

DEPRESSION AMONG MULTIPLE SCLEROSIS PATENTS: A COMPARATIVE STUDY FOCUSING ON THE SEVERITY OF DEPRESSION ON GENDER BASIS

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ABSTRACT

Introduction: Multiple sclerosis (MS) is an immune-mediated inflammatory/neurodegenerative disorder of human Central Nervous System leading to demyelination of axons of neurons. The psychiatric manifestations of multiple sclerosis include disorders of mood, affect, and behavior, as well as cognitive impairment. Depression is primarily produced by inflammation in the brain, which is a hallmark of MS. Presence of depression among MS patients makes them more vulnerable to suicidal intentions and viable to treatment failure.

Objective: To determine frequency and severity of depression among multiple sclerosis patients presenting to a tertiary care hospital in Karachi.

Subjects and Methods: A cross-sectional study was carried out in a tertiary care hospital of Karachi where a total of 85 patients of multiple sclerosis were interviewed using a structured questionnaire from June to November, 2014. Diagnosis of depression was made according to DSM-IV criteria with patients having a score of > 8 were labelled as having depression.

Results: The mean age of study participants was 39.8 ± 8.91 years, 71.8% of them resided in urban areas whereas the mean duration of Multiple Sclerosis in these participants was 9.61 ± 2.0 months. 23.5% of them had depression as determined by the DSM-IV criteria. Furthermore, urban residence was found to be significantly associated with presence of depression ($P = 0.008$) but no association between gender and severity of depression was observed.

Conclusion: The study findings revealed that depression is common among patients with MS and thus healthcare workers must have the essential tools to make appropriate and precise diagnosis as proper diagnosis and severity assessment are critical prior to initiation of therapy. MS care providers therefore need to carefully evaluate depression and suicide risk in their patients.

Key Words: Prevalence, Depression, Multiple sclerosis, Karachi.

INTRODUCTION

Multiple Sclerosis is an immune-mediated inflammatory/neurodegenerative disorder of human Central Nervous System resulting in demyelination of axons of neurons that affects more than 2 million individuals around the globe.¹ The disease is known to mankind since 1830s.² Even though, MS disease prevalence is maximum in inhabitants from the northern United States, northern Europe, Canada, New Zealand, and southern Australia- but people from all countries and of all races have been diagnosed with the disease.³ In Pakistan, it has been reported that 53% of patients presenting with demyelinating disease have multiple sclerosis.⁴ Among these patients, relapsing remitting (RR) pattern was seen in 80%, while 20% had secondary progressive multiple sclerosis (SPMS).⁵

Multiple Sclerosis (MS) is a progressive disabling

disease which affects mostly young adults of ages between 20 and 40 years, causing substantial disability & low quality of life.⁶ Mean age of onset of MS in Pakistan is reported to be 27 years, with a female to male ratio of 1.45:1.5. Worldwide, MS occurs in women more frequently than in men; with ratios of incidence ranging from 2:1 to 3:1, depending on the geographical region.⁷ Commonly, the patients experience symptoms like vision disturbance, chronic pain, fatigue, impaired cognitive functioning, muscle weakness, spasticity, tremors, loss of bowel and bladder control, and emotional changes.⁸ These signs and symptoms are due to disruption of neuronal transmission in demyelinated neurons of CNS.

The psychiatric manifestations of multiple sclerosis include disorders of mood, affect, and behavior, as well as cognitive impairment⁹; caused by inflammat-

ion, neuronal degeneration, and lesion formation. The cognitive degeneration in multiple sclerosis is related to the loss of Gray matter in the brain, especially in the cerebral cortex and the thalamus which is relay center for sensory information.¹⁰ Cognitive injury is the important predictor of occupational debility and such patients are also known to participate in social activities less frequently.^{11,12}

One of the consequences of these psychiatric problems among MS patients is depression which is primarily produced by inflammation in the brain, a trademark of MS.¹³ Diverse revisions have related depression in MS to losses in learning, memory, processing speed, low quality of life and executive function. Life time risk of developing depression among MS patients is reported to be from 25%-50%.¹⁴⁻¹⁸ A more recent study from Lithuania found that about 20.7% patients of MS had depression.¹⁹

Depression is usually a perilous disease and it becomes even more in patients of multiple sclerosis as in such patients it is often unrecognized and untreated.^{20,21} Presence of depression among MS patients makes them more vulnerable to suicidal intentions and viable to treatment failure.²² Therefore, identification of depression and treatment in MS patients is of optimum importance. Furthermore, treatment of depression may improve adherence to MS medication regimens and may even be associated with favorable immunologic changes.²³

Although a number of studies have been conducted on this subject globally, as cited above, there is a complete lack of such data from Pakistan. The current study was therefore conducted to determine frequency and severity of depression among multiple sclerosis patients presenting to a tertiary care hospital in Karachi, Pakistan.

PATIENTS AND METHODS

After taking approval from ethical review committee of Jinnah Post Graduate Medical Centre, Karachi, a cross sectional study was conducted from June 2014 to November 2014. A total of 85 patients diagnosed with MS for at least 6 months, of either gender aged between 18 to 60 years, presenting at neurology ward of JMPC were included in the study after obtaining their written informed consent. Patients with Myasthenia Gravis, Gullain Barre syndrome, Stroke and inflammatory myopathies were excluded. Those with depressive illness before the onset of MS or treated for depression or receiving interferon therapy, having hepatic or uremic encephalopathy or getting corticosteroid therapy within 6 months were also excluded from the study.

Diagnosis of depression was made according to DSM-IV criteria with patients having a score of > 8 were labelled as having depression whereas its severity was measured by Hamilton Rating Scale for depression with the score of 8-17 being labelled as mild, 18-24

being labelled as moderate and that of 25 and above being labelled as severe form of depressive disorder. The data were collected by means of a pretested questionnaire and were entered and analysed in SPSS version 19. For continuous variables, summary statistics included mean and standard deviation whereas for categorical variables, frequencies and percentages were generated. Chi square test was used to check for associations whereas the significance level was set at 0.05.

RESULTS

The mean age of study participants was 39.8±8.91 years, 51.8% of them were males whereas 48.2% of them resided in urban areas. The mean duration of Multiple Sclerosis in these participants was 9.61 ± 2.0 months. 23.5% of them had depression as determined by the DSM-IV criteria whereas the mean DSM-IV score was 6.39 ± 2.90. 50% of the study participants had mild depression, 40% had moderate depression whereas 10% had severe depression (Table 1).

Table 1: Patients General Characteristics.

Variable (n = 85)		Frequency (%) / Mean ± S.D.
Age (years)		39.8 ± 8.91
Gender	Male	44 (51.8)
	Female	41 (48.2)
Residence	Urban	61 (71.8)
	Rural	24 (28.2)
Disease Duration (months)		9.61 ± 2.0
Depression	Yes	20 (23.5)
	No	65 (76.5)
Depression Severity	Mild	10 (50.0)
	Moderate	8 (40.0)
	Severe	2 (10.0)
DSM-IV Score		6.39 ± 2.90

The analysis of presence of depression with respect to age of patients, residence and disease duration revealed that only residence had significant association with presence of depression where Multiple Sclerosis patients living in urban areas were more likely to be suffering from depression than those living in rural areas (P = 0.008) whereas age of patients and disease duration were not significantly associated with presence of depression though the prevalence of depression was recorded to be highest among the patients who were oldest and had longest disease duration (Table 2).

Depression was found in 21(25%) males and 19 (22%) females Furthermore, the analysis of severity of depression with respect to gender among Multiple Sclerosis patients with depression did not reveal any significant associations (Figure 1).

Table 2: Presence of depression with respect to age of patients, gender, residence and disease duration.

Variable (n = 100)		Depression		P-Value
		Yes n (%)	No n (%)	
Age Groups (years)	21 to 30	3 (23.1)	10 (76.9)	0.25
	31 to 40	4 (12.5)	28 (87.5)	
	41 to 50	9 (31.0)	20 (69.0)	
	51 to 60	4 (36.4)	7 (63.6)	
Gender	Males	21 (25)	64 (75)	0.74
	Females	19 (22)	66 (78)	
Residence	Urban	19 (31.1)	42 (68.9)	0.008
	Rural	1 (4.2)	23 (95.8)	
Disease Duration (months)	6 to 8	3 (27.3)	8 (72.7)	0.25
	9 to 12	13 (20.0)	52 (80.0)	
	> 12	4 (44.4)	5 (55.6)	

Chi-square test is used to assess the significance

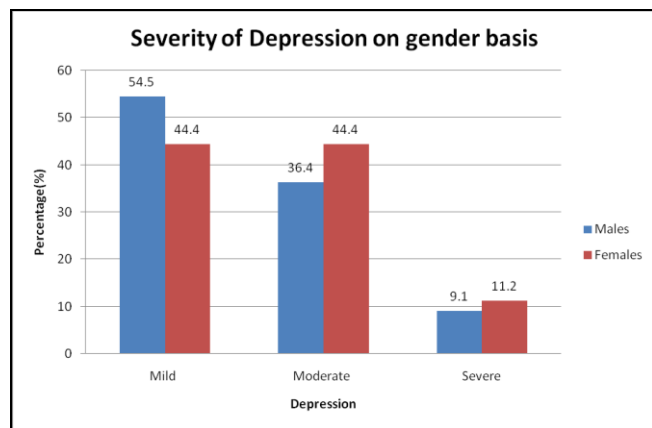


Fig. 1: Severity of depression with respect to gender among Multiple Sclerosis patients with depression.

DISCUSSION

The prevalence of depression among patients of MS has been predicted to be more than that in the common population as well as that in patients with other chronic diseases which may be due to the multifactorial nature of depression in MS.^{24,25} Presence of depression in MS patients is the sole factor determining

the decreased quality of life and is usually under-recognized and under-treated.^{26,27} Prospective studies have documented that the incidence of depression ranged from 4.0% in one year to 34.7% over a five-year period²⁸ whereas the prevalence of depression in MS patients could vary from as low as 5% to as high as 59% depending on the targeted population, the measure used, and the time frame evaluated.²⁸

In our study, out of 85 cases, prevalence of depression among MS patients was found to be 23.53% i.e. 20 cases. Out of these 20 depressive cases, 50% had mild, 40% had moderate whereas 10% had severe depression. A study by Sadovnick AD et al. reported a lifetime prevalence of depression to be 50% among MS patients.²⁹ Likewise, Chwastiak L et al. reported that 42% surveyed patients of MS had clinically significant depressive symptoms whereas 29% scored in the moderate to severe depression range.³⁰ In another study, Patten et al. reported a 12 month prevalence rate of 25.7% for major depression in people with MS aged 18–45 years concluding that on average, one in four people with MS probably had unrecognized and undiagnosed symptoms of depression.³¹

The risk factors for major depression in multiple sclerosis have been identified as female gender, age less than 35 years, family history of major depression, and a high level of stress.³² Our study found though that 66.4% of cases of depression were ≥ 41 years old whereas depression was found to be slightly more prevalent in males than in females (25% vs. 22% respectively). A contemporary study reported mean age of MS patients with depression to be 35 years while male to female ratio was 3.5:6.5 which is different from our study³³ though the female patients in our study had higher prevalence of moderate and severe depression than males (44.4% vs. 36.4% and 11.2% vs. 9.1% respectively). This difference in findings could be attributed to different population characteristics. The study results also demonstrated that prevalence and severity of depression increased with the increasing age of MS patients. Furthermore, longer the duration of MS, higher was the prevalence of overall as well as of moderate depression. Earlier studies have also reported that longer duration of MS leads to increase prevalence of depression though it depends whether the patient has been treated for depression or not.^{34,35} The study results also showed that MS patients living in urban areas had higher prevalence of depression than those living in rural areas (P value = 0.008) but no comparable data were available to contrast this finding with that of previous studies. Despite that, it could be hypothesized that as in urban households more of the family members usually struggle to meet the needs of costly living, fewer people are left behind to tend to the needs of MS patients in a given family which may ultimately manifest itself in the form of depression.

The current study had certain limitations such as

observer and subjective bias. Therefore; the results should be inferred carefully with respect to their generalization on the whole population.

It is **concluded** that the study findings revealed that depression is a common psychiatric disorder among MS patients in Pakistan. Evidence generated from earlier studies has repeatedly been similar and even prevalence of depression among MS patients has been reported to be higher than among patients with other chronic illnesses. The study findings further revealed that patients who were male, were of older age and had longer duration of MS were more likely to be suffering from depression.

RECOMMENDATIONS

In multiple sclerosis patients, depression is frequent and can momentarily vary with the severity of the disease. Healthcare workers must have the essential tools to create appropriate and precise diagnoses and be able to quickly initiate the therapy in order to prevent any untoward consequences of depression.

Conflict of Interest

The authors report no conflict of interest in this work.

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