

The Effectiveness of Mindfulness-Based Stress Reduction on Cognitive Flexibility and Sleep Quality in the Elderly Men

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Abstract

The present study aimed to determine the effectiveness of mindfulness-based stress reduction as one of the effective and new methods in improving cognitive flexibility and sleep quality in the elderly. It was a quasi-experimental study with pretest, posttest and control group design. The statistical population of the study included all elderly men in Dezful. The samples of this study consisted of 30 men elderly (60-70 Ages) who were selected through available sampling. The applied questionnaires in the study included Pittsburgh Sleep Quality Index (PSQI) and Cognitive Flexibility Scale. Data were analyzed using univariate analysis of covariance. The findings showed that mindfulness-based stress reduction could significantly improve cognitive flexibility and sleep quality. Based on the findings, it can be concluded that mindfulness-based stress reduction can be considered as an effective intervention to improve cognitive flexibility and sleep quality in the elderly men.

Keywords: Cognitive flexibility, elderly, mindfulness, sleep quality

Introduction

One of the factors related to the mental health of the elderly is the sleep quality. Because aging is the most important cause of increased prevalence of sleep disorders. Sleep quality is the third most common problem in the elderly and is one of the most common complaints and reasons for the elderly to visit a doctor and psychologist (Ackman, et al., 2015). Another psychological component that can improve the mental health of the elderly is psychological flexibility. Studies have shown that cognitive flexibility has a positive relationship with social health (Aghajani and Samadifar, 2018) and emotional well-being (Marshall & Brockman, 2016). One of the third wave therapies that has recently been widely used in increasing cognitive flexibility and sleep quality in the elderly is mindfulness-based stress reduction intervention. This method can be helpful in creating, maintaining and promoting disease coping styles, reducing stress, mood disorders and even improving the function of the immune system (Carlson, et al., 2019). Research has shown the effectiveness of mindfulness on depression (Lindayani, et al., 2020) and psychological function (Kryakas, et al., 2021). Given the growing population of the elderly and little research on the effectiveness of this intervention in the elderly, the research hypothesis was as follows: Mindfulness-based stress reduction intervention is effective on cognitive flexibility and sleep quality in the elderly.

Method

The method of the present study was quasi-experimental. The study population included men elderlies (60-70 Ages) the city of Dezful. The final sample of the study was a total of 30 people who were selected based on the scores obtained in the Pittsburgh Sleep Quality Index and Cognitive Flexibility Inventory. These elderly men were randomly assigned to the experimental group (15 people) and the control group (15 people). In this research, the following tools have been used:

Pittsburgh Sleep Quality Index: This questionnaire was developed by Buysse, *et al.* (1989). In the present study, the reliability of the questionnaire was obtained through Cronbach's alpha for total score scale of 0.80.

Cognitive Flexibility Inventory: This inventory was developed by Dennis and Vanderwal (2010). In the present study, the reliability of the scale was obtained through Cronbach's alpha for total score scale of 0.77.

Mindfulness-Based Stress Reduction: weekly sessions were performed on the experimental group in 8 sessions of 90 minutes (O'Donohue, & Fisher, 2012).

Results

Table 1. Descriptive indicator of research variables

Group	Variables	Experimental		Control	
		the level	M	SD	M
Cognitive Flexibility	Pretest	75.67	10.81	77.40	12.59
	Posttest	98.60	11.34	78.30	10.79
Sleep Quality	Pretest	13.06	3.26	13.65	3.19
	Posttest	3.65	0.98	12.97	3.43

Levin's Test was conducted and covariance pre assumption and there was not a significant difference between the components. The condition for normality of distribution was confirmed ($P > 0.05$). Findings indicated that cognitive flexibility and sleep quality scores were significantly increased, which can be related to the effect of the mindfulness-based stress reduction.

Table 2. Results of univariate analysis of covariance scores research variables of the two groups

Dependent variables	SS	Df	F	P	Eta
Cognitive Flexibility	591.62	1	111.41	0.001	0.765
Sleep Quality	607.79	1	87.73	0.001	0.412

As shown in Table 2, there is a significant difference between the experimental and control groups in terms of cognitive flexibility and sleep quality.

Discussion and Conclusion

The results showed that mindfulness-based stress reduction intervention had an effect on cognitive flexibility and sleep quality in the elderly. These results were in line with the findings of Lindayan, et al. (2020) and Kryakas, et al. (2021). Explaining the findings, we can say that mindfulness is a positive ability that allows a person to think about alternatives and adapt to the new conditions of the environment, which is flexibility. Also, in explaining these results, it can be said that by performing mindfulness exercises, the person becomes aware of the automatic functions of the mind and daily activities, and the necessary ground is provided for moment-by-moment awareness of thoughts and feelings and, consequently, their control. Recognizing such irrational thoughts reduces negative thoughts and stress and ultimately leads to improved sleep quality in the elderly.

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