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DEPRESSIVE DISORDER IN PATIENTS WITH MULTIPLE SCLEROSIS

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ABSTRACT

Multiple sclerosis is a disease of neurodegenerative features. It is characterized as a chronic disorder that can occur with comorbid psychiatric diseases, mainly depression. We present in this manuscript aims to evaluate the frequency of depressive disorder in a population of patients with multiple sclerosis in Brazil and to characterize sociodemographic and clinical aspects. It is an exploratory, cross-sectional and quantitative study. The study included 73 patients with multiple sclerosis who are assisted by a public outpatient neurology service at a university hospital in Brazil. It was identified that the presence of depressive disorder is correlated with lower educational levels and with work incapacity (Pearson's linear correlation test, $p = 0.041$, $p = 0.009$). Significant correlation was identified for PHQ-9 positive and female sex (Spearman's linear correlation test, $p = 0.028$). The clinical variables of the study were submitted to a correlation analysis with the values of PHQ-9 and the presence of depressive disorder, being the number of physical limitations secondary to multiple sclerosis. The variables that presented significant correlations were the presence of deficiencies in locomotion, physical activity practice, the presence of comorbidities and the number of comorbidities present. From the results obtained, this study concluded that the frequency of depressive disorder was high in the multiple sclerosis population evaluated. Awareness of the importance of adequate diagnostic investigation and effective treatment of comorbid psychiatric disorders should be part of the guideline of health professionals involved in the care of patients with multiple sclerosis.

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INTRODUCTION

Multiple sclerosis is a chronic, autoimmune disease that affects the central nervous system. It promotes inflammation and destruction of the myelin sheath of neurons in different proportions (GOLDENBERG, 2012). According to estimates made in the last decade, multiple sclerosis has surpassed the level of two million people affected worldwide (GAY *et al*., 2010; SILVA *et al*, 2016). This disease usually affects adults between the ages from 20 to 40, and is more frequent in women, at a ratio of 2: 1 compared to men. The progressive phase of the disease usually arises from 5 to 35 years after the onset of symptoms (Ransohoff; Hafler; Lucchinetti, 2015).

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Multiple sclerosis has a varied profile of symptoms and causes in its carrier's heterogeneous clinical pictures. Despite being an unpredictable disease, approximately 50% of patients will need wheelchairs 25 years after their diagnosis (KISTER *et al*., 2013; DENDROU; FUGGER; FRIESE, 2015). Despite its uncertain evolution, multiple sclerosis is always associated with reduced levels of patient activity, and mood disorders are common. Among mood swings in multiple sclerosis, depression stands out among the most common with prevalence ranging from 20 to 50%, that is, it depends on the method used and the population studied, and prevalence throughout life around 50% (KOROSTIL, FEINSTEIN, 2007; GAY *et al*., 2010; GIORDANO *et al*., 2011). In addition, the relationships between depressive disorders in multiple sclerosis and worsening of quality of life have been increasingly discussed and have a negative impact. In view of

the above, an adequate diagnostic investigation and the effective treatment of mood disorders should be part of the approach to patients with multiple sclerosis (FEINSTEIN *et al*., 2014). The aim of this study was to evaluate the frequency of depressive disorders in an outpatient population of patients with multiple sclerosis in Brazil and to characterize their sociodemographic and clinical aspects.

RESULTS

The study addressing patients with multiple sclerosis identified 73 individuals eligible to participate in this study. Of these, most were in the age range from 30 to 59 years, totaling 74.0% (n = 54). The mean age was 40.2 ± 11.6 years, with the lowest age being 18 years and the highest 70 years. Regarding schooling, 58.9% (n = 43) had more than 11 years of schooling. Seventy-four percent (n = 54) of the patients were Caucasians, and the number of women prevailed in this study (71.2%; n = 52), with the observed ratio of 2.5: 1 to men. In relation to the frequency of the depressive disorder, only 45.2% (n = 33) had a PHQ-9 value equal to or greater than the defined cutoff point (score = 10), as shown in Figure 1. After a psychiatric evaluation, 8% (n = 32) had a diagnosis of confirmed depressive disorder, of which 63% (n = 20) had scores suggestive of severe depression on the screening scale.

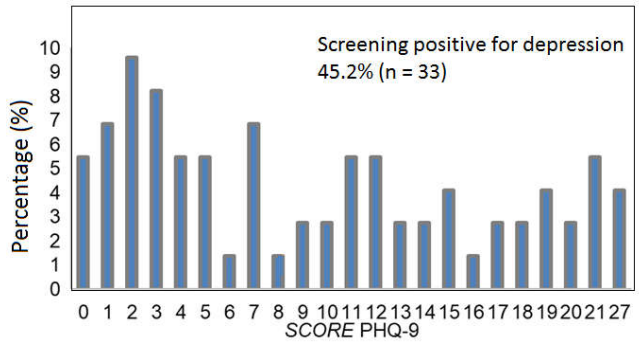

Figure 1. Distribution of the PHQ-9 scores of the patients with multiple sclerosis assisted in Campo Grande, MS, 2019/Brazil

Table 1. Distribution of patients with Multiple Sclerosis and depressive disorder attended at UFMS, according to the sociodemographic profile. Campo Grande-MS, 2019

Sociodemographic Characteristics	% (n) N=32
Collor *	
White	75,0% (24)
Brown-skinned	21,9% (07)
Afro-Brazilians	3,1% (01)
Schooling	
Elementary School	21,9% (07)
High school	34,4% (11)
Higher education	43,8% (14)
Marital status	
Married	50,0% (16)
Divorced	3,1% (01)
Not married	43,8% (14)
Widower	3,1% (01)
Sex	
Female	84,3% (27)
Male	15,7% (05)
Age Group	
Young Adults (18 to 29 Years)	15,6% (05)
Adults (from 30 to 59 Years)	78,12% (25)
Seniors (60 Years and over)	6,2% (02)

Table 1 shows the sociodemographic characteristics. In the group of 32 patients with multiple sclerosis diagnosed with depression, the majority were white people and had more than 11 years of study. Married people represent half of the group. The adult population was the most found in this group, 78.1% (n = 25) were from 30 to 59 years of age, with a mean age of 42 ± 11.8 years, and a range from 21 to 70 years. The female sex prevailed in this group of participants, the observed proportion being 5.2: 1 in relation to men. It was identified that 71.9% (n = 23) of patients with multiple sclerosis and depressive disorder were unable to work. The data presented by age group showed that 84.0% (n = 21) of the adult population considered in functional age (18 to 59 years, n = 30) stated that they did not perform work activities. Comparison of the values obtained on the PHQ-9 scale between the group of patients with multiple sclerosis and depressive disorder with preserved labor capacity with those from the group of patients with multiple sclerosis and depressive disorder with occupational incapacity were performed (Table 2).

Table 2. Comparison between labor capacity and the values obtained with the PHQ-9 scale with multiple sclerosis seen at the UFMS School Pharmacy. Campo Grande/MS, 2019

Labor Capacity	PHQ-9 Mean (standard deviation)	p value
YES	6,73 (± 5,9)	0,003
NO	11,9 (± 7,9)	

The results are presented as mean and standard deviation. Student's t-test of independent samples $p < 0.05$.

Results show that the presence of depressive disorder is correlated with lower levels of education (Point-biserial correlation test R = -0.240, p = 0.041), as well as with work incapacity (Pearson's linear correlation test, r = -0.303, p = 0.009). Significant correlation was also identified for PHQ-9 positive and female sex (Spearman's linear correlation test, R = 0.256 and p = 0.028). Regarding the age of the multiple sclerosis outbreak in this group of patients, 46.9% (n = 15) of the individuals had the first outbreak in the range between 30 and 59 years. More than half of the patients presented age from 30 to 59 years, 53.1% (n = 17). The mean age of the first multiple sclerosis outbreak in this group was 30.0 ± 8.5 years, with a minimum age of 10 and a maximum of 54 years. Considering the age of the patient in the self-reported diagnosis period, a mean of 34.0 ± 9.9 years was observed, with a minimum age of 16 and a maximum of 61 years, showing a difference of 4 years between the mean age of the first outbreak and diagnosis of multiple sclerosis. The distribution by age group of patients with multiple sclerosis and depression, according to the age of the first outbreak and the age of diagnosis. Of the 32 patients with multiple sclerosis who received diagnostic confirmation of depression during this study, only 8 patients (25%) claimed at the time of the interview had already been diagnosed with the depressive disorder prior to the study. Most of the patients evaluated had EDSS equal to or greater than 4, that is, they had some type of walking limitation, 53.4% (n = 39). Figure 2 shows the physical limitations related to multiple sclerosis reported by the patients themselves. Highlight the complaints of changes in locomotion. The clinical and nosological variables of the study were submitted to correlation analysis with the values obtained in the application of PHQ-9, as well as with the clinical confirmation of the depressive disorder. Table 3 shows the significant correlations identified related to the PHQ-9 scale. In relation to the presence of depressive disorder, significant correlations were identified between the same variables presented for positive depression screening, with similarity to the correlation coefficient (Point-to-bisserial correlation test, $p < 0.05$).

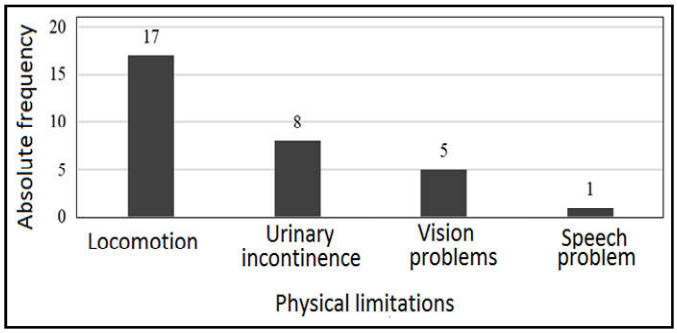

Figure 2. Physical limitations of patients with Multiple Sclerosis participants in the study, Campo Grande / MS, 2019

Table 3. Correlation between positive PHQ-9 and variables associated with the clinical and nosological profile of patients with multiple sclerosis in Campo Grande - MS, 2019

Clinical and nosological profile X PHQ-9	Point-bisserial correlation test	
	R	P
Number of physical limitations	0,315*	0,007
hysical limitation: LOCOMOTION	0,253*	0,031
Physical activity practice	- 0,267**	0,022
Presence of comorbidity	0,470*	0,000
Number of comorbidities	0,306*	0,009

* Significant positive correlation. ** Significant negative correlation.

It is interesting to note that the mean number of PHQ-9 values obtained among patients with physical activity was 7.7 ± 7.0, and in the group of non-practitioners an average of 11.7 ± 7.5. In this case, the difference between the groups considered significant (Student t test of independent samples, p = 0.022). In the same sense, there was a significant difference (Student's t-test of independent samples, p = 0.022) between the mean number of comorbidities between depressed and non-depressive patients (1.38 ± 1.0 and 0.78 ± 1.1).

DISCUSSION

The value of high frequency of depressive disorder in patients with multiple sclerosis assessed in this study is in line with other studies. The Subcommittee on Development of Guidelines of the American Academy of Neurology presented a publication on the evaluation and management of psychiatric disorders in individuals with multiple sclerosis. According to this subcommittee, the prevalence of depressive disorder in the population of patients with multiple sclerosis varies between 36% and 54%, being considered high in relation to the population without the clinical condition, and the difference reaches three times more (MINDEN *et al*., 2014). A systematic review conducted in 2017 by Boeschoten *et al* highlighted the increased risk of depressive disorders in the population with multiple sclerosis and found that prevalence rates vary widely from 14% to 54%. (BOESCHOTEN *et al*., 2017). As in the population with multiple sclerosis evaluated, a higher prevalence of women with multiple sclerosis associated with depression was also identified. A significant correlation was found between higher PHQ-9 values and female sex. A cross-sectional study of 2018 also identified a higher prevalence of depression among women with multiple sclerosis than in men (ALHAZZANI, 2018) Of the various hypotheses to explain the increase in frequency, the increase in the prevalence of multiple sclerosis in women observed in the last years stands out in principle (TROJANO *et al*., 2012; ALONSO e HERNÁN, 2008). Another highlight is the fact that women are at greater risk of developing depression compared to men in various cultural contexts. It is estimated that depression affects two to three times more women than men, and this difference can be justified by the presence of psychosocial stressors imposed on women, hormonal issues and childbirth. In addition, it is also known that they have higher rates of relapse or non-remission of depression than men (LEIBENLUFT, 1996; PATTEN, METZ, REIMER, 2000; KUEHNER, 2003). Most patients with depression in the population with multiple sclerosis studied have no upper level. This result is in agreement with other studies (DA SILVA *et al*., 2011; GIORDANO *et al*., 2011). Despite the predominance of higher levels of schooling in this group of patients, it was verified that higher scores in the scale were associated with lower schooling. Viner *et al.* (2014), analyzing the factors that exerted influence in patients with multiple sclerosis associated with depression, found that considering the level of education, PHQ-9 values decreased significantly with increasing schooling. Aşiret, Özdemir and Maraşlioğlu (2014), in their study on depression and life satisfaction in patients with multiple sclerosis, found that a high score on the depression scale was inversely proportional to the sociodemographic characteristics educational and economic level.

There is no difference in the prevalence of depressive disorders among ethnicities, however, multiple sclerosis is more prevalent in white individuals (HEMMER, ARCHELOS, HARTUNG, 2002; SADOCK, SADOCK, RUIZ, 2016). The socioeconomic pattern typical of patients with multiple sclerosis and psychiatric disorders was not investigated. However, it is known that there is a high risk of declining living standards among patients with multiple sclerosis, mainly due to the deficiencies and limitations related to the disease, especially when they occur during the economically active period of life. (GOLDENBERG, 2012; KARUSSIS, 2014; HAMMOND *et al*, 1996). From our results, we identified the predominance of married patients over the unmarried (single, widowed, or divorced) among those with depression, which can be observed in other studies (MOONS *et al*., 2000; SMITH, 2007). However, it is known that depression is a disease that more often affects single, separated or widowed individuals and that marital status is not considered a good predictor for depression in multiple sclerosis (SADOCK, SADOCK, RUIZ, 2016, BERZINS *et al.*., 2017).

It is believed that the mean age of onset of depression symptoms in the general population is 27.2 years in developing countries and 28.9 years in developed countries. It is estimated that 50% of the patients with depression started the disease at age 20 to 50 years. However, there is currently a tendency for depressive symptoms to begin at lower ages, and this may be associated with increased use of psychoactive substances in adolescents, adults and young people. (SADOCK, SADOCK, RUIZ, 2016, KESSLER *et al*., 2010, ANDRADE *et al.*, 2003). Depression is a common disorder in patients with multiple sclerosis and greatly increases the morbidity and mortality associated with this neurological disease (SCHIPPLING *et al*., 2016). It is estimated that approximately 50% of patients with multiple sclerosis develop some form of depression during their lifetime. However, mental illnesses, especially depression, are often underdiagnosed and under-treated in individuals with multiple sclerosis, which leads to significant impairments in their well-being and quality of life (MARTINS *et al*., 2009).

Conclusion

The population of multiple sclerosis patients evaluated in this study presented a frequency of 42.8% of comorbid depressive disorders. These patients were predominantly females, whites, adults between 30 and 59 years of age, married and graduated. On average, patients were diagnosed with multiple sclerosis at age 34, and most had comorbidities and physical limitations from this neurological disorder. The results of this research allowed the identification and evaluation of multiple sclerosis patients attended at a public outpatient clinic in a university hospital. The reported experience can be used as a reference for the implementation of mental health care services for patients with multiple sclerosis. In fact, due to the severity and complexity of patient symptoms, the diagnosis of mental illness is often not timely performed, which makes appropriate treatment for psychiatric illness impossible. The relationship between depressive disorders and multiple sclerosis was evidenced in this study. Therefore, awareness of the importance of adequate diagnostic investigation and effective treatment of comorbid psychiatric disorders should be part of the guidelines of health professionals involved in the care of patients with multiple sclerosis. Doctors should ensure the feasibility of diagnosis and treatment.

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