FACTORS INFLUENCING DEPRESSION AMONG ELDERLY IN BAN BANGKHAE NURSING HOMES, BANGKOK, THAILAND AFTER FLOODING

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ABSTRACT: Depression is the most common mental health disorder, a disease that involves the body, mood and thoughts. It is often under diagnosed, especially among elderly people in the nursing home setting. The objective of this study was to determine the prevalence of depression and identify factors associated with depression among the elderly people in the nursing home setting, Bangkok, Thailand. Cross-sectional study was conducted among 237 participants above the age of 60 at Ban Bangkhae nursing homes; Bangkok Thailand. The measurement tools consisted of Thai Geriatric Depression Scale, UCLA Loneliness Scale (ULS) and other related questionnaires. Multivariable linear regression was used to determine factors predictive of depressive symptoms and factors with statistical significant of each analysis against the p-value 0.05. The study revealed that the prevalence of major depression was 7.2% and the prevalence of minor depression was 32.1%. Insomnia, loneliness, lack of social activity, physical activity and inadequate vitamin D were found to be the prominent factors with depressive symptoms among Ban Bangkhae nursing homes setting. Unforeseen flooding natural disaster from October and December 2011 may overestimate the true prevalence of depression is limitation of this study. This findings indicate that the prevalence of depressive symptoms in this study was 39.1% high in comparing to the findings in Thai community dwelling elderly. Insomnia, loneliness, lack of social activity, physical activity and inadequate vitamin D were identified as important factors to emphasize when assessing for depression in the nursing home setting. This could be assisted in developing adequate prevention and treatment strategies among the elderly in the nursing home population.

Keywords: Depression, Thai Geriatric Depression Scale (TGDS), Elderly, Ban Bangkhae, Nursing Homes, Thailand

INTRODUCTION

In Thailand, aging population is on the rise; living arrangement has shifted toward smaller family structure, along with urbanization, and socio-economic changes [1]. Unlike many Western cultures, in Thailand it is deeply ingrained for adult children to support and care for their elderly parents. There has been a 19% decline the past 21 years in elderly living with their children. Living in special institutional residences for the aged, including nursing homes, is very rare, "many [believe] that the residents in these homes lacked freedom of movement and thus equated them with prisons" [2]. Currently, the finding suggested the consequence of mortality change have had a great impact on elderly living arrangements. Due to this impact, Thai elderly will likely to face several challenges of living transition to other long term institutes other than their own homes or children' home, as well as emotional challenges of absence of family intimacy which may result in depressive symptoms.

Depression and the behavioral symptoms associated with dementia are two of the most significant mental health issues for nursing home residents [3]. However, in Thailand, there are not sufficient studies highlighting factors influencing depression among the elderly, especially, in nursing homes and long-term care settings. The study objective was to determine the prevalence and which factors associated with depression among the elderly in Ban Bangkhae nursing home, Bangkok, Thailand.

MATERIALS AND METHODS

A cross-sectional study was conducted from February-May 2012 in Ban Bangkhae nursing homes in Bangkok, Thailand. The interviewers were trained on interviewing techniques. The structured questionnaire consisted of two parts. Part 1 consisted of socio-demographic and part 2 consisted of the Thai Geriatric Depression Scale

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(TGDS-30) [4] and factors associated with depression. TGDS has been used as the measurement tool for depressive symptoms, and recommended for use in the nursing home population.

Loneliness was measured using 10 items UCLA Loneliness Scale [5]. As recommended, the cut-off score of 20 was used to distinguish between lonely and not lonely. Chronic illness was measured using a questionnaire concerning question whether or not their physical illness were diagnosed by physicians. Insomnia symptoms was measured by DSM-IV insomnia questionnaires where participants must answer, "occasionally or always" on two or more items.

Physical activity was measured according to the three questions concerning participants engaged in any physical activity for at least 30 minutes or more twice a week [6].

Social Activity was measured according to Ban Bangkhae schedule activities; to distinguish between enjoyments and lack of social activity.

Vitamin D deficiency was measured according to following questionnaires: time of the participants' outdoor activity (Vitamin D from the natural sunlight) and type of clothing and vitamin D supplements. Data was analyzed using SPSS; a correlation matrix was employed to identify association between continuous variables associated with depression. Independent samples T-Test was carried out to compare the categorical variables associated with depression. Then a Multivariable analysis was carried out for all factors, β and *p-value* were calculated to determine the significance with statistical significant of each analysis against the p-value 0.05.

The study protocol was performed in accordance to the Ethical Committee of Chulalongkorn University. All participants signed an informed consent document.

RESULTS

The source population for this study consisted of 2 nursing homes N =389 residents, of these, 237 participants were finally included in this study. Table 1 shows Socio-Demographic: The majority of the participants were female 198 (83.5%). The overall mean age of the respondents was 78 years with a standard deviation of 7.7 years, married (40.9%), primary education (52.3%), no children (55.7%), residence at Ban Bangkhae for more than 1 year (87.8%), no income (68.8%), and not sufficient income (48.6%). The chronic illnesses included: hypertension, diabetes mellitus, and physical disabilities. The prevalence for TGDS Scores> 9 was estimated at 39.3% according to the diagnostic categories. The prevalence of depression was 32.1% for minor depression 7.2% for major depression (Table 2). Multivariable linear regression analysis, all independent variable whose values are less than or equal *p value* ≤ 0.15 were included in Table 3. The results of insomnia, loneliness, enjoy social activity, physical activity and lack of vitamin D factors remained statistically significant with depression. The adjusted overall R Square is 0.413, (F value is 33.873 p value <0.001) and the Durbin-Watson is 1.746. Insomnia ($\beta = 1.85$, $P< 0.002$), Loneliness ($\beta = 0.54$, $P< 0.001$), physical activity ($\beta = -1.46$, $P< 0.021$) Inadequate of Vitamin D ($\beta = -1.45$, $P< 0.014$) and Lack Social Activity ($\beta = -0.39$, $P< 0.001$) associated with depression where β is the regression coefficient.

Table 1 Socio-demographic data of Ban Bangkhae nursing homes (N = 237)

Socio-demographic	(n)	%
Age Groups		
60-69	36	15.2
70-79	94	39.7
80-89	90	38.0
90+	17	7.2
Gender		
Male	39	16.5
Female	198	83.5
Marital Status		
Single	89	37.6
Married	97	40.9
Divorced	19	8.0
Widowed	32	13.5
Level of Education		
No Education	60	25.3
Primary School	124	52.3
Secondary School	40	16.9
Bachelor's Degree or Higher	13	5.5
Length of stay		
≤ 6 months	29	12.2
≤ 1 year+	208	87.8
Income		
No	163	68.8
Yes	74	31.2
Income Sufficiency		
Not sufficient	36	48.6
Sufficient/no saving	23	31.1
Sufficient/saving	15	20.2

Table 2 The prevalence of depression at Ban Bangkhae nursing homes (N = 237)

Dependent Factors	(n)	%
Normal (score 0-9)	144	60.7
Minor depression (score 10-19)	76	32.1
Major depression (score 20-30)	17	7.2

Table 3 Multivariable linear regression analysis for factors with Depression (N=237)

Variables	*(ß)*	*(SE)*	*p-value*
Constant	5.55	1.49	0.000
Loneliness	0.54	0.60	<0.001
Lack Social Activity	-0.39	0.08	<0.001
Physical Activity	-1.46	0.63	0.021
Inadequate Vitamin D	-1.45	0.59	0.014
Insomnia	1.85	0.59	0.002

The final model for this study:

$$Y = 5.55 + 0.546 \text{ x}_{\text{loneliness}} + 1.85 \text{ X}_{\text{Insomnia}} - 0.39 \text{ X}_{\text{Social Activity}} - 1.45 \text{ x}_{\text{Inadequate of Vitamin D}} - 1.46 \text{ x}_{\text{Physical Activity}}$$

DISCUSSION

This study investigated the prevalence and factors influencing depression among elderly in Ban Bangkhae nursing homes in Bangkok district, Thailand. The results are in accordance with the current literature indicating a high prevalence (44%) of depression among the institutionalized elderly [7] and even higher among Asian cultures 52.05% [8]. Remarkably, none of the socio-demographic variables were significantly associated with depression. In this study, depression was significantly correlated with symptom of insomnia, loneliness, physical activity, inadequate vitamin D and lack social activity, Insomnia was a robust factor for depressive symptoms in this study. Sleep disturbance is common and has been reported among elderly people [9]. In accordance to the longitudinal study on the elderly in Japan, the prevalence of depression was found higher among the patients who have sleep disturbance [10]. In this study, approximately more than half of the elderly participants reported having sleep disturbance due to frequent visits to the bathroom among their roommates and feeling of numbness and pain during their sleep. In this result, we also cannot distinguish the patterns of bidirectional relationship between insomnia symptoms and depressive symptoms.

As people age, they experienced losses and disconnection from loved ones. In this study, the results loneliness was one of the major factors associated with depressive symptoms. Similarly, a cohort in a prospective 2-years follow up study in Singapore among the elderly, loneliness was a more robust predictor of GDS score than living arrangement [11]. Previous studies and the current study all signify the importance of relationships, i.e., depression is a problem that often accompanies loneliness [12]. Within this study, it was observed that the majority number of elderly participants lost contact with family members or loved ones. Over 55.7% do not have any children and 7.6% who do have more than 3 children have the highest prevalence of depression. This suggested that the absence of intimate relationship and expectation from loved ones may contribute to the intense feeling of emptiness and abandonment, which may result in depressive symptoms [13].

Physical activity is one of the most important behavioral interventions for preventing depression [14]. In a randomized controlled trial of depressed adults who participated in physical activity, their condition was improved more than the group who were taking anti-depressant medication [15]. Possible explanations for higher prevalence of depression among elderly who perform inadequate physical activity may be that, participants were only limited to Tai Chi every morning from 6:00-8:00 am; this routines schedule may not be the most preferred physical activity for every participants, especially among the participants with physical disabilities. If elderly were given several other options for physical activity, they can actively engage in the activity as well as improving their health and self-esteem. When physical activity is limited and hard to perform, the patients may lack motivation and lose encouragement; physical activity should be encouraged in small achievable goals where the patients feel comfortable and simple [16].

Vitamin D in many studies has been significantly associated with combating depression. Elderly people are more prone to vitamin D deficiency due to the capacity of the skin to synthesize and absorb calcium from sun exposure [17]. A study was conducted in nursing home in Murcia among 86 elderly; it has been found that 58.2% of the elderly residing in the nursing home have inadequate vitamin D [18]. Our result points to the significance of vitamin D, participants who consumed calcium as prescribed from their physicians and were outdoors from 10 a.m. to 3 p.m. at least once a week had lower prevalence of depressive symptoms than those who were not. Similarly to other studies, it was found that more than 81,000 elderly women who have the highest intake of vitamin D from food sources and natural sunlight had a significantly lower prevalence of depressive symptoms [19].

Social activities such as volunteering, group exercise and self-perception activity were associated with lower depression [20]. In this study, the prevalence of depression was seen highest among the participants who did not participate in social activity than the participants who did. Such activities of handcrafts, golf, singing and dancing lessons were observed during the data collection.

This confirmed that positive interaction with others benefit individual who actively engage in meaningful roles with others [21].

In conclusion, this study highlights insomnia, loneliness, physical activity, inadequate vitamin D and social activity as factors associated with depressive symptoms among the elderly in Ban Bangkhae nursing home. It is recommended that a screen program should be launched once a year to assess elderly who may be at risk of depressive symptoms in order to develop adequate prevention and treatment strategies for the future aging society. There were some limitations in this study. First, the prevalence of depression rate found were likely to overestimate the true prevalence rates of depression due to the unforeseen flooding event, which affected both Ban Bangkhae nursing homes from October-December 2011. Secondly, there were considerable number of participants who could not participate due to their severe chronic illness, cognitive impairment and refusal. Finally, this study was conducted in Ban Bangkhae nursing homes confined to the sampling group of elderly who lives in governmental nursing homes only. The sampling group then, does not represent the total elderly in the nursing home population in Bangkok.

ACKNOWLEDGEMENTS

The authors would like to express sincere gratitude and appreciation to advisor. This publication was possible with partial support provided by the funds made available under the Higher Education Research Promotion and National Research University Project of Thailand, Office of the Higher Education Commission (No.AS1148A) and Chulalongkorn University.

REFERNCES

1. Jitapunkul S. Thai elderly health status and activities for the elderly of Thailand. Bangkok: Department of Medicine and Gerontology, Faculty of Medicine, Chulalongkorn University; 2001.
2. Knodel J, Saengtienchai C. Rural parents with urban children: social and economic implications of migration on the rural elderly in Thailand. Population, Space and Place. 1995; 13(3): 193-210.
3. Snowden M, Sato K, Roy-Byrne P. Assessment and treatment of nursing home residents with depression or behavioral symptoms associated with dementia: a review of the literature. J Am Geriatr Soc. 2003 Sep; 51(9): 1305-17.
4. Yesavage KA, Brink TL, Rose TL, Lum O, Huang V, Adey M, et al. Development and validation of a geriatric depression screening scale: a preliminary report. J Psychiatr Res. 1982-1983; (177): 37-49.
5. de Jong-Gierveld J. Developing and testing a model of loneliness. J Pers Soc Psychol. 1987 Jul; 53(1):119-28.
6. World Health Organization [WHO]. Physical activity and older adults [cited 2011 Dec 12]. Avaiable from: http://www.who.int/dietphysicalactivity/factsheet_older adults/en/index.html
7. Canadian Institute for Health Information [CIHI]. Depression among seniors in residential care. Canada: Institute of Health Information; 1999.
8. Lin LC, Wang TG, Chen MY, Wu SC, Portwood MJ. Depressive symptoms in long- term care residents in Taiwan. J Adv Nurs. 2005 Jul; 51(1): 30-7.
9. Livingston G, Hawkins A, Graham N, Blizard B, Mann A. The Gospel Oak Study: prevalence rates of dementia, depression and activity limitation among elderly residents in inner London. Psychol Med. 1990; (1): 137–146.
10. Yokoyama E, Kaneita Y, Saito Y, Uchiyama M, Matsuzaki Y, Tamaki T, et al. Association between depression and insomnia subtypes: a longitudinal study on the elderly in Japan. Sleep. 2010 Dec; 33(12): 1693-702.
11. Lim LL, Kua EH. Living alone, loneliness, and psychological well-being of older persons in singapore. Curr Gerontol Geriatr Res. 2011; 2011: Article ID 673181. doi:10.1155/2011/673181
12. Stek ML, Vinkers DJ, Gussekloo J, Beekman AT, van der Mast RC, Westendorp RG. Is depression in old age fatal only when people feel lonely? Am J Psychiatry. 2005 Jan; 162(1): 178-80.
13. Meis M. Loneliness in the elderly. Orthop Nurs. 1985; 4: 63-66.
14. Motl R, Birnbaum S, Kubik Y, Dishman R. Naturally occurring changes in physical activity are inversely related to depressive symptoms in Elderly. Psychosom Med. 2005; 66: 336–342.
15. Blue L. Is exercise the best drug for depression? Time [cited 2011 Nov 12]. Available from: http://www.time. com/time/health/article/0,8599,1998021,00.html
16. Blashki G, Hickie IB, Davenport A. Providing psychological treatments in general practice: how will it work. Med J Aust. 2003; 179(1):23-5.
17. International Osteoporosis Foundation. Calcium and vitamin D in the elderly [cited 2011 October 5]. Available from: http://www.iofbonehealth.org/patients public/aboutosteoporosis/prevention/nutrition/calcium-and-vitamin-d-in- theelderly.html
18. Pérez-Llamas F, López-Contreras MJ, Blanco MJ, López-Azorín F, Zamora S, Moreiras O. Seemingly paradoxical seasonal influences on vitamin D status in nursing- home elderly people from a Mediterranean area. Nutrition. 2008 May; 24(5): 414-20.
19. Bertone-Johnson ER, Powers SI, Spangler L, Brunner RL, Michael YL, Larson JC, et al. Vitamin D intake from foods and supplements Vitamin D intake from foods and supplements and depressive symptoms in a diverse population of older women. Am J Clin Nutr. 2011 Oct; 94(4): 1104-12.
20. Hong SI, Hasche L, Bowland S. Structural relationships between social activities and longitudinal trajectories of depression among older adults. Gerontologist. 2009 Feb; 49(1): 1-11.
21. Antonucci TC, Akiyama H, Adelmann PK. Health behaviors and social roles among mature men and women. J Aging Health. 1990: 3-14.