

Research Paper

The Relationship Between Perceived Social Support With Depression, Anxiety, and Stress in Patients With Multiple Sclerosis

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ABSTRACT

Objective: Multiple sclerosis (MS) is an autoimmune disease of the central nervous system. Psychological manifestations, such as depression, anxiety, and stress are common in patients with MS. Social support is involved in the well-being of patients with MS. This study aims to assess the relationship between perceived social support with depression, anxiety, and stress in patients with MS.

Methods: This descriptive correlation study was conducted on 240 patients with MS who were referred to the MS Center of Isfahan Province, Iran. Three questionnaires of the depression anxiety stress scale 21 (DASS-21), social support, and demographic questionnaires were used to collect data. Data were analyzed with SPSS software, version 20 using descriptive and analytical statistics (independent t-test, one-way analysis of variance (ANOVA), and Pearson correlation).

Results: In the current study, the mean perceived social support was 27.35 ± 9.06 . The mean depression, anxiety, and stress were 14.96 ± 5.42 , 13.92 ± 5.88 , and 15.39 ± 4.82 , respectively. In addition, an inverse correlation was observed between social support with depression, and anxiety ($P < 0.01$). Moreover, no significant relationship was observed between social support and stress ($P = 0.21$). Social support was a significant negative predictor that accounted for 11.8% of the variance in depression ($R^2 = 0.118$, $P < 0.001$) and 3.4% of the variance in anxiety ($R^2 = 0.034$, $P = 0.002$).

Conclusion: According to the results of this study, social support of patients with MS can be one of the effective suggestions to decrease depression and anxiety.

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Highlights

- Social support for MS patients can be one of the effective suggestions to reduce depression and anxiety.

Plain Language Summary

Multiple sclerosis (MS) is an autoimmune disease of the central nervous system with manifestation such as depression, anxiety and stress in them. Social support plays a role in the well-being of patients with MS. Therefore this study was conducted on 240 MS patients referred to Isfahan MS Center. Three questionnaires, including depression anxiety stress scale 21 (DASS-21) was used. A social and demographic support questionnaire was used to collect data. Data showed that there was an inverse correlation between social support and depression and anxiety. Also, there was no significant relationship between social support and stress. Based on these findings, it seems that support for MS patients can be one of the effective suggestions for reducing depression and anxiety.

1. Introduction

Multiple sclerosis (MS) is an autoimmune disease of the central nervous system (Hassanzadeh et al., 2012; Abedini et al., 2016). It is the most common cause of neurological disability in young adults and affects about 2.5 million people worldwide (Abedini et al., 2016). The incidence of MS is increasing in both developing and developed countries (Feinstein, 2004). MS mostly occurs in the age range of 20 to 30 years. The prevalence of this disease in Iranian women is 3 times higher than in men. In addition, the prevalence of this disease is 15 to 36 cases per 166 000 people. Moreover, the incidence of the disease in Isfahan Province is 35 cases per 166 000 people (Hassanzadeh et al., 2012, Abedini et al., 2016).

Studies have shown that about 44% of patients experience symptoms of anxiety and depression in the first year after being diagnosed with MS. Depression and sexual dysfunction are also common in women with MS (Salimi & Kikhavani, 2018). Among the psychological manifestations in patients with MS, depression, anxiety, and stress are more common than cognitive disorders, irritability, and anger. Based on evidence, the incidence of depression during the life of patients with MS is about 50% and the incidence of anxiety disorders is 25% (Arasteh, 2019). Retrospective studies have shown that depression is the critical risk factor for the patient's suicide, and suicidal ideation in these patients is closely related to depression and the severity of depression (Salimi & Kikhavani, 2018).

Social support is one of the social determinants of health and has received much attention in recent years. Social support has a significant role in promoting health due to the realization of the real and emotional needs of people and makes people feel love, friendship, respect, and value. Evidence has shown that social support reduces problems related to parent's mental health (Jafari et al., 2016). In addition, social support as one of the emotional coping mechanisms can affect the quality of life. Furthermore, social support increases a person's competence to gain new experiences and is effective in patient life satisfaction. According to studies, social support from peers, family, and teachers is recognized as a protective factor for these patients (Shareinia et al., 2017).

MS is a neurological disease and sensitive people experience greater risk, anxiety, and depression and the disorders caused by it can accelerate the course of this disease (Hosseininezhad, 2021, Ramezankhani et al., 2013). In addition, mental adaptation to a chronic illness is a time-consuming process, the person needs help to succeed in it and if the required support is not provided for the patient, the person suffers from depression and anxiety. Given that many people suffer from MS in our country (Hosseininezhad et al., 2021), and the role of social support in the prevention of depression, anxiety, and stress is not clear, and no comprehensive domestic study was conducted in this regard, especially in Isfahan Province; therefore, this study was conducted to assess the relationship between perceived social support with depression, anxiety, and stress in patients with MS.

2. Materials and Methods

This descriptive correlation study was conducted on 240 patients with MS who were referred to the [MS Center of Isfahan Province](#). The sample size of the study was determined according to the previous study ([Jung, 2009](#)) and the following [Equations 1 and 2](#) (Y : -0.18, and significance level: 0.05):

$$1. N = \left[\frac{(Z\alpha + Z\beta)^2}{c} \right]^2 + 3$$

$$2. C = 0.5 \times en \left(\frac{1 + Y}{1 - Y} \right)$$

The inclusion criteria included a history of disease of more than 6 months, no acute or chronic disease other than MS, and no facing severe crises, such as the death of loved ones during the last 6 months. The exclusion criteria included patients with a previous diagnosis of bipolar disorder, psychotic disorders, such as schizophrenia, delirium, hallucinations, and cognitive problems (Alzheimer's, amnesia, etc.).

Three questionnaires, including demographic, social support, and depression anxiety stress scale were provided to the patients. Then, in the presence of the researcher, they fill it out in 10 minutes.

Measures

Demographic questionnaire

The demographic questionnaire included 15 questions, including age, spouse age, gender, patient education, spouse education, patient occupation, spouse occupation, economic status, duration of the marriage, duration of MS, type, and duration of drug use, the number of sex contact in a couple in the last three months, the number of pregnancies and the number of children were extracted from medical records.

Perceived social support questionnaire

The multidimensional scale of perceived social support designed by Zimet was a 12-item self-report assessment tool to measure perceived social support level from family (4 items, including questions 3, 4, 8, 11), friends (4 items, including questions 6, 7, 9, 12), and significant other (4 items, including questions 1, 2, 5, 10). Each question of social support was rated on a 5-point Likert scale, including strongly agree, agree, neutral, disagree, and strongly disagree. A total score was obtained by summing all of the items. The range of scores on this

scale was 12 to 60, and a higher score indicated greater perceptions of social support. If the score is between 12 and 20, the level of perceived social support is low. A score between 20 and 40 indicated a moderate level of perceived social support and a score above 40 indicated a high level.

Zimat et al. demonstrated that Cronbach's α coefficient for friends, family, and famous people was 93%, 95%, and 95%, respectively ([Zimet et al., 1988](#), [Musa et al., 2007](#)). Bayati et al. translated this questionnaire in Iran and reported that the Cronbach's α coefficient for friends, famous people, and family was 0.89, 0.92, and 0.87, respectively ([Bayati, 2020](#)). Haghghatian and Mohajerani demonstrated that Cronbach's α coefficient for the three dimensions of social support of family, friends, and famous people was 89%, 86%, and 82 %, respectively ([Haghghatian & Mohajerani, 2019](#)). In addition, the reliability of the social support questionnaire was confirmed in the two studies ([Eskandari, 2019](#)).

Depression anxiety stress scale (DASS) questionnaire

The 21-item depression anxiety stress scale (DASS 21) was used to measure the level of depression, anxiety, and stress. It was designed to evaluate aspects of depression, anxiety, and stress using a multidimensional approach. This instrument had 21 items and 7 items per scale. The depression items included questions 3, 5, 10, 13, 16, and 17. In addition, the anxiety items include 2, 4, 7, 9, 15, 19, and 20. Furthermore, the questions 1, 6, 8, 11, 12, 14, and 18 are related to stress. Each item was scored from 0 (at all) to 3 (very much). Since this questionnaire is a shortened form of the original scale (42 questions); therefore the final score of each subscale should be doubled. The total scores were multiplied by 2 to reflect the original 42-item scale scores. The Cronbach's α for DASS 21 was 0.81, 0.74, and 0.78, respectively. Moreover, the reliability of this questionnaire was found to be acceptable in a study at [Shiraz University of Medical Sciences](#) ([Musa et al., 2007](#), [Bayati, 2020](#)). Acceptable internal consistency was also obtained for this scale. In addition, the validity of this questionnaire for subscales of depression, anxiety, and stress was 0.8, 0.76, and 0.77, respectively ([Samani & Jokar, 2009](#)), indicating the validity of the depression, anxiety, and stress scale.

Statistical analysis

Data were entered into SPSS software, version 20. The relationship between variables was done using an independent t-test, one-way ANOVA, and Pearson correlation. To measure the relationship between quantitative

variables, the Pearson correlation coefficient and multiple regressions were used. Before performing the tests, the normal distribution of the data was checked using Kolmogorov-Smirnov (KS) test ($P > 0.05$).

3. Results

The current study was conducted on 240 patients with a definitive diagnosis of MS. As observed in Table 1, the mean age of the participants was 39.83 ± 6.56 years. The participants had a mean of 9.78 ± 5.31 years of diagnosis duration and 8.67 ± 5.34 years of medication duration. A total of 73.8% were female, 39.2% had a diploma's degree,

60.8% were unemployed, 52.5% had an economic status of less than 4 million, and 40.8% had two children (Table 1).

Table 2 presents the level of depression, anxiety, and stress in patients with MS. The results showed that most participants were at a moderate level in terms of depression (53.3%), anxiety (33.3%), and social support (72.1%). Also, the level of stress of most participants (44.2%) was at a normal level (Table 2)

The mean depression, anxiety, and stress in these patients were 14.96 ± 5.42 , 13.92 ± 5.88 , and 15.39 ± 4.82 , respectively. The mean level of perceived social support in

Table 1. Demographic characteristics of the participants

Variables		Mean±SD/No. (%)
Age		-39.83±6.56
Duration of diagnosis (y)		9.78±5.31-
Duration of medication (y)		-8.67±5.34
Gender	Male	63(26.3)
	Female	177(73.8)
Educational level	Illiterate	8(3.3)
	Sub-diploma	50(20.8)
	Diploma	94(39.2)
	H diploma	23(9.6)
	Bachelor	42(17.5)
	MD, H	23(9.6)
Employment status	Freelance	70(29.2)
	Employee t	24(10.0)
	Unemployed	146(60.8)
Economic status	<4 million	126(52.5)
	4 m< Income <8 m	97(40.4)
	Income >8 m	17(7.1)
Number of children	0	28(11.7)
	1	93(38.8)
	2	98(40.8)
	3	18(7.5)
	4	3(1.3)

Table 2. The level of depression, anxiety, and stress in patients with MS

Variables	Status	Score	No. (%)
Depression	Normal	0-9	38(15.8)
	Mild	10-13	43(17.9)
	Moderate	14-20	128(53.3)
	Severe	21-27	28(11.7)
	Very severe	>28	3(1.3)
	Total	0-42	240(100)
Anxiety	Normal	0-7	32(13.2)
	Mild	8-9	14(5.8)
	Moderate	10-14	80(33.3)
	Severe	15-19	72(30)
	Very severe	>20	42(17.5)
	Total	0-42	240(100)
Stress	Normal	0-14	106(44.2)
	Mild	15-18	78(32.5)
	Severe	19-25	56(23.3)
	Total	0-42	240(100)
Social support	Low	12-20	47(19.6)
	Moderate	21-40	173(72.1)
	High	>40	20(8.3)
	Total	12-60	240(100)

patients with MS in family, famous people, and friends were 7.55 ± 3.56 , 8.22 ± 3.56 , and 11.57 ± 4.18 , respectively.

Table 3 presents the relationship between social support with depression, anxiety, and stress in patients with MS. As demonstrated in Table 3, an inverse relationship was observed between social support with depression, and anxiety ($P < 0.05$).

A statistically significant relationship was observed between depression and age ($P = 0.004$). This relationship between the anxiety with duration of diagnosis ($P = 0.002$), and duration of medication ($P = 0.008$) was also significant.

Using regression analysis, changes in dependent variables (depression, and anxiety) induced by independent variables (social support and demographic characteristics) were predicted. Among the demographic characteristics, the mentioned significant or correlated factors were included in the regression analysis. The regression analysis demonstrated two (social support, and age) and three (social support, duration of diagnosis, and duration of medication) predictors for depression, and anxiety, respectively (Table 4).

Based on the results presented in Table 4, in the first step, social support, as the strongest predictor variable, negatively predicted 11.8% of the variance in depression ($R^2 = 0.118$, $P < 0.001$), and 3.4% of the variance in anxiety ($R^2 = 0.034$, $P = 0.002$).

Table 3. The relationship between social support with depression, anxiety, and stress in patients with MS

Variables	Social Support	
	R	P
Depression	-0.349	<0.001
Anxiety	-0.158	0.01
Stress	-0.077	0.23

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4. Discussion

This study was conducted to determine the relationship between perceived social support with depression, anxiety, and stress in patients with MS and the incidence of depression in patients with MS was 53.3%. Moreover, the mean score of depression in these patients was 14.96±5.42. Karimi et al. assessed the prevalence of depression in patients with MS in Kermanshah and revealed that 47.1% of patients had moderate depression (Karimi et al., 2020). Bahathig et al. conducted a study in Saudi Arabia and revealed that 64% of patients with MS had depression (Bahathig et al., 2020). However, they used a patient health questionnaire 9 item (PHQ-9) depression scale (Bahathig et al., 2020), which was inconsistent with our study. Hyarat et al. in a study in Saudi Arabia assessed depression scores using Beck's depression inventory and demonstrated that the score of

depression in these patients was 27.5 (moderate score). The result of this study was consistent with our study (Hyarat & Al-Gamal, 2018). Zaree et al. conducted a study in Sistan and Blouchestan Province, Iran on patients with MS and observed that 58.3% of patients had moderate depression (Zarei et al., 2014). The mean depression score in Dehghani's study was 5.31±8.25 and 43.6% of these patients had moderate depression (Dehghan & Memarian, et al., 2013). According to the results of this study and other studies, depression disease was common in patients with MS; however; the severity of the disease varies in different studies. The disease at a younger age is associated with more complications which cause the patient to suffer, but the results of some studies are inconsistent with our study. Baghbanian et al. conducted a study in this regard and revealed that mild depression was seen in 63.1% of patients (Baghbanian et al., 2020). Alasad et al. conducted a study in United

Table 4. Summary of multiple linear regression model (stepwise method)

Criterion Variable	Model	Predictor	Beta	t	Sig.	R	R ²	Adjusted R ²
Depression	1	Constant		19.742	<0.001	0.349	0.122	0.118
		Social support	-0.349	-5.748	<0.001			
	2	Constant		6.664	<0.001	0.372	0.138	0.131
		Social support	-0.328	-5.371	<0.001			
Anxiety	1	Age	-0.130	2.129	0.0340	0.196	0.038	0.034
		Constant		20.495	<0.001			
	2	Social support	-0.196	-3.087	0.002	0.281	0.079	0.071
		Constant		13.591	<0.001			
		Social support	-0.236	-3.716	<0.001			
		Duration of diagnosis	-0.204	-3.216	0.0010			

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Arab Emirates and reported that 17% of patients had depression (Alsaadi et al., 2015). Individual and social differences of patients, using different tools, and various conditions can lead to various results. Individual and social differences of patients, preparation of patients, and training to respond and even coincide with other factors and conditions of life can cause differences in the score and the prevalence of depression.

In addition, the results of our study demonstrated that the mean anxiety in these patients was 13.92 ± 5.88 and 33.3% of patients had moderate levels of anxiety. Karimi et al. indicated that 39.1% of patients had moderate anxiety, which was slightly higher than our study (Karimi et al., 2020). Bahathig et al. in a study in Saudi Arabia used a generalized anxiety disorder 7 (GAD-7) item scale and revealed moderate anxiety in these patients (Bahathig et al., 2020). Zaree et al. reported that 55.3% of patients had moderate anxiety (Zarei et al., 2014). The results of these studies compared to the present study indicated that a higher percentage of participants had moderate levels of anxiety. The exact cause of high anxiety in these patients is unknown. A combination of psychosocial, neurological, and disease-related factors may be involved. Alasadi et al. revealed that 20% of patients had anxiety, which was inconsistent with our study (Alsaadi, et al., 2015). However, the difference between the two studies was that in our study, we used the DASS-21 instrument, whereas Alasadi et al. used generalized anxiety disorder 7 (GAD-7) and Beiske applied Hopkins symptom checklist-25 (Alsaadi et al., 2015, Beiske et al., 2008). Furthermore, the differences in condition and sample size may be other reasons. In addition, 44.2% of patients had normal stress and the mean stress in these patients was 15.39 ± 4.82 . Karimi et al. also revealed that 44.8% of patients had moderate stress (Karimi et al., 2020). Zaree et al. (Zarei et al., 2014) and Dehghani et al. in two separate studies reported that 48.3% and 46.4% of patients had moderate stress, respectively (Dehghan et al., 2013). It seems that these patients can reduce their stress by support from others, gaining information and knowledge, and coping strategies.

In addition, the determination of the perceived level of social support demonstrated that 72.1 % of patients had moderate social support and the mean score of social support was 27.35 ± 9.06 (moderate). Hyrat et al. conducted a study in this regard and observed moderate social support in these patients (Hyarat & Al-Gammal, 2018). Ghodousi et al. evaluated social support in patients with MS and observed that 40 % of patients experienced moderate social support (Ghodousi Burojeni et al., 2013). The results of these studies were consistent with the results of our study. Papa et al. assessed the level of social support in patients

with MS and observed that high level of social support in these patients (Papa et al., 2021).

The relationship between social support with depression, anxiety, and stress showed an inverse relationship between social support with depression, and anxiety. Montazer et al. assessed the relationship between social support and depression in patients with breast cancer and revealed the inverse relationship between depression and social support, which was consistent with our study (Montazer et al., 2019). Hyrat et al. in Saudi Arabia achieved the same result and reported that higher social support is associated with lower depression (Hyarat et al., 2019). The result of this study was consistent with our study. Jalaei et al. evaluated the perceived social support status with anxiety among the patients who underwent coronary artery bypass graft surgery and reported that higher social support was associated with lower anxiety among these patients (Jalaei et al., 2018). Bambara et al. evaluated depression and perceived social support among veterans with MS and observed that an inverse relationship was observed between depression and perceived social support (Bambara, 2011). Krokavcova et al. (2008) revealed that social support can be useful in predicting the mental and physical health of these patients and by increasing support for these patients, they have higher mental and physical health Krokavcova et al. (2008).

5. Conclusion

According to the results of this study, an inverse correlation was observed between social support with depression, and anxiety. Moreover, no significant relationship was observed between social support and stress. Therefore, according to the results of this study, social support for patients with MS can be one of the effective suggestions to decrease depression and anxiety.

Limitations

Conducting a simultaneous study with the COVID-19 pandemic condition was the main limitation.

Ethical Considerations

Compliance with ethical guidelines

The current study was approved by the Ethical Committee of Islamic Azad University, Khorasgan Branch (No.: IR.IAU.KHUISF.REC.1400.179). Participants completed the informed written consent. The confidentiality of information and the voluntary nature of participation in the research were emphasized.

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Authors' contributions

Study design: Maasoumeh Barkhordari-Sharifabad; Conducting the study: Samaneh Yazdani; Writing the paper: Morteza Zangeneh.

Conflict of interest

The authors declared no conflict of interest.

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