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Social support and anxiety correlation with resilience in patients with multiple sclerosis during COVID-19 pandemic

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Abstract
Background: Social support and anxiety are essential for patients with chronic diseases such as multiple sclerosis (MS). During coronavirus disease 2019 (COVID-19) pandemic, the psychological well-being of subjects with MS was an important issue, and we designed this study to assess anxiety, resilience, and social support in these patients during COVID-19 pandemic stage.
Methods: We used convenience sampling for this study. Inclusion criteria were definite diagnosis of MS based on McDonald criteria and age more than 18 years. Two hundred patients with MS were enrolled. Subjects were asked to fill out valid and reliable Persian versions of Connor-Davidson Resilience Scale (CD-RISC), Beck Anxiety Inventory (BAI), and Perceived Social Support Scale. We also collected demographic data (age, sex, marital status, and occupation), disease duration, and disability level [Expanded Disability Status Scale (EDSS)]. Continuous variables were presented as mean ± standard deviation (SD) (except for EDSS, as its distribution was not normal), and categorical variables were presented as frequencies. Correlation coefficients were calculated. We did a subgroup analysis and compared patients with BAI less than 30 and more than 30 (severe anxiety). A P-value less than 0.05 was considered significant.
Results: Mean age and mean duration of the disease were 36.5 ± 9.3 and 6.2 ± 5.4 years, respectively. Mean BAI, social support, and resilience scores were 33.8 ± 11.4, 65.7 ± 16.7, and 62.5 ± 19.4, respectively.

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There was a significant positive correlation between resilience and social support scales (r = 0.44, P < 0.001), and also a significant negative correlation between resilience and BAI (r = -0.31, P < 0.001). Patients with severe anxiety (BAI > 30) had lower social support scores and resilience (social support: 70.3 ± 13.1 vs. 61.5 ± 18.6, P < 0.001; resilience: 57.3 ± 17.0 vs. 68.2 ± 19.6, P < 0.001) compared to patients with BAI ≤ 30. By considering resilience score as the dependent variable and other variables as independent variables, we found that BAI and social support scores were independent predictors.

Conclusion: Social support and anxiety are independent predictors of resilience during COVID-19 pandemic in patients with MS.

Introduction

Multiple sclerosis (MS), an autoimmune disease of the central nervous system (CNS), is a disabling condition which could be controlled after the administration of immunomodulatory or immunosuppressive agents.[1,2] Administration of immunosuppressive agents in these patients was suggested to increase the risk of any infections such as coronavirus disease 2019 (COVID-19), while the literature showed that the infection rate was not higher in the MS population.[1] A recent systematic review and meta-analysis showed that the pooled prevalence of COVID-19 disease in subjects with MS was estimated as 4%.[3]

Psychological problems such as anxiety are among the prevalent complications in MS.[4,5] Anxiety in subjects with MS is related to worsening of neurological symptoms and disability.[5,6] During the pandemic period, subjects with MS may have fears of infection and its consequences such as relapses which interfere with daily activities and quality of life (QOL).[7] Social support will help them adjust with stressful life events and support themselves from negative outcomes.[8] Protection against mental disorders and adaptation with life events is defined as resilience.[9,10]

During the COVID-19 pandemic, the psychological well-being of subjects with MS was an important issue and we designed this study to assess anxiety, resilience, and social support in these patients during the COVID-19 pandemic stage.

Materials and Methods

This cross-sectional study was done in Hakim Private Clinic in Isfahan, Iran, Between March and June 2022. We used convenience sampling for this study.

Inclusion criteria were definite diagnosis of MS based on McDonald criteria[11] and age of more than 18 years.

All participants were asked to fill out informed consent forms, although the study had been approved by the Ethics Committee of Isfahan University of Medical Sciences (IR.ARI.MUI.REC.1400.124).

Subjects were also asked to fill valid and reliable Persian version of Connor-Davidson Resilience Scale (CD-RISC), Beck Anxiety Inventory (BAI), and Perceived Social Support Scale.[12-14]

CD-RISC includes 25 questions, evaluating the feelings of the last month. Each question could be answered based on a Likert scale: not true at all (0), rarely true (1), sometimes true (2), often true (3), and true nearly all of the time (4). The sum of the answers is the total score. The higher the score, the greater the resilience of the subject.

BAI includes 21 self-reported questions; each should be answered on a Likert scale (from 0 to 3). The higher the score, the higher the anxiety level.

Perceived Social Support Scale includes 12 questions; each is graded from 1 (very strongly disagree) to 7 (very strongly agree), evaluating different aspects of support. The sum of the scores leads to the total score. The higher the score, the better the perceived social support.

We also collected demographic data (age, sex, marital status, occupation), disease duration, and disability level [Expanded Disability Status Scale (EDSS)].

All data were analyzed using Stata software (version 13.0, Stata Corporation, College Station, TX, USA).

Continuous variables were presented as mean ± standard deviation (SD) (except for EDSS, as its distribution was not normal), and categorical variables were presented as frequencies. Correlation coefficients were calculated.

We did a subgroup analysis and compared patients with BAI less than 30 and more than 30 (severe anxiety). A P-value less than 0.05 was considered significant.

Results

Two hundred patients were enrolled in this study. One hundred sixty-two were women (81%) and 38 (19%) were men. Mean age and mean duration of the disease were 36.5 ± 9.3 and 6.2 ± 5.4 years, respectively (Table 1).

Mean BAI, social support, and resilience scores

were 33.8 ± 11.4, 65.7 ± 16.7, and 62.5 ± 19.4, respectively.

Table 1. Basic characteristics of enrolled subjects in the study

Variable	Value
Sex [n (%)]	
Women	162 (81.0)
Men	38 (19.0)
Age (year) (mean ± SD)	36.5 ± 9.3
Marital status [n (%)]	
Single	57 (28.5)
Married	143 (71.5)
Occupation [n (%)]	
Employed	81 (42.0)
Unemployed	118 (59.0)
EDSS [median (IQR)]	0 (2)

SD: Standard deviation; IQR: Interquartile range

There was a significant positive correlation between resilience and social support scales (r = 0.44, P < 0.001), and also a significant negative correlation between resilience and BAI (r = -0.31, P < 0.001).

Patients with severe anxiety (BAI > 30) had lower social support score and resilience (social support: 70.3 ± 13.1 vs. 61.5 ± 18.6, P < 0.001; resilience: 57.3 ± 17.0 vs. 68.2 ± 19.6, P < 0.001) compared to patients with BAI ≤ 30.

By considering resilience score as dependent variable and other variables as independent variables, we found that BAI and social support scores were independent predictors (Table 2).

Table 2. Linear regression analysis by considering resilience score as dependent variable and other variables as independent variables

Variables	Unadjusted regression coefficient	95% CI	P
BAI	-0.37	-0.60, -0.14	0.003
Social support	0.45	0.30-0.60	< 0.001
EDSS	0.49	-0.40, 1.40	0.070
Age	0.16	-0.11, -0.45	0.040
Sex	1.90	-0.46, 8.40	0.200

BAI: Beck Anxiety Inventory; EDSS: Expanded Disability Status Scale; CI: Confidence interval

Discussion

To our knowledge, this is the first study evaluating resilience, social support, and anxiety during the COVID-19 pandemic in patients with MS.

The results show that social support predicts resilience during the COVID-19 in patients with MS. We found that there was a significant positive correlation between resilience and social support, and social support and anxiety were significant predictors of the resilience.

This finding is not surprising as positive social interactions lead to better daily activities and improved QOL. A recent study showed that better social support was related to better quality of sleep.[15] They found that this relationship was independent of age, education, disability, and psychological status.

Social support is characterized by emotional support from other persons[16] that results in better self-care, improved QOL, and encouraging better behavior.[17,18] During the pandemic, social support was limited and patients with MS were not excepted.

Resilience in patients with chronic diseases such as MS is dependent on self-efficacy, optimism, hardiness, coping strategies, benefit finding, and social support.[19] Resilience leads to better treatment response, and is negatively related to depression and anxiety.[20-24]

Patients with MS have a higher level of anxiety, and management of stress will help them have better self-care and health. Anxiety could exacerbate the severity of MS disease. In a previous study in Iran, Naser Moghadasi found that patients with MS had moderate to severe anxiety level[25] while in a study in Serbia,[26] patients with MS showed a higher level of anxiety compared to one year ago (before the pandemic). This indicates the influence of public health on the level of anxiety in patients with MS. They also investigated worse results when compared with healthy subjects.

In another study in Iran, in which patients with MS were enrolled, the prevalence of anxiety during COVID-19 pandemic was reported as 39%.

It should be considered that long isolation due to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and a sense of uncertainty related to the pandemic led to a higher level of anxiety in subjects with MS. They avoided public attendance, and tried to do all public health guidelines. Our results show that stress had a significant negative correlation with resilience, and BAI score was a significant negative predictor of resilience score.

Patients with comorbidities have been considered to have a higher risk of infection, and they experience more anxiety and fear regarding this issue.

In this case, social support which could be through different ways such as telephone calls, chats, social media, group meetings, etc. will help

patients pass this period with less complications.

This study had some strengths. First, we evaluated resilience, social support, and anxiety simultaneously. Second, the sample size was large.

The study had also limitations. First, we did not assess the depression and other psychological status in patients. Second, we did not evaluate fear of relapse.

Further multi-centric studies evaluating psychological status and other risk factors of resilience comprehensively are recommended.

Conclusion

Social support and anxiety are independent predictors of resilience during COVID-19 pandemic in patients with MS.

Conflict of Interests

The authors declare no conflict of interest in this study.

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