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Original Article

Comparing the Effects of Acceptance and Commitment Therapy and Reality Therapy on Improving Illness Perception in Women with Multiple Sclerosis

Maryam Bagheri[1], **Farah Lotfi Kashani**[2*], **Mohammad Ismail Ebrahimi**[3]

1. PhD Student, Department of Health Psychology, Rudehen Branch, Islamic Azad University, Rudehen, Iran
2. Associate Professor, Department of Clinical Psychology, Tehran Medical Sciences, Islamic Azad University, Tehran, Iran
3. Associate Professor, Department of Psychology, Hamedan Branch, Islamic Azad University, Hamedan, Iran

*Corresponding author:
Farah Lotfi Kashani,
Department of Psychology, Medical Branch, Islamic Azad University, Tehran, Iran
Tel: 09123006784
Email: lotfi.kashani@gmail.com

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Abstract

Background and Objective: Education regarding illness in individuals with chronic diseases is a critical factor in fostering empowerment and enhancing patients' understanding of their conditions. Therefore, this study was designed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Reality Therapy (RT) in improving illness perception among women with multiple sclerosis (MS).

Materials and Methods: This quasi-experimental research was conducted using a pretest-posttest design and a 2-month follow-up with a control group. The research population included all married women with MS in Hamedan in 2023. Of these, 3 groups of 15 people were selected using the convenience sampling method and randomly divided into experimental and control groups and responded to Broadbent et al.'s Brief Illness Perception Questionnaire in three stages of pre-test, post-test, and follow-up. The subjects in the experimental group were treated with the ACT and RT approaches for a total of eight sessions, with each session lasting 60 minutes and held weekly as a group. In contrast, the control group did not receive any educational intervention. The data were statistically analyzed in SPSS software using a covariance test and a significant level of $p<0.05$.

Results: The results showed that there was no significant difference between the mean scores of pre-test, post-test, and follow-up illness perception in the three groups. Regarding the between-group factor, the calculated F value was not significant at a level smaller than 0.05 (Eta=0.048, P<0.05, F=1.052). As a result, there was no significant difference between the overall mean illness perception in the three experimental and control groups.

Conclusion: According to the results of this study, it can be said that ACT and RT lead to improved disease perception in women with MS; however, the effect of RT was greater than that of ACT.

Keywords: Acceptance and Commitment, Multiple Sclerosis, Perception of Illness, Reality Therapy

Background

Multiple sclerosis (MS) is an autoimmune disease that affects the central nervous system and causes nerve damage, inflammation, and demyelination [1]. Worldwide, women are more affected than men, and in some regions, the number of MS cases in women is four times that of men [2]. The prevalence of MS usually occurs between the ages of 20 and 50 years, and the average age of diagnosis is about 32 years [3]. In Iran, according to studies, he prevalence of MS is increasing, and the disease rate in women is higher than that in men [4]. The ratio of women to men with MS in Iran is about 3 to 1 [5]. This increase in prevalence may be due to various reasons, including environmental, genetic, and lifestyle changes [6]. Global information shows that the number of people with MS worldwide has increased from 2.3 million people in 2013 to 2.7 million people in 2020 and 2.9 million people in 2023 [7]. This increase may reflect improvements in diagnosis and access to health care; however, it could also reflect a true increase in disease prevalence [8]. Overall, MS is a complex disease with multiple risk factors that affects women more and requires special attention in research, diagnosis, and treatment [9].

This chronic neurological disease affects adults aged 20 to 50 years, and the average age of onset is the early fourth decade of life [10]. In this disease, the immune system of the affected person shows an inflammatory reaction against the nervous tissue

and causes tissue demyelination [11]. This disease can lead to various disorders, such as depression and marital conflicts [12]. One of the missions of psychologists is to help improve the quality of life and life satisfaction of these people through the reconstruction and improvement of variables related to the mental and physical health of these people. Research has shown the relationship between mental health and chronic and incurable diseases, such as MS, is significant, and the way of expressing emotions of people suffering from this disease is disturbed and has significant changes compared to the past [13]. These individuals suffer from depression [14] and anxiety [15], leading to a loss of hope and optimism [16]. This reduces their resilience [17] and results in a significant decline in their self-efficacy [18]. Moreover, research indicates that psychological problems in people with MS are the main cause of disabilities, social harm, and lowered quality of life in these people [19]. In fact, the type of reaction people have to life events depends on social, cultural, psychological, and personality factors [20].

The quality of life-related to health represents a kind of mental perception of the disease or its treatment. For this reason, patients with similar health statuses may not have the same quality of life due to individual differences related to expectations and coping strategies [21]. The components of MS, such as neurological disability, severity of complications, recovery status, and duration of the disease, can affect the levels of psychological adaptation and resilience of people with MS. Research has shown that psychological factors are often better predictors of individual differences in adjustment than disease factors. Unlike disease factors, psychological factors can be modified through psychological interventions [22]. Research shows a lot of mental suffering related to MS. Affected people need adaptation and coordination with the challenges of chronic disease, which is not an easy task and requires training [23].

Several psychosocial factors can influence the psychological profile of people with MS. One of these factors that is of great importance for improving the psychological state of patients with MS is adaptation to the conditions encountered. The perception of the disease is a key psychological factor affecting adaptation to MS in women [24], significantly influencing their treatment approach and quality of life. Research shows that patients' perceptions of the impact of MS and their beliefs about the effectiveness of treatment can be considered mediating variables in this regard [25]. These personal perceptions of the disease, especially in self-efficacy and personal evaluations, can affect health-related decision-making and treatment behaviors. Some studies suggest that women with MS may experience the disease differently during hormonal changes associated with menstruation, pregnancy, and menopause [26]. These changes can affect symptom severity and disease perception and require special attention in disease management. Ultimately, understanding how women with MS perceive their disease and how these perceptions affect their health-related behaviors and quality of life could help improve treatment and support approaches [27].

One of the treatments that can help improve these health-related variables is the treatment based on acceptance and commitment [28]. This therapy, which was founded by Steven Hayes et al., aims to enhance a person's ability and bring a rich, comprehensive and value-oriented life by teaching mindfulness, acceptance of things that cannot be changed, clarification of values, and effective planning to achieve desired changes [29].

Acceptance and Commitment Therapy (ACT) is the only psychological and experimental intervention in which acceptance and mindfulness strategies are used along with commitment and behavior change strategies to increase psychological flexibility [30]. Research shows that ACT, by increasing psychological flexibility, leads to better management of the person in dealing with chronic diseases [31], can reduce stress in these patients [32], and is effective in improving the problems of patients with MS [33]. This approach can also be effective in improving psychological adaptation in people with MS [34]. Finally, this treatment can improve psychological adjustment in people with MS [35] and increase self-efficacy and hope in these patients [36].

Among the treatments that are widely used today to reduce marital conflicts, there are third-wave behavioral treatments, one of which is Reality Therapy (RT). The RT approach is one of the psychological treatments that emphasizes treatment through education. The choice theory was presented by Glaser in 1994 as a supplement to RT. Glaser states that for scientific reasons, we choose all the behaviors we do, including the feeling of misery. He believes that others cannot make us miserable or happy. All we receive from others is information. The information entered into our mind is processed there, and then we decide what to do [37]. According to the choice theory, all behavior that a person does are choices to satisfy their inner needs (love and belongingness, freedom, fun, power, and survival) [38]. This theory is against the psychology of external control, which believes that others can force us to behave and feel in a certain

way. External control robs us of the freedom and personal agency we need. Believing in external control and applying it harms all people, both the controller and the controlled [39]. This view teaches us that we have more self-control over our lives than we think, and often, we spend a lot of our energy trying to control others [40].

From Glaser's point of view, perhaps many chronic diseases are a kind of physiological creativity. According to him, in any chronic patient who does not have a specific physical cause and medical treatment, his illness can be a creative but unintentional intervention of the body in the trap of trying to satisfy his needs. Glaser believes that the common methods of treatment not only do not help the patient regain control of his life but also make his condition more difficult. During illness, by learning how to gain effective control over life through choice theory, the brain invents new reorganized behaviors that will dramatically change the illness process [41]. Studies have shown that this method, in addition to the effectiveness of changing behavior in the course of the disease, can affect the stress, anxiety, and depression of people with MS [42]. According to the stated contents, the current research seeks to answer the question of whether there is a difference between the effectiveness of treatment based on ACT and RT in a group on improving illness perception in women with MS.

Objectives

This research aims to compare the effectiveness of ACT and RT in improving illness perception in women with MS.

Materials and Methods

The research method was quasi-experimental with a pretest-posttest design and follow-up with a control group. The research population included all married women with MS in Hamadan City in 2023. Sample selection was done using an available sampling method, and the number of samples was based on similar studies, such as the research of Dimf and Linehan [43], taking into account the effect size of 0.40, the confidence level of 0.95, the power of the test of 0.80, and the dropout rate of 10. The percentage was calculated for each group of 15 people, which were randomly assigned to 15 people in the first experimental group (therapy based on ACT), 15 people in the second experimental group (therapy based on RT), and 15 people in the control group. Each group then completed questionnaires.

They responded to the Medanlo treatment compliance questionnaire (2013) in 3 stages. Entry criteria included no bereavement in the last three months, no mental disorders based on clinical interview and Symptom Checklist-90, and the ability to do personal work and no involvement of vital organs leading to organ failure. On the other hand, exclusion criteria consisted of missing more than two sessions, lack of cooperation or failure to complete assigned tasks, and unwillingness to continue participation in the research process.

The ACT treatment group received treatment over eight weekly sessions, each lasting 60 minutes, following a method developed by Hayes et al. [44]. Similarly, the RT group participated in eight 60-minute sessions based on Glasser et al.'s protocol [45]. The control group received no intervention.

The research instrument used in this study was the Brief Illness Perception Questionnaire (IPQ), designed and validated by Broadbent et al. (2006) [46]. This questionnaire consists of 9 items measuring consequences, timeline, personal control, treatment control, identity, concern, disease recognition, emotional response, and cause of the disease. The range of scores for the first 8 items is from 0 to 10. Item 9 is open-ended and asks about the three main causes of the disease. This questionnaire has been validated by Aghayousefi et al. in Iran [47]. The Cronbach's alpha for this questionnaire is 0.80, and the test-retest reliability coefficient for different items at a 6-week interval has been reported to range from 0.42 to 0.75. The concurrent validity of the scale with the revised IPQ in a sample of patients with asthma, diabetes, and kidney patients indicates a correlation of subscales ranging from 0.32 to 0.63. The correlation of the scores of the subscales of the aforementioned scale with the specific self-efficacy of patients with asthma was 0.47 to 0.53. The discriminant validity of the Brief IPQ was calculated and confirmed by comparing the scores of patients with diabetes, asthma, chest pain, and colds [46].

Acceptance and Commitment Therapy: In the present study, a therapy protocol was developed based on the method of Hayes et al. in 2006 [44]. This program was implemented by the therapist in weekly 60-minute sessions for 8 weeks.

Reality Therapy

In the present study, a therapeutic protocol was developed based on the method of Glasser et al.'s protocol [45]. This program was implemented by the therapist once a week for 60 minutes over a period of 8 weeks.

Results

In this research, 45 women with MS were examined in the ACT (n=15), RT (n=15), and control groups (n=15).

Based on the Chi-square test, there was no significant difference between the three study groups in terms of occupation and duration of illness. The results of the analysis of the covariance test showed that there was no significant difference between the three study groups in terms of age, and the three groups were homogeneous in terms of these variables (P>0.05).

In order to examine the significant difference between the mean scores of illness perception in the first experimental group (ACT), the second experimental group (RT), and the control group in the pre-test, post-test, and follow-up stages, the mixed analysis of covariance method (one within-subjects factor and one between-subjects factor) was used. The three stages of pre-test, post-test, and follow-up were considered within-subject factors, and the grouping of subjects into three groups was considered a between-subjects factor. First, the sphericity assumption was examined with Mauchly's sphericity test for the within-group factor. The results are presented in Table 4.

The findings of Table 4 show that the assumption of sphericity is not valid (Chi-squared test=31.523). Therefore, the degree of freedom correction (using an index called Greenhouse-Geisser epsilon) should be used, and the summary of the results of the mixed analysis of covariance for within-group and between-group factors is presented in Table 5.

The results of Table 5 show that in relation to the within-group factor, the F value calculated for the effect of the stages (pre-test, post-test, and follow-up) is not significant at a level smaller than 0.05 (Eta=0.050, <0.05, P=207.2F). As a result, there is no significant difference between the mean scores of pre-test, post-test, and follow-up of the perception of illness in the three groups. Regarding the between-group factor, the F value calculated at a level smaller than 0.05 is not significant (Eta=0.048, <0.05, P=1.052), showing that there is no significant difference between the overall mean of the perception of illness in the three groups.

Table 1. Acceptance and commitment training sessions [44]

Sessions	Content of the sessions
First session	Establishing a therapeutic relationship, concluding a therapeutic contract, psychological training
Second session	Discussing experiences and evaluating them, efficiency as a measure, generating creative frustration
Third session	Articulating control as a problem, introducing desire as another response, engaging in purposeful actions
Fourth session	Using cognitive breakdown techniques, interfering with the functioning of problematic language chains, weakening one's alliance with thoughts and emotions
Fifth session	Viewing self as context, undermining self-concept and self-expression as observer, showing separation between self, inner experiences, and behavior
Sixth session	Applying mental techniques, patterning of leaving the mind, training to see inner experiences as a process
Seventh session	Introducing value, showing the dangers of focusing on results, discovering the practical values of life
Eighth session	Understanding the nature of desire and commitment, determining action patterns in accordance with values

Table 2. Description of the reality therapy package

Sessions	Content of the sessions
First session	Introduction, determining group rules with the cooperation of members, examining the importance and role of communication skills, familiarizing group members with each other, and establishing a relationship based on trust between members and communicating group rules.
Second session	Teaching the concepts and theories of reality therapy, introducing how and why people behave, focusing on the members' awareness and knowledge of themselves and the way this knowledge affects the person and others, identifying strengths and weaknesses and trying to achieve a successful identity, helping members to learn more about themselves and their basic needs (recognizing the 5 main human needs, listing the members' basic needs with their own efforts and checking the importance of meeting these needs).
Third session	Getting feedback from the last meeting, asking for an explanation about the general view of the members related to their current employment and ordinary life, and examining the reasons for the attitude of the group members about the current life situation. Examining people's goals for their lives and determining their purposefulness, introducing behavior, and familiarizing members with the four components of general behavior: thinking, feeling, action, and physiology, teaching decision-making skills, and interpreting changes in thoughts, feelings, actions, and physiology in the present time.
Fourth session	Introducing and defining the four conflicts and forced behaviors, determining the level of access or failure of the group members to use the behavior and action in the present time in order to be employed, and checking how their current behavior can help the members reach their goals and needs.
Fifth session	Helping members to recognize their behavior and feelings in the present, showing less importance to the past compared to today's behaviors, emphasizing internal control compared to employment, introducing members to emotions, such as anxiety and depression, from the perspective of reality therapy and body skill training. Calmness in order to control and regulate emotions to show the importance of planning to do things faster and better, to use time properly and to teach proper planning to achieve other goals in common life.
Sixth session	Acquainting members with their responsibilities and helping them accept responsibilities and increase responsibility for their behavior choices and solutions that cause the tendency to despair and decrease happiness in employment. Introducing and explaining destructive and constructive behaviors in relationships and teaching how to live in the moment.
Seventh session	Teaching the ten principles and concepts of the selection approach, accepting responsibility for behavior, getting to know the issues of change and commitment, and doing even very little homework, based on increasing self-esteem, valuable self-concept until the next meeting, and getting a written commitment letter from the members in order to implement that and not making any excuses.
Eighth session	Getting feedback from previous meetings, reviewing them and summarizing, reviewing and re-emphasizing to accept responsibility by members, helping people to use internal control, facing reality, making moral judgments about the rightness or wrongness of behavior, living in this moment, and ultimately, the process of change that reduces anxiety and increases positive emotions.

The data were statistically analyzed in SPSS software version 23 using the analysis of covariance and a significance level of P<0.05.

Table 3. Demographic characteristics of the two experimental and control groups (total n=45)

Demographic variable		Experiment 1 (n=15)	Experiment 2 (n=15)	Experiment 3 (n=15)	
job	Employed	3 (20)	6 (40)	6 (40)	χ^2 (2)=1.80
	Not working	12 (80)	9 (60)	9 (60)	p=0.407
Education level	Under diploma	1 (7)	4 (27)	0	
	Diploma	8 (53)	6 (40)	7 (47)	χ^2 (6)=14.849
	Post diploma	0	2 (13)	6 (40)	p=0.021
	Expert	6 (40)	3 (20)	2 (13)	
Duration of illness	1-9	9 (60)	11 (73)	8 (53)	χ^2 (2, 42)=1.991
	10-19	5 (33)	3 (20)	6 (40)	p=0.149
	20-32	1 (7)	1 (7)	1 (7)	
age (years); average (standard deviation)		37.8 (7.7)	42.2 (8.4)	43.2 (7.4)	

Table 4. Results of Mauchly's test to examine the sphericity assumption in the illness perception variable

Within-group factor	Mauchly's Sphericity Test	Chi-squared test	df	Sig	Greenhouse-Geisser
Time steps	0.464	31.523	2	0.0001	0.651

Table 5. Summary of the results of the mixed analysis of covariance with within-group and between-group factors in the variable of perception of illness

Factors	Sources of change	Sum of squares	df	Mean of squares	F	Probability value	Effect size	Statistical power
Intra-group factor	Steps*Time	115.748	1.302	88.921	2.207	0.116	0.050	0.439
	Steps interaction*Error	18.963	2.603	7.284	0.181	0.886	0.009	0.087
	Group	2202.622	54.671	40.288				
Inter-group factor	Error	626.681	2	313.341	1.052	0.358	0.048	0.222
	Group	12508.978	42	297.833				

Discussion

The present study was conducted with the aim of comparing the effectiveness of ACT and RT on the perception of illness in women with MS. Based on the results obtained from the present study, ACT and RT lead to improvement in the perception of illness in women with MS; however, the effect of RT was greater than that of ACT. The results of the study were consistent with those of the research by Hokmabadi et al. [48], Sheydayi Aghdam et al. [49] and Morrison and Wertheimer [50]. While the review of empirical research revealed a lack of studies on the effectiveness of these treatment methods in ensuring treatment compliance, which complicates comparisons with previous findings, general studies on these two methods have consistently affirmed their effectiveness in addressing various mental disorders. This issue should be generalized with greater caution concerning RT, as it represents one of the most recent approaches therapists utilize to conceptualize human behavior, establish behavioral rules, and identify pathways to satisfaction, happiness, and success. Furthermore, research on this therapeutic method remains in its early stages [28, 29].

Focusing on psychological approaches, such as ACT and RT, for women with MS in addressing psychological issues and disorders, such as stress caused by death, can enhance the quality of life and promote self-care behaviors. Additionally, developing integrated psychological approaches alongside pharmacological treatments for MS patients is crucial for improving treatment adherence and self-care practices, which are vital for both current and future societal well-being.

Regarding the research findings on the effectiveness of ACT in improving treatment compliance and self-care behaviors among women with MS, it can be noted that this therapy primarily aims to reduce the intensity and frequency of distressing emotions and thoughts. Acceptance and Commitment Therapy emphasizes enhancing behavioral effectiveness in the presence of unpleasant thoughts and feelings rather than attempting to change or diminish those thoughts and emotions directly. In essence, the ACT therapist does not focus on altering the person's troubling thoughts or reducing their negative feelings [51].

The main assumption of ACT is that a significant part of psychological distress is a normal part of human experience. From the point of view of ACT framework theory, the high prevalence of human resentment is not something strange. The communicative framework theory shows how the natural processes of language dramatically change the human experience. These processes cause almost all aspects of human experience to be simply and repeatedly evaluated negatively. When individuals attain the ability to fully and uniquely reflect on their existence, contemplate its ultimate purpose, compare it with their mental ideals, recognize their personal shortcomings, and use these shortcomings as indicators of worthlessness, their capacity for distress significantly increases. According to relational framework theory, this comprehensive capability fosters a tendency toward experiential avoidance. Experiential avoidance refers to the effort to avoid thoughts, feelings, memories, and those subtle yet unpleasant experiences [43].

The human capacity for experiential avoidance is

significant for at least two reasons. First, many behaviors associated with experiential avoidance can either cause physical harm or exacerbate underlying issues. Common examples include binge eating, substance abuse, overeating, and physical inactivity, all of which can lead to detrimental health outcomes. Additionally, behaviors such as procrastination and the avoidance of constructive conflict often intensify existing distress. While these forms of avoidance may offer temporary relief, they ultimately worsen problems and increase distress over time. Second, numerous instances of experiential avoidance hinder individuals from leading meaningful, purposeful, and fulfilling lives. For instance, if a person values having an intimate, compassionate, and romantic relationship but consistently withdraws from the individual they are interested in due to unpleasant emotions, it is unlikely that they will be able to establish and maintain such a relationship [49]. These insights from communication frame theory and ACT suggest a different perspective on human suffering. If increasing distress is an inherent aspect of human existence that is often unavoidable, and if frequent experiential avoidance tends to precipitate distress and diminish the quality of life, then psychotherapy may be necessary to assist clients in learning to accept this distress—distress that arises while striving to live a meaningful and vibrant life. Consequently, ACT does not instruct clients to accept the content of their thoughts; rather, it encourages them to accept their thoughts as they are, independent of the interpretations their minds may impose [52].

ACT is based on the hypothesis that psychological trauma is associated with efforts to control or avoid negative thoughts and emotions [49]. Acceptance and commitment emphasize changing the client's relationship with his inner experiences and his avoidances [44]. In this treatment approach, clinical issues are framed around three fundamental problems that underlie psychological difficulties. These encompass challenges related to awareness, the avoidance of internal experiences, and the failure to engage in significant and meaningful activities in one's life [50].

In discussing the findings related to the effectiveness of RT on disease perception and self-care behaviors in patients with MS, it is important to highlight the objectives of this treatment method. Alashram [53] states that the aim of RT is to promote personal responsibility and help individuals develop a successful identity. It is essential for individuals to recognize the behaviors they wish to change, concentrate their attention on these behaviors, and avoid making excuses to evade responsibility. This approach encourages individuals to identify and clearly define their short- and long-term life goals, assess various strategies for achieving these goals, select the methods that are likely to yield more desirable results and foster a more positive self-view.

Glasser [45] highlights the role of an empathic and supportive relationship in the effectiveness of RT. A crucial element is the counselors' desire to develop their unique therapeutic style; authenticity and comfort with one's approach are vital traits that enable therapists to fulfill their therapeutic roles. To foster a strong rapport with clients, therapists should possess specific personal qualities, including intimacy, harmony, empathy, acceptance, interest, respect for the client, and openness to being challenged. He also notes that "the continuing goal of RT is to create a relationship based on the choice theory between the counselors and the client. By experiencing a satisfying relationship, clients can learn how to correct the problematic relationship that brought them to the counselor's session." Consequently, the client-counselor relationship often serves as a therapeutic factor for the client. Its significance is such that it is believed that if counselors are unable to connect with clients, the initial step in the counseling process—known as friendship—will not occur. This friendship is founded on respect, boundaries, and choices, encompassing various dimensions. Ultimately, a pivotal aspect of this therapy's effectiveness is the emphasis on confronting reality, taking responsibility, and evaluating right and wrong. Individuals are held accountable not only for their actions but also for their thoughts and feelings. They are not victims of their past or present circumstances unless they choose to be [45].

Limitations of the study and delimitations

The limitations of this research include time constraints, the continuity of follow-up, and the long-term transfer of skills related to performance improvement. Furthermore, the findings can primarily be generalized to women who are receiving treatment, as the sample consisted solely of patients with MS. To enhance the accuracy of future investigations into the effectiveness of this approach, it is recommended to employ controlled designs with random assignment and to examine various subgroups. Additionally, the effectiveness of this approach should be compared with other therapeutic methods. A longer follow-up period should be implemented, and the effectiveness of this approach across different diseases should also be explored.

Conclusions

According to the results of this study, it can be said that ACT and RT-based treatments led to improved disease perception in women with multiple sclerosis.

Compliance with ethical guidelines

The current research was extracted from the doctoral thesis of the first author in the field of psychology and approved by the specialized research council of Islamic Azad University, Rudehen branch (IR.IAU.VARAMIN.REC.1401.067). The researchers of this study consider it necessary to thank all the participants who helped us in this research and made it possible to conduct the study.

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Authors' contributions

Conceptualization: Maryam Bagheri
Data curation: Maryam Bagheri, Farah Lotfi Kashani2
Formal analysis: Maryam Bagheri,
Funding acquisition: Maryam Bagheri,
Investigation: Farah Lotfi Kashani2
Methodology: Mohammad Ismail Ebrahimi
Project administration: Maryam Bagheri,
Resources: Maryam Bagheri, Farah Lotfi Kashani2
Supervision: Maryam Bagheri, Farah Lotfi Kashani2
Validation: Maryam Bagheri, Mohammad Ismail Ebrahimi
Writing–original draft: Maryam Bagheri,
Writing–review & editing: Maryam Bagheri, Mohammad Ismail Ebrahimi

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Conflicts of Interest

The authors declared no conflict of interest.

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