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Prevalence and Factors Affecting Depression of the Elderly: A Cross-Sectional Study in Thailand

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Abstract

This research was designed as a cross-sectional analysis to investigate the prevalence of depression among the elderly population in the Isan subdistrict, Mueang district, Buriram province. The objective of the study was to evaluate the impact of fundamental factors (gender, average age, chronic diseases, basic daily activity abilities, and body mass index) on the incidence of depression among the elderly in the region. The sample size was calculated from EPI INFO, determined via a stratified random sampling method, and consisted of 144 elderly individuals. The data collection process took place from December 2021 to April 2022, and involved the use of a general information questionnaire and a depression assessment form specifically designed for the elderly. The data were analyzed using descriptive statistics, univariate analysis, and multivariate analysis. The results showed that 1) the overall prevalence of depression was 16.67%, with males having a higher incidence (21.43%) compared to females (14%), and 2) one factor that was found to have a statistically significant association with depression was body mass index. Specifically, depression was found to be more prevalent among elderly individuals with normal weight, at 4.29 times the rate compared to obese individuals (OR = 4.29, 95% CI = 1.07–17.26). However, no statistically significant relationship was found between depression and other factors when analyzed using multivariate analysis. These findings can be used to develop programs for the education, monitoring, and prevention of depression and its complications among the elderly in the community.

Keywords: prevalence, depression, elderly individuals

Introduction

At present, the global population is exhibiting a consistent upward trend, increasing from 6070.6 million in 2000 to 7851.4 million in the next 25 years; in other words, in 2025. This significantly impacts the demographic structure of the elderly population (aged 60 and above), with the proportion of elderly individuals increasing from 10.0% in 2000 to 15.0% in 2025. Thai elderly individuals have a comparatively high life expectancy, ranking third among ASEAN nations (Situation of the Thai Elderly, 2016, 2017, p. 34). In Thailand's total population of 65.9 million, there are approximately 11 million individuals aged 60 and over, constituting 16.5% of the population. The elderly population increases at a rate of 5% per year, while the population aged 80 and over increases at an even higher rate of over 6% annually. It is predicted that in the year 2025, there will be over 20% of the elderly population, which represents a completely aging society. This leads to significant problems arising from an aging society, namely the "burden of elderly dependency." The elderly in Thailand have a burden rate of 16.3%, and have become a top-level aging society (Situation of the Thai Elderly, 2016, 2017, p. 3). At present, older individuals commonly experience health problems, such as depression at a rate of 15.14%, cognitive decline at a rate of 34.50%, an increase in the incidence of falls at a rate of 20.87%, incontinence at a rate of 25.00%, cognitive impairment at a rate of 2.98%, a feeling of poor health at a rate of 13.50%, and a presence of chronic illnesses or conditions at a rate of 54.9%. Additionally, difficulties in performing daily activities are reported at a rate of 15.5% (Situation of the Thai Elderly, 2016, 2017, p. 58). These symptoms are classified as age-related health issues. It is, therefore, necessary to quickly prepare for the situation of an aging population. Elderly individuals are in a stage of aging in which physical changes occur, leading to various health problems, such as decreased immunity, memory impairments, chronic diseases, and various co-morbidities. In addition, there are changes in emotions, mental health, and social aspects, including a loss of roles and a lack of care and attention, which can lead to stress, discomfort, and unhappiness. If the elderly are unable to adapt to these changes, they may develop depression (Intarangkul, 2017, p. 7).

Depression is a condition that has a far-reaching impact on various aspects of life, both in terms of direct and indirect losses. For example, the cost of medical treatment, the decline in the ability of the elderly to carry out various activities, the loss of social support, and, in severe cases, the possibility of suicide. The elderly are generally more susceptible to chronic illnesses and are less able to take care of themselves, thus requiring

understanding and support from their families and society. Depression is an abnormal emotional or mental state characterized by feelings of sadness, boredom, hopelessness, a loss of interest in food, weight loss, insomnia, and other symptoms that are commonly found in the elderly population (Intarangkul, 2015, p. 4). According to a report from the World Health Organization (WHO), depression is projected to be a significant problem in the year 2020 and is ranked as the second leading cause of illness among individuals, following cardiovascular disease and stroke. Additionally, depression is found to be the fourth leading cause of health loss among women and the tenth among men in Thailand (International Health Policy Program, 2012). In 2017, a significant increase of 18% in the prevalence of depression was observed among patients in the period between 2005 and 2015, which was attributed to the changing global population and the increasing number of elderly individuals. Moreover, the occurrence of depression was also found to be high in the elderly population (WHO, 2017).

Based on the demographic data of the elderly population residing in Isan subdistrict, Mueang district, Buriram province, it was found that there were a total of 11,153 people. There were 1,384 elderly individuals, comprising 17.40% of the population, who suffered from chronic diseases. Only 17.55% were able to independently care for themselves, while 5.71% were unable to. The elderly population in question resides in both urban and rural areas with different socio-economic conditions. There are disparities in access to healthcare services, due to limitations in mobility and awareness of their rights, as well as a high prevalence of depression, which may stem from changes in living arrangements and increased dependency on family members. The number of elderly individuals living with children or in nursing homes is also increasing. As a result of declining involvement in various daily activities, older individuals may experience a decrease in their perceived self-worth, become a burden for their descendants, and be at risk for depression. The incidence of depression in chronically ill older individuals has also been found to increase. As a result, researchers have taken an interest in investigating the prevalence and factors influencing depression in the elderly: a cross-sectional study in Thailand, with the goal of using the gathered data as a foundation for developing comprehensive care systems for the elderly. This involves a comprehensive policy of supporting elderly individuals that aims to provide care, maintenance, promotion, prevention, and continuous monitoring to prevent and control the occurrence of depression among elderly individuals in the community, leading to a better quality of life and normal and healthy living for the elderly.

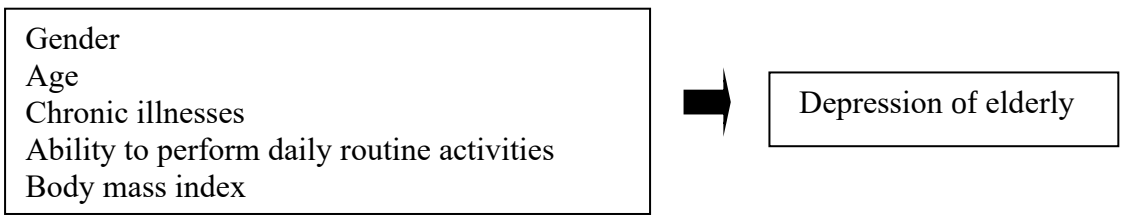
Research Objectives

1. To examine the prevalence of depression among elderly individuals in Isan subdistrict, Mueang district, Buriram province.
2. To study the impact of fundamental factors (gender, average age, chronic illness, basic daily living ability, and body mass index) on the prevalence of depression in elderly individuals in Isan subdistrict, Mueang district, Buriram province.

Research Scope

This study examined the prevalence of depression and fundamental factors such as gender, average age, chronic disease, basic daily activity capacity, and body mass index, which affected the incidence of depression among the elderly living in Isan Sub-district, Mueang District, Buriram Province. The duration of the study was from December 2021 to April 2022, totaling five months. The primary variables were sex, average age, chronic disease, ability to perform basic daily activities, and body mass index; and the dependent variable was the depression of the elderly.

Picture 1 Conceptual Framework



Methodology

Research Design

This research is a cross-sectional study.

Population and Sampling Group

The population in this research consists of individuals aged 60 years and above who participated in community activities, are mentally and communicatively competent, and expressed interest in participating in the study. This group of elderly individuals is socially active and resides in the Isan subdistrict, Mueang district,

Buriram province, totaling 514 people out of a population of 1,384 elderly individuals in the population registry. A sample of 144 individuals was selected from this population using the EPI INFO program to calculate the population size and stratified random sampling.

Research Tools

The interview tool used for data collection is an assessment tool for depression in elderly individuals developed by the Department of Medical Services, Ministry of Public Health. The revised version has been utilized in various other regions nationwide and has been deemed credible. The tool consists of two parts: Part 1 encompasses fundamental factors such as gender, average age, chronic diseases, daily living abilities, and body mass index. Part 2 is the depression assessment for elderly individuals, which evaluates their feelings over the past week through 30 questions. The score is calculated as follows: 0-12 points, no depression; 13-18 points, mild depression; 19-24 points, moderate depression; and 25-30 points, severe depression.

Data Analysis

The use of EPI INFO and SPSS software was utilized in the statistical analysis of data, including 1) descriptive statistics, such as frequency, percentage, mean, standard deviation, median, and mode, to describe the individual factors; and 2) univariate analysis, which was presented as prevalence odd ratio (95% CI), and multivariate analysis, which was presented as adjust odd ratio (95% CI)

Results

1. Individual Factors

It was found that 29.17% of the elderly population sample was male and 70.83% was female. The age group was primarily 60–80 years old, followed by 81–90 years old and 91–100 years old, with respective percentages of 75%, 20.83%, and 4.17. Most of them completed primary education at the early stage, 34.72%, followed by those who completed it at the later stage, 31.94%. The largest proportion of individuals who did not have a job was 77.78%, followed by those in sales with 11.11%. In terms of financial status, the largest proportion of individuals had no income, (63.19%), followed by those with an income of less than 5,000 Thai baht per month, (19.44%). In terms of health insurance, the largest proportion of individuals were found to have full coverage, with 59.03%, followed by those who used the government health scheme, with 31.25%. The most commonly observed health behavior was exercise, with 57.46%, followed by alcohol consumption, with 13.89%, and smoking, with 7.64%. The most prevalent chronic condition is hypertension, accounting for 61.81%, followed by other conditions at 31.94%. In addition, the most commonly used medication currently is anti-hypertensive drugs, with a usage rate of 56.25%, followed by other medication groups with 30.56%.

Table 1
Prevalence of depression among elderly individuals in Isan Sub-district, Mueang District, Buriram Province

Symptoms	Gender	Elderly with depression	Elderly	Prevalence
Depression	Male	9	42	21.43
	Female	15	102	14.71
	Total	**24**	**144**	**16.67**

According to Table 1, the prevalence of depression among elderly individuals is equal to 16.67% of the total elderly individuals studied. It was found that elderly males have a higher prevalence of depression compared to elderly females, with a prevalence rate of 21.43% among elderly males studied and 14.71% among elderly females studied.

Table 2
Assessment of the daily activities ability of elderly individuals in the Isan Sub-district, Muang District, Buriram Province

Gender	No.	Assist oneself effectively	Percentage	Assist oneself moderately	Percentage	Assist oneself minimally and not at all	Percentage
Male	42	40	95.24	2	4.76	0	0.00
Female	102	85	83.33	17	16.67	0	0.00
Total	**144**	**125**	**100**	**19**	**100**	**0**	**0.00**

According to Table 2, it was found that the majority of the elderly population are females who still possess the ability to carry out daily activities and are capable of effectively assisting themselves, at 83.33 %. A moderate level of self-assistance was found in 16.67 %. On the other hand, the male population with the capability to carry out daily activities is capable of effectively assisting themselves at 95.24 %, with a moderate level of self-assistance found at 4.76 %.

Table 3
A comparison of the fundamental factors with the depression status of the elderly population in Isan Sub-district, Mueang District, Buriram Province, using univariate analysis

Factors	No.		Odd Ratio	95 % CI
	Has depression symptoms	Does not have depression symptoms		
Gender				
Male	9	33	1.58	0.63-3.96
Female	15	87	1	Ref
Age				
70-80 years old	20	88	2.04	0.56 -7.41
81-90 years old	3	27	1	Ref
91-100 years old	1	5	2.12	0.52-8.59
Chronic illness				
Has a chronic illness	19	100	0.76	0.25 - 2.27
Does not have a chronic illness	5	20	1	Ref
Ability to perform daily routine activities				
Has difficulty in self-assisting	3	16	0.93	0.25-3.47
Is able to self-assist	21	104	1	Ref
Body mass index factor				
Underweight	3	12	2.92	0.52-16.44
Normal weight	12	40	3.50	0.91-13.42
Overweight	3	35	1	Ref
obese	6	33	2.12	0.49-9.18

According to Table 3, it was found that the prevalence of depression among elderly individuals was 1.58 times higher in males than in females (OR=1.58, 95%CI=0.63-3.96). Depression was found to be 2.04 times more prevalent in elderly individuals aged 70-80 years compared to those aged 81-90 years (OR=2.04, 95%CI=0.56-7.41), and 2.12 times more prevalent in elderly individuals aged 91-100 years compared to those aged 81-90 years (OR=2.12, 95%CI=0.52-8.59). Depression was found in older individuals with chronic illnesses at 0.76 times the rate of those without chronic illnesses (OR=0.76, 95%CI=0.25-2.27). Depression was found in older individuals with difficulty in self-care in basic daily activities at 0.93 times the rate of those with the ability to perform basic daily activities (OR=0.93, 95%CI=0.25-3.47). In terms of body mass index, it was found to have a depression status in older adults with a body mass index below normal, which was 2.92 times higher in older adults with a body mass index in the normal weight range (OR = 2.92, 95%CI = 0.52-16.44). Depression was found in older adults with a body mass index in the normal weight range at 3.50 times higher in those with a body mass index in the overweight range (OR = 3.50, 95%CI = 0.91-13.42), and depression was found in older adults with a body mass index in the obese range at 2.12 times higher in those with a body mass index in the overweight range (OR = 2.12, 95%CI = 0.49-9.18).

Table 4
Relationship between fundamental factors and the prevalence of depression among elderly individuals in the Isan Sub-district, Muang District, Buriram Province, as analyzed through a multivariate analysis approach

Factors	Odd Ratio (95% CI) (Reference)	Adjusted odd ratio (95% CI)(Reference)
Gender		
Male	1.58 (0.63-3.96)	1.83 (0.68 – 4.90)
Female	1 (Ref)	1 (Ref)
Age		

70-80	2.04 (0.56-7.41)	3.43 (0.83-14.17)
81-90	2.12 (0.52-8.59)	1.24 (0.10-14.87)
91-100	1 (Ref)	1 (Ref)
Chronic illness		
Has a chronic illness	0.76 (0.25-2.27)	0.62 (0.18-2.06)
Does not have a chronic illness	1 (Ref)	1 (Ref)
Ability to perform daily routine activities		
Abnormal self-care abilities	0.93 (0.25-3.47)	1.08 (0.26-4.56)
Assist oneself effectively	1 (Ref)	1 (Ref)
Body mass index factor		
Underweight	2.92 (0.52-16.44)	4.37 (0.70-27.11)
Normal weight	3.50 (0.91-13.42)	4.29 (1.07-17.26)*
Overweight	2.12 (0.49-9.18)	2.12 (0.48 –9.33)
obese	1 (Ref)	1 (Ref)

From Table 4, it was found that the factors influencing the occurrence of depression among elderly individuals were body mass index and had a statistically significant relationship. Specifically, the prevalence of depression among elderly individuals with a normal weight was 4.29 times higher compared to those with obesity, with a statistically significant odds ratio of 4.29 (95% CI=1.07-17.26). Other factors had no statistically significant relationship when analyzed using multivariate analysis.

Discussions

This research is a cross-sectional analytical study aimed at exploring the prevalence of depression and the underlying factors (gender, age, chronic diseases, basic daily living abilities, and body mass index) in elderly individuals in Isan Sub-district, Mueang District, Buriram Province. Data were analyzed using descriptive statistics, univariate analysis, and multivariate analysis, and it was found that

Individual Factors (gender, age, chronic diseases, basic daily living abilities, and body mass index)

The study sample group was predominantly female, with 70.83% of the participants being female and 29.17% being male. The age group with the most participants was between 70-80 years old, followed by the 81-90 years old and 91-100 years old groups, with proportions of 75.00%, 20.83%, and 4.17% respectively. It was found that the age group with the highest frequency of occurrences was the 70-80-year-old group. The most prevalent chronic condition among the participants was hypertension, accounting for 61.81% of the cases, followed by other chronic conditions with a proportion of 31.94%. The next in line were diabetes, bone and joint, heart, eye, blood deficiency, kidney, and hearing abnormalities, accounting for 20.83%, 15.28%, 11.11%, 4.86%, 3.47%, and 3.47% respectively. The majority of the elderly individuals still engage in alcohol consumption, 13.89%, smoking, 7.64%, and the most commonly used medication was for blood pressure reduction, 56.25%, followed by other medication groups, 30.56% (cholesterol reduction, diabetes, cardiovascular system, pain management for bones and muscles, sedatives, and anti-depressants, accounting for 23.61%, 22.92%, 20.14%, 20.14%, 6.94%, 0.69%, and 0.69% respectively).

The ability to perform daily activities was found to be higher in females, with 83.33% being able to assist themselves well, and 16.67% being able to assist themselves moderately. Males who still had the ability to perform daily activities were found to be able to assist themselves well at a rate of 95.24%, with 4.76% being able to assist themselves moderately. Elderly individuals who experienced difficulties in assisting themselves and had concurrent symptoms of depression constituted 16.8%, while elderly individuals who were able to assist themselves and had concurrent symptoms of depression constituted 15.79%. The majority of elderly individuals suffer from chronic diseases, have habits of smoking and drinking, and have limited ability to assist themselves, leading to physical, mental, and emotional health problems.

And it was found that among elderly individuals with a lower body mass index (BMI) than normal and concurrently suffering from depression, 21.23% were observed. Among those with normal BMI and concurrent depression, 23.08% were present. Among those with high BMI and concurrent depression, 7.89% were present. Finally, among those with obese BMI and concurrent depression, 15.38% were observed.

2. The relationship between the fundamental factors and their impact on depression in older individuals.

It was found that the prevalence of depression among the elderly in Isan subdistrict, Mueang district, Buriram province was 16.67%. The prevalence of depression among male elders was higher than that among

female elders, with 21.43% of male elders and 14.71% of female elders who participated in the study reporting symptoms of depression.

Gender The present study found that the depression among elderly male individuals is 1.58 times higher than that of elderly female individuals, and this finding is statistically insignificant (OR=1.58, 95%CI=0.63-3.96). This is consistent with the findings of the Mental Health Department, which indicate that when men experience depression, they have a higher chance of successfully completing suicide compared to females. Thus, measures to prevent depression should be taken, however, this finding does not align with the studies on the prevalence of depression in Thailand by Kongsuk et al., (n.d.) which found that females have a higher prevalence of depression compared to males.

AgeThe present study found that the majority of elderly individuals with depression were found in the age range of 70–80 years, accounting for 2.04 times the number of elderly individuals aged 81–90 years old with no statistically significant difference (OR = 2.04, 95% CI = 0.5–7.41). The presence of depression was also found in elderly individuals aged 91–100 years, accounting for 2.12 times the number of those aged 81–90 years, with no statistically significant difference (OR = 2.12, 95% CI = 0.52–8.59). These findings are inconsistent with the study of Tanjanai (1993), which stated that the age range of 62–76 years is the most common among elderly individuals with depression and is statistically significantly associated with the onset of depression. However, they are consistent with the study of Unkaew et al. (2015) that studied the prevalence of depression among the elderly in the responsibility area of Tam Ban Phrao Health Promoting Hospital, Muang district, Nong Bua Lamphu province. The majority of the elderly in this study were aged 70–79 years, which is the mid-elderly stage in which the physical body experiences a continuous decline. Furthermore, this group of elderly individuals is mostly homebound and has limited ability to care for themselves, along with cognitive decline. The aforementioned changes can lead to stress and may increase the likelihood of depression.

Chronic illness The study found that in elderly individuals with chronic illness, the prevalence of depression was 0.76 times that of those without chronic illness, with no statistically significant difference (OR=0.76, 95%CI=0.25-2.27). This is inconsistent with the study by Wood NF et al. (2002) and the findings that there is a statistically significant relationship between chronic illness and depression in women over 65 years of age. Furthermore, it does not align with the study of Vetrano AL (2004), which found that chronic illness does not have a relationship with depression in the elderly population, including depressive symptoms. This lack of a significant relationship was due to the absence of a statistically significant correlation. However, in accordance with the study of Boonlert (2016), which investigated the prevalence and factors associated with depression among elderly individuals with chronic illnesses in the Triangular Area of Khon Kaen Province, it was found that elderly individuals with chronic illnesses who took more than two types of medication had higher levels of stress related to disease management and anxiety about taking medication, leading to depression. This aligns with the findings of Yotkol (2012), who studied the predictors of depression among elderly individuals with chronic illnesses receiving treatment in Buriram hospital. It was found that functional ability in daily activities and the number of comorbidities were related to the depression of elderly individuals with chronic illnesses.

Body mass index The study found that there is a significant impact of body mass index on the incidence of depression. Specifically, the incidence of depression was found to be 4.29 times higher in the elderly with normal weight compared to those with obesity, as defined by statistical significance (OR = 4.29, 95% CI = 1.07–17.26). Upon conducting a multivariate analysis, it was found that other factors were not statistically significant in their relationship with depression. In essence, elderly individuals with a low body mass index have a 2.92 times higher likelihood of having depression compared to those with a normal body mass index (OR = 2.92, 95% CI = 0.52–16.44), and there is a 3.50 times higher likelihood of finding elderly individuals with a normal body mass index having depression compared to those with an overweight body mass index (OR = 3.50, 95% CI = 0.91–13.42), which is not in line with the study of Ahmadi (2015), which found that older adults with depression have a 1.45 times higher likelihood of being overweight compared to those with a normal weight (OR 1.45, 95% CI 0.63 – 3.32).

The ability to perform daily living activities The present study found that elderly individuals with difficulties in self-care in daily living activities have a 0.93-fold higher risk of depression compared to those with normal ability to perform such activities (OR = 0.93, 95% CI = 0.25–3.47). This is inconsistent with the research of Lee (1994) that found a significant statistical correlation ($P < 0.05$) between daily living ability and depression in the elderly population. Depression in older patients is a crucial mental health issue, with symptoms of depression frequently observed in this population, leading to health impairments and causing difficulties in various daily activities, causing a significant burden on the caretakers. Therefore, it is necessary to give it due attention to reduce the risk of depression in the future.

Recommendation

1. From the research results, it can be seen that the prevalence of depression in the elderly is 16.67%. Males have a higher prevalence of depression than females by 1.58 times, and one of the underlying factors that contributes to depression is body mass index. Depression was found in elderly people who have a normal weight 4.29 times compared to those who are overweight, which is statistically significant. Therefore, there should be screening, monitoring, and prevention of complications from depression in the elderly.

2. To impart knowledge about depression to elderly individuals, their relatives, as well as the general public, and to promote prevention among the elderly population that is at risk of developing depression, with the aim of reducing the burden of depression in elderly individuals in the future.

3. Promote behavior change in the high-risk group and find ways to prevent the progression of severe diseases. For example, regularly taking medication, consuming a balanced diet, exercising, taking adequate rest, regularly visiting a doctor for monitoring, and promoting community participation and family involvement for the elderly and general public.

4. A semi-experimental research design should be employed with the goal of predicting the risk of depression among older adults, by taking into consideration various factors such as family cohesion, community involvement, and income level to design activities aimed at reducing the risk factors for depression. Older adults should actively participate in the process planning and decision-making that leads to process implementation.

Research Ethics

This study was approved by the Research Ethics Committee, Buriram Provincial Public Health Office (certificate number BRO 2021-019, dated November 25, 2021). The researcher has stated the research objectives and expected benefits, as well as the research procedures and data collection methods, including data confidentiality and usage for the purpose of this study only. Information will be presented in aggregated form. Participants were informed and provided their consent to participate in the study prior to data collection. The researcher considered the privacy and autonomy of participants, and respected their decision-making rights. Participants had the right to withdraw from the study at any time.

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