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ORIGINAL ARTICLE

Risk Factors For Depression; Findings Of A Descriptive Study Conducted In Penang, Malaysia

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ABSTRACT

This study aims to provide data on the prevalence of depression and the possible risk factors responsible for its prevalence. A descriptive, retrospective and prospective evaluation of the medical records was done at the psychiatry OPD, Penang, GH, from Jan 2002 till Dec 2007. The data was analyzed by using the statistical software, SPSS version 13®. A total of 298 patients with a confirmed diagnosis of depression, were the part of study. The prevalence of depression was found to be statistically significant among females ($X^2 = 216.5$, $df = 2$, $p < 0.001$), as a majority [169(56.7%)] of the patients were females. In terms of ethnic groups, 172(57.7%) patients were Chinese ($X^2 = 1951.5$, $df = 5$, $p < 0.001$). However, in terms of age majority, 121 (40.6%) patients were over 50 years of age ($X^2 = 128.0$, $df = 7$, $p < 0.001$). Whilst evaluating the risk factors for depression, it was revealed that depression due to medical complications and social problems were the common identified stressors during patient evaluation. The most prevalent medical complication was hypertension. Among social issues, marital and family problems, followed by relationship/childhood problems and death of loved ones, were the frequent risk factors identified among females. However, financial and the job related problems were the most common stressors identified among males. Overall, the findings demonstrated that Chinese patients were at a high risk of depression among the elderly patients with medical complications.

Key Words: Depression, Risk factor, Medical complications

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ancient text in Ebers Papyrus, 1974, presented a short description of depression among Egyptians [2]. History demonstrated different concepts among people and cultures about depression. However, in 1950, chemical imbalances in the brain were perceived to be the possible cause of depression; this hypothesis was presented whilst observing the effects of reserpine and isoniazid in altering the levels of monoamine and by observing the corresponding depression symptoms [3].

In today's busy life, depression is one of the most prevalent psychological disorders [4] which is a challenge to public health [5]. According to "WHO", by the year 2020, depression is expected to become the second leading cause of disability after heart disease [7]. The population in developing countries is at a greater risk

Introduction

Depression is the state of gloomy thoughts characterized by sadness, loss of interest in activities and decreased energy [1]. An

[6]. So far, it has been very hard to point out a single reason as the cause of depression. Josef et al., in 2006, stated that the prevalence of depression is a combination of complex cognitive behaviour and hormonal and biochemical processes [8]. In addition, depression has strong associations with traumatic life events, for example, failure in academic achievements, setback in relationships, loss of financial investments, break-up of love affairs, or the death of a loved one [9],[10]. Depression makes the sufferer to withdraw from his/her personal, social and occupational activities [10],[11].

Literature search for the risk factors of depression disclose medical and social factors as the possible causes of depression. Among medical complications, heart diseases [12],[13], diabetes mellitus, Human Immune Virus (HIV) [14], stroke [15], hyperthyroidism, gynaecological cancer [16] , congested heart failure (CHF) [18], acute myocardial infarction (AMI) [19] and other cancerous conditions are quite prominent. In addition, the therapy used for viral infections (like Hepatitis B and C) has a vital role in causing symptoms of depression [14],[17]. However, Stefan (2002) and Patricia (2000) have associated genetic and environmental factors and chemical imbalances in the brain as aetiological factors for depression [20], [21]. Moreover, the frequent use of sedatives and sleeping pills, the use of euphoric substances like cannabis, marijuana, opiates and stimulants like cocaine, are the main causes of depression [20]. Stefan (2002) provided an evidence of the high prevalence of depression among those who use alcohol frequently. Moreover, the offspring of alcoholic females are more prone to depression as compared to those of the females who avoided the use of alcohol [20].

In terms of social factors, the family, marital problems, unemployment, job dissatisfaction and the history of

childhood trauma are the main causative factors for developing depression [4]. Among women, stressful/forced marriage and low socio-economic status are also noted as the reasons for developing depression illness [22]. These factors affect social activities, close relationships, and family activities [23],[24].

Epidemiology Of Depression In Malaysia

The World Health Organisation, in the year 2007, has provided an evidence of a high rate of depression with a lifetime risk of 7-12 % for men and 20-25 % for females in the South East Asian Region (SEAR) [27]. The Ministry of Health, Malaysia (MOH), is committed for the improvement of mental health [27]. Epidemiological surveys in the rural areas of Malaysia have provided evidence that about 10% of the population have some sort of minor and major depressive disorders [28]. The evaluation of Saroja (1997) showed that among the elderly, depression was frequent with a prevalence rate of 13%. The majority among these were with the prevalence of other medical complications like diabetes- 25%, low serum calcium levels- 16%, low albumin levels- 24% and low haemoglobin levels- 51% [29]. However, among females, the prevalence rate of Post natal depression (PND) was 3.9% and among Indian females, the highest incidence of PND was 8.5% in comparison to Malay and Chinese females [30].

In spite of these facts, no current evidence is available, that reflects the prevalence and causes of depression in Malaysia. So far, no prominent effort has been cited, that has explored these issues regarding depression [31]. Keeping in view the motivation, this study aims to provide the data about the prevalence of depression and the possible factors responsible for its prevalence.

Materials and Methods

This was a descriptive study. Retrospective and prospective evaluations of the medical records were conducted at

the psychiatry OPD, Penang, GH, from Jan 2002 till Dec 2007. Penang is one of the thirteen states and is geographically situated in northern Malaysia. The population of Penang is multicultural; Malay (42.5%), Chinese (46.5%), Indian (10.6%) and minorities (0.4%), with an estimated population of 1.5 million [32].

Patients

All the registered patients who had a confirmed diagnosis of depression at the psychiatry OPD, Penang, GH, from 1st January 2002 to 31st December 2007, were included in the study. Those with a prevalence of other psychiatry disorders in addition to depression were not included in the study. Only the cases with the prevalence of depression alone were considered. Information like socio-demographics and the stressors identified by the psychiatrist in the medical records were a part of the data collection. For additional information, all the patients on follow up were interviewed.

Ethical Consideration And Data Analysis

The study protocol was approved by the Clinical Research Centre (CRC), Penang General Hospital and Ministry of Health, Malaysia. The data was analyzed by using the statistical software, SPSS version 13®. The data with quantitative variables were expressed by mean (\pm SD) and range, while the qualitative variables were estimated by frequency and percentage. However, to further evaluate the association of race, gender and age group with the prevalence of depression, the Chi-square test was applied. In some cases where the cell count was less than 5, the Fischer's exact test was applied.

Results

A total of 298 patients were registered at the psychiatry OPD with a confirmed diagnosis of depression. Of these, the majority [169(56.7%)] were females. The prevalence of depression was found to be statistically significant among females ($X^2 = 216.5$, $df = 2$, $p < 0.001$). In terms of ethnic groups, the majority [172(57.7%)]

were Chinese ($X^2 = 1951.5$, $df = 5$, $p < 0.001$). However, in terms of age majority, 121 (40.6%) were over 50 years of age ($X^2 = 128.0$, $df = 7$, $p < 0.001$). Of these, 72(59.5%) were females. Details about the patients from different age groups, races and genders are described in [Table/Fig 1].

(Table/Fig 1) Demographics of the patients

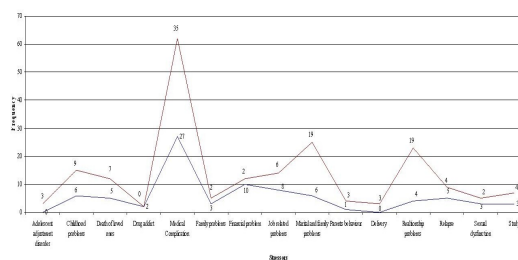
Race	Malay	77(25.8%)
	Chinese	172(57.7%)
	Indian	44(14.8%)
	Thai	1(0.3%)
	Indonesian	3(1.00%)
	Palestine	1(0.3%)
Gender	Male	128(43.0%)
	Female	170(57.0%)
Age (Range 15-84 years) Mean age = 44 \pm 16.8	15-24 years	45(15.1%)
	25-30 years	24(8.1%)
	31-35 years	18(6.0%)
	36-40 years	27(9.1%)
	41-45 years	24(8.1%)
	46-50 years	39(13.1%)
	Over 50 years	121 (40.6%)

Findings revealed a gradual increase in the number of patients every year. The highest number [81(27.2%)] was registered in the year 2007, of whom 50(61.73%) were Chinese. So, overall, among the retrospective and prospective patients, depression was frequent in the Chinese. Details about the annually registered cases are described in [Table/Fig 2].

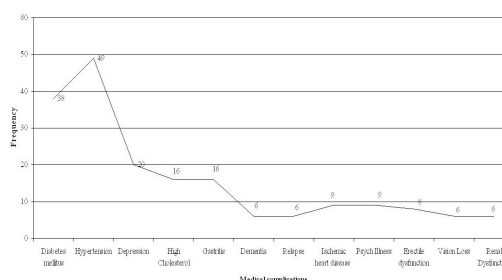
(Table/Fig 2) Registered cases of depression in last six years

Race	Year						Total (n=298)
	2002	2003	2004	2005	2006	2007	
Chinese (n=172)	5	18	36	32	31	50	172(57.7%)
Malay (n=77)	6	5	15	22	11	18	77(25.8%)
Indian (n=44)	1	1	9	15	7	11	44(14.8%)
Thai (n=1)	-	-	-	-	-	1	1(0.3%)
Indonesian (n=3)	-	-	-	2	-	1	3(1.00%)
Palestine (n=1)	-	-	-	1	-	-	1(0.3%)
Total	12 (4.0%)	24 (8.0%)	60 (20.1%)	72 (24.2%)	49 (16.4%)	81 (27.2%)	298

Whilst evaluating the stressors causing depression, it was revealed that medical complications and social problems were the common stressors identified during the diagnostic evaluation of the patients [Table/Fig 3]. Segregation of the data in terms of gender revealed that medical complications and social problems were the frequent reasons for depression among females. A majority (thirty five of sixty two) of the patients with medical complications were females. The most prevalent medical complication was hypertension. Details about the other recorded medical complications are mentioned in [Table/Fig 4]. However, among social issues, marital and family problems, followed by relationship/childhood problems and death of loved ones, were the frequent stressors among females. Financial and job related problems were the common stressors identified among males. Details about the stressors which have been identified as the possible reasons for depression are mentioned in [Table/Fig 3]. On ethnic grounds, medical complications and social problems were frequent among the Chinese, as compared to other ethnic groups. Details about the ethnic classification of complications are described in [Table/Fig 5].



(Table/Fig 3) Gender based Identified stressors for Depression



(Table/Fig 4) Types Of Medical Complications

(Table/Fig 5) Ethnic classification of stressors

Race	Death of loved ones	Financial problem	Job related problems	Marital and		
				family problems	Medical complication	Relationship problems
Chinese	7	10	6	15	46	10
Malay	4	2	5	7	11	7
Indian	1	0	4	3	5	5
Thai	0	0	0	0	0	0
Indonesian	0	0	0	0	0	0
Palestine	0	0	0	0	0	1

Discussion

Findings of this retrospective and prospective study demonstrated a high prevalence of depression among Chinese females. However, the population with age over 50 years was found to be at a risk of depression due to medical complications. The age group below 50 years was more affected by social stressors. These findings highlight the need to consider the effect of comorbid medical conditions on the mental health of the individual. Negligence in this regard will result in increased disability and costs to the community.

Hypertension and Diabetes mellitus were the most frequent medical complications reported by the patients. These findings comply with the findings of Anderson et al., 2001; Egede et al., 2002; Pies and Rogers, 2005 and Goodnick, 1995, that provided evidence of frequent depressive disorders among diabetic and hypertensive

patients [33],[34],[35],[36] . A possible reason for the depressive symptoms among hypertensive patients may be due to the use of beta blockers [35]. The incidence of depression along with co-morbid diabetes and hypertension was frequent among patients aged over 50 years. These findings are in compliance with the findings of Sherine et al., which reported a high prevalence of depression among elderly diabetic and hypertensive patients [37].

Other medical complications noticed singly or in combination with diabetes mellitus and hypertension were high cholesterol, gastritis, and Ischemic Heart Disease (IHD). Mehmet et al., 2007 provided solid evidence about the symptoms of depression among those reporting with gastritis and high cholesterol concurrently [38]. However, depression among patients high cholesterol is still a mystery to explore. Moreover, patients with IHD are at a high risk of depression [39]. One cannot assume that depression will result in IHD. However, Vikram et al., 2002 provided solid evidence about depression among patients with IHD [39].

Similarly, Shortall et al., 1996; Denburg et al., 1997 rated the population with kidney disorders as a high risk group for depression [40],[41]. More specifically, those with systemic lupus nephritis reported with a high frequency of symptoms of depression [40],[41]. These findings provide evidence that a variety of medical disorders and their therapies can result in depression. The main issues in dealing with co- morbid depression in this context is making an accurate diagnosis, checking the complication and interaction between depression and the medical illness and establishing an appropriate management plan that addresses both problems.

Aetiology Of Depression

Medical complications were the most common stressors which were found to result in depression These findings confirmed the evidence reported by other

studies, which reported a high risk of depression among patients with various medical conditions, especially hypertension and diabetes mellitus [15], [16],[33],[36],[37].

In addition, marital, familial and relationship problems were the most common reported stressors. Detailed exploration on the basis of gender provided evidence that social issues like marital and family problems, followed by relationship/childhood problems and death of loved ones, were the frequent stressor among females. Previous findings by Sherine et al., (2003 a) confirm the association between relationship problems and familial issues as the frequently reported stressor for depression among females [42]. Sherine et al., (2003a) provided evidence of a high frequency of relationship problems among females, especially with partners, parents, siblings and love ones. In addition, job related and financial problems were the frequent stressors among males [42]. Patricia, 2000; and Nisar et al., 2004 have provided evidence that have proved the association of socioeconomic problems with the prevalence of depression [21],[25]. Loss of loved ones was another potential stressor for depression as was revealed by studies. Depression due to loss of loved ones was reported more in females. These findings provide evidence about the sensitive and sympathetic nature of females which result in a potent emotional reaction, leading them to depressed state. Another most important stressor was the childhood problems of the patient. These problems may be due to the behaviour of parents and lack of attention and love. Childhood problems were reported more by men, but problems due to lack of attention and love was observed more among female adolescents. These findings provided a link that associated childhood problems to depression in later life [26].

Conclusion

Medical complications and social problems were the most common stressors. Overall, our findings demonstrate a high risk of depression

among elderly patients with medical complications. In terms of gender, social and financial problems were potential stressors which resulted in depression. However, ethnically, in the Chinese, depression was a result of both medical complications and social problems.

Clinical Implication

At present, Malaysia is on the way to develop its mental health policy in order to control the rising incidence of the depressive disorders in the community. No current data is available that describes the aetiology of depression among the different states of Malaysia [31]. These findings will be helpful for the health regulatory authorities in order to design a better mental health policy and to rectify the identified social stressor to prevent the grids of depression from further rising.

Recommendation

There is an immediate need for the social support programs to further identify the root cause of the social problems in the community. Moreover, micro credit financing can be a possible solution to resolve the financial problems in the community. In addition, it is essential to assess the quality of life of the elderly, especially those with medical complications.

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