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Evaluation of the Effectiveness of Motivational Interview Group Therapy on Pain Self-Efficacy and Resilience of Patients with Multiple Sclerosis

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Abstract

Objective: Multiple sclerosis affects the quality of life of patients due to its association with numerous neurological problems; it may lead to job loss and reduced participation in social activities and, in general, have a negative impact on their professional and social life.

Method: In the present study, the effectiveness of motivational interview group therapy on pain self-efficacy and resilience of patients with multiple sclerosis was investigated. The present study is quasi-experimental in which 24 patients were selected from the population of patients with multiple sclerosis in Borujen city in Chaharmahal and Bakhtiari province, using the convenience sampling method. Research tools included pain self-efficacy (Nicholas, 1989) and resilience (Connor & Davidson, 2003) questionnaires. Data analysis was performed by repeated variance analysis using SPSS-22 software.

Results: The results showed that motivational interview group therapy had a significant effect on increasing pain self-efficacy (Partial η^2= 0.24, p = 0.002, F = 6.92). Also, motivational interview group therapy had a significant effect on increasing resilience (Partial $\eta 2$ = 0.58, p = 0.001, F = 30.06). The present study showed that motivational interview group therapy improves pain self-efficacy and resilience of patients with multiple sclerosis.

Conclusion: Accordingly, in the process of motivational interview group therapy, patients learn to become aware of the mental process by teaching behavioral, cognitive, and metacognitive strategies, and in this way, they improve the resilience and pain self-efficacy.

Keywords: Resilience, Pain self-efficacy, Motivational interview group therapy, Multiple sclerosis disorder.

Introduction

In recent years, multiple sclerosis has been very prevalent in Iran, so that the MS Association in 2017 announced that 74432 people in Iran were suffering from this disease (Taghilo, Makvand Hosseini & Sedaghat, 2017). It can impair the ability of some parts of the nervous system that are responsible for communication and cause many physical symptoms. The disease manifests itself in various forms, and its new symptoms occur either as recurrent (reversible) or over time (intermittently). The symptoms of the disease may disappear completely in relapses; however, persistent neurological problems occur continuously, especially as the disease progresses to later stages (Morgante, Fraser, Hadjimichael, & Vollmer, 2004). Due to its association with numerous neurological problems, this chronic disease affects the quality of life of patients in such a way that it may lead to job loss and reduced participation in social

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activities and, in general, damage their professional and social life (Mioduszewski, MacLean, Poulin, Smith, & Walker, 2004). Therefore, addressing these patients' psychological behaviors seems necessary and important. In addition to poor quality of life, poor social functioning (Akkus & Duru, 2011), emotional problems, and increased anxiety (Buljevac et al., 2003) are observed in people with multiple sclerosis. Some psychological aspects that exist in these patients and are less dealt with in Iran are pain self-efficacy and resilience. These factors increase the quality of life when they function optimally.

What is seen in patients with chronic pain is that they experience negative thoughts, frustration, depression, and sometimes suicidal thoughts due to failure to relieve pain (Braden & Sullivan, 2008); this can be true for patients with multiple sclerosis because they also face constant, debilitating, and multifaceted pain they fail to control. Psychological factors can play an important role in reducing the severity of pain in these patients. One of the psychological factors that can affect the amount of pain a person experience is self-efficacy. People with multiple sclerosis begin to withdraw from friends due to reduced performance and ability, and their interpersonal relationships are reduced due to negative feedback. In reviewing the research literature on pain-related biopsychological stressors, pain self-efficacy has been described as one of the important and relevant cognitive factors (Carpino, 2014). Nicholas (2007) introduced the concept of pain self-efficacy and defined it as the beliefs adopted in people with chronic pain that can lead to certain activities even when experiencing pain, and potentially affects their ability to achieve goals that are hindered by illness or disability (Karkkola, Sinikallio, Flink, Honkalampi, & Kuittinen, 2018., Farahbakhsh, Mehrinejad, & Moazedian, 2019), and also plays a major role in adapting to chronic pain, including multiple sclerosis (Nicholas, McGuire, & Asghari, 2015). Perceived ability to perform specific activities, despite the pain, depends on the level of the disease (Chiarotto, Falla, Polli, & Monticone, 2018).

However, pain self-efficacy has been described as a protective psychological resource or resilience factor associated with less pain and better physical function (Carpino, 2014). Given these disabilities that occur, the concept of pain self-efficacy may change individuals' attitudes toward themselves and pain, which may give people the confidence that they can exhibit certain behaviors, manage their emotions, face difficult life situations, and gain social support (Shafiei & Nasiri, 2020, Bandura, 2006). Therefore, a person is less likely to experience symptoms of depression, hopelessness, and suicidal behaviors.

Also, the results of some studies show that patients with multiple sclerosis have poor resilience that is observable in their social and family life (Ebrahimi Ardi, 2011). In other words, the components of multiple cases of sclerosis, such as neurological disability, the severity of complications, recovery status, and length of illness, can affect the resilience of people with the disease (Etemadifar, & Maghzi, 2011). Besides, the results of some studies show that if resilience increases in these people, it moderates the negative effects of stress and acts as a shield against problems (Nakazawa et al., 2018). Resilience in a person with MS means that he or she has the ability to be optimistic through the experiences learned despite the challenges he or she faces (Hatkoff et al., 2006). In other words, resilience is a dynamic process, the ability to successfully adapt to threatening conditions and to adapt positively in response to adverse conditions. Given this, a person with a chronic illness may be able to experience a desirable quality of life if they have this psychological trait.

In recent years, efforts have been made to improve the adverse outcomes of patients with multiple

sclerosis. But given that resilience implicitly refers to a person's individuality - because it refers to characteristics such as the ability to experience, resistance to psychological states, and emotion regulation performed by the person (Simmons & Gohar, 2005) - and, besides resilience, there is pain self-efficacy, which refers to the belief in an individual's ability to overcome pain (Carpino, 2014), i.e., all of these things need some kind of inner motivation and a sense of autonomy to change, therefore, one of the methods that are effective in increasing the motivation of patients with multiple sclerosis to follow the treatment recommendations is the motivational interview.

To determine the effect of drug therapy and other psychological therapies on these psychological components, it is necessary to use another intervention in addition to these interventions to be more accurate in judging the effectiveness of the motivational interview intervention. As pain self-efficacy has a meaning that includes the individuality of a person in the ability to face challenging situations (Carcola et al., 2018), and resilience implicitly refers to a person's individuality because it refers to characteristics such as the ability to experience, resist psychological states, and the regulation of emotion performed by the individual (Simmons & Gohar, 2005), so one of the methods that are effective in increasing the motivation of patients with multiple sclerosis to follow the treatment recommendations is the motivational interview. A motivational interview is a guiding and client-centered method based on the patient's participation, the invocation of internal motivation, and respect for clients' sense of autonomy.

This motivational approach facilitates behavioral change instead of providing reasoning, information, advice, persuasion, and force, through an interactive process and in two stages of creating an intrinsic motivation to change and reinforcing a commitment to change (Rollnick, Miller, & Butler, 2008, Surmon, Alison, Christiansen, & Alison, 2020). The purpose of this technique is to establish interaction between the patient and health care providers and to encourage patients to change their behavior (Ma, Zhou, Zhou, & Huang, 2014). Also, given that pain self-efficacy and resilience are the complex and multifaceted cognitive process that involves individual cognition, excitement, and behavior, it is expected that motivational interview intervention, by including three levels of behavioral, neuropsychological, and cerebral personality and improving executive functions (Dorothy & Chan, 2020, Kilpatrick et al., 2011) can increase the resilience and pain self-efficacy in patients with MS.

Due to the increasing use of the motivational interview approach in other countries and numerous reports on its positive effect on the treatment, care, and prevention of various physical and psychological disorders and the promotion of health behaviors, it is necessary to examine this therapeutic approach in various fields in our country. Because motivational interview strategies are more encouraging and supportive than compulsive, the counselor attempts to create a positive environment for client change. In fact, the main goal is to increase the internal motivation of the clients, so that change occurs from within the person, not superficially imposed on him from the outside. Therefore, it is the clients who have the right to defend the change, not being forced by the therapist to do so. It seems that with increasing internal motivation, the degree of individual resilience (emotional abilities, mental assessment of anxiety, and adjusting efforts to reduce anxiety) and belief in personal abilities in managing and dealing with types of pain in patients with multiple sclerosis increases.

Given that motivational interview requires specific behavioral, cognitive, and metacognitive strategies to focus the attention process, which in turn leads

to avoidance of downward spiral of negative mood- negative thinking- the tendency to anxious responses, the growth of new perspectives, and the emergence of pleasant thoughts and emotions, and makes it possible to confront all aspects of life, even the painful ones, and gives the individual the ability to respond consciously instead of automatically (Campos et al., 2016), it is expected that motivational interview therapy groups to be able to improve emotional and behavioral abilities, including resilience and pain self-efficacy.

Considering that the motivational interview movement has been used in advanced societies for many years and has provoked a great deal of research, in a way that motivational interview therapy group and studying its effect on different cognitive, emotional, and moral fields of individuals, is one of the very wide fields in the research of advanced societies, and also, despite this Extention, unfortunately not enough attention has been paid to this issue in our country so far and the number of studies conducted in this field is small compared to other societies. In particular, less research in the field of clinical psychology has addressed this issue, while, many clinicians acknowledge that the resilience and pain self-efficacy in patients with multiple sclerosis is not at the desired level (Dougters et al., 2017). Therefore, the present study seeks to fill this gap and investigate the effectiveness of "motivational interview group therapy" on pain self-efficacy and resilience of patients with multiple sclerosis in Borujen.

Method

Procedure and participants

The present study aimed to examine the effectiveness of the motivational interview therapy groups on pain self-efficacy and resilience of patients with multiple sclerosis in Borujen city. So this research is applied in terms of purpose and is quasi-experimental in terms of method, using a pre-test-post-test-follow-up design with a control group. In the pre-test stage, pain self-efficacy and resilience questionnaires were administered to both groups. Then, in the experimental group, a package of motivational interview group therapy in the form of a three months' intervention was performed in 12 sessions of 90 minutes, (David Rosen Green 2005; quoted by Ali Dost & Kianarshi, 2013). But the control group did not receive any intervention and after the completion of interventions, the participants of both groups answered the pain self-efficacy and resilience questionnaires in the post-test stage. Finally, after two months, pain self-efficacy and resilience questionnaires were collected from all participants.

The study population included all patients with multiple sclerosis in Borujen. In this study, 24 patients with multiple sclerosis were selected using the convenience sampling method and then randomly assigned to the experimental and control groups.

Ethical Statement

The main goal of any research is to improve the level of human health along with their dignity and rights. In the present study, informed and written consent was obtained from participation in the research. Also, the subject of the research was discussed and approved by the university ethics committee (Ethics Code: IR.IAU.SHK.REC.1399.013) and the publication of data or information obtained from patients was done based on the informed consent of the participants. At the end of the study, subjects had the right to be informed of the results of the study and to benefit from the interventions or methods that were useful in the study. Also, the research method did not contradict the social, cultural, and religious values of the society.

Research instruments

1. Pain Self-Efficacy Questionnaire

The self-efficacy questionnaire is based on Bandura's concept of self-efficacy (Nicholas, 2007).

The Pain Self-Efficacy Questionnaire measures the patient's ability to perform a variety of activities despite the pain and has 10 statements that assess the patient's assessment of his or her ability to perform a group of activities, despite the pain, on a seven-point Likert scale (zero to six). Therefore, the scores of this scale vary between zero and 60, and higher scores indicate a higher sense of self-efficacy in the face of chronic pain. Since the Pain Self-Efficacy Questionnaire is a one-factor scale, it is enough to add the scores of all 10 statements together to obtain a total score. Nicholas (2007) reported Cronbach's alpha coefficient of 0.092 as an indicator of internal consistency of this scale and its positive correlation with the subscale of active coping strategies as an indicator of convergent validity and its negative correlation with pain degree, Beck's questionnaire depression, the Spielberger's state-trait anxiety, the subscale of passive coping strategies, and the subscale of catastrophic as indicators of divergent validity. In Iran, to evaluate the validity of Asghari and Nicholas' (2009) questionnaire, Cronbach's alpha coefficient of 0.92 as an indicator of internal consistency and negative correlation between pain self-efficacy with depression (r = -0.48) and physical disability (= -0.40) r) as an indicator of divergent validity and positive correlation between psychological and general health (r = -0.42), vitality (r = -0.51) and social functioning (r = -0.43) as an indicator of converging validity. In this study, Cronbach's alpha method was used to determine the reliability of the questionnaire and the coefficient was 0.86.

2. Resilience Questionnaire

The Resilience Scale was developed in 2003 by Connor and Davidson. The scale consists of 25 statements that question resilience in a 5-point Likert scale ("always false = 0" to "always true = 4"). Items 25-24-23-17-16-12-12-11-10 are related to the subscale of perception of individual competence; items 20-19-19 18-15-14-7-6 are related to sub-scale of trust in individual instincts negative emotion tolerance; items 8-5-4-2-2-1 are related to subscale of positive acceptance of change and secure relationships; items 22-21-13 are related to witness subscale; and items 3-9 are related to the spiritual impact subscale. The score range of the Resilience questionnaire is 0 to 100. Connor and Davidson report Cronbach's alpha coefficient of the Resilience Scale 0.89. Also, the reliability coefficient obtained from the retest method in a 4-week interval was 0.87. The Connor and Davidson Resilience Scale scores were significantly positively correlated with Cubase Hardness Scale scores and were significantly positively correlated with perceived stress scale scores and Sheehan Stress Vulnerability Scale, which indicates the simultaneous validity of this scale.

Differential validity: Connor and Davidson Resilience Scale scores were not significantly correlated with the Arizona Sexual Experience Scale scores at both the beginning and the end of the experiment. This indicates the differential validity of the test. To determine the validity of this scale, first, the correlation of each expression with the total score of the category was calculated and then the factor analysis method was used. Calculation of the correlation between each score and the total score, except for expression 3, showed coefficients between 0.41 to 0.64. Then the scale expressions were factor analyzed through the original components' method. Before extracting the factors, the correlation matrix was calculated which was 0.87, and the chi-square value was calculated in Bartlett and Bartlett sphericity test, which was equal to KMO. The KMO value of statements of the two indicators was 5556.28, which shows both indicators had adequate evidence for factor analysis (Connor & Davidson, 2003). In a study conducted by Samani, Jokar, and Sahragard among students, their reliability was reported to be 0.93, and validity (by factor analysis and convergent and divergent validity) was achieved by test makers in different normal and at-risk groups ((Samani, Jokar & Sahragard, 2007). In this study, a sample

Table 1. Structure and content of motivational interview group therapy (David Rosen Green 2005; quoted by Alidoost and Kian-Arsi, 2013)

Session	Topic	Content
1	Introduction and acquaintance	Implementing Pre-Test; preparing clients for motivational interview group therapy, in this regard, clients first become familiar with the group's rules, norms, and processes. In the following, the therapeutic approach is introduced and the clients get an overview of the group process, which includes scheduling, materials and worksheets, weekly exercises.
2	Investigating feelings, gains and losses, and examining dualism	Reviewing the previous session, getting feedback from the previous session, practicing emotion recognition, focusing and recognizing bias and balance in decision making and its relationship with group members' problems; practicing brainstorming short-term and long-term gains and losses. Homework: Practicing to find contradictions and ambiguities and examining the feelings in the person who comes to this conclusion, there is a set of contradictions within themselves and examining the corrective and alternative options at home.
3	Recognizing values and getting to know the difference between behavior and values; Assessing the adherence and motivation of clients and strengthen the sense of self-efficacy	Reviewing the previous session and assignments and getting feedback from the previous session, defining values, performing the exercise of identifying and prioritizing first-rate values, practicing value and behavior matching, re-evaluating oneself and re-evaluating the environment and how the disease affects their maps using open questions and trust ruler; reviewing previous achievements and examining your strengths and abilities to strengthen your sense of self-efficacy. Homework: preparing a list of successes in order to strengthen the sense of self-efficacy, determining the personal values of clients, and determining the discrepancy between their personal values and their behavior, and prioritizing behavior at home.
4	Familiarity with the concept of experiential avoidance and tolerance of distress using the principles and techniques of motivational interviewing in line with it	Reviewing the last session, reviewing assignments and getting feedback from the previous session, familiarity with the concept of experiential avoidance (psychological inflexibility, especially concerning empirical avoidance and willingness to engage in action despite unwanted thoughts and feelings), familiarity with the concept of distress tolerance (tolerating emotional distress, being absorbed by negative emotions, mentally evaluating anxiety, and adjusting efforts to reduce anxiety and using motivational interview principles and techniques such as open-ended questions, empathy, highlighting contradictions, summarizing, slipping through resistance, and strengthening self-awareness), patient approval for the change, reflective listening, and change speech and related techniques, as well as strengthening commitment to change. Homework: increasing the sense of self-efficacy, recognizing contradictions, and making rational decisions to understand and recognize one's feelings and prioritize values about experiential avoidance and stress tolerance.

Session	Topic	Content
5	Familiarity with the concept of pain self-efficacy and resilience using the Principles and techniques of motivational interview	Reviewing the last session and assignments and getting feedback from the previous session, familiarity with the concept of pain self-efficacy, familiarity with the concept of resilience (perception of individual competence: trust in individual instincts, tolerance of negative emotion, Positive Acceptance of Change and Safe Relationships, Control, and Spiritual Impacts) and the use of motivational interview principles and techniques such as open-ended questions, empathy, highlighting contradictions, summarizing, slipping through resistance, strengthening self-efficacy, approving the patient for change, listening reflection, the word change, and related techniques, as well as strengthening commitment to change. Homework: increasing a sense of self-efficacy, recognizing contradictions, and making rational decisions about pain self-efficacy, understanding one's feelings, and prioritizing values about pain self-efficacy.
6	Continue, repeat and practice the fourth session	Reviewing the last session, reviewing assignments and getting feedback from the previous session, practicing the concept of experiential avoidance (psychological inflexibility, especially concerning experiential avoidance and willingness to engage in action despite unwanted thoughts and feelings), the concept of distress tolerance (emotional distress tolerance), absorbed by negative emotions, subjectively assess anxiety and adjust efforts to reduce anxiety) and using the principles and techniques of motivational interviewing such as open-ended questions, empathy, highlighting contradictions, summarizing, slipping through resistance, strengthening self-efficacy, endorsement; patient for change, reflexive listening, and change speech and related techniques, as well as strengthening commitment to change. Homework: increasing the sense of self-efficacy, recognizing contradictions, and making rational decisions to understand and recognize one's feelings and prioritize values about experiential avoidance and stress tolerance.
7	Continue, repeat and practice the fifth session	Reviewing the previous session and assignments and get feedback from the previous session, practicing the concept of pain self-efficacy, resilience (perception of individual competence: trust in individual instincts, tolerance of negative emotions, positive acceptance of change and safe relationships, control, spiritual effects) and the use of principles and motivational interview techniques such as open-ended questions, empathy, highlighting contradictions, summarizing, slipping through resistance, enhancing self-efficacy, patient approval for the change, reflexive listening, and change speech and related techniques, as well as strengthening commitment to change. Homework: increasing the sense of self-efficacy, recognizing contradictions, and making rational decisions in the direction of pain self-efficacy, understanding and recognizing one's feelings, and prioritizing values concerning pain self-efficacy and resilience.

Session	Topic	Content
8	Continue, repeat and practice sessions 4 and 6	Reviewing the last session and assignments and getting feedback from the previous session, practicing the concept of experiential avoidance (psychological inflexibility, especially about experiential avoidance and the tendency to engage in action despite unwanted thoughts and feelings), tolerating anxiety (tolerating emotional distress, absorption by negative emotions, mental assessment of anxiety and adjusting efforts to reduce anxiety) and the use of motivational interview principles and techniques such as open-ended questions, empathy, highlighting contradictions, summarizing, slipping through resistance, strengthening self-efficacy, patient approval in the direction of change, reflective listening, and the word of change and related techniques, as well as strengthening the commitment to change. Homework: increasing the sense of self-efficacy, recognizing contradictions, and making rational decisions to understand and recognize one's feelings and prioritize values about experiential avoidance and stress tolerance.
9	Continue, repeat and practice the repetition session 5 and 7	Reviewing the previous session and assignments and getting feedback from the previous session, practicing the concept of pain self-efficacy, resilience (perception of individual competence: trust in individual instincts, tolerance of negative emotions: a positive acceptance of change and safe relationships: control: spiritual effects) and the use of principles and motivational interview techniques such as open-ended questions, empathy, highlighting contradictions, summarizing, slipping through resistance, enhancing self-efficacy, patient approval for the change, reflexive listening, and change speech and related techniques, as well as strengthening commitment to change. Homework: increasing the sense of self-efficacy, realizing the contradictions and making rational decisions in the direction of pain self-efficacy, understanding and recognizing one's feelings, and prioritizing values concerning pain self-efficacy and resilience.
10	Continuation, repetition and practice and integration of past sessions, i.e. practice of four variables based on the techniques and principles of motivational interview	Reviewing the last session, reviewing assignments and getting feedback from the previous session, practicing the concept of experiential avoidance (psychological inflexibility, especially concerning experiential avoidance and the tendency to engage in action despite unwanted thoughts and feelings), tolerating anxiety (tolerating emotional distress, absorption by negative emotions, mental assessment of distress, and adjustment of efforts to reduce anxiety), the concept of pain self-efficacy and resilience (Perception of individual competence: Trust in individual instincts, and the use of motivational interviewing principles and techniques such as open-ended questions, empathy, highlighting contradictions, summarizing, slipping through resistance, enhancing self-efficacy, patient approval for the change, reflective listening, and change speech and related techniques, strengthening the commitment to change in line with these concepts. Homework: Increasing the sense of self-efficacy, recognizing the contradictions, and making rational decisions to understand and recognize their feelings and prioritize values about experiential avoidance, distress tolerance, pain self-efficacy, and resilience.

Session	Topic	Content
11	Continuation, repetition and practice and integration of past sessions, i.e. practicing four variables based on the techniques and principles of motivational interview	Reviewing the last session, reviewing assignments and getting feedback from the previous session, practicing the concept of experiential avoidance (psychological inflexibility, especially in relation to experiential avoidance and the tendency to engage in action despite unwanted thoughts and feelings), tolerating anxiety (tolerating emotional distress, absorption by negative emotions, mental assessment of anxiety and adjusting efforts to reduce anxiety), the concept of pain self-efficacy and resilience (perception of individual competence: trust in individual instincts, negative emotion tolerance: positive acceptance of change and safe relationships: control: spiritual effects) and the use of motivational interviewing principles and techniques such as open-ended questions, empathy, highlighting contradictions, summarizing, slipping through resistance, enhancing self-efficacy, patient approval for change, reflective listening, and change speech and related techniques, strengthening the commitment to change in line with these concepts. Homework: increasing the sense of self-efficacy, recognizing the contradictions, and making rational decisions in order to understand and recognize their feelings and prioritize values in relation to experiential avoidance, distress tolerance, pain self-efficacy, and resilience.
12	Review and practice, post-test	Reviewing past sessions, summarizing, and getting feedback from past sessions, in this session the person learns to use what he/she has learned to cope with situations related to dependent variables and other issues in the future. Performing post-test / scheduling periodic meetings with the experimental group to present post-test results.
	Follow up	Post-test - Organizing a follow-up session for the experimental group and answering their questions and problems after treatment.

of 24 subjects and Cronbach's alpha method were used to determine the reliability of the questionnaire. Cronbach's alpha coefficient subscale of individual competence, a subscale of trust in individual instincts, negative emotion tolerance, subscale of positive acceptance of change and safe relationships, subscale of witness, a subscale of spiritual effects, and the whole questionnaire were 0.82, 0.85, 0.89, 0/79, 0, 0.83, and 0.86 respectively.

Intervention

The basis of the motivational interview group therapy was the motivational interview group therapy package (David Rosen Green 2005; quoted by Alidoost and Kianarsi, 2013). The training sessions are summarized in Table 1.

Pain resilience and self-efficacy questionnaires were provided to the sample group and they were assured that their information would be kept confidential and collected only for research work. It was also emphasized that they answer the questions honestly. After collecting the filled up questionnaires, the data were analyzed by SPSS software version 22. Repeated Variance Analysis was used to test the research hypothesis.

Results

In Table 2, the mean and standard deviation of research variables in pre-test, post-test and follow-

Table 2. Mean and standard deviation of scores of research variables in experimental and control groups

Components	Groups	Pre-test		Post-test		Follow up	
		Mean	SD	Mean	SD	Mean	SD
Pain self-efficacy	Motivational interview group	26.08	5.33	35.17	4.87	35.83	3.12
	Control	24.83	4.78	25.58	4.34	24.33	3.60
Resilience	Motivational interview group	57.25	5.27	79.67	5.95	82.42	7.99
	Control	58.67	6.91	57.25	5.89	58.92	6.61

up are reported separately for the experimental group and the control group.

To test the hypothesis of "there is a difference in the effectiveness of motivational interview group therapy on pain self-efficacy and resilience of patients with multiple sclerosis in Borujen", repeated variance analysis was used. Before conducting the analysis of variance with repeated measures, its assumptions were tested. All assumptions including the normality of the research variables, the homogeneity of the variances about the dependent variables of the research, and the equality of the covariances of the dependent variables were observed.

The results of the Mochelli test (Table 3) show that the sphericity assumption, which is one of the assumptions of repeated variance analysis, was met.

Repeated Variance Analysis was used to evaluate the effectiveness of the independent variable (motivational interview) on pain self-efficacy and resilience of patients with multiple sclerosis in Borujen (Table 4).

The results of repeated variance analysis in Table 4 show that the mean scores of variables of pain self-efficacy and resilience of patients with multiple sclerosis, regardless of the effect of grouping during the post-test and follow-up stages, have changed significantly, which shows a significant difference compared to the pre-test. On the other hand, the results of the table indicate that the grouping variables (motivational interview group therapy), regardless of stages (pre-test, post-test, and follow-up), have a meaningful effect on pain self-efficacy and resilience variables in patients with multiple sclerosis. This means that the motivational interview group therapy has a significant effect compared to the control group.

Finally, the results related to the interaction of stages and grouping, as the most important finding, indicates that the motivational interview

Table 3. Mocheli table based on checking the default sphericity of variables

Variable	Mocheli test	Approximate Chi square	df	Sig.
Pain self-efficacy	0.93	1.55	2	0.46
Resilience	0.98	0.48	2	0.78

Table 4. Results of repeated measures analysis of variance to evaluate the effects of intra-group and inter-group effects of motivational interview group therapy on pain self-efficacy and resilience of patients with multiple sclerosis

		Total squares	df	Mean squares	F value	Sig. level	Effect size	Power Statistical
Pain self-efficacy	Stages	445.52	2	222.76	10.78	0.001	0.32	0.98
	Grouping	1088.89	1	1088.89	63.98	0.001	0.74	1
	Time interaction and grouping	286.02	2	143.01	6.92	0.002	0.24	0.91
	Error	909.12	44	20.67		0.001		
Resilience	Stages	2011.69	2	1005.84	21.53	0.001	0.49	1
	Grouping	4140.50	1	4140.50	123.97	0.001	0.61	1
	Time interaction and grouping	2808.08	2	1404.04	30.06	0.001	0.58	1
	Error	2054.89	44	46.70		0.001		

group therapy with the interaction of stages has a significant effect on the test stages (pre-test, post-test, and follow-up), the self-efficacy variable of pain, and resilience in patients with multiple sclerosis. Also, the results show that 24% of pain self-efficacy changes (Partial η^2 = 0.24, p = 0.002, F = 6.92) and 58% of resilience changes (Partial η^2 = 0.58, P = 0.001, F = 30.06) of patients with multiple sclerosis are explained by interaction of stages and grouping. Therefore, it can be said that the motivational interview group therapy has improved pain self-efficacy and resilience in patients with multiple sclerosis.

Discussion and conclusion

The aim of this study was to investigate the effect of "motivational interview group therapy" on pain self-efficacy and resilience of patients with multiple sclerosis in Borujen. The results of the present study showed that "motivational interview" was effective on the pain self-efficacy of patients with multiple sclerosis. Regarding the effectiveness of "motivational interview" on increasing pain self-efficacy, it can be said that intervention programs (motivational interview) have been effective on the pain self-efficacy variable in patients with multiple sclerosis and this effect has been constant. This result is consistent with the results of previous researches such as Rigel et al. (2016) and Janaabadi, Isa-Zadegan, and Nemati (2013). Explaining the effectiveness of this motivational interview intervention on pain self-efficacy in patients with multiple sclerosis, Bandar Rawa, the inventor of the self-efficacy theory, believes that believing in the ability to behave and expecting the consequences of performing a particular action can lead to desirable behavior. He also suggests that sources of self-efficacy are four factors: performance success, succession experiences, verbal encouragement, and physiological and emotional arousal from behavior (Bandora, 2006). These resources are important parts of motivational interviews that have been effective in increasing the pain self-efficacy of patients with multiple sclerosis.

Also, in terms of how motivational interview affects pain self-efficacy in patients with multiple sclerosis, it can be said that the basic principle of the motivational interview is to strengthen patients' sense of self-efficacy in all behavioral changes. Many of the motivational group interview techniques used in this study, such as controlling behavior in tempting situations, participating in decision-making, supporting autonomy, overcoming ambiguity, and bringing out change-oriented speech, go directly to increase pain self-efficacy in patients with multiple sclerosis. The spirit of motivational interview places the greatest emphasis on supporting self-efficacy, participation, and invoking the views of others. Also, considering that one of the important sources of increasing pain self-efficacy is substitution experiences and verbal persuasions, and in group meetings motivational interviews in the present study, these experiences and persuasions were repeatedly formed, it may be one of the important reasons which are effective in increasing the self-efficacy of pain in patients with multiple sclerosis in the present study.

Also, in terms of the effectiveness of "motivational interview" on increasing resilience, it can be said that intervention programs (motivational interview) have been effective on the variable of pain resilience in patients with multiple sclerosis, which was constant. This result is consistent with the results of previous researches such as Kamal Theory et al. (2017). Explaining the effectiveness of motivational interview intervention in resilience in patients with multiple sclerosis, it can be said that in the motivational interview approach, according to the various stages, which are expressing empathy, creating conflict or disagreement in the client status, avoiding controversy, breaking the resistance of clients, and supporting the self-efficacy of clients, lets the individual get rid of inappropriate mental content by examining positive emotions and logical exercises.

Motivational interview approach exercises give people an understanding of optimism, hope, recognition of positive, constructive emotions, and positive motivation, which ultimately leads to acceptance of life problems and familiarity with the problem-solving approach by individuals (O'Halloran et al., 2014). In this incremental approach, they learned to respond to life events and problems more flexibly and optimistically. In the motivational interview approach, individuals were taught to change their visions and attitudes toward life problems by designing new programs, setting goals, values, and giving meaning to suffering (Miller & Rolink, 2012). Thus, by undergoing this intervention, deeper awareness and understanding were created in these patients and encouraged them to continue their lives with more hope and motivation. These changes as a result of motivational interviews increase the capacity to return from social, financial, or emotional challenges, and to rebalance of patients, and enhance their ability to reconcile with grief, trauma, adverse conditions, and the stressors of life, ultimately increasing people's resilience.

Also, motivational interviewing, mainly by resolving the ambiguity of the clients about change, increases the motivation for change in them. On the other hand, it is clear that ambivalence and conflict are some of the sources of pain self-efficacy (Ghielen et al, 2019). That is, part of the pain tolerance of people with chronic health disorders is due to their ambiguity about behavior change. Therefore, it can be concluded that motivational interviewing, by moving towards resolving ambivalence and conflict, increases the self-efficacy of their pain. Another factor that influences the effectiveness of motivational interviewing

in increasing the self-efficacy of pain is the empathetic and humanistic style along with the acceptance of clients in motivational interviewing. As a result, a person who is in a human relationship with deliberation and acceptance can be effective in increasing the self-efficacy of his pain. Also, the basic principles of motivational interviewing are to reinforce facing all pleasant and unpleasant events and to avoid avoidant behaviors, and strengthen the clients' sense of self-efficacy in all behavioral changes. Therefore, patients use the motivational interviewing techniques used in the present study (such as: engaging, focusing, evoking change, and planning for a change) to increase pain self-efficacy in patients with multiple sclerosis (Miller & Rolnik, 2012). In other words, patients who were subjected to motivational interviews were able to increase their self-efficacy by mastering and understanding their strengths and weaknesses and finding appropriate coping strategies with pleasant and unpleasant life events, resulting in pain self-efficacy.

Theoretically, the present study has several implications. First, this study provided evidence of the effectiveness of motivational interview group therapy (David Rosen Green 2005; quoting Ali-Doust and Kianarsi, 2013), which are still models in the field of motivational interviews. Second, by demonstrating the role of motivational interview group therapy in pain self-efficacy and resilience, the gap in the use of this group therapy in patients with multiple sclerosis is met, and providing empirical evidence helps to bridge this gap. Practically, based on the results of the present study, by providing the necessary therapies in the field of motivational interviewing and learning the basic principles of these models, people will be able to achieve a degree of self-assessment and self-correction and thus see themselves as responsible not only for their thoughts and ideas but also for their behavior.

With the development of caring and responsible thinking along with other aspects of thinking in these approaches, it can be expected that with the correct implementation of these programs in the medical system, the belief in patients' great abilities will increase, and as a result, the patient's tolerance for the difficulties of the disease and its treatment will increase, and belief in their own abilities will enhance. Accordingly, it is recommended to hold training workshops to familiarize psychologists and educators better with the basic principles of motivational interview group therapy and how they can influence people's growth by applying the principles of this model to help empower learners.

One of the limitations of this study is that the subjects are limited to patients with multiple sclerosis in Borujen city in Chaharmahal and Bakhtiari province, which makes the generalizability of the findings limited. Given that in the present study, gender differences have not been studied, it is suggested that in future studies, the effectiveness of motivational interview group therapy among patients with multiple sclerosis, male and female be compared.

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