A Pilot Study of Fear of Disease Consequences and Its Relationship with Quality of Life, Depression and Anxiety in Patients with Multiple Sclerosis

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Abstract

Aims: This study aims to determine the relationship between fear of disease consequences and its relationship with quality of life, symptoms of depression, and anxiety in patients with multiple sclerosis (MS). **Materials and Methods:** This cross-sectional study was conducted at Tabriz University of Medical Sciences. Seventy patients suffering from MS were selected using the convinced sampling method. Data collection tools were included: Fear of Progression Questionnaire-Short Form, World Health Organizations Quality of Life-Brief, Beck Depression Inventory, and Beck Anxiety Inventory. Descriptive statistical methods, independent sample t-test, one-way ANOVA, Spearman's correlation coefficient test, and linear regression model were used to analyze data by SPSS.22 software. **Results:** In this study, 38 (54.3%) of patients were male. Mean score of fear of the disease, quality of life, depression, and anxiety was 28.68 ± 9.18, 86.47 ± 14.11, 15.22 ± 4.86, and 15.85 ± 5.55, respectively. Results of Spearman's test indicated a significant relationship between fear of disease consequences on the one hand and quality of life ($r_s = -0.53$), symptoms of depression ($r_s = -0.52$), and anxiety ($r_s = -0.48$) on the other hand ($P < 0.001$). Results of linear regression analysis demonstrated that there is a strength correlation between depression – as the predictive variable – and quality of life ($P = 0.018$, standard error [SE] = 0.793, $\beta = -0.283$ $R^2 = 0.57$), and anxiety – as the predictive variable – and quality of life ($P = 0.005$, SE = 0.681, $\beta = 0.332$ $R^2 = 0.64$). **Conclusion:** Considering negative effects of fear of the disease consequences on quality of life, symptoms of depression and anxiety, the patients should be informed about their own conditions, and appropriate mental and health cares should be provided, and effective interventions should be done to alleviate the fear of the patients.

Keywords: Anxiety, depression, fear of the disease, multiple sclerosis, quality of life

Introduction

Multiple sclerosis (MS) is a chronic disease destroying the myelin membrane. It is associated with physical, cognitive, and psychiatric deficiencies. The disease may negatively affect every part of the central neural system, including brain hemispheres, optic nerves, cerebellum, brain stem, and spinal cord.[1-3] In addition, psychological symptoms and related disorders are highly prevalent among patients.[4] There are 2 million MS patients worldwide[5] and about 500,000 in the USA. Often, the disease occurs during 20–40 years of age and is regarded as the third cause of disability in the USA.[5,6] In addition, the average age of onset MS in the Eastern Mediterranean region was 26.9 years and in Europe

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29.2 years.[7] According to the MS Association, there are about 50,000 MS patients in Iran.[8-12] In Iran it's estimated the incident of MS 51.52 per 100,000 people.[13,14] Several studies demonstrated that the disease affects patients' quality of life from different aspects, and most MS patients have low quality of life.[15-18] In addition, the disease leads to disorders in balance and coordination, perceiving different senses, depression, anxiety, pain (moderate-to-severe), cognitive disorder, amnesia, deficiencies in focus, and sexual function of the patient.[19] The incidence period of the disease usually coincides with occasions such as marriage, job findings, and supplying financial security resulting in symptoms of depression and anxiety in these patients.[20] On the other hand, prognosis and its unpredictable periods significantly affect quality of life and mental health of the patients.[21] The mentioned factors result in unusual and illogical fear of the disease which may affect caring the patients negatively and intensify the disease complications. Reviewing the texts makes it clear that there are limited studies about effects of fear of disease consequences on treating and intensifying complications as well as quality of life, depression, anxiety, and other aspects.[22,23] Therefore, the present study aims at determining the relationship between fear of disease consequences and its effect on quality of life, symptoms of depression, and anxiety of MS patients. It is hoped that results of the study lead to appropriate management and sufficient focus on the patients' problems.

Materials and Methods

This cross-sectional study was conducted at Tabriz University of Medical Sciences. All 70 patients who participated at annual meeting of MS patients hold by MS Association at Tabriz University of Medical Sciences were sampled using convinced sampling method. Data collection tools were included four valid and reliable questionnaires: Fear of Progression Questionnaire-Short Form (FoPQ-SF), World Health Organizations Quality of Life-Brief (WHOQOL-BREF), Beck Depression Inventory (BDI), and Beck Anxiety Inventory (BAI).

There are seven questions, including some demographic data – (sex, age, marital status, income, occupation, level of education, and area of residence) – about participants.

The fear of progression was evaluated by the Persian translation of FoPQ-SF. There are 12 questions about fear of disease consequences with Likert 5-point – (1 never and 5 very often) – scale with 60 and 12 as the highest and lowest scores. This study was conducted by Kwakkenbos *et al*., in 2012, the results of the confirmatory factor analysis confirmed the construct validity of the Persian version of the FoPQ-SF.[24] In addition, the reliability of FoPQ-SF tool was also reported ($r = 0.87$).

Qualities of life of participants were measured using the WHOQOL, 26-item version. The highest and lowest scores were 130 and 26, respectively. This tool involving four dimensions: physical health, psychological health, social health, and environmental. Scoring was conducted with a 5-point Likert scale (1 = very little and 5 = very good). In a study was conducted by Nedjat *et al*., in 2008, the reliability of the Persian translation of the WHOQOL-BREF was greater than (Cronbach's $\alpha = 0.70$). In addition, the internal correlation coefficient was calculated using the test-retest. For both, the quality of life and quality of life related to health were calculated 0.7.[25]

To assessing the anxiety of participant, the BAI tool with 21 items was apply. The score of this tool was ranging from 0 (not at all) to 3 (severely, I could barely stand it). The minimum score has 0 and maximum score was 63. In the Persian version of BAI reliability was reported (Cronbach's $\alpha = 0.89$) and test-retest reliability was 0.75.[26]

Depression symptoms of participants were evaluated by BDI with 21 items, each item of this tool rated with a set of four possible answers (0–3) The BDI reliability was reported (Cronbach's $\alpha = 0.96$), and test-retest reliability was 0.82.[27] In addition, in the Persian version of BDI, internal consistency was demonstrated (Cronbach's $\alpha = 0.84$).

The questionnaire was filled out using two-trained questionnaire through interview with the patients. Descriptive statistics (frequency, percentage, mean ± standard deviation [SD]), independent samples *t*-test, Spearman's correlation coefficient, and linear regression model are used to data analysis by SPSS.16 software package (SPSS Inc, Chicago, United State of America). A $P = 5\%$ was statistically considered statistically significant.

Results

Of 70 participants, 38 (54.3%) were male. The mean age of the patients was 51.50 ± 14.80 years of age. Fifty-five (78.6%) of patients were living in cities, and most of them, i.e. 29 patients (41.4%) were homemakers. Income of 25 (35.7%) patients was less than their costs. Mean ± SD of the disease duration was 5.65 ± 2.95 years.

Mean score of fear of disease consequences was 28.68 ± 9.18 (Min 12 and Max 60) in the patients, which shows that about half of the patients fear of the disease consequences. The total mean of MS patients' quality of life is 86.47 ± 14.11 (Min 26 and Max 130). Mean and SD scores of symptoms of depression and anxiety are 15.22 ± 4.86 (Min 0 and Max 63) and 15.85 ± 5.55 (Min 0 and Max 63), respectively.

Results of Spearman's correlation coefficient indicated a statistically significant relationship between fear of disease consequences and quality of life, depression, and anxiety in patients with multiple sclerosis [Table 1].

Results of the linear regression test demonstrated that there is a strength correlation between fear of the disease and quality of life, direct relation between fear of the disease and anxiety and depression [Table 2].

Furthermore, results of linear regression analysis demonstrated that there is a strength correlation between depression – as the

Table 1: Results of spearman's correlation coefficient between fear of disease consequences and quality of life, depression, and anxiety (n=70)

	Mean±SD	1		2		3	
		P	**R**	**P**	**R**	**P**	**R**
Fear from disease consequences	28.68±9.18	1	1				
Quality of life	86.47±14.11	0.001	$r_s=-0.53$	1	1		
Depression	15.22±4.86	<0.001	$r_s=-0.52$	<0.001	$r_s=-0.53$	1	1
Anxiety	15.85±5.55	<0.001	$r_s=-0.48$	<0.001	$r_s=-0.42$	<0.001	$r_s=0.54$

SD: Standard deviation

Table 2: Results of linear regression between fear of disease consequences and quality of life, depression, and anxiety (n=70)

	β	SE	β	P
Quality of life	−0.49	0.19	0.32	0.013
Depression	0.32	0.06	0.46	0.001
Anxiety	0.32	0.06	0.40	0.001

SE: Standard error

predictive variable – and quality of life ($P = 0.018$, standard error [SE] = 0.793, $\beta = -0.283$ $R^2 = 0.57$), and anxiety – as the predictive variable – and quality of life ($P = 0.005$, SE = 0.681, $\beta = 0.332$ $R^2 = 0.64$).

Results of evaluating fear of disease consequences with some demographic variables of the participants showed that among evaluated variables with items above, only sex has a significant relationship with fear of disease and it was higher in woman than that of men ($P = 0.021$).

Discussion

Results of statistical tests showed a meaningful relationship between fear of diseases complications and quality of life, depression, and anxiety.

Mean score of quality of life of the patients was measured as 86.47 ± 14.11. This level of quality of life is almost similar to that of patients of Nagaraj *et al.*'s study.[28,29] The study conducted by Patti *et al.*, in Italy also showed the similar results.[30] Results of studies conducted at other parts of the world are almost similar to the results obtained from this research.[6,31,32] However, some studies conducted in Iran, for example, Sureshjani *et al.*,[17] Hazrati *et al.*,[33] and Taraghi and Eleiae[18] refer to low quality of life of MS patients. High quality of life of participants of the present study may be attributed to the applied tools which are different from those used by the above-mentioned studies. Furthermore, another reason for the high quality of life of the participants in this study is compared with other studies. In addition, another reason for the high quality of life of the participants in this study in compared with other studies could be a relatively long time to get sick from the disease among the participants in the study and the possibility of choosing the confronting approaches. On the other hand, the samples of this study were members of the MS Association

which can be a quality of life promoting factor for these patients. According to the linear regression model used in this study, there is a statistically significant correlation between fear of the disease consequences – as a predicting factor – and quality of life such that the higher the fear, the lower the quality of life. In their study, Handschel *et al.* demonstrated that fear of symptoms recurrence significantly affected patients' quality of life.[34] Therefore, considering negative effects of fear of the disease on quality of life as well as low quality of life of our patients in comparison with that of patients in other countries, appropriate planning and practical measures should be implemented and the patients' knowledge of their own conditions should be promoted to alleviate fear of the patients.

The present study results showed that fear of the disease consequences significantly increased the incidence rate of symptoms of depression and anxiety. The results of Patti *et al.*'s in 2003, study revealed that anxiety and depression were increased due to fear of the disease and alleviated less during the next 6 months,[30] In addition, this study demonstrated that depression and anxiety significantly related to quality of life. In the study conducted by Janssens *et al.*, the researchers concluded that less-supported patients feel fear which result in the development of symptoms of depression and anxiety, and therefore, low quality of life, which may be true for the present study.[35] Therefore, fear of the disease, and finally, low quality of life of the patients should be prevented through highly supporting patients and offering appropriate mental, hygienic, and therapeutic services.

One of the limitations of the present study is a lack of similar studies and comparison of results with that of other ones. It is one of few studies evaluating the relationship between fear of disease consequences and quality of life and symptoms of depression and anxiety. Another limitation of the present study was the inability to control possible. Confuse variables such as the severity of the disease. Thus, it is recommended to conduct further studies with high sample sizes about other diseases. Considering the efficiency of qualitative studies evaluating similar participants, it is suggested to conduct qualitative studies about experiences and reasons of fear of disease consequences.

Conclusion

According to results of the current study, depression, and anxiety of the patients should be alleviated and quality of

life of the patients should be promoted through increasing the patients' information and knowledge about their own conditions, providing them with more exact information, and offering appropriate mental and health care.

Ethical considerations

All moral considerations, including confidentiality of information, were observed in this study. Ethical considerations in this study included: permission from the Ethics Committee of the Tabriz University of Medical Sciences, coordinating with the authorities of MS Association at Tabriz University of Medical Sciences, obtaining informed consent from participants and ensuring the confidentiality of the information and profiles of the participants.

Conflicts of interest

There are no conflicts of interest.

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