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Happiness Program in Improving Sleep Quality in Multiple Sclerosis Patients

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Abstract

Background: Since happiness affects the various aspects of human life and is considered as one of the most important psychological needs, achieving it and it effects on the health of the body and soul has always occupied the mind of human beings. The aim of this study was to determine the effect of Forde's happiness program on sleep quality in patients with multiple sclerosis (MS).

Methods: This randomized clinical trial study was performed in the MS Society of Shahrekord in 2018. 70 eligible patients with MS were recruited through convenience sampling method and randomly allocated into intervention and control groups equally. The Fordyce Happiness Training Program was conducted in eight sessions in the intervention group. The sleep quality was measured by Pittsburgh Sleep Quality Index (PSQI), before intervention, immediately and three months after the implementation of Fordyce Happiness Program. The data analysis was analyzed using Chi-square, and independent t-test and Fishers exact test for demographic data distribution in intervention and control group, and repeated measures ANOVA for sleep quality in SPSS-16.

Results: The findings indicated that total scores of sleep quality of the two intervention (4.61±.052) and control (6.62±.054) groups were not significantly different before the intervention (P=0.05). However, the mean sleep quality scores of intervention and control groups showed a significant difference before, immediately after the intervention with a significant decrease in sleep quality scores over time (F=23.291, P<0.001).

Conclusion: The results of this study demonstrated that the implementation of Fordyce Happiness Training Program in MS patients is a suitable method for improving sleep quality, and if this program continues, they will get better results.

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Highlights:

What is current knowledge?

Due to the lack of correlation between sleep quality and pain in Multiple sclerosis patients, evaluations and interventions on these variables can be done separately in this population.

What is new here?

There is no significant correlation between sleep quality and pain in multiple sclerosis patients.

Introduction

Multiple Sclerosis (MS) is a relatively common and debilitating disease of the central nervous system in young adults. It slows down the transmission of nerve messages by destroying the myelin of nerve cells, and causes acute and chronic disorders and complications in this system (1). The disease mostly affects the age groups of 25-50 years and has a global prevalence of 2.5 million people (2). According to the available reports, 0.68 to 9.1 per 100,000 people are suffering from MS in Iran (3). In general, the prevalence of MS has been reported to be over 50,000 in Iran (4, 5). The onset of the disease is at a young age and it is more prevalent in women than men (2).

Patients with MS are exposed to acute and chronic pathways throughout their lives and experience complications in different situations that ultimately lead to lower quality of life in these patients (6). There is currently no definitive treatment for MS; therefore all measures are taken to reduce the complications and symptoms, and to ease and slow down the progressive path of the disease (7). Sleep disorder is a common symptom in people with MS (8). It is reported in 50% of cases manifested in the form of late sleeping and frequent waking up during sleeping in most cases (9). The causes of inadequate sleep in these patients may be due to the side effects of drugs, which treat MS symptoms, immunosuppressive drugs, or due to comorbid symptoms such as depression, fatigue, and pain (10).

Studies indicate that lower sleep quality reduces the quality of life (8). Maintaining a good sleep quality for every healthy person as well as every patient is significantly important as it largely contributes to physical and mental health and personal productivity (9).

This disorder is partially controlled by nervous system drugs and antidepressants (11). The conducted studies suggest the use of uncomplicated techniques such as effective massage therapy (12). In addition to physical accidents and complications, these patients undergo psychosocial-mental complications (13) because the soul is affected by the body and becomes restless with damage to body (14).

Due to the adverse effects of medicines together with the extensive research on the complementary medicine and the emergence of positive responses in these fields, people have become interested in alternative methods such as happy living to reduce the risk of chronic diseases (15). Happiness is a variable that is created by factors such as positive thinking, lack of negative view, and life satisfaction (16).

Living happily is against depression and can strengthen the body's immune system (17). Furthermore, happy people have higher self-esteem and broader social relationships (16). Lack of happiness will lead to emotional stress which in turn may cause serious illnesses (18).

Lama and Katler (2003) believe that learning is the first step towards happiness (19). The Fordyce Happiness program is a method for teaching happiness. Fordyce (1983) presented a program including fourteen components, eight cognitive and six behavioral components. Cognitive components include lowering expectations and desires, creating positive and optimistic thinking, planning affairs, focusing on the present, reducing negative emotions, stopping discomfort, developing a healthy personality, and valorizing happiness. Behavioral components include increasing activity, increasing social interaction, strengthening close ties, growing social character, creativity and involvement in activities, and self-sufficiency (20). Studies on Fordyce Happiness program training indicate that it can contribute to enhancing the quality of life (21). Rabiei et al. investigated the impact of this program on reducing postpartum depression (18). The findings of a study by Kheyri et al. also confirmed the impact of this

program on depression, stress, and fatigue in patients with MS (4). A study by Paginini et al (2014) also illustrated that psychological treatments led to improved quality of life, mental health, decreased depression, anxiety and stress, fatigue and sleep disorders in MS patients. The research findings suggest that further studies should be conducted on this field (22). Given the MS-related consequences and costs such as sleep disorder, the researcher sought to investigate the effects of the Fordyce Happiness program on sleep quality in multiple sclerosis patients.

Methods

The present study was a single-blinded clinical trial that was conducted in the MS Society of Shahrekord in spring 2018. The number of participants was 31 according to n=2(z1+z2)2×s2/d2 and 35 subjects were considered for each group considering the loss of each group. Patients were recruited through convenience sampling method after completion of the informed consent and randomly allocated into two, control (n=35) and intervention group (n=35). Due to the death of one person and the migration of two others, three individuals were excluded from the control group at the beginning of study, and the research continued with the presence of 32 participants in the control group. The inclusion criteria were as follows confirmation of diagnosing MS by a neurologist, literacy for reading and writing, and age between 18 and 60 years old. The exclusion criteria were a history of psychiatric disorders depending on the patient's file and the physician's opinion (including major depression, bipolar disorder, and history of drug addiction); history of any neurological disorders; and a history of taking corticosteroids or any analgesic medication, hypnotic pill, or any herbal medicine during the study. In the study, 70 numbers from 1 to 70 were randomly assigned to intervention and control groups. After referring eligible patients to the MS society, a random number was respectively assigned to each patient in order of referral. Patients were assigned to designated groups according to the random placement of numbers in each group. The Sleep Quality Questionnaire was given to the patients, who were referred to the MS society, in order to ensure the reduction of patients' sleep quality as well as inclusion of those having characteristics for inclusion in the study; moreover, those who scored 5 or higher were included in the study. Being Single-blinded in the present study was referred to the clinical trial in which the intervention group visited the society on Saturday; and the control group visited on Monday. The researchers conducted a Fordyce Happiness program to determine its effectiveness in improving the sleep quality in patients with MS. The relevant variable was measured before, immediately and 3 months after the intervention (4) in intervention and control groups using the Pittsburgh Sleep Quality Index (PSQI). Questionnaires were completed in the control group immediately and 3 months after the intervention simultaneously with the trest group, using the patients' contact numbers. The PSQI is a standard self-report tool designed by Buysse et al. in 1989 to assess sleep quality (23). The questionnaire consists of 19 questions in 7 domains. The total PSQI score is obtained in a range of 0 to 21 from adding scores of 7 domain scores. Higher scores indicate lower sleep quality. The score of 5 or more indicates poor sleep quality. The questionnaire is a valid tool with examined validity and reliability in various studies (24). In Iran, Hosseinabadi et al. (2010) and Soleimani et al. (2007) determined the reliability of r= 0.88 and r= 0.84 respectively for the questionnaire through the test re-test (26, 26).

The educational intervention was in a way that the intervention group participated in Fordyce Happiness program training sessions in eight sessions of 60 minutes twice a week, subsequently 14 principles of Fordyce Happiness program were implemented, and the participants were entered into the discussion as seven-membered groups after the researchers explained the content. Afterwards, the relevant tasks were specified and appropriate feedback was asked. The content of Fordyce Happiness program training in each session was shown in Table 1.

Table 1. The topic of content of Fordyce Happiness program training

Session	Content
1	A review of session structure; Happiness Definition; and Activity-increasing technique training
2	Techniques for increasing social relations and intimacy
3	Better planning and organizing technique
4	Techniques for stopping concerns and lowering expectations and self-sufficiency;
5	Techniques for developing positive thinking and optimism
6	Techniques for living in the present
7	Developing healthy personality; being productive; doing beneficial and meaningful affairs
8	Learning to give priority to happiness and post-test implementation

The post-test was performed and sleep quality questionnaire was re-completed immediately after the program. After three months, the sleep quality questionnaire was again completed by both groups. The data analysis was performed using Chi-square, independent t-test, for demographic data distribution in intervention and control group, and repeated measures ANOVA for sleep quality in time in SPSS-16.

Results

In our study, two groups were not significantly different in terms of variables distribution such as gender (P=0.864), marital status (P=0.798), education level (P=0.558), and frequency of hospitalization (P= 0.919) Therefore, both groups were considered identical.

The participants' mean age was 39.16±7.46 years in the control group and 38.23±7.73 in the intervention group at the beginning of the study. Almost, 82.9% of participants were female and 17.1% were male in the intervention group. In the control group, 18.8% were male and 81.2% were female. Regarding marital status, 31.4% of the participants of the intervention group were single and 68.6% were married, while 34.4% of the control group were single and 65.6% were married (Table 2).

The findings showed no significant difference in sleep quality score in studied groups (F=8.721, df=1, P=0.05).

The mean sleep quality scores of intervention and control groups showed a significant difference before, immediately after the intervention with a significant decrease in sleep quality scores over time. (F=23.291, df=1.521, P<0.001). The trend of decreasing the mean sleep quality score was greater in the intervention group than the control group (Table 3 and Fig 1).

Table 2. Comparison of patients' demographic characteristics in intervention and control groups

		Groups		P-value
		Intervention N (%)	Control N (%)	
Gender	Male	6 (17.1)	6 (18.8)	0.864
	Female	29 (82.9)	26 (81.2)	
Marital status	Single	11 (31.4)	11(34.4)	0.798
	Married	24 (68.6)	21 (65.6)	
Educational level	Literate	2 (5.7)	0 (0)	0.558
	Under diploma	8 (22.9)	11 (34.4)	
	diploma	12 (34.3)	11 (34.4)	
	Academic	13 (37.1)	10 (31.4)	
Job	Housewife	22 (62.9)	20 (62.5)	0.750
	Employee	4 (11.4)	6 (18.8)	
	Self-employed	3 (8.6)	1 (3.1)	
	Unemployed	6 (17.1)	5 (15.6)	
History of disease (Year)	5 ≤	22 (62.9)	20 (62.5)	0.381
	6- 9	5 (15.6)	5 (15.6)	
	10 ≥	8 (22.9)	7 (21.9)	
History of relapse	0	25 (71.4)	18 (56.3)	0.164
	1	5 (14.3)	11 (34.4)	
	1≥	5 (14.3)	3 (9.4)	
Age (year) Mean±SD		7.73±38.23	7.46±39.16	0.619
Frequency of hospitalization Mean±SD		1.90±2.17	1.79±2.13	0.919

Table 3. Comparison of mean scores of sleep quality in MS patients before, immediately and three months after the intervention in intervention and control groups

	Groups				Mean	SD
	Intervention		Control			
	Mean	7.05	Mean	SD		
Before the intervention	6.91	4.96	7.19	3.71	7.05	3.74
Immediately after the intervention	3.63	4.39	6.41	3.14	4.96	3.25
Three months after the intervention	2.69	Mean	6.25	3.70	4.39	3.52
Total score in comparison of groups	4.61	0.52	6.62	0.54	P< 0.001	
P= 0.05						

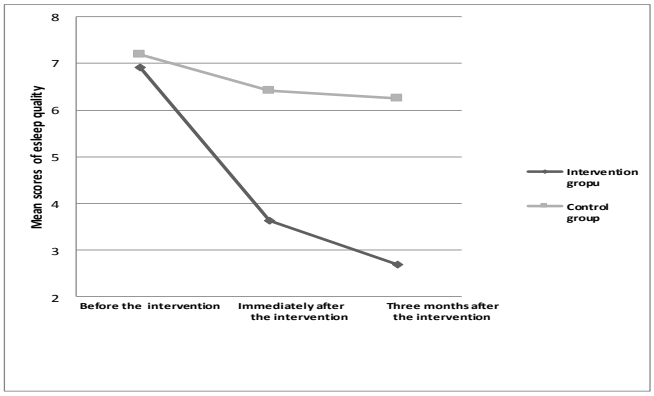

Fig1. Comparison of mean scores of sleep quality in MS patients before, immediately and three months after the intervention in intervention and control groups

Discussion

Given the research purpose for determining and comparing mean scores of sleep quality in MS patients: before, immediately and 3 months after the intervention in intervention and control groups, we found that there was no significant difference between mean scores of sleep quality in studied groups before the intervention according to Table 2. The result was consistent with the findings of studies by Chryso (27), Fichet (28) and Allison (29) who utilized the happiness program among patients to assess its impact on depression, emotional intelligence, happiness, and quality of life because they did not show any significant difference between studied variables in the pre-test group.

The results of the present study indicated that the sleep quality of intervention group was improved markedly compared to the control group after the intervention. Furthermore, the sleep quality was improved in both control and intervention group during the research time, while the difference in improvement was more obvious in the intervention group. The reported results were consistent with the results of studies by Kheiri (4), Nasirlou (21), Golmakani (30), and Betisco (31) who investigated positive effect of happiness training on their research variables, while Chryso and Fichet found that only the intervention group showed positive changes after the intervention, and the control group remained unchanged or deteriorated. Furthermore, Ghezavati (2017) studied the impact of time on positive changes in the control group and obtained different result from the present study, so that there was no changes in happiness of control group immediately and two months after the study (32).

The reason for this difference can be attributed to the fact that the geographic focuses were different in all the aforementioned studies.

A research by Kamyab et al was consistent with what was mentioned about improving the patients' sleep quality in long term, and it indicated more positive changes in systolic blood pressure and happiness in samples of the intervention group (33). The participants surely had a greater chance of developing what they had learned from educational content of counseling sessions and applying the acquired information in their personal and social lives over time; hence, it was not unexpected that their symptoms would improve over time.

Conclusion

Implementing the Fordyce Happiness program for MS patients was an appropriate method of improving their sleep quality. Continuing the program as well as educating and tracking patients over a longer period of time, better results can be achieved that in turn can make the MS patients more satisfied.

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Ethical statement

Ethics approval was obtained from vice-chancellery for research at Shahrekord University of Medical Sciences. The participants in the intervention group were intimated with details of the study and were asked to read and sign a consent form and were assured of the confidentiality. Participation to study was voluntary; participants were given the opportunity to leave the study if they become uncomfortable. The control group was given the opportunity to participate in the Fordyce happiness program after the study was completed.

Conflict of interest

The authors make no conflict of interest have not reported.

Author contributions

Reza Masoudi, supervisor; Kamal Solati, Psychological consultant; Nahid Jivad, neurology consultant; Fatemeh Driss, statistical consultant; Azita Zaheri, data collection and holding training sessions.

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