

Prevalence and Factors Associated with Depression among Elderly in San Ton Kok Village, Chiang Rai, Thailand

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ABSTRACT

Introduction: Depression is an important public health concern due to its devastating morbidity and mortality among elderly. **Objectives:** The study aimed to estimate the prevalence of and factors associated with depression among elderly in San Ton Kok Village, Chiang Rai Province, Thailand. **Methods:** An analytic cross-sectional study was conducted at San Ton Kok village, Chiang Rai Province, during the period of September to November in 2018. People aged 60 years or above were randomly selected into the study. A validated questionnaire and the PHQ-9 were used to collect information from participants and to assess a depressive symptoms. Logistic regression was used to determine the associations between variables at $\alpha=0.05$. **Results:** A total of 72 participants were recruited into the study; 62.5% were female, and 61.1% were aged 60-69 years. The prevalence of depression was 16.6%. The multivariable logistic regression model revealed that marital status (AOR = 5.33; 95%CI = 1.20-23.61) was found to be associated with depression among elderly. **Conclusion:** Elderly without partner needs to be regularly screened and provided a proper care to reduce the suffering from depression.

Keywords: Depression, Elderly, Prevalence, factors, Thailand

Introduction

Depression is a common and serious mental illness that effects negative impact on how people feel, the way people think and how people act, but it can be treatable. Depression may cause feelings of sadness and loss of interest in activities. It can lead to a variety of emotional problems and can decrease a person's ability to function. Symptoms of depression includes feeling sad or having a depressed mood, loss of interest, trouble sleeping, feeling worthless, difficult thinking, and people who have severe symptom may think of death or suicide. The symptoms must be presented for at least two weeks before being diagnosis of depression [1]. At a global level, there were estimated over 300 million people who lived with depression, or equal 4.4% of the world's population in 2017. Depression was the leading cause of disability worldwide, and contributes to the global burden of disease. The prevalence of depression was greater among females than males. At its severe impact, depression can lead to suicide and there are almost 800,000 people died due to suicide every year [2].

The prevalence of depression is increasing every year, particularly in lower-income countries. In 2017, depressive symptom was found the highest in Southeast Asia (SEA) Region for 27.0% or about 85.67

million people. In the region of SEA, Thailand was the second rank of the high prevalence of depression which accounted for 4.4% or 2.88 million of the population [3], and the rate of completed suicide was reported at 6.03 per 100,000 population [3]. The northern part of Thailand was reported the highest rate of suicide which was 10.88 per 100,000 population. Mae Hong Son, Lampang, Chiang Mai, Nan, and Chiang Rai Provinces were reported from the highest to the lowest rates of suicide, respectively. Moreover, 60.0% of completed suicide was led by depression [4].

Depression is one of a key public mental health concerns among the elderly population in the community. In a study conducted in Chiang Rai Province, it was found that the prevalence of depression at 38.9% among 1,049 participants [5]. In 2013, San Ton Kok village was reported 2 cases the elderly who completed suicide [6]. The study aimed to estimate the prevalence of and identify the factors associated with depression among elderly in San Ton Kok Village, Chiang Rai Province, Thailand.

Methodology

Study design

Analytic cross-sectional study design was conducted to estimate the prevalence and to identify

the factors associated with depression among the elderly people. The duration of the study was 2 months, between 18 September and 18 November 2018.

Study setting

The study was conducted at San Ton Kok Village, Chiang Rai Chiang Rai Province, Thailand.

Study population

All the elderly who aged 60 years and over, and lived in the study setting at least 12 months prior the survey date were met the inclusion criteria for the study.

Study sample

Elderly who were diagnosed by a physician as having severe cognitive impairment, experiencing psychotic disorder, and unable to communicate were excluded from the study. There were 132 elderly aged 60 years or over in San Ton Kok Village in 2018. The sample size was calculated by the Krejcie and Morgan formula [7], it needed at least 70 samples for the analysis.

Research instruments

Questionnaire was developed and used to collect information from the participants such as age, sex, marital status, education, having chronic illness, employment status, smoking and alcohol use behaviors. The questionnaire was tested for its reliability and validity by piloting among 10 subjects who had similar characteristics with the study population. The Cronbach's alpha coefficient was found at 0.84.

Detection of depression of the participants was assessed by using PHQ-2 and PHQ-9. The PHQ-2 is the first 2 questions to assess the possibility of having depression problem, and followed by the PHQ-9. Using the two tools for assessing depression has effectively screening depression particularly the elderly population.

Participants answered "yes" in one of the two questions in PHQ-2, were re-assessed by PHQ-9. The PHQ 9 is a high validated questionnaire to review the 9-key symptoms of depression based on the DSM diagnostic criteria for the major depression. This tool has contained 9-items, and each items is possible to be scored 4-scale (0=symptom absent to 3=severe symptoms). Then, those who scored > 7 or higher were defined as depression [8]. The Thai version of the PHQ-9 has been detected its internal consistency (Cronbach's alpha = 0.79)[9].

Data collection

Data were collected by door-to-door survey and verbal consent was obtained from all participants after completely description about the purpose and process of the study. Each interview lasted 10 minutes.

Data analysis

Data were double-entered into excel spreadsheet. All analyses were operated by using the statistical package of the social science (SPSS) version 20 (IBM, Armonk, NY). Descriptive statistics were used for explaining the general characteristics of the participants. The associations between variables were detected by logistic regression at the significance level of $\alpha = 0.05$.

Ethical consideration

All study tools and procedures were followed the Declaration of Helsinki. Verbal consent for all participants was obtained before the study commenced, after explaining to them in all aspects of the study. All participants were assured that their participation was fully voluntary, that they could stop participating the study in anytime without any adverse consequences. Data obtained were treated as confidential.

Results

Table 1 General characteristics of participants (n = 72)

Characteristics	n	%
Sex		
Male	27	37.5
Female	45	62.5
Age (years)		
60-69	44	61.1
70-79	19	26.4
≥ 80	9	12.5
Marital status		
Married	45	62.5
Widowed	17	23.6
Divorce	8	11.1
Separated	2	2.8
Education		
Illiterate	21	29.2
Primary education	51	71.8
Chronic illness		
Yes	57	79.1
No	15	20.9
Employment status		
Employed	28	38.9
Unemployed	44	61.1
Smoking		
Yes	7	9.7
No	65	90.3
Alcohol use		
Yes	20	27.8
No	52	72.2
Depression (PHQ9)		
Yes	12	16.6
No	60	83.4

A total of 72 elderly were enrolled into this study; 62.5% were female, 61.1% were aged 60-69 years, 62.5% were married or live with their partners, 70.8% graduated in the primary school, and 61.1% were unemployed. 79.1% had one or more chronic diseases, 9.7% smoked, and 27.8% used alcohol. The prevalence of depression was 16.6% (Table 1).

In the univariate analysis, only marital status was found to be associated with depression (OR = 4.3; 95% CI = 1.16-16.12). While other factors such as sex, age, education level, having underlying disease, employment status, smoking and drinking behaviors were not found to be significantly associated with depression.

Table 2 Univariate analysis of factors associated depression among elderly.

Factors	Depression n (%)	Non-depression n (%)	Total	Crude OR (95% CI)	p-value
Gender					
Male	5 (6.9%)	22 (30.6%)	27	1.23 (0.35-4.36)	0.744
Female	7 (9.7%)	38 (52.8%)	45	1.00	
Age (years)					
< 80	10 (13.9%)	53 (73.6%)	63	1.51 (0.27-8.38)	0.634
≥ 80	2 (2.8%)	7 (9.7%)	9	1.00	
Marital status					
No partner	8 (11.1%)	19 (26.4%)	27	4.32 (1.16-16.12)	0.030*
With partner	4 (5.6%)	41 (56.9%)	45	1.00	
Education level					
Illiterate	3 (4.2%)	18 (25.0%)	25	0.78 (0.19-3.21)	0.728
Primary education	9 (12.5%)	42 (58.3%)	51	1.00	
Underlying disease					
Yes	10 (13.9%)	47 (65.2%)	57	1.138 (0.27-7.11)	0.698
No	2 (2.8%)	13 (18.1%)	15	1.00	
Employment status					
Employed	4 (5.6%)	24 (33.3%)	28	0.75 (0.20-2.77)	0.666
Unemployed	8 (11.1%)	36 (50.0%)	44	1.00	
Smoking					
Yes	2 (2.8%)	5 (6.9%)	7	2.20 (0.37-12.95)	0.383
No	10 (13.9%)	55 (76.4%)	65	1.00	
Alcohol drinking					
Yes	5 (6.9%)	15 (20.9%)	20	2.14 (0.59-7.77)	0.246
No	7 (9.7%)	45 (62.5%)	52	1.00	

* Significant level at $\alpha \leq 0.05$

After controlling for all potential confounder variables such as sex, age, education level, having underlying disease, smoking and alcohol use behaviors, marital status was only a factor to be found statistically associated with depression. In other words, elderly

who were in the stage of widowed, divorced, separated, or did not live with their partners had a greater chance to develop depression than those married status with 5.33 times (95% CI = 1.2-23.61) (Table 3).

Table 3 Multivariate analysis of factors associated with depression among elderly

Factor	Depression n (%)	Non-depression n (%)	Total	Adjusted OR (95% CI)	p-value
Sex					
Male	5 (6.9%)	22 (30.6%)	27	0.30 (0.02-5.64)	0.744
Female	7 (9.7%)	38 (52.8%)	45	1.00	
Age (years)					
< 80	10 (13.9%)	53 (73.6%)	63	0.42 (0.56-3.36)	0.422
≥ 80	2 (2.8%)	7 (9.7%)	9	1.00	
Marital status					
No partner	8 (11.1%)	19 (26.4%)	27	5.33 (1.20-23.61)	0.028*
With partner	4 (5.6%)	41 (56.9%)	45	1.00	
Educational					

Factor	Depression n (%)	Non-depression n (%)	Total	Adjusted OR (95% CI)	p-value
Illiterate	3 (4.2%)	18 (25.0%)	21	0.10 (0.19-4.30)	0.902
Primary education	9 (12.5%)	42 (58.3%)	51	1.00	
Underlying disease					
Yes	10 (13.9%)	47 (65.2%)	57	1.30 (0.22-7.78)	0.771
No	2 (2.8%)	13 (18.1%)	15	1.00	
Employment status					
Employed	4 (5.6%)	24 (33.3%)	28	0.75 (0.20-2.77)	0.307
Unemployed	8 (11.1%)	36 (50.0%)	44	1.00	
Smoking					
Yes	2 (2.8%)	5 (6.9%)	7	1.07 (0.11-10.88)	0.956
No	10 (13.9%)	55 (76.4%)	65	1.00	
Alcohol drinking					
Yes	5 (6.9%)	15 (20.9%)	20	14.56 (0.55-383.59)	0.109
No	7 (9.7%)	45 (62.5%)	52	1.00	

* Significant level at $\alpha \leq 0.05$

Discussion

Several studies have reported that the prevalence of depression among the elderly living in a community in Thailand were vary from 12.0% to 43%. A study conducted in Bangkok, presented that the prevalence was 43.1% [10], while 25.6% were reported from the urban of Prachuap Khiri Khan Province [11], 14.39% in the urban of Chiang Mai Province [12], 21.6% in a southern population of Thailand [13]], and 12.5% in the rural of Phra Nakhon Si Ayutthaya Province[14]. The differences of the prevalence from different studies could be led by the tool used [15].

Regarding the multiple model, marital status is only the factor that found to be associated with depression among the elderly. Some previous studies showed the similar finding, the elderly with disturbed marital life were susceptible to depression compared to those elderly who lived with their partners. This might be they lost the supported person in their life and lost the skill to cope the problem then become depression.

Dependence of the elderly on their spouse increases as they age. Death of a spouse renders them vulnerable to mental stress. Indeed, widowhood has been found to be strongly associated with depression in several instances [16]. Loneliness and depression [17] [18] [19]. This may be attributed to sensation of loneliness and lack of social support. Loneliness as a natural part of aging was tied to loss of friends and family, usually through death or abandonment and loneliness as a precursor to depression [20]. However, there were also some studies found no association between marital status and depression [21]. This may be the difference of social context, population characteristic and measurement tools [15].

The results show no association between gender and depression. This agrees with the study of Kokler and Heun[22] which reported that the atypical or the somatic subtype of depression between male and female elderly were not influenced by gender difference like younger population because the

perception or the expression of depression might be influenced by biological or psychological factors like gender role or coping style.

The results show no association between age and depression. This similar with the study of [22] which reported that advanced age among the elderly were not a risk factor for depression because many factors can be prevented the depression in elderly such as decrease income, physical disability, and social support.

This study found that there was no association between employment status and depression. Some studies showed the similar results that no association between employment status and depression [23] [24] while some studies found the depression higher in elderly who were unemployed [17] [16] because the activities could improve the spirit, mood and had positive effect on mental well-being and social relation.

Conclusion

The elderly people in San Ton Kok village are facing depression problem particularly those who are living alone. With the conditions of poor economic and low education including a high rate in use some kind of substances, then the elderly in the rural area of Thailand are needed to be screened for depression and given a proper method to address depression. This should be concerned in all stakeholders both government and non-government agencies to cooperate for reducing the problem effectively.

Limitations

There are some limitations in this study. Samples were collected from one community which might not be generalized for all elderly populations, it provides a snapshot of the risk profile of those with depression. The participants may incur some recall and reporting bias. However, the participants were requested to think carefully and answer as honestly as possible. Some variables such as income, family history of depression,

and social support were not considered in this analysis. It should be included in the next study.

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