



Original Article

The prediction of parental self-efficacy and hyper-anxiety symptoms based on the components of mindfulness in women with multiple sclerosis

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Abstract

Introduction: The present study aimed to predict parental self-efficacy and hyper-anxiety symptoms based on the components of mindfulness in women with multiple sclerosis (MS).

Materials and Methods: The statistical population of this descriptive-correlational study included all women with MS in Mashhad during March-Jun 2016 who referred for treatment to clinics, neurologists and psychological centers. The statistical sample consisted of 105 women with MS who were selected using convenient sampling method. In order to collect data, Parental Self-Efficacy Questionnaire, Beck Anxiety Inventory (BIA) and Mindfulness Questionnaire were used. Data were analyzed using multivariate regression method.

Results: The results revealed that the components of mindfulness, judgment and non-reactivity can reduce anxiety significantly in women with MS. In addition, action with awareness, judgment and non-reactivity can increase parental self-efficacy ($P < 0.05$).

Conclusion: Due to the results obtained from the study, it is suggested that components of mindfulness, judgment and non-reactivity can increase parental self-efficacy and reduce anxiety among women with multiple sclerosis.

Keywords: Anxiety, Mindfulness, Multiple sclerosis, Parental, Self-efficacy

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Introduction

Multiple sclerosis (MS) is a chronic and progressive autoimmune disease of the central nervous system that causes sensory impairment, weakness, muscle cramp, visual and cognitive impairment, fatigue, shaking, voiding dysfunction, defecation disorder, loss of balance and sexual dysfunction, amnesia, hearing impairment, numbness, blurred vision, diplopia, speech impairment in patient (1). It is considered as one of the most common neurological diseases in human which can lead to disability in women (2,3) which occurs mostly in adolescence and is more than twice as prevalent in women than men (4,5).

The compatibility of patients with MS is severely reduced according to the type of disorder in patients with MS (6). Parental self-efficacy is associated with

judgment and parent's view about their abilities to perform parental duties (8,9). Colman and Karraker argue that the extent to which parents feel to be effective by their abilities to achieve all aspects of child rearing is considered as parental self-efficacy. Parental self-efficacy refers to parent's assessment of their ability to perform parental role (11-14). Increased stress along with their disease and its consequent problem can increase their anxiety (15,16). Evidence suggests that high anxiety in these individuals is considered as one of the important factor in the recurrence of the disease and the failure to respond to treatment (17-19) which is mostly associated with symptoms including shortness of breath (dyspnea), heartbeat, transpiration, headache, mild stomach discomfort and restlessness (20,21).

Anxiety can severely disengage patients with MS and disrupts many aspects of life. That is why the attention to anxiety in diseases and many other problems has been contributed to various studies in the field of psychology (22,23). Despite what has been said, studies have shown that the responses to

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the disease varies in chronic patients including those with MS (24,25). However, some individuals, despite having MS, have good relationship with their children and experience less anxiety (26). Mindfulness is a matter of being fully present in the moment without judgment and comment on what is happening – that is, the experience (27,28). Mindfulness, in Buddhism, is defined as pure attention or non-discursive registering of events without reaction or mental evaluation (29,30). Kabat Zinn defines mindfulness as that arises through paying attention, on purpose, in the present moment, non-judgmentally (31). In this regard, studies conducted by Ghasemi et al. (33) indicate that there is a negative significant relationship between mindfulness and emotion regulation. In addition, Sheikholeslami (34) also indicated that mindfulness-based stress reduction (MBSR) appeared to be effective in reducing stress and anxiety. Boroujerdi et al. (35) indicated that the change of dysfunctional attitudes, tolerability and disgust, tendency to attract attention, disrupted performance, evaluation, acceptability and therefore mindfulness can be reduced. Kaviani et al. (36) indicated that mindfulness based cognitive therapy (MBCT) can increase the quality of life and reduce depression. Among the studies conducted abroad, Sirois and Tosti (37) found that low mindfulness can be a risk factor for poor mental and physical well-being. Singh et al. found that maternal training for mindful attention can reduce aggression, disobedience, self-harm behaviors and increase mothers' satisfaction in relation to care skills and their interaction with their children (32). Kort also suggests that mindfulness is effective on impulsivity, symptoms of depression, anxiety and the quality of life (38). Similar results have been obtained from the studies conducted by Berrill et al. (39), Van Ravesteijn (40) and Bohlmeijer (41). According to conducted studies, it seems that mindfulness is considered to be an important factor for individuals' resistance to difficulties, particularly their impact from the problems caused by chronic diseases. Several research evidences suggest that mindfulness can increase the quality of life and mental health while reducing depression. However, most of the studies conducted in terms of the effectiveness in the form of experimental studies. However, few researches have been conducted concerning its predictive role of the variable in relation to psychological aspects. In addition, there are few studies which contribute to determine the importance of this variable in relation to patients with chronic disease including those with MS.

Therefore, due to the necessity to pay attention to psychological aspects in women with MS including parental self-efficacy and symptoms of anxiety on one hand, and the existing research vacuum on the other hand, the present study aimed to predict parental self-efficacy and hyper-anxiety symptoms based on the components of mindfulness in women with MS.

Materials and Methods

This is a descriptive correlational study. This study can be considered as fundamental study in terms of target point. The present study aimed to examine the relationship between the variables, that is, the level of coordination in changes of the two variables.

The statistical population of the study included all women with Multiple sclerosis (MS) in the first trimester in Mashhad who were referred for treatment to Imam Reza Hospital and Ghaem Hospital, among whom were 120 women with MS. The statistical sample consisted of 105 women with MS who were selected using purposive sampling method. In this research, purposive sampling method was used according to the necessity of the subject and researcher's objective. In order to estimate sample size in each group, Cochran's sample size formula was used. In this case, error rate α was considered to be equal to 0.05, and therefore the confidence coefficient was 95%.

As it can be seen, after locating population size (N) and the mentioned assumption in Cochran's sample size formula, the sample is equal to 91 individuals. On the other hand, given to the fact that regression method is used in this study, it is necessary to examine the adequacy of sample size in terms of the number of variables. Tabachnick and Fidell (42) suggested the following formula in order to investigate the adequacy of sample size in terms of the number of predictive variables (in this formula, m is the number of predictive variables; here the components of mindfulness are considered as the predictive variables):

The sample size required for the present study is equal to 90 by considering the number of predictive variables which is equal to 5. Therefore, as it is clear sample size consists of 91 individuals based on Cochran's sample size formula, which was more than the minimum recommended. According to the probability of falling, 110 questionnaires were distributed among which 105 questionnaires were collected.

Research instruments

- *Parental self-efficacy questionnaire*: This questionnaire was used for the first time by Dumka,

Stoerzinger, Jackson and Roosa (43) for assessing parental self-efficacy. This scale consists of 10 items having negative and positive phrases which assess the general sense of parents from confidence in parent's role. The questions range from 1 = rarely to 7 = always in 7-point Likert scale. In Tiller's study, Cronbach alpha is 0.54. Tale'ee (11) in his study, Cronbach's alpha for the questionnaire were calculated 0.70 and its visual validity was reported to be desirable. Exploratory factor analysis was used in order to examine structural validity and indicates that all the items of this scale are loaded on a factor.

In addition, this study has indicated that the reliability is equal to 0.76 using Cronbach's coefficient and 0.73 using splitting method (11).

- *Beck anxiety inventory (BAI)*: This questionnaire was developed by Aaron T Beck and his colleagues in 1988. This questionnaire consists of 21 items which lists the symptoms of anxiety which is similar to checklist. Beck anxiety inventory (BAI) is developed in order to measure anxiety in adolescents and adults. Each of the items measures one of the common symptoms, namely, mental symptoms, physical symptoms and fear. As it is previously mentioned, this questionnaire has 21 items each of which is scored 0 to 3. The score 0 indicates the absence of symptoms, and the score 1 indicate a mild symptom, and the score 2 indicates mean symptoms and the score 3 indicates severe symptom. After obtaining the scores, they are added and the total score is obtained ranging from 0 to 63. In 1988, Beck et al indicated the reliability of the questionnaire by re-testing on 83 outpatients with a weekly interval, which was equal to 0.75. Alpha coefficient of the questionnaire for 160 outpatients obtained to be 0.92. Friedrich et al. in 1992 reported to be 0.67 for reliability coefficient and 0.94 for alpha coefficient in 40 outpatients. In a study conducted in Tehran University of medical sciences and Rouzbeh hospital, the reliability of the test has been shown in a healthy and clinical population. In this study conducted on 56 infertile individuals, Cronbach's alpha was obtained to be 0.90 (44). In addition, Rajabi and Yazdkhasti expresses that this test has high reliability and validity, whose internal stability is 0.92 and data correlation is between 0.30 and 0.76. On 1513 males and women in different age and gender in Tehran, a study was conducted in order to examine the validity and reliability of Beck Anxiety Inventory among the Iranian population, the results have indicated the reliability of 0.72, validity of 0.83 and internal consistency of 0.92 (45).

- *Mindfulness questionnaire*: It is a self-report scale consisting of 39 items developed by Baer et al.

through combining the items of mindfulness questionnaire by Freiburg, Walsh et al., Mindful Attention Awareness Scale by Brown and Ryan, Kentucky Mindfulness Inventory by Baer and Smith using the factor analysis approach (46). Baer conducted an explanatory factor analysis on a sample of university students. This questionnaire consisted of 112 items and 5 components which comparable based on the results of four factors of 5 factors with identified factors, and the fifth factor included items which defined as non-reactive state to internal experience. The obtained factors were named as the following: observation, action along with consciousness, being non-judgmental to internal experience, description and non-reactivity. The factor observation involves the attention to outer and inner stimuli such as feelings, cognitions, emotions, sounds and smells. The factor description is associated with appellation of outer experience using words and the factor action involves consciousness with the immediacy at each moment which contrasts with mechanical action that occurs when the individuals' mind is in another place. Non-judgmental ability to internal experience includes having non-judgmental ability towards thoughts and feelings and non-reactivity toward internal experience, permission to enter into the thoughts and inner feeling (Brown, Ryan and Creswell, 2007). According to the results, there was an appropriate internal consistency between the factors and alpha coefficient ranged from 0.75 (in the factor the non-reactivity) to 0.91 (in the factor description). The correlation between the factors was moderate and significant in all cases ranging from 0.15 to 0.34. In addition, in a study conducted in Iran on validity and reliability of the questionnaire, the correlation coefficient for test and retest in Iranian version was equal to 0.57 (for non-judgmental ability) and 0.84 (for observation). Moreover, alpha coefficients were obtained at acceptable levels ranging from 0.55 (for non-judgmental ability) and 0.83 (for description) (47).

After obtaining necessary permission and selecting the sample group, we referred to the specified centers and after coordination with the authorities, the questionnaires were given to individuals to complete them. In case of ambiguity, the questions were answered. Then, the questionnaires were collected and analyzed using multivariate regression.

Results

Total of participant were 105 cases. After data collection, mean age of the affected patient were

34.2 with standard deviation 56.5 from the range of 22 years to 50 years. In this study, most individuals with MS (49%) had diploma certificate. 12% of the individuals had associate degree and 39% had bachelor's degree and higher. Of these, 34% were married and 66% were single. In this study, anxiety, mindfulness and parental self-efficacy were measured using questionnaire. Mindfulness questionnaire includes 5 components (observation, description, action with awareness, non-judgmental ability and non-reactivity). Anxiety and self-efficacy inventory includes one single component. In the following, mean scores and standard deviation for research variables are presented in the whole sample.

Table 1. Mean score and standard deviation for mindfulness, anxiety and parental self-efficacy

	Mean	SD	Min	Max
Observation	19.7429	4.52988	13.00	31.00
Description	19.7810	3.31947	13.00	27.00
Action with awareness	20.8571	3.81401	13.00	30.00
non-judgmental ability	19.0571	3.65015	14.00	27.00
Non-reactivity	21.4095	4.18719	13.00	31.00
Anxiety	33.7810	8.13584	17.00	46.00
Parental self-efficacy	35.0381	8.15938	16.00	70.00

In order to examine the predictive role, multivariate regression analysis was used. Therefore, the components of mindfulness as the predictive variables and parental self-efficacy and anxiety as the criterion variable were entered in regression equation. The results of this analysis are reported in the following tables.

Table 2. Multiple correlation coefficient (regression coefficient) for prediction of parental self-efficacy and anxiety

Model	R	R ²	Modified R ²	estimation criterion error
Model 1: prediction of anxiety based on mindfulness	0.486 ^a	0.236	0.198	7.28777
Model 2: prediction of parental self-efficacy based on mindfulness	0.386 ^a	0.149	0.106	7.71406

Table 3. Variance analysis for the scores of anxiety and parental self-efficacy on predictive variables

	Statistical index	Sum of square	Degree of freedom	Mean square	F	P
Model 1	Regression	1625.917	5	325.183	6.123	0.000 ^b
	Remainder	5258.045	99	53.112		
	Total	6883.962	104			
Model 2	Regression	1032.689	5	206.538	3.471	0.006 ^b
	Remainder	5891.158	99	59.507		
	Total	6923.848	104			

Table 2 indicates values for R², R and modified R². In this table the value for modified R² is important indicating model fitness. The value of this coefficient ranges from 0 to 1. The more it is closer to 1, the more it shows the accuracy of the model.

As it can be seen, this value in the above analysis is equal to 0.19 for model 1 and 0.10 for model 2 which indicates that 19% and 10% of changes for anxiety and parental self-efficacy depend on predictive variables.

Table 4. Standardized and non-standardized regression coefficients

Variable	Non-standardized coefficients		Standardized coefficients	t	Significance level
	b	Standard error	Beta		
1 (constant)	55.728	5.048		11.040	0.000
Observation	-0.576	0.324	-0.321	-1.780	0.078
Description	-0.732	0.374	-0.299	-1.959	0.053
Action with awareness	-0.081	0.239	-0.038	-0.337	0.737
Non-judgmental ability	-1.110	0.481	-0.498	2.307	0.023
Non-reactivity	-0.727	0.257	-0.374	-2.823	0.006
2 (constant)	17.481	5.343		3.272	0.001
Observation	0.316	0.342	0.175	0.922	0.359
Description	0.426	0.396	0.173	1.077	0.284
Non-judgmental ability	0.601	0.253	0.281	2.374	0.020
Non-reactiveness	1.214	0.509	0.543	-2.384	0.019
	0.630	0.273	0.323	2.313	0.023

According to the results given in the table and considering the significance levels of mindfulness components, the factors judgment and non-reactiveness can predict anxiety in women with MS. According to beta coefficient, it can be said that the

change in standard deviation for the factors "judgmental" and "non-reactiveness" (-0.49 and -0.37) can change the standard deviation of the overall anxiety. In addition, the second model indicates that the components of mindfulness

“action with awareness, judgmental and non-reactiveness can predict parental self-efficacy. According to beta coefficient, it can be said that the change in standard deviation for the factors “action with awareness”, “judgmental” and “non-reactiveness” (0.28, 0.54 and 0.32) can change the standard deviation of the overall anxiety. According to the above table, and due to the significant predicting variables, the diagram for predicting anxiety and parental self-efficacy is as the following:

$$\text{Anxiety} = 55.72 - (\text{judgment} \times 1.10) - (\text{non-reactiveness} \times 0.727) = 17.48 + (\text{action with awareness} \times 0.601) + (\text{judgement} \times 1.214) + (\text{non-reactiveness} \times 0.630) \text{ parental self-efficacy.}$$

Discussion

The present study aimed to predict parental self-efficacy and hyper-anxiety symptoms based on the components of mindfulness in women with MS. The results indicated that the components of mindfulness, “judgment” and “non-reactiveness” can reduce anxiety in women with MS. In addition, “action with awareness”, “judgment” and “non-reactiveness” can increase parental self-efficacy. These results are in line with the findings obtained by Ghasemi et al. (33), Sheikholami (34), Boroujerdi et al. (35), Kaviani et al. (36), Sirois & Tosti (37), Singh et al. (32), Kort (38), Berrill et al. (39), Van Ravesteijn (40), Bohlmeijer et al. (41). Evidence suggests that high level of mindfulness can increase psychological health, adjustment, openness to experiences and mental health. This can be due to the quick and timely use in problem solving strategies. In fact, mindful individuals have more ability in identifying, managing and solving daily problems (48). Britton et al. (49) indicated that mindfulness-based methods can be effective on social tensions. In addition, Rose et al. (50) indicated that mindfulness can be an effective method for the increased general health, self-satisfaction, and reduced anxiety, worry and coping ability with stress. Therefore, mindful individuals are well able to have self-awareness comprehensively. Mindfulness can lead to the awareness of events, the awareness of body, breath, sounds and thought, the acceptance of ideas without judgment and then changes in certain emotional meanings, and one can realize that thoughts as derived from internal processes rather than a reflection of position. In this regard, one realizes her/his own automatic activity and habitual behaviors and obtains an increased awareness in his/her own daily activities (51). It seems that

women with MS are less able to cope with stressful situations due to lack of mindfulness and rumination about the future (52). In fact, mindfulness can be a method to cope with stressful situations that if one is not able to handle it, he/she is more likely to be anxious (29). In health-threatening situations which is associated with the high level of threat, those with mindfulness techniques are able to positively reevaluate the events and try to logically consider stressful situations safe (48). While, some individuals are not able to do so which make them unstable to resist against stress. If one does not have complete presence of the mind, we cannot exactly distinguish what facilities exist. Therefore, how can we access those facilities? And how can we change and grow? Therefore, the lack of mindfulness can make individuals unable to identify their own possibilities and facilities to cope with disease and perhaps that is why mindful patients have anxiety less than other patients (46).

The presence of the mind is considered as an important underlying factor in order to attain emancipation, since it is a powerful and effective way to neutralize the external and internal pressures of an individual. The correct immediacy means that one brings his/her awareness from past and future to the presence time. When an individual is in the presence time, he views reality with all the internal and external aspects, and realizes that the mind, due to its judgment and interpretation, is constantly having rumination and inward conversation (29). Such understanding and internal thinking can influence parental self-efficacy; therefore, the patient can control his/her mind against negative thoughts from inefficiencies. However, those who are not mindful, they are not able to control their negative thought and they always move toward effective behaviors with a sense of disabilities. Therefore, some patients use mindfulness skills as a method to cope with stress and illness and they consider mindfulness as a method consisting of the continuous acceptance of changing experience and the potential parenting problems and issues (53). Therefore, mindfulness is a skill that allows individuals to receive and realize the problems in the presence time in a sense that they are less annoying than it used to be. When individuals become aware of the present time, they put their focus on the present time not the past. Most psychological problems are usually associated with events that have been occurred in the past or in the future. For example, those who are depressed, often feel guilty and regret about the past and those who are anxious, the worry from the future problems can

cause fear and anxiety (54). It should be mention that patients with MS are greatly prone to such problems, since the disease can be an influencing factor for depression, anxiety and mental tensions. While some patients, despite of having such problems, are able to use mindfulness as a method for “being” or “understanding” through which they can perceive their personal feelings and situations. The consequence of such understanding can be a problem as one become resistant against the incident (i.e., disease) (55). However, due to the fact that the present study has been conducted on a small sample size, more studies on larger samples are required. According to the results of the study and high scores for parental self-efficacy and reduced anxiety in mindful patients, it is suggested that according to the available sources and theories presented in this area, step-by-step training packages can be used in

experimental studies and in counseling centers for psychological intervention in women with MS. Counselors and other therapists are recommended to explore the factor mindfulness in the clients in their clinical interviews and cognitive analysis, therefore they can increase the effectiveness of the treatment by recognizing their ineffective strategies and train them the effective ones.

Conclusion

As it can be seen, mindfulness can play a significant role in reducing anxiety and increasing parental self-efficacy.

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