**p (95% CI)**	**OR**	**p (95% CI)**
Health seeking behavior in the last 12 months	No	4 (9.52)				
	Yes	94 (28.14)	**3.72**	**0.01 (1.27-10.8)**	**2.48**	**0.01 (0.29-2.54)**
Participating in social activities	Yes	57 (32.6)				
	No	41 (20.4)	**1.89**	**0.007 (1.17-3.02)**	**-**	**-**

Multivariable logistic regression model: N=376. $\chi 2=77.4$. p=0.0000

DISCUSSION

Prevalence of depression among the elderly in Chuong My, Ha Noi

Our study highlights the status of depression among elderly people in Chuong My district and explores several associated factors. The prevalence of depression among elderly people was 26.1%. This finding is similar to another study using the Geriatric Depression Scale-4 items (GDS-4) for elderly adults living in another rural district in Ha Noi (9) but higher than that of a 2005 study (17.2%) in rural Viet Nam (10). Meanwhile, compared to other countries, our result is much higher than the prevalence of depression among elderly population in Thailand (18.5%) (16) but lower than that in other similar settings, including Guangzhou, China (27.5%) (17), Tamil Nadu (35.5%) (18), Egypt (39.3%) (19), Maharashtra (41.7%) (20) and China (30.0%) (21). The variations could be due to differences in social culture, sample size, screening tools, and cut-off point. Our findings suggest the urgent call for public awareness and an early depression screening strategy for elderly people in Viet Nam.

Factors associated with depression among the elderly in Chuong My, Ha Noi

Our study show that the female was at a higher risk of depression, which is completely similar to the study on gender differences in the level of depression of elderly conducted in Kien Xuong, Thai Binh, 2013 (22). Our finding is well aligned with other studies in Viet Nam (9,15) and other countries (7,16,18,19,23).

Living with family members and/or relatives also associated with depression status of the elderly in our study. Another study in India also shows that living conditions are related to mental health in the elderly, in which a higher prevalence of depression among older women, as well as single-parent families was found (20). Besides, a study in China indicates that the elderly living with their wife/husband had higher social activity and emotion indicators compared to the elderly living alone (19). Of note, it could be explained that interactions with family members can promote the value of the

elderly and have a protective role for mental health among the elderly.

Many studies point out that people with a history of depression or anxiety are related to the desire of psychological support. Depression levels are also associated with poor physical health and anxiety disorders. Especially the more symptoms are found, the more psychological care is needed (24-26). A similar pattern was found in our study that the elderly having desire of psychological support, and health seeking behavior in the last 12 months had a higher risk of depression ($p < 0.01$).

On the other side, social activity participation played a protective role against depressive symptoms among the older adults in our study. Previous studies show that participation in social activities in later life was significantly associated with fewer depressive symptoms among the elderly (21, 27, 28). Our study also reaffirms that older persons who were not working and did not participate in social activities had a higher rate of depression than the rest. Thus, social interaction and participating in social activities among older adults will improve not only their mental health but life satisfaction as well.

CONCLUSION

To sum up, the prevalence of depression among elderly adults in Chuong My district was 26.1% (of which, 18.6% of mild depression, 6.1% of moderate depression and 2.4% of severe depression).

On the other hand, based on the associated factors as mentioned in this study, our research emphasizes several key areas for improving mental health among the elderly. Interventions to improve elderly supports from family members/relatives and their social interaction and social activity participation are highly suggested. In addition, appropriate intervention programs are necessary to improve the awareness and attitudes of the elderly towards positive behaviors. Gender, education level, household economic status, health examination over the past 12 months will be indicators for authorities (health care centers, the local elderly association) for monitoring and household visit. In addition, proper screening strategy to early detect depression is crucial rather than the diagnosis at a later stage, which contributes to alleviating the burden of disease for the patients' families and the society.

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