Original Article

Fear of Negative Evaluation and Social Well-being in Patients with Multiple Sclerosis: The Moderating Role of Disease Duration

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Abstract

Introduction: Diagnosis of multiple sclerosis (MS) can be accompanied by fear of negative evaluation (FNE). Emerging MS symptoms and FNE affect patients' health in dimensions including social well-being (SWB). The purpose of this study was to investigate the relationship between FNE and SWB among Iranian patients with MS. In addition, the moderating role of disease duration on this relationship was examined. **Methods:** In this descriptive correlational study, 200 MS patients were recruited from two clinics in Qazvin, Iran, through convenience sampling. Participants completed a demographic questionnaire, the Brief FNE Scale, and the SWB Questionnaire. **Results:** Mean scores for FNE and SWB were 35.12 ± 13.39 and 100.11 ± 9.81, respectively. We did not find a significant relationship between FNE and SWB (b = 0.092, P = 0.321). However, there was a statistically significant positive association between the duration of the disease and SWB (b = 0.928, P = 0.001). Moreover, there was a statistically significant interaction between the duration of the disease and FNE in predicting SWB (b = −0.025, P = 0.049). **Conclusion:** The study showed that the strength of the relationship between FNE and SWB depends on the disease duration. More specifically, FNE predicts well-being in patients with longer disease duration but not in patients with shorter disease duration.

Keywords: *Disease duration, fear of negative evaluation, moderation, multiple sclerosis, social well-being*

Introduction

Multiple sclerosis (MS) is a common chronic, progressive neurological disability characterized by the demyelination of the central nervous system.[1] The average age of onset is around 18 to 30 years.[2] MS is twice as prevalent in females compared to males.[3] Patients with MS are often diagnosed during a busy and productive stage of their lives with respect to family, work, and social commitments.[4] MS can influence sensory, motor, perceptual, and cognitive ability in patients.[5] Other health-related physical symptoms such as fatigue, bladder and bowel disorders, pain, visual impairment, problems with balance, spasms, and sexual disorders may also impact on the lives of these patients.[6,7] MS involves restricted movement which limits patients' engagement in daily tasks as well as social activities. It seems that the disability and disease progression of MS has a profound impact on the lives of patients. Following that, it leads to fear of negative evaluation (FNE) and reduction in social health. Disability and disease progression has a role in decreasing the patients' perceived quality of life.[8,9]

FNE is described by McLean and Woody as a central feature of social anxiety. It is the fear of scrutiny from others and usually involves a fear of social situations, particularly public speaking.[10] Therefore, FNE involves anxiety, expectations, and negative judgment of others about one's self.[11]

Emerging MS symptoms, concerns about body image, and FNE affect patients' health across several domains, including social well-being (SWB) and mental health.[12] SWB refers to the health of an individual's relationships with others and with society. It includes factors such as social prosperity, social adaptation, social cohesion, social acceptance, and social participation. SWB has been found to influence FNE, especially in a chronic condition such as MS.[13] In addition, the mental health of patients with MS can be adversely affected.[14] Mental health can be threatened due to loss

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of work, social isolation, and a change in social roles (e.g., as a caregiver). Therefore, mental health and SWB are related.[15-18]

Research has reported that when chronic disease severity was low, participants' perceptions of negative reactions were not related to their FNE scores. However, by increasing disease severity, FNE scores increasingly predicted perceived reactions.[19] In other words, perceptions of negative reactions and evaluation were greatest among high FNE participants who were also the most severe cases. Thus, as symptoms become more observable, patients with a greater fear of being evaluated negatively become increasingly distressed.[19-21] Moreover, other studies have supported the link between high social approval and FNE in chronic conditions.[22,23] Hence, the psychological distress reported by MS patients appears to be tied to the extent to which the symptoms are observable and patients' concerns about how symptoms are perceived and evaluated by other people.[24,25]

The purpose of this study was to examine the relationship between FNE and SWB among Iranian patients with MS. We hypothesized that higher FNE would be associated with a decrease in SWB in a sample of patients with MS. Second, we sought to determine if the relationship between FNE- and SWB-dependent disease duration (time since diagnosis) in the same sample. Thus, we postulated that the disease duration moderates the relationship between FNE and SWB in MS patients.

Methods

Design

A descriptive cross-sectional correlational design was used to examine the relationship between FNE and SWB. The study population consisted of MS patients who were recruited to the two neurologic clinics in Qazvin, Iran, between June and September 2016. The inclusion criteria were as follows: (1) willingness to participate in the study, (2) a diagnosis of MS confirmed by a neurologist, (3) to not be in the acute phase of disease, (4) absence of acute disorders or other chronic diseases, and (5) ability to communicate with researcher. To ensure sufficient statistical power of the test, the required sample size for performing regression analysis was calculated using power analysis. The current study required a minimum of 200 participants assuming $\alpha = 0.05$, power = 80%, and $f^2 = 0.08$.[21]

Instruments

The questionnaire consisted of three parts: demographic variables, Brief Version of FNE Scale (FNES), and SWB Scale. Demographic questions were used to elicit information about patients' age, sex, marital status, educational level, socioeconomic status, main income resource, age of onset of MS, and duration of the disease. Furthermore, perceived social support was measured using an analog scale ranging from 0 to 10 (0 = the least, 10 = the most).

Brief fear of negative evaluation scale

Developed by Leary, this questionnaire requires respondents to rate the degree to which each of 12 statements applies to them on a five-point Likert scale (e.g., "I am afraid others will not approve of me" and "I am afraid that people will find fault with me") ranging from 1 (not at all characteristic of me) to 5 (extremely characteristic of me). Items 2, 4, 7, and 10 are reversed score.[26] A high FNES score indicates more FNE.

This instrument has demonstrated good validity and reliability in an Iranian Population.[27] Content validity of the present scale was approved by a panel which consisted of five experts (two nursing doctorates, two psychiatrists, and one clinical psychologist). For this study, internal consistency reliability, using Cronbach's alpha, was 0.93.

Social well-being questionnaire

Designed by Keyes, it is a five-dimensional self-administered questionnaire comprising 33 items (e.g., "I believe that the progress of society has stopped," "My behavior affects the behavior of other people in the community," and "that I feel that there is nothing in society which is worth participating in"). The social well-being questionnaire (SWBQ) items are scored on a five-point Likert scale where 1 stands for "completely disagree" and 5 stands for "completely agree." The dimensions of SWBQ are social integration (1, 11, 13, 20, 22, 29, and 33), social acceptance (6, 8, 14, 19, 23, 27, and 31), social actualization (5, 7, 15, 17, 18, 25, and 30), social contribution (3, 4, 24, 26, 28, and 32), and social coherence (2, 9, 10, 12, 16, and 21). Items 1, 2, 5, 6, 7, 9, 10, 12, 14, 15, 19, 21, 23, 24, 25, 26, 27, 29, 32, and 33 are reverse scored. The possible range of the total score of the SWBQ is 33–165. Higher scores of the questionnaire reflect more well-adjusted SWB.[28] Validity and reliability of SWBQ were confirmed in different studies.[29,30] In the present study, a survey of experts was considered to ensure content validity of the questionnaire. Internal consistency reliability, using Cronbach's alpha, for each domain was social integration ($\alpha = 0.78$), social acceptance ($\alpha = 0.68$), social actualization ($\alpha = 0.72$), social contribution ($\alpha = 0.78$), and social coherence ($\alpha = 0.56$). Cronbach's alpha for total SWB was 0.76.

Ethical considerations

The study was approved by the associated Qazvin University of Medical Sciences Ethics Committee (IR.QUMS.REC.1394.219). All participants were informed about the voluntary nature of participation, with the option to withdraw from the study at any time. We also guaranteed the confidentiality of the participants' personal information. In addition, we obtained a written informed consent from each participant.

Statistical analysis

The Statistical Package for the Social Sciences (SPSS), version 20 (SPSS, IBM Corp., Armonk, NY, USA) and PROCESS were used for data analysis. Descriptive statistics for numerical variables were displayed as means with standard deviation (SD) and *n* (%) for categorical variables. Correlations between FNE with SWB scores and its dimensions were assessed using Pearson correlation when *P* values were adjusted using Bonferroni correction. To perform the correlation analysis, normality assumption was assessed. Multiple regression analysis using Hayes' approach (2013) was used to assess the moderation effect model where SWB as the dependent variable was regressed on FNE as the independent variable, disease duration as the moderator, and the interaction of FNE and disease duration. All variables in the model were continuous. PROCESS uses grand mean centering to make the results interpretable. To do so, the independent variable (FNE) and the moderator (disease duration) are standardized. Next, the independent variable, moderator, and their interaction are included in the model. Finally, the multiple regression analysis is conducted and regression coefficients and their *P* values are estimated.

Results

Table 1 shows the participants' demographic characteristics. The sample was mainly female (*n* = 150, 75%). Among the participants, 122 (61%) patients reported their marital status as married, while 67 (33.5%) of them indicated that they were single. With regard to educational level, 64.5% of the sample had college-level degrees.

Table 2 shows the results of Pearson correlation analysis on the relationship between FNE and SWB dimensions after controlling for the effect of sex, age, socioeconomic status, and perceived social support. As it is shown, this study did not find any significant relationship between FNE and SWB ($r = -0.079$, $P = 0.494$). Similarly, the relationship between FNE and social integration ($r = -0.068$, $P = 0.281$), social acceptance ($r = -0.010$, $P = 0.776$), social contribution ($r = 0.153$, $P = 0.142$), and social coherence ($r = 0.022$, $P = 0.676$) was not significant at 0.05. However, FNE had a statistically significant negative association with social actualization ($r = -0.275$, $P < 0.001$).

The results of performing multiple regression analysis after controlling for the effect of sex, age, socioeconomic status, and perceived social support are shown in Table 3. This study did not find any significant relation between FNE and SWB ($b = 0.092$, $P = 0.321$). However, there was a statistically significant positive association between disease duration and SWB ($b = 0.928$, $P < 0.001$). Moreover, the results provided support for the moderating role of disease duration on the association between FNE and SWB ($b = -0.025$, $P = 0.049$). Specifically, for the medium level of disease duration (6.270 years), the relationship between FNE and SWB was not statistically significant ($b = -0.062$, $P = 0.239$). When the disease duration was shorter by 1 SD (1.91 years), the association between FNE and SWB became weaker ($b = 0.045$, $P = 0.543$). However, for individuals with a disease duration which was 1 SD above the mean (i.e., 10.635 years), the negative relationship between FNE and SWB was statistically significant ($b = -0.170$, $P = 0.028$). Thus, disease duration moderated the association between FNE and SWB such that FNE was negatively associated with SWB for those with longer, but not shorter, disease duration.

Table 1: Demographic characteristics of the study participants

Demographic characteristics	*n (%)*
Sex, *n* (%)	
Male	50 (25)
Female	150 (75)
Marital status, *n* (%)	
Single	67 (33.5)
Married	122 (61)
Widowed divorced	11 (5.5)
Educational status, *n* (%)	
Primary	12 (6)
Intermediate	14 (7)
High school	45 (22.5)
Collegiate	129 (64.5)
Economic status, *n* (%)	
Poor	23 (11.5)
Average	110 (55)
Good	64 (32)
Excellent	3 (1.5)
Main source of income, *n* (%)	
Personal	83 (41.5)
Family	111 (55.5)
Pension	6 (3)
Disease trend, *n* (%)	
Relapse	31 (15.5)
Recovery	98 (49)
Primary progressive	61 (30.5)
Secondary progressive	10 (5)
Age, mean±SD (range)	
Age of participant	34.78±9.38 (18-65)
Age at diagnosis, mean±SD (range)	28.51±8.5 (12-53)
Length of time since diagnosis, mean±SD (range)	
Based on month	6.20±4.41 (1-22)
Social support, mean±SD (range)	
Social support of participant	3.87±2.61 (0-10)
Fear of negative evaluation, mean±SD (range)	
Total FNE	35.12±13.39 (12-60)
Social well-being, mean±SD (range)	
Total SWB	100.11±9.81 (62-131)

FNE: Fear of negative evaluation, SWB: Social well-being, SD: Standard deviation

Table 2: Pearson correlation of fear of negative evaluation and social well-being

	2	3	4	5	6	7
1. FNE	−0.079	−0.068	−0.010	−0.275**	0.153	0.022
2. SWB		0.519***	0.437***	0.662***	0.426***	0.590***
3. Social integration			0.041	0.273**	0.296***	0.095
4. Social acceptance				0.063	−0.218*	0.203**
5. Social actualization					0.038	0.227*
6. Social contribution						0.047
7. Social coherence						

*P<0.05; **P<0.01; *** P<0.001; P<0.001; P values were adjusted using Bonferroni correction; Two-tailed; Controlled for sex, age, economic situation, and social support. FNE: Fear of negative evaluation, SWB: Social well-being

Table 3: Moderation results

Path	*b* (95% CI)	*P*
FNE → SWB	0.092^{ns} (−0.091-0.275)	0.321
Duration → SWB	0.928* (0.009-1.847)	0.048
FNE × duration → SWB	−0.025* (−0.049-−0.001)	0.049
FNE → SWB|Duration=−1 SD; 1.905 years	0.045^{ns} (−0.102-0.192)	0.543
FNE → SWB|Duration=0 SD; 6.270 years	−0.062^{ns} (−0.166-0.042)	0.239
FNE → SWB|Duration=+1 SD; 10.635 years	−0.170* (−0.321-−0.019)	0.028

^{ns}P>0.05; *P<0.05; Two-tailed; R^2=6.44%; Controlled for sex, age, economic situation, and social support. FNE: Fear of negative evaluation, SWB: Social well-being, *b*: Unstandardized path coefficient, CI: Confidence interval, SD: Standard deviation

Discussion

This study was conducted to examine the relationship between FNE and SWB in a sample of Iranian MS patients. Initial Pearson correlations indicated no significant relationship between these variables. Contrary to the present results, Leary *et al*. demonstrated a negative correlation between FNE and SWB among patients with psoriasis.[19] Furthermore, other studies that represented people who with chronic disease score highly on measures of approval motivation, public self-consciousness, self-monitoring, social anxiety, and FNE are found to be more highly motivated to obtain social approval and are more afraid of receiving disapproval than people who score lower on each of these variables.[22,31] Thus, our initial hypothesis was not supported; however, this may be due to the differences in disease duration among participants of the study. However, these studies, which found a statistically significant relation, did not report disease severity.

In this study, the duration of the disease had a moderating effect on the relationship between FNE and SWB. More specifically, disease duration seemed to strengthen the negative association between FNE and SWB. Thus, patients with longer disease duration who also had a higher level of FNE experienced lower SWB. Moreover, the results of the study indicated that physical symptoms such as weakness, disability, impaired coordination, and walking movement can affect the FNE among MS patients. These symptoms will be aggregate by the relapse occurrence of the disease.[32] In addition, body image, self-esteem, and confidence are reported as other factors influencing FNE.[33,34] Therefore, the later stages of MS and its associated changes in physical appearance may contribute to decrease in SWB because of stigmatization by and social isolation from others. On the other hand, poor social skills and poor physical appearance are observable signs that contribute to the stigmatization of individuals.[35] In addition, physical changes associated with the later stages of MS, poor social skills, and poor physical appearance may contribute to social isolation.[36,37] Thus, the experience of negative evaluation can lead to avoidant-type behaviors in patients.[38]

Although cultural nuances can affect the disability experience of MS patients, the chronic nature of disease is the same in all populations. In MS, the relapse of the disease depends on age and the duration of the disease.[39] Each relapse may involve different signs and symptoms. Relapse experiences occur in different dimensions of health, including physical, mental, and social dimensions. As illness progresses, the disability also increases. Manouchehrinia *et al*. reported that there was a moderate correlation between disability and disease duration and between disability and age.[40] In addition, there are certain symptoms in these patients which are less likely to be diagnosed. For example, cognitive fatigue in MS is underrecognized.[41] In chronic disease, the severity of disability can be a barrier to participating in social activities.[42] Thus, SWB of patients with complete disability may be impaired compared with patients who are at an early stage of the disease.

Limitations and future research

The study is limited by its descriptive nature and a convenience sample of self-selected Iranian patients with MS. This disease is also quite different among races.

Therefore, the generalizability cannot be made for other countries. Therefore, findings cannot be generalized, and causation cannot be established. Furthermore, the cross-sectional nature of this descriptive study limits the ability to understand change over time. A future study could assess the longitudinal outcomes related to the key variables of interest in the present study (e.g., SWB and FNE) and how they relate to emerging symptoms among MS patients. Given the global prevalence of MS, this is an important issue for future research.

Conclusion

No significant negative correlation was found between FNE and SWB in MS patients. The result of the current research showed that the duration of the disease had a moderating effect on the association between FNE and SWB. Limited studies are available that directly assess the relationship between these two main variables in chronic condition. With regard to the outcomes of chronic disease on different dimension of health, it seems examining these variables and evaluating other moderating factors to be important in other chronic condition.

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Conflicts of interest

There are no conflicts of interest.

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