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# Psychiatric Comorbidities of Multiple Sclerosis: A Cross-Sectional Study

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**Abstract** **Original Research Article**

This study investigates the prevalence of psychiatric comorbidities in patients with multiple sclerosis (MS), a chronic neurological disease. The research highlights the high frequency of psychiatric comorbidities, particularly depression and anxiety, which are often underdiagnosed and undertreated. The study included 120 patients with definite MS and found that 30% of them had major depressive disorder, 45% had anxiety disorders, and 25% had generalized anxiety disorder. The prevalence of bipolar disorder was 1.66%, and substance abuse was also identified as a significant issue. The work emphasizes the importance of clinical attention to psychiatric comorbidity in MS patients, as it is associated with an increased risk of suicide. The results suggest that anxiety is a powerful predictive factor for depression, and that behavioral disorders are more common than severe psychiatric disorders, likely due to cognitive impairment. We conclude that psychiatric comorbidities are common in MS and that their appropriate management is crucial to improve quality of life and prevent suicide.

**Keywords**: MS, multiple sclerosis, depression, anxiety, psychiatric comorbidities.



## I. INTRODUCTION

Multiple sclerosis, a chronic neurological disease primarily affecting young adults, gradually leads to increasing disability. Literature research shows that individuals with this condition often exhibit emotional and cognitive deficits.

Psychiatric comorbidities, especially depression and anxiety, are common among patients with multiple sclerosis. These conditions are often underdiagnosed, undertreated, and linked to worsening disability, decreased quality of life, and reduced treatment adherence. Behavioral issues are more prevalent than severe psychiatric disorders and are likely a result of cognitive impairment. Substance abuse may also be underestimated. While the high frequency of psychiatric comorbidity is influenced by psychosocial factors, demyelination and inflammation may also play a role. Psychiatric comorbidity in multiple sclerosis patients warrants clinical attention as it is associated with an increased risk of suicide.

## II. OBJECTIFS

- Highlight the psychiatric comorbidities associated with MS and Their prevalence.
- Discuss their appropriate management to improve quality of life and prevent one of the major risks: suicide.

## III. MATERIELS AND METHODS

We included 120 volunteer patients with definite multiple sclerosis (diagnosis established according to the McDonald criteria, 2010) in this cross-sectional study.

We studied their epidemiological data: age at the time of the study, sex, marital status, socioeconomic status, and educational level. As well as their clinical data: age at onset of the disease, mode of onset (monosymptomatic or polysymptomatic), clinical form (relapsing, secondary progressive, primary progressive, progressive relapsing), duration of disease progression, number of relapses, time interval between the first and second relapses, delay in the occurrence of the progressive phase (for secondary progressive forms), and the basic treatment instituted for the patients.

It was necessary for these patients to look for concomitant pathologies, bipolarity or other psychiatric disorders.

The evaluation of anxiety and depressive symptoms was carried out using an Arabic-translated version of the Hospital Anxiety and Depression Scale (HADS) questionnaire. This questionnaire consists of two subscales, each with 7 items, one for anxiety and the other for depression. Each item is scored from 0 to 3 according to the degree of severity of both.

The anxiety score is obtained by adding the scores assigned to the seven questions on anxiety. A score greater than or equal to 10 out of a maximum of 21 defines anxiety.

The depression score is obtained by adding the scores assigned to the seven questions on depression. A score greater than or equal to 10 out of a maximum of 21 defines depression.

For personality disorders, the DSM V criteria were used.

## IV. RESULTS

We included 120 patients with a mean age of 32 ± 11.5 years. They were divided into 35 men and 85 women (sex ratio = 0.41). The sociodemographic characteristics are detailed in Table 1, and the clinical characteristics of our population are detailed in Table 2.

**Table 1: Socioeconomical characteristics of study population (n=120)**

| | |
|---|---|
| **Mean age** | 32 years old |
| **Sex** | |
| Male | 29.16% |
| Female | 70.84% |
| **Marital status** | |
| Married | 58.33% |
| Single | 33.33% |
| Divorced | 8.33% |
| **Education level** | |
| Illiterate | 4.6% |
| Primary school | 12.5% |
| Secondary school | 25% |
| University | 58.33% |
| **Socioeconomic level** | |
| Low | 12.5% |
| Medium | 54.16% |
| High | 33.33% |
| **Mean age** | 32 years old |
| **Sex** | |
| Male | 29.16% |
| Female | 70.84% |
| **Marital status** | |
| Married | 58.33% |
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| **Socioeconomic level** | |
| Low | 12.5% |
| Medium | 54.16% |
| High | 33.33% |

**Table 2: MS clinical characteristics of our population S (n=120)**

| | |
|---|---|
| **Mean onset age** | **22 years old** |
| **Onset pattern** | |
| Monosymptomatic | 66.66% |
| Polysymptomatic | 33.33% |
| **Clinical form** | |
| Remitting | 66.66% |
| Secondary progressive | 16.66% |

| | |
|---|---|
| **Mean onset age** | **22 years old** |
| Primary progressive<br>Remitting progressive | 12.5%<br>4.16% |
| **Duration of evolution** | 10.6% |
| **Mean number of episodes** | 6.8 |
| **Interval of time between the first and the second episode** | 1.6 years |
| **Onset time of progressive form** | 7.5 years |
| **Percentage of patients taking disease-modifying treatment** | 75% |

Histories of chronic general medical conditions were found in 35 patients, including allergies in 20 patients, gastroduodenal ulcers in 4 patients, gynecological problems in 4 patients, hypertension in 1 patient, and dyslipidemia in 1 patient.

Psychiatric histories were documented in 9 patients: depression in 4 patients, conversion disorder in 2 patients, postpartum psychosis in 1 patient, and bipolar disorder in 2 patients.

**Table 3: Prevalence of psychiatric disorders in patients with MS in comparison to the general population**

| Psychiatric disorder | Prevalance in the population of our study in % | Prevelance in the general population in % |
|---|---|---|
| Major depressive disorder | 30 | 16.25 |
| Anxiety disorders | 45 | 25 |
| Generalized anxiety disorder | 25 | 3 |
| Bipolar disorder | 1.66 | 0.2 |
| Schizophrenia | 0 | 0.3-0.66 |
| Brief psychotic disorder | 0.83 | 0,000003 |
| Somatoform disorders | 1.66 | 0.2-2 |
| Borderline personality disorder | 2.5 | 1.6 |
| Alcohol use disorder | 10 | 7.6 |

In Table 3 we elaborate on the prevalence of psychiatric disorders objectified in our study in comparison to the general population.

## V. DISCUSSION

In a study involving 140 patients with Multiple Sclerosis (MS) [3] the frequency of suicidal intentions is 28.6% compared to 10% in our series. The main identified risk factors are social isolation, a family history of psychiatric comorbidity, social stress, a history of major depression, anxiety, and alcohol abuse.

Anxiety is very common in patients with MS: a recent study conducted online in the UK showed that over half of the 4,178 respondents scored above 8 (pathological threshold) for anxiety on the Hospital Anxiety and Depression Scale (HADS), with a predominance among women and individuals with relapsing-remitting MS (RRMS). Ten percent of patients had severe anxiety, and only a quarter were not anxious. The observed prevalence rates and average anxiety scores were higher than those in the general population of the UK [4].

Generalized anxiety is the most common, as it affects a third of patients, followed by panic disorders (10% of subjects) and obsessive-compulsive disorders (8.6% of subjects) [5].

Based on data collected up to 2014, a meta-analysis established an average prevalence of depression in individuals with Multiple Sclerosis (MS) at 30.5% [1]. The overlap of certain symptoms of depression and those related to MS complicates the diagnosis of Major Depressive Disorder (MDD). Four overlapping symptoms have been identified: insomnia, fatigue, cognitive difficulties, and concentration problems. The onset of depression is correlated with the severity of disability, especially if it develops rapidly.

Most epidemiological studies have shown an increased prevalence of bipolar disorders in patients with MS. Using administrative data from Canada, in a study involving 4,192 individuals with MS and 20,940 control subjects, R.A. Marrie et al. [6] found that the standardized prevalence of bipolar disorder was 5.83%, compared to 3.45% in the general population. These numbers indicate a link between bipolar disorders and MS that is not well understood to date but is likely multifactorial. Several factors are implicated, such as certain medications (corticosteroids, baclofen, dantrolene, tizanidine), illicit drugs, brain injuries, genetic factors, psychological reactions, and difficulties adjusting to the disease.

A literature review published in 2015 reported a prevalence of psychotic disorders ranging from 0.41% to 7.46% in various studies. Imaging data were available for 50 patients, showing that 60% of them had predominantly fronto-temporal lesions [7].

A case-control study specifically examined the frequency of personality disorders in MS, involving 20 patients with the disease and 35 healthy controls. Paranoid and borderline personality disorders were more frequently observed in MS patients compared to control subjects, with rates of 25% versus 3% and 25% versus 0%, respectively. There were no significant differences in the frequency of other personality disorders (particularly narcissistic or histrionic) [8].

In a large community-based study involving 739 MS patients, C.H. Bombardier *et al*., [9] found that 19% of patients had alcohol or illicit drug abuse. Alcohol abuse or dependence was detected in 14% of patients, while illicit drug abuse was found in 7.4% of patients. Cannabis and cannabinoids are used by MS patients to alleviate symptoms associated with the disease.

## VI. CONCLUSION

Psychiatric comorbidities are common in MS. The risk of suicide is particularly serious in the early years of the disease. Anxiety is common and is the most powerful predictive factor for depression. Major depressive disorder (MDD) is underdiagnosed and undertreated. Behavioral disorders are more common than severe psychiatric disorders and are probably due to cognitive impairment. Addictions may be underestimated, and they complicate the evaluation and treatment of MS.

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