ORIGINAL ARTICLE

Prevalence of Depression and its Associated Factors Among Elderly Patients in Outpatient Clinic of Universiti Sains Malaysia Hospital

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SUMMARY

Depression among elderly primary care patients is a serious problem with significant morbidity and mortality. This is a cross sectional study to determine the prevalence of depression and its associated factors among the elderly patients attending the outpatient clinic, Universiti Sains Malaysia Hospital. This study utilized Malay version Geriatric Depression Scale14 (M-GDS 14) to screen for elderly depression among Malaysian population. It also looked into associated risk factors for elderly depression using socio-demographic, family dynamics, and medically related questionnaires. Out of 244 subjects, 34 or 13.9% were found to have depression. Three variables were found to be significantly associated with depression. Elderly patient with any illness that limits the patient's activity or mobility has more risk of developing depression (OR 2.68 CI 1.15 - 6.24). Elderly patients who were satisfied with their personal incomes (OR 0.29 CI 0.10 – 0.85), and who had children or son/daughter-in-law to take care of them when they are sick (OR 0.10 CI 0.01 - 0.83) have a lower chance of having depression. Screening the elderly for depression, would help in diagnosing the elderly depression better and offer them the treatment needed.

KEY WORDS:
Elderly, Geriatric, Depression

INTRODUCTION

Depression is projected to be the second leading cause of disability worldwide by 2020[1]. Whatever the outcomes, elderly depression poses very real problems. Firstly there are difficulties in diagnosing the condition especially in the elderly age group. The presence of multiple medical problems further confuse the diagnosis and the priority of treatment given to the patient. In the outpatient setting, there are tendencies by the health care providers to miss the diagnosis and not giving proper treatment to the patients[2].

Depression tends to be denied by the elderly people, making diagnosis difficult. Other co-morbid medical conditions, the tendency of patients to somatise, cognitive deterioration, and multiple life events, often of loss for example, bereavement, or retirement, further complicate the diagnostic process. There is a bias among health professionals and the community in general to accept lower functioning and more symptoms in older people[3]. Despite this, the prevalence of major depressive disorder has been shown to be no higher in the elderly than in the young (1–3%), although these findings do not take into account the co-morbidity of physical illness and the dementias[4].

It is generally accepted that the burden of depression in the elderly is high. Depression causes increased morbidity and mortality[5]. It increases demand on relatives, social and health services. Depression causes disability in its own right and also adds to disability from physical disorder when present[6] and leads to greater physical decline[17]. It leads to greater risk of hospitalisation[8] and inappropriate use of hospital bed[9].

Depression is also an independent risk factor for other illnesses. It has been shown that it is associated with stroke, both in western[10] and eastern cultures[11]. In older group of people, it is linked with heart failure[12]. In women over 50, being depressed is associated with a higher than expected rate of hip fracture[13].

The recognition of depression is important because it is associated with high morbidity and mortality in elderly[5]. However, this condition usually goes unnoticed and under-managed. Therefore there is a need to evaluate the burden of this problem locally and to elucidate its aetiological factors in order to refine a system for reliable detection which can be utilized widely throughout the local health services in Universiti Sains Malaysia Hospital. The objective of this study is to determine the prevalence of depression and its associated factors among elderly patients in the outpatient clinic of Universiti Sains Malaysia Hospital.

MATERIALS AND METHODS

This is a cross sectional study involving 244 elderly patients age 60 and over. This study was conducted in the outpatient clinic known as Klinik Rawatan Keluarga, Hospital Universiti Sains Malaysia (HUSM). The clinic is situated in the same building for all medical and surgical clinics at Universiti Sains Malaysia Hospital (HUSM) Universiti Sains Malaysia, Kubang Kerian, Kelantan. Klinik Rawatan Keluarga is the general outpatient clinic, under the care of the Department of Family Medicine. HUSM is one of the teaching hospitals in Malaysia, situated in the east coast of Peninsular Malaysia. The study was conducted from March to July 2007. Informed consent was obtained for participation in the study.

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Subjects were recruited from all elderly patients aged 60 years and above attending the clinic and signed informed consent. The patients were selected using systematic sampling, where one in every three patients will be chosen for the study. Those patients with severe mental disorder, severe cognitive impairment, mental retardation or refuse to participate were excluded from the study. All subjects and /or caregivers were interviewed by Malay version Geriatric Depression Scale-14 (M-GDS-14) and Questionnaires on socioeconomic status, family dynamics and medical issues.

Instrument

Malay version-Geriatric Depression Scale-14 (M-GDS-14)

The M-GDS-14 is based on the Geriatric Depression Scale (GDS). The GDS has been recommended by the Royal College of Physicians, British Geriatric Society and the Royal College of General Practitioners as a suitable scale to screen for depression. It has been extensively validated in both 15- and 30-item formats. It is a self-rating scale that can also be given by interview. The 15-item scale was validated against the 30-item scale in 18 normal and 17 depressed or dysthymic subjects aged 55 years or more, using a cut-off of ≥6[14].

Teh has translated and validated the 15-item scale, living out item 9, due to its non-discriminatory value against clinical diagnosis of depression, making it a 14-item scale[15]. The validated 14-item Malay version of Geriatric Depression Scale (M-GDS-14) was used in the study. It is a self-rating questionnaire and was administered with the help of a trained assistant.

The M-GDS-14 was chosen because it has been studied and proven effective in detecting depression among local elderly population. It comprises 14 items, making it a relatively easy scale to be used especially in the frail elderly. Furthermore it has been translated and validated for the local population. It has also been tested for it specificity and sensitivity. Subjects with the score of 8 and above on M-GDS-14 are in depression group, while those with the score of less than 8 belong to the non-depression group[15].

Questionnaires on socioeconomic status, family dynamics and medical issues

It has 20 questions which include items on personal biodata, age, sex and race. There are items on marital status, educational level, job status, total income and source of income. The remaining items are on the possible risks factors that could contribute towards depression in elderly based on the literature review done. They are further divided into 2 components. The first part deals with patient's family dynamic, looking into the people staying together in the household, their roles and interactions among them. The second part is regarding the medical issues that the patient might have, how they are affecting patients' life and also any significant family and past history of mental illness.

Statistical Methods

All data collected were analyzed using the SSPS version 12.0. The continuous variables were described in mean and standard deviation. Categorical data were described in frequency and percentage. Simple logistic regressions were performed on all the independent variables. Variables with p value <0.25 were selected for multivariate analysis. Backward selection was used, where starting with all the variables as a complex model. At each stage, the variable in the model with the largest *p* value was eliminated. The same set of variables was analyzed using forward selection. At the end of both processes three variables stood out to be statistically significant, p value < 0.05. The three variables were then tested for overall fit of the model. They were tested using Hosmer and Lemeshow Test, classification table and ROC curve. Finally the interaction was checked between the three variables and no interactions were found.

RESULTS

A total of 244 patients were recruited during the study period. Majority of the patient (75.4%) were less than 70 years old. Out of 244 respondents, 67.2% were female. Except for the one Chinese all other respondents were Malays. Majority of them were married, had at least primary level of education but never worked in their life thus having very poor income.

The prevalence of elderly depression estimated using the M-GDS-14, using the cut off point of 8 and above was 13.9% (n=34). Table I shows the proportion of depressed and non-depressed elderly patients according to socio-demographic variables. According to age group, the older groups tend to have higher percentage of depression. The age group of 75-79 and 80 and above had the percentage of 30.0% and 37.5% respectively. Comparing between the sexes, there were more depressed people among the female group.

Table I: The proportion of depressed and non-depressed elderly patients according to socio-demographic variables, in outpatient clinic HUSM.

Variable	Depressed n (%)	Non Depressed n (%)
Age (year)		
60-64	15(14.0)	92 (86.0)
65-69	7 (9.1)	70 (90.9)
70-74	3 (9.4)	29 (90.6)
75-79	6(30.0)	14 (70.0)
80 and above	3(37.5)	5 (62.5)
Gender		
Male	7 (8.8)	73 (91.3)
Female	27(16.5)	137 (83.5)
Ethnicity		
Malay	34(14.0)	209 (86.0)
Others	0 (0.0)	1(100.0)
Marital status		
Married	15 (9.7)	139 (90.3)
Divorced/Widowed	19(21.1)	71 (78.9)
Education		
No formal education	10(18.5)	44 (81.5)
Primary	17(14.5)	100 (85.5)
Secondary	6 (9.8)	55 (90.2)
Tertiary	1 (8.3)	11 (91.7)
Occupation		
Working	1(12.5)	7 (87.5)
Retired	7 (8.0)	81(92.0)
Never worked	26(17.6)	122(82.4)
Total income		
Less RM100	13(28.9)	32(71.1)
RM101-300	8(14.8)	46(85.2)
RM301-500	9(14.5)	53(85.5)
RM501-1000	1 (3.6)	27(96.4)
Over RM1000	3 (5.5)	52(94.5)

Table II: Univariate analysis of sociodemographic variables associated with depression in elderly patients attending outpatient clinic HUSM.

Variable	Crude OR	95% CI	Wald X^2	df	p value
Age			9.024	4	0.061
60-64 years old	1				
65-69 years old	1.630	0.631, 4.214	1.018	1	0.313
70-74 years old	1.576	0.426, 5.829	0.465	1	0.495
75-79 years old	0.380	0.126, 1.144	2.959	1	0.085
80 and above	0.272	0.059, 1.257	2.779	1	0.096
Gender					
Male	1				
Female	2.055	0.854, 4.947	2.583	1	0.108
Ethnicity					
Malay	1				
Others	0.000	0.000	0.000	1	1.000
Marital status					
Married	1				
Divorced/Widowed	2.480	1.189, 5.171	5.867	1	0.015
Education			2.098	3	0.552
Tertiary	1				
No formal education	0.400	0.046, 3.466	0.692	1	0.406
Primary	0.535	0.065, 4.414	0.338	1	0.561
Occupation			**4.067**	**2**	**0.131**
Working	1				
Retired	1.653	0.177, 15.420	0.195	1	0.659
Never worked	0.670	0.079, 5.684	0.134	1	0.714
Total income			12.084	4	0.017
Over RM1000	1				
Less RM100	0.142	0.038, 0.537	8.269	1	0.004
RM101-300	0.332	0.083, 1.325	2.439	1	0.118
RM301-500	0.340	0.087, 1.326	2.415	1	0.120
RM501-1000	1.558	0.155, 15.700	0.141	1	0.707
Source of income		3.484	3	0.323	
Current job	1				
Pension/EPF	0.696	0.144, 3.361	0.204	1	0.652
Family	0.383	0.083, 1.757	1.526	1	0.217
Others	0.957	0.078, 11.719	0.001	1	0.972
Satisfaction with income		10.713	2	0.005	
Very satisfied	1				
Satisfied	0.618	0.068, 0.510	1.322	1	0.250
Not satisfied	0.813	0.110, 0.838	10.679	1	0.001

Table III: Univariate analysis of family dynamics and medical issues variables associated with depression in elderly patients attending outpatient clinic HUSM.

Variable	Crude OR	95% CI	Wald X^2	df	p value
Family living together		8.676	4	0.070	
Others	1				
Alone	0.229	0.024, 2.146	1.669	1	0.196
Partner only	0.714	0.079, 6.463	0.090	1	0.765
Children only	0.400	0.046, 3.501	0.685	1	0.408
Includes grandchildren	1.044	0.120, 9.115	0.002	1	0.969
Role in making decision		6.260	2	0.044	
Big role	1				
Intermediate role	0.328	0.123, 0.879	4.909	1	0.027
Small role	0.718	0.248, 2.080	0.372	1	0.542
Confiding partner					
Present	1				
Not present	5.000	1.488, 16.798	6.776	1	0.009
Presence of caretaker					
No	1				
Yes	6.500	0.884, 47.789	3.382	1	0.066
Who's the caretaker		12.705	3	0.013	
Spouse	1				
Children	10.923	1.419, 84.055	5.274	1	0.022
Other family members	3.167	0.416, 24.199	1.238	1	0.266
Non family members	7.000	0.397, 123.34	1.767	1	0.184

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Variable	Crude OR	95% CI	Wald X^2	df	p value
Satisfaction with partner					
Not satisfied	1				
Satisfied	0.000	0.000	0.000	1	0.999
Presence of medical problems		3.558	3	0.313	
No illness	1				
1 med problems	0.721	0.087, 5.953	0.092	1	0.761
2 med problems	0.540	0.062, 4.699	0.312	1	0.577
Multiple problems	0.225	0.021, 2.405	1.523	1	0.217
Limitation of activity					
No	1				
Yes	3.263	1.486, 7.167	8.678	1	0.003
Sleep disturbance					
No	1				
Yes	1.474	0.711, 3.056	1.088	1	0.297
Past history of mental illness					
No	1				
Yes	3.392	0.000	0.000	1	1.000
Family history of mental illness					
No	1				
Yes	2.333	0.000	0.000	1	1.000

Table IV: Factors associated with elderly depression by multiple logistic regression in elderly patients attending outpatient clinic HUSM.

Variable	Adjusted OR X^2	95% CI	Wald	P value
Satisfaction with income			5.119	0.077
Not satisfied			1	
Satisfied	0.694	0.288, 1.675	0.659	0.417
Very satisfied	0.293	0.101, 0.851	5.097	0.024
Who's the caretaker			9.493	0.050
Spouse	1			
Children	0.099	0.012, 0.834	4.521	0.033
Other fam members	0.287	0.034, 2.389	1.333	0.248
Non fam members	0.108	0.005, 2.133	2.139	0.144
Limitation of activity				
No	1			
Yes	2.683	1.153, 6.243	5.250	0.022

Table II shows the results of univariate analysis of the depressed group based on the socioeconomic status. In the univariate analysis, the factors significantly associated with depression in elderly patients were marital status, total income and satisfaction with income.

Table III shows the results of univariate analysis of the depressed group based on the family dynamics and medical issue. In the univariate analysis, the factors significantly associated with depression in elderly patients were role in making decision, presence of confiding partner and type of people looking after when sick and limitation of activity by medical problems.

In the multivariate analysis, independent variables that were possibly associated with depression in elderly were entered into the logistic regression model. The variables were marital status, total income, satisfaction with income, role in making decision, presence of confiding partner, type of caretaker and limitation of activity by medical problems. Table IV shows that in the final model, the independent variables that were significantly associated with depression in the elderly are satisfaction with income, type of caretaker and limitation of activity by medical problems.

DISCUSSION

The prevalence of depression among elderly in this study is 13.9%. This is almost similar with the ones found in previous studies in Malaysia with the prevalence of 14% and 18%[16,17]. Both studies were looking at the prevalence of depression in patients attending outpatient clinics. This is low compared to previous study done in HUSM by Teh & Hasanah, with a figure of 37.3%[15]. Understandably, that study was carried out among elderly inpatients. Being admitted to the ward together with having acute illness requiring admission, would be very stressful to the patient, thus giving a higher score of the rating scale. Compared to other Asian countries, the prevalence of depression in elderly in Malaysia is quite low. The reported prevalences of screening-based depression using GDS-15 in other countries varied from 33.8% in Indonesia, 17.2% in Vietnam and 30.3% in Japan[18]. However, it is a well known fact that comparing the prevalence of depression is difficult because of the use of different scales and different cut off points.

In this study, three factors were found to be significantly related to the incidence of elderly depression. The three factors were: satisfaction with personal income, the type of people looking after when they were sick and the presence of medical illnesses that were considered to be disturbing to

their daily activity or mobility. A study on pain demonstrated the bidirectional relationship between depression and disability, meaning depression could lead to chronic pain and disability and on the other hand disability can lead to depression[19]. Other studies also supported the association between the presence of medical illness, difficulty in performing daily activities and depression[20, 21]. However, this study did not manage to elucidate on whether certain medical illnesses have greater effect in causing depression compared to others.

The two other factors, satisfaction with personal income and the type of people looking after the patients when they were sick conferred protective effects. If the patients were satisfied with their total income or having the right people looking after them when they were sick, the patients were less likely to develop depression.

The protective effect of satisfaction with personal income was independent of the other aspects of income itself, as no significant associations were found between the amount or source of income and depression. To patient's perspective, the satisfaction with what they got was more important than the amount or the source of money itself. Many studies supported this finding. Koster *et al* among other things showed that people with low income had more depressive symptoms, even though the study did not address the issue of satisfaction with income directly[19].

Similar conclusion can be made regarding the protective effect of having the right people looking after the patients when they fell sick. The study fails to show significant association between depression and the presence or absence of caretaker during sickness. However, when looking at the type of people taking care of the patients when they are sick, children are better in preventing depression compared to non family members, other family members and even the patient's spouses themselves. A possible explanation is that, in this part of the country, many of its young inhabitants are away working in the other places, only to come back during festive seasons, school holidays and when the parents fell sick. For the elderly, the presence of their children is very precious. The other factors in the domain of family dynamics; type of people staying together, role played in making decision in the family, the presence of someone to express feeling or satisfaction with one's partner do not display any significant association.

Almost half of the respondents stay together with their spouses, children and sometimes grandchildren. Staying together with such a large number of people may dilute the effects of the significance of the type of people staying with the patients. It does not matter if the patients have their spouses or children staying with them or not as they have so many others that can take care of them and their need.

Sherina *et al*., found that those who were unmarried, without formal education, low total family income and urban residence were associated with depression[17]. Teh & Hasanah in their study on inpatients also found that satisfaction with personal relationship is a protective factor but not in this study where satisfaction with one's partner does not display any significant association with depression[15]. In our study, the elderly patients are relatively well and could turn up to the clinic without much help from the spouses.

In conclusion, the prevalence of depression in elderly is low compared to other local and foreign studies and it is associated with presence of illness that limits the patient's activity or mobility. However, satisfaction with personal incomes and presence of children to take care of them when they are sick, have protective effects against depression in the elderly.

This study showed that screening for depression among the elderly is important and necessary, as over 10% of them would have undetected depression. The health care providers and patient's family members need to be trained and educated regarding elderly depression. The tools used in this study seem suitable enough to be utilized in detecting the patients. The health care providers should be aware of the magnitude of the problems and the availability of means to overcome it. The society at large should take the same stance and be more vigilant when dealing with the elderly people.

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