Prevalence of Depression among a Population Aged over 45 Years in Chiang Mai, Thailand

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Objective: *To determine the prevalence of depression in Thai people of 45 years and over.*
Material and Method: *The presented project was a cross sectional study on the prevalence of depression and cognitive impairment in Chiang Mai. Door-to-door interview technique was assigned in condition with multi-stage probability random sampling to obtain subjects that represent a population of Chiang Mai. The research was conducted between October 2004 and September 2005. Data were collected on subject that were 45 years old and over. All subjects were selected from all districts in Chiang Mai. Thai Mini Mental State Examination (TMSE) and Thai Beck Depression Inventory (BDI) were used as the assessment tool. If the subjects had a TMSE score less than 24 points, it was assumed as a cognitive impairment.*
Results: *One thousand four hundred ninety two people, 610 males and 882 females, were enrolled in the present study. Their mean age was 59.7 $\pm$ 10.4 years (45-88 year). The prevalence of depression only was 29.2%, the prevalence of cognitive impairment only was 5.63% and the prevalence of cognitive impairment with depression was 3.96%. The prevalence of depression increased with age.*
Conclusion: *The prevalence of depression in Thai people of 45 years and over was 29.2% and increased with age.*

Keywords: *Prevalence, Depression, Cognitive impairment*

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Depression is undoubtedly a common and serious disorder[1] that is with significant impairment in physical and social function[2]. That effect can reduce the quality of life and increase both morbidity and mortality[3], as a consequence related to suicide, accident[4], stroke[5], cancer[6], dementia[7], and coronary heart disease[8], although, it was the major cause of disability[3,9]. The economic burdens on society arise not only from the direct health and social care cost but also from the indirect costs[10], so it is an important problem for public health[2].

Epidemiological studies indicate significant evidence the depressive disorder with lifetime prevalence of depression in general population varies from 17-25%[11], most common in females[11]. Depression can occur at any period of age but almost regularly begins in individuals between the ages of 20 to 45[12]. In Thailand, previous studies designated the prevalence of depression in the elderly[13,14] was 24.1% while the depression in cognitive impairment was 32.8%[15]. From this data, the reflection of depression is a common problem in the Thai elderly especially in the elderly with cognitive impairment.

In northern Thailand, none of the data about the prevalence of depression exists. Social factors probably affect the prevalence of depression in each area. The present study surveyed the prevalence of depression in Chiang Mai and assumes the subjects of this study as the population of northern region. The samples of the present study were people of 45 years and over because this age period always goes undetected or misdiagnosed. If they received appropriate treatment and management, it can promote their quality of life and reduce morbidity and mortality.

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Material and Method

The population of the present study was based on a cross section random sampling of people in Chiang Mai. The present study was conducted between October 2004 and September 2005. The research criteria were Thai people who lived in Chiang Mai both male and female who were able to read and write. Their ages must be 45 years and over and no history of psychological or mental problem.

Stratified multi-stage random sampling for primary unit was done. Stage 1 arranged the group area at the district level, stage 2 at the sub-districts and stage 3 at the community level. The three stages involved random survey samples based on door-to-door interview technique to collect data from the secondary unit. In this research, all districts in Chiang Mai were surveyed.

Thai Beck Depression Inventory (BDI)[16] and Thai Mini Mental State Examination (TMSE)[17] were demonstrated in order to screen depression and cognitive impairment respectively. Cut off point of TMSE was standardized at score less than 24 and data analyzed with descriptive statistic.

Sample size was calculated from the table of "the determining sample size for research activities" by Krejcie and Morgan. This study needed a minimum of 417 samples

Results

In 2004, populations which aged 45 years and above in Chiang Mai were 522,858; 254,380 males and 268,478 females. The sample sizes of the present study were 2,311 but 819 subjects could not read and write. So, the samples were 1,492; 610 males and 882 females. The basic data of subjects were shown in Table 1. Depression was common in female (male and female was 1:1.45), mean age 59.7 $\pm$ 10.4 years, age range from 45 to 88 years old. The results were as follows (Table 2).

1. The prevalence of depression and cognitive impairment
   - Depression only 29.2%
   - Depression with cognitive impairment 3.96%
   - Cognitive impairment without depression 5.6%

   Prevalence in the subject's age 60 years and over group
   - Depression only 31.6%
   - Depression with cognitive impairment 5.96%
   - Cognitive impairment without depression 8.1%

2. Mean age of depression and cognitive impairment
   - Depression only 61.2 $\pm$ 10.9 years
   - Depression with cognitive impairment 66.9 $\pm$ 10.9 years
   - Cognitive impairment without depression 65.1 $\pm$ 10.8 years

3. Mild to moderate depression was the largest group at 74.0%, followed with the severe depression group at 14.4%

4. The prevalence of depression increased with age (Fig. 1)

Discussion

The prevalence of depression was 29.2% and in age group 60 years and over it was 31.6%. It was higher than the previous study, age group 60 years and over, in Thailand that was 24.1%[15]. Meanwhile, the prevalence of cognitive impairment without depression, cognitive impairment with depression were 8.1% and 5.96%. It was slightly higher than the past study that found 5.49% and 4.55%[18]. The different results were explained by the allocation of subjects, variety of

Table 1. Basic data of the subjects

Variable	Frequency	Percent
Sex		
Male	610	40.9
Female	882	59.1
Age		
45-49	306	20.5
50-54	276	18.5
55-59	204	13.7
60-64	206	13.8
65-69	172	11.5
$\geq$ 70	328	22.0
Occupation		
Employee	419	28.1
Agriculture	346	23.2
Business	243	16.3
Un-employed	432	28.9
Official	52	3.5
Marital status		
Single	54	3.6
Married	1,116	74.8
Widowed/divorced	322	21.6
Education		
Primary	1,361	91.2
High school	96	6.5
Pre-university	12	0.8
Tertiary	23	1.5

Table 2. Prevalence rate of depression subjects in Chiang Mai

Subject	Number	Prevalence (%)		Total	Sex		Mean age (year)
		Male	Female		Male (%)	Female (%)	
Subjects	1,492				610 (40.9)	882 (59.1)	59.7 ± 10.4
Depression	435	25.40	31.80	29.20	155 (35.6)	280 (64.4)	61.2 ± 10.9
Cognitive impairment without depression	84	6.56	4.99	5.63	40 (47.6)	44 (52.4)	65.1 ± 10.8
Cognitive impairment with depression	59	4.92	3.29	3.96	30 (50.8)	29 (40.2)	66.9 ± 11.0

- Prevalence of depression in Chiang Mai = 29.2
- Prevalence of cognitive impairment (without depression) = 5.63
- Prevalence of depression with cognitive impairment = 3.96
- Prevalence of depression and depression with cognitive impairment = 33.2

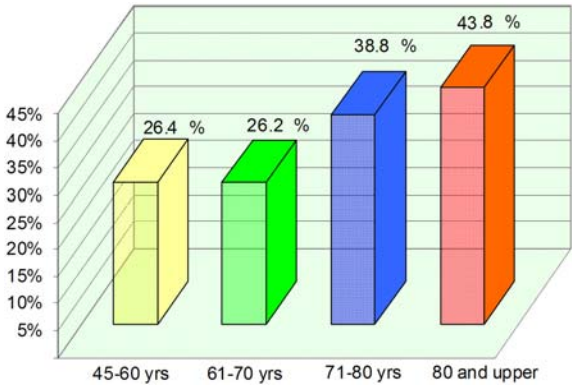

Fig. 1 Age groups and depression of Chiang Mai population

instruments (self-report scale and interviewer's rating scale), staff (psychiatric and non-psychiatric), and other factors such as a vegetative state and hypothyroidism.

The participant's age 45 years and over were screened by the Thai Beck Depression Inventory (BDI) for depression signs. A comparison of assessment tool among Beck Depression Inventory (BDI), Thai Geriatric Depression Scale (TGDS), and Health-Related Self Report (HRSR) was done. Beck Depression Inventory (BDI) has reliability and sensitivity for depression in all age groups but the Thai Geriatric Depression Scale (TGDS) was only validly used in the elderly group (age more than 60 years old). Otherwise, Health-Related Self Report (HRSR) was used in the age range from 15 to 60 years old[19].

The TMSE cutoff point 23 or below from the total score of 30 was used for TMSE criteria score because it revealed high sensitively (93.88%) and specificity (84.16%)[20].

The prevalence of depression in females was higher than males. The difference of gender have too many depression-related phenomena. Therefore, it is not well understood but probably related to a combination of biological and genetic factors including the hormone changes from menstrual state, pregnancy, being postpartum, and menopause as well as from the stress from working life, family responsibility, and social roles[21].

The prevalence of depression increased with age. The elderly may have illness more often than other age groups. The illnesses were medical illness[22] such as diabetes mellitus and hypertension, and neurological illness such as cerebrovascular disease, Parkinson disease, and dementia. Some of the elderly took more drugs such as antihypertension drugs, hypnotic drug, and antihistamine, the side effects of which can cause depression. Social factors were important factors that affect depression such as retirement, loss of a partner, or loss of friends.

The prevalence of depression may have increased if the survey included the illiterate or low educational group[23]. However, in the present study, the illiterates were excluded. From the criteria of the present study, the samples had to be able to read and write to complete the self-assessment test by themselves. If the present study included the illiterates, more staff and time would have been needed to collect the data.

Depression is a treatable condition that may have pre-symptoms and risk factors of dementia. In case of depression, all the subjects must be having

cognitive functional evaluation, especially in the elderly[24]. However, the executive functional assessment in the impairment of cognition for depression case was limited[25]. On the contracy, the evaluation of depression in cognitive impairment should be done because pseudodementia symptoms can be found from depression and particularly in major depression disorder (MDD)[26], it will ensure the diagnosis.

In addition to the present study, the average age in the depression group was lower than the cognitive impairment without depression group. From the present study, it can be assumed that depression was a pre-symptom of dementia that was consistent with Gatz JL et al[27] and Jean L et al[24].

Early detection and appropriate treatment for depression might decrease the incidence of dementia[24]. On the other hand, cognitive impairment without depression group should be continuously evaluated for depression diagnosis. Deal to their malfunction, an idea to detect depressive persons in early diagnosis and in adequate treatment must be noticed, they as well as response to select serotonin reuptake inhibitor (SSRI)[28].

Both depression and cognitive impairment are public health problems and need early detection and early proper treatment.

Conclusion

In the present study, the prevalence of depression in Chiang Mai was 29.2% and found in females more than males. Average age of the depression group was lower than the cognitive impairment without depression group. Depression might be a pre-symptom that leads to cognitive impairment.

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ความชุกของภาวะซึมเศร้าในกลุ่มประชากรจังหวัดเชียงใหม่ ที่มีอายุตั้งแต่ 45 ปีขึ้นไป

ศุภรัศม์ วังทองคำ, พงศกร สุจริตกุล, ศรีวรรณา วงฆ์เจริญ, สุทิน มณีชมภู

วัตถุประสงค์: *เพื่อศึกษาความชุกของภาวะซึมเศร้า และขบวนการเรียนรู้ และความเข้าใจในประสาทการรับรู้บกพร่องในประชาชนเชียงใหม่ที่มีอายุตั้งแต่ 45 ปี*

วัสดุและวิธีการ: *เป็นการศึกษาแบบตัดขวางเพื่อศึกษาถึงความชุกของภาวะซึมเศร้า และขบวนการเรียนรู้และความเข้าใจในการรับรู้บกพร่องในจังหวัดเชียงใหม่ โดยใช้การเก็บข้อมูลแบบเคาะประตูบ้าน และเลือกสุ่มกลุ่มตัวอย่างจากความน่าจะเป็น แบบหลากหลายเพื่อให้ได้กลุ่มตัวอย่างที่เป็นตัวแทนของกลุ่มประชากรของจังหวัดเชียงใหม่ โดยศึกษาตั้งแต่ ตุลาคม พ.ศ. 2547 ถึง กันยายน พ.ศ. 2548 และทำการศึกษาในประชากรกลุ่มตัวอย่างอายุตั้งแต่ 45 ปีขึ้นไป ทุกอำเภอของจังหวัดเชียงใหม่โดย คัดกรองเบื้องต้นด้วยแบบทดสอบสมรรถภาพสมองไทย (TMSE) และแบบทดสอบภาวะความซึมเศร้าในคนไทย (Thai Beck Depression Inventory; BDI) และกลุ่มตัวอย่างที่มีคะแนนของแบบทดสอบสมรรถภาพสมองไทย < 24 คะแนน ถือว่ามีปัญหาของขบวนการเรียนรู้ และความเข้าใจในการรับรู้บกพร่อง*

ผลการศึกษา: *การศึกษานี้ได้รวบรวมข้อมูลจากประชากร 2,311 ราย กลุ่มตัวอย่าง 819 รายถูกคัดเลือกออกเนื่องจากมีปัญหา การอ่านออก เขียนได้ คงเหลือกลุ่มตัวอย่าง ที่มีคุณสมบัติ 1,492 ราย แบ่งเป็น เพศชาย 819 ราย และหญิง 882 ราย อายุเฉลี่ย 59.7 $\pm$ 10.4 ปี โดยพบความชุกของภาวะซึมเศร้า 29.20% ความชุกของขบวนการเรียนรู้และความเข้าใจในการรับรู้บกพร่อง 5.63% และความชุกของภาวะซึมเศร้า ร่วมกับมีขบวนการเรียนรู้และความเข้าใจ ในประสาทการรับรู้บกพร่อง 3.96% ความชุกของภาวะซึมเศร้าเพิ่มขึ้นตามอายุที่เพิ่มขึ้น*

สรุป: *ความชุกของภาวะซึมเศร้าในกลุ่มประชากรอายุตั้งแต่ 45 ปี ขึ้นไปพบได้ 29.2% ซึ่งสูงกว่าการศึกษาที่เคยมีผู้ทำไว้เล็กน้อย และความชุกนี้จะเพิ่มขึ้นตามอายุของกลุ่มประชากร*