PREVALENCE AND RISK FACTORS OF DEPRESSIVE SYMPTOMS AMONG INSTITUTIONALIZED ELDERLY IN SABAH, MALAYSIA BORNEO

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ABSTRACT

The elderly population in Malaysia are multiplying, and older people's reliance on social services such as the elderly institutions has increased. Mental health problems especially depression is one of the main problems with institutionalized elderly. This study aims to determine the prevalence and associated risk factors of depression among elderly in all three state-run institutions in Sabah. A multi-centred, cross-sectional study was conducted on residents of all three state-run elderly institutions in Sabah (N=110). All residents that fulfil the criteria were included in the study through a self-administered set of validated questionnaires that measure perceived social support, loneliness, and depression. Statistical Package for the Social Sciences by IBM (IBM SPSS) v25 was used and Chi Square and logistic regression for analysis. The prevalence of depressive symptoms is at 60.9%. The independent risk factors for depression in residents were male gender (OR=4.09, 95%CI=1.55, 10.79), perceived poor health status (OR=6.63, 95%CI=2.49, 17.65), and loneliness (OR=6.12, 95%CI=2.02, 18.53). Depression is prevalent among the elderly in the state-run institutions in Sabah, Malaysia. A comprehensive mental health screening program needs to be implemented for the elderly institutions along with adequate training for staff to handle mental health issues in the elderly.

Keywords: Depression, Elderly, Nursing homes

INTRODUCTION

The international population is ageing, the phenomenon occurring almost everywhere in the world. In 2017, the international population of people aged 60 years and over was 962 million, a double increase compared with 382 million in 1980. That figure projected to double by 2050 as forecast at 2.1 billion [1]. Like elsewhere in the world, the demographic profile of Malaysia's population has changed over the past two decades. The elderly are estimated to reach 14.5 % by 2040, compared to 5.0 % in 2010, thereby classifying Malaysia as one of the fastest nations to enter the aged country in 20 years [2].

The elderly reliance on social services such as an elderly home has increased over the past decade [3]. It is predicted that elderly residential care home will be the elderly's first choice as their preferred living arrangement in the coming decades, and demand for places in an elderly residential home will continue to grow as the elderly population is expanding [4]. However, there are also study that show the Malaysian generations prefers to age-in-place and live independently in their retirement life stage. Age-related health problems affect common daily actions of the elderly and therefore emphasising the importance of elderly-friendly design [5]. Institutionalized elderly is at risk of psychiatric disorders, especially depression. Risk of depression increases in institutionalized elderly than those who live in the community, with their families. Elderly depression can be considered an essential public health issue. It is associated with increased morbidity, increased suicide risk, decreased physical, cognitive and social functioning, and greater self-neglect, all associated with increased mortality [6].

There has been lack of studies done in relation to the population of elderly in Sabah, especially among the institutionalized. This study aims to determine the prevalence and associated risk factors of depression among the institutionalized elderly in Sabah, Malaysia Borneo. With the findings, this study could provide baseline information on the prevalence as well as rationale for future monitoring and intervention.

METHODS

This multi-centred cross-sectional study involved the elderly residents of all three state-run elderly institutions home in Sabah, namely Sri Pritchard Kinarut Old-folks Home (N=51), Sri Harapan Sandakan Old-folks Home (N=38) and Air Panas Tawau Old-folks Home (N=21). All 156 residents from all three old-folks home were initially planned to be included in the study. Respondents were recruited among those who fit into the inclusion criteria which are as follows: residents who aged 60 years and above, admitted to the elderly institution for at least one month, able to communicate sufficiently in English or Malay, and has no severe cognitive impairment (MMSE≥9). Total population sampling was the method of choice because the numbers of elderly institutions establishments in Sabah, mainly the state-run, are minimal. A total of 110 respondent were included that fitted inclusion criteria and gave consent to be included in the study. Those who are sixty years old and above, resident of the old-folks home for at least one month, able to communicate sufficiently in English or Malay and has no severe cognitive impairment (MMSE≥9).

A set of validated, a self-administered questionnaire which consists of six parts, socio-demographic, health status, specific questions, 14-item Malay Geriatric Depression Scale questionnaire (M-GDS-14), Malay Multidimensional Scale of Perceived Social Support (MSPSS-M) questionnaire and Malay version of De Jong Gierveld Loneliness Scale. A preliminary assessment by Malay Mini-Mental State Examination (M-MMSE) was done to assess the cognitive status of each potential respondent for their eligibility to be included in the study. The M-GDS-14 questionnaire was chosen as the primary tool to measure depressive symptoms in this study [7].

The socio-demographic questionnaire included gender, age, ethnicity, education level, marital status, previous occupation, smoking status, and medical history. Participants were asked if they had any medical history of diabetes, hypertension, cardiovascular diseases, stroke, and arthritis while reviewing the medical records provided by the institutions. Respondents were asked a few specific questions regarding their perceived adequacy of care and also self-rating of their health status.

All items in the newly formed scale, M-GDS-14, had satisfactory corrected item-total correlation, with Cronbach's alpha coefficient of 0.84. The score ranges from zero to 15 and a score of zero to four is considered to be within the normal range, five to nine indicates mild depression, and a score of 10 or more indicates moderate to severe depression. The M-GDS-14 questionnaire is chosen as the primary tool to measure depression in this study. The Multidimensional Perceived Social Support Scale (MSPSS) developed by is one of the most extensively translated and validated tools to measure social support outcome. Any mean scale score of 1 to 2.9 could be considered low support; a score of 3 to 5 could be considered medium support; a score of 5.1 to 7 could be considered high support. The MSPSS-M demonstrated strong construct validity and reliability in measuring social support among older persons and could be used among older persons in Malaysia. MSPSS-M will be used as the tools to measure social support level among the respondents in this study.

The 6-item Malay version of De Jong Gierveld Loneliness scale consists of emotional subscale and social subscale, with three items on each scale is the tools to measure loneliness among participants in the study. Respondents rate their responses to statements on a 5-point Likert scale. A total score is calculated after subscale responses are recoded to account for negatively worded items, providing a range of zero (not lonely) to six (very lonely) or range from zero to three in each scale. This tool is a simple yet reliable and valid tool to measure emotional and social loneliness in the Malaysian context. Data was analysed by using the Statistical Package for the Social Sciences by IBM (IBM SPSS) version 25.

Descriptive analysis determined the mean, median and distribution of the continuous variables data (age), while categorical data were described in both count and percentage. The association between depressive symptoms with categorical variables were analysed using Chi-square ($x2$) tests. Risk factors that were found to be significant ($p<0.05$) with depressive symptoms were further analysed with multiple logistic regression.

The categorical risk factor variables (which have more than two answers) were then recoded into two groups each (according to the level of risk; higher and lower) for the bivariate analysis. The association between depression (which is determined by their score in M-GDS-14) with various variables which were hypothesised to be its associated risk factors (socio-demography, health-related, psychosocial, social support and loneliness) were also analysed using Chi-square ($x2$) tests. Risk factors that were found to be significantly associated ($p<0.05$) with depression in the initial analysis by using Chi-square ($x2$) tests were further analysed with multiple logistic regression to determine the significant predictors to depression in the population of the study. Factors which have shown significant association with depression in the bivariate analysis were further analysed using multiple logistic regression.

Data collection were conducted through a self-administered set of questionnaires, administered by appointed and trained enumerators in each

institution. set of questionnaires in the institutions from July 2020 till August 2020, after obtaining ethical approval from Ethics Committee of Universiti Malaysia Sabah [UMS JKEtika/1/20(29)], the endorsement from Sabah State Welfare Service Department and approval from respective centres.

RESULTS

The study population comprised of 68 (61.8 %) male and 42 (38.2 %) female. The mean age of the study participants was 70.92 years (SD=7.74) with the minimum age was 60 years, and the maximum age was 94 years. About 20% of the respondents had no formal education, and more than half (54.5 %) completed primary education. For marital status, 6.4 % were married and living with their spouses while the majority were either unmarried or widowed.

Majority of the residents (74.5%) are ADL-independent while the rest (25.5%) are bed-ridden and needing care assistance for activities of daily living (ADL-dependent). Only 42.7% of respondents rated their health status as good, while 21.8% perceived their health status as poor. Around a quarter of the residents are still actively smoking. Only 31 (28.2 %) have no chronic disease. Most of the residents (45.5 %) have one to two chronic diseases and 24.5 % with three to four chronic diseases.

Nearly half of the respondents in the study (46.4%) had resided in the elderly institution for more than five years. Nearly two-third (65.5%) of the residents were admitted to the elderly institution by their self-will, while the rest of 34.5% admitted by compulsion, whether by family choice or others, e.g. recommendation of the medical practitioner, social worker, friends or transferred from other healthcare facilities. Around 36% of the residents claimed that they had not received any visitors since entering the institution. Up to half (49.1 %) of the respondents said that they are spending time with other residents every day. When they were asked whether they wanted to stay in the elderly institution or to leave, the majority of them (73.6 %) responded they wanted to stay in.

Among the respondents, 13 (11.8 %) perceived their social support level as high, and only 16.4 % or 18 respondents perceived their social support level as low. Majority of the respondents (71.8 %) perceived medium level of social support. A total of 81 residents (73.6 %) classified as lonely in the study. Prevalence of depressive symptoms found to be at 60.9%, where 67 out the 110 respondents were classified as clinically significantly depressed; among those, 19 (17.3 %) were moderate to severely depressed and 48 (43.6 %) with mild depression.

On further analysis, the study found that there is an association of gender (x^2=14.85, p<0.001), with depression among the studied subject of elderly residents of the state-run elderly institutions in Sabah. Male residents are 4.88 times more likely to develop depression as compared to their female counterparts (OR=4.88, 95%CI=2.13, 11.18). On the contrary, the study found no association between depression and other socio-demographic risk factors which were analysed; age (x^2=2.66, p=0.103), marital status (x^2=3.21, p=0.073) and level of education (x^2=0.85, p=0.357) (Table 1).

Table 1 : Chi Square analysis showing the association between different socio-demographic risk factors with depression among the respondents

Socio-demographic risk factors		Not Depressed n (%)	Depressed N (%)	OR (95% CI)	x^2	p-value
Gender	Female	26 (61.90)	16 (38.10)			
	Male	17 (25.00)	51 (75.00)	4.88 (2.13,11.18)		
					14.85	.000*
Marital Status	With Partner	0 (0)	7 (100)			
	No Partner	43 (41.70)	60 (58.30)		3.21	0.073
Level of Education	Higher Level	13 (46.40)	15 (53.60)			
	No/Low Level	30 (36.60)	52 (63.40)	1.50 (0.63,3.58)	0.85	0.357

significant at the .05 level

For health-related risk factors (Table 2), several variables were found to have a significant association with depression among studied subjects namely status of care or ADL status (x^2=4.92, p=.027), presence of chronic disease (x^2=6.52, p=.011), perceived or self-rated health status by the respondent (x^2=21.09, p=.000) and perceived adequacy of care (x^2=4.15, p=.042). History of smoking (x^2=0.95, p=0.331), and the number of chronic diseases (x^2=1.07, p=0.3) were

found not to be statistically associated with depression among the elderly subjects. Residents who are ADL-dependent (OR=3.02, 95%CI=1.11, 8.21) are most likely to be depressed by 3.02 times compared to those who are ADL-independent. The elderly institution residents who rated their health status as not good found to be 6.79 times more likely to develop depression compared to those who feel their health status is functional (OR=6.79, 95%CI=2.89, 15.92). Residents who feel that they did not receive adequate care are 4.47 times more likely to be depressed than those who perceived adequate care (OR4.47=, 95%CI=0.95, 21.09).

Table 2: Chi Square analysis showing the association between different health-related risk factors with depression among the respondents

Health-related risk factors		Not Depressed n (%)	Depressed n (%)	OR (95%CI)	x^2	p-value
ADL Status	ADL Independent	37 (45.10)	45 (54.90)			
	ADL Dependent	6 (21.40)	22 (78.60)	3.02 (1.11,8.21)	4.92	.027*
Chronic diseases	No	18 (58.10)	13 (41.90)			
	Yes	25 (31.60)	54 (68.40)	2.99 (1.27,7.04)	6.53	.011*
No. of chronic diseases	<3 Chronic Diseases	34 (42.00)	47 (58.00)			
	≥3 Chronic Diseases	9 (31.00)	20 (69.00)	1.61 (0.65,3.96)	1.07	0.3
History of smoking	Never smoke	29 (42.60)	39 (57.40)			
	Smoker/ex-smoker	14 (33.30)	28 (66.70)	1.49 (0.67,3.31)	0.95	0.331
Perceived health status	Good	30 (63.80)	17 (36.20)			
	Not good	13 (20.60)	50 (79.40)	6.79 (2.89,15.92)	21.09	.000*
Perceived adequacy of care	Yes	41 (42.70)	55 (57.30)			
	No	2 (14.30)	12 (85.70)	4.47 (0.95,21.09)	4.15	.042*

significant at the .05 level

The study found insufficient statistical evidence to associate length of stay in the elderly institutions, receiving visitors, time spent with fellow residents with depression among the respondents. Reason of admission to the elderly institutions (x^2=3.98, p=0.419), and loneliness (x^2=11.55, p=.001) are among the psychosocial risk factor that found to be associated with depression among the elderly. Compulsion as the reason of the admission of a resident to the elderly institutions whether by family members, friends or due to medical decision increase the odds of depression by 2.37 times compared to admission by resident self-will (OR=2.37, 95%CI=1.01, 5.59). It took us by surprise that there is no statistical association found between the level of social support with depression among the subjects of the study (x^2=0.3, p=0.58). It was evidenced that in the study, residents who are experiencing loneliness are more predisposed to depression by 4.51 times more than residents who do not. (Table 3).

The results of multiple logistic regression analysis is shown in Table 4. In summary, the independent risk factors for depression among the residents based on multiple logistic regression were identified as male gender (OR=4.09, 95%CI=1.55, 10.79), perceived poor health status (OR=6.63, 95%CI=2.49, 17.65), and loneliness (OR=6.12, 95%CI=2.02, 18.53).

DISCUSSION

From the study, the prevalence of depressive symptoms were high (60.9%) with factors such as male gender, perceived poor health status and loneliness were associated with depressive symptoms among elderly in a state-run institutions in Sabah, Malaysia. The prevalence of depression in elderly residents of nursing homes was demonstrated to be in between 20% to 70% in the literature [8-10]. An earlier local study carried out by on residents of the state-run elderly institution in Kedah, Malaysia found a prevalence of depression among the residents was 67%, which was similar findings with our study. depression is often missed in the elderly in residential care [11]. Female gender is associated with depression among elderly home residents as demonstrated by several previous studies [12,13]. However, we have demonstrated a significant association between

gender to depression among the studied subjects in our initial analysis where male residents are about 4 times more likely to develop depression as compared to their female counterparts. Males may exhibit more depressive symptoms as they have network crisis and vulnerable to network events after retirement. They may also have more relationship problems. Meanwhile, women have more tendencies to look for social support compared to men [9]. Perceived health status was found to be significantly associated with depression in the elderly [14,15]. In a study among Japanese elderly, it was revealed that the elderly who perceived their health status as not good were more depressed [16].

Table 3: Chi Square analysis showing the association between different psychosocial risk factors, social support and loneliness with depression among the respondents

Psychosocial risk factors		Not Depressed	Depressed	OR (95%CI)	x^2	p-value
		n	n			
Length of Stay in OFH	<5 Years	21 (35.60)	38 (64.40)			
	≥5 Years	22 (43.10)	29 (56.90)	0.73 (0.34,1.57)	0.65	0.419
Reason of admission to OFH	Self-will	33 (45.80)	39 (54.20)			
	Compulsion	10 (26.30)	28 (73.70)	2.37 (1.01,5.59)	3.98	.046*
Receiving visitors	Yes	28 (40.00)	42 (60.00)			
	No	15 (37.50)	25 (62.50)	1.11 (0.50,2.47)	0.07	0.796
Spending time with a colleague	Always	25 (46.30)	29 (53.70)			
	Never/Rarely	18 (32.10)	38 (67.90)	1.82 (0.84,3.95)	2.31	0.128
Level of Social Support	Medium or High Support	37 (40.20)	55 (59.80)			
	Low Support	6 (33.30)	12 (66.70)	1.35 (0.46,3.90)	0.30	0.584
Loneliness	No	19 (65.50)	10 (34.50)			
	Yes	24 (29.60)	57 (70.40)	4.51 (1.83,11.12)	11.55	.001*

The Chi-square statistic is significant at the .05 level

Health-promoting lifestyle has been found to be an important influencing factor of elderly depression. The aging perceptions are an important mediating role in the relationship between health-promoting lifestyle and elderly depression. Furthermore, social support may moderate between aging perceptions and elderly depression together with a high level of social support [17]. It is intriguing to note that although the presence of chronic diseases and numbers of chronic diseases did not differ significantly between the depressed and non-depressed respondents in our multivariate analysis, perceived poor health status remains a significant risk factor for depressive symptoms.

On the other hand, lower self-rated health was found to predict premature discontinuation of treatment for chronic disease, including depression [18]. In this study, similar findings on loneliness were also seen in nursing home residents in Korea and Japan [19]. Depression was influenced by loneliness and general health status [14,15].

Preventing depression should be the main aim of designing a care program for patients in a nursing home. With evolving technology, newer innovate ways needs to be explore as healthcare transformation should involve the home and as well as institutional community setting in order to bring the healthcare services to patients [20]. This is the first-ever study to investigate the prevalence and risk factors associated with depression in elderly residents in Sabah. This study is not without its limitations. Although the sample investigated was relatively small, but it is representative of the whole state-run elderly institutions in Sabah. Besides that, those with MMSE<9 were excluded from the study, and this means that a number of our residents were not assessed or included in figures for the prevalence of depression. This was a cross sectional study and only limited on state-run elderly institution in Sabah and thus cannot be generalized. The study showed the association in between depressive symptoms and some risk factors, however causation cannot be ascertained.

Table 4: Results of the final model of multiple logistic regression

Risk factor	B	SE.	Wald	df	p-value	aOR	95% CI	
							Lower	Upper
Gender (male)	1.409	0.495	8.109	1	0.004	4.091	1.551	10.786
Perceived health Status (not good)	1.892	0.500	14.339	1	0.000	6.631	2.491	17.653
Loneliness	1.811	0.566	10.250	1	0.001	6.116	2.018	18.534
Constant	-2.696	0.677	15.880	1	0.000	0.067		

CONCLUSION

This study demonstrated that depressive symptoms is highly prevalent among the elderly in state-run institution in Sabah, Malaysia. An appropriate multidisciplinary intervention in addressing both health and social problems of the elderly may benefit the residents in the future. Given the results of this study, a strong suggestion that a comprehensive mental health screening program to be implemented for the elderly institutions along with adequate training for staff to handle mental health issues in the elderly.

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