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Original Article

Effect of Mindfulness Yoga on Depression Severity, Self-Esteem, and Quality of Life in Middle-Aged Men

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Abstract

Background: We aimed to conduct a mindfulness yoga program to treat the psychological problems of middle-aged men by examining the effects of a mindfulness yoga program on depression, self-esteem, and quality of life in this population.

Methods: The participants included 50 middle-aged men (aged 40–60 yr) living in Seongnam-si, Korea. Twenty-five men were randomly assigned to the experimental group and 25 were assigned to the control group. The mindfulness yoga program was conducted twice a week for 12 weeks, and each session lasted approximately 75 min. Before the first session, a pre-test was conducted, after which the program began. Questionnaires were completed after the 4th, 8th, and 12th weeks of the program, and the control group underwent psychological tests at the same time points. A two-way (2 × 4) repeated measures analysis of variance was conducted, and when the interaction effect was significant, a post-hoc test (Bonferroni) was performed.

Results: In the intervention group, depression severity significantly decreased ($P<0.001$) and self-esteem significantly increased ($P<0.01$). Furthermore, the intervention group also showed a significant increase in psychological ($P<0.001$), social ($P<0.001$), and overall quality of life ($P<0.001$) among the sub-dimensions of quality of life.

Conclusion: Middle-aged men should be made aware of the usefulness of mindfulness yoga and encouraged to participate in such programs. Mindfulness yoga may be considered as an alternative treatment strategy that promotes the natural healing and management of psychological issues faced by middle-aged men.

Keywords: Depression severity; Middle-aged men; Mindfulness yoga; Quality of life; Self-esteem

Introduction

Due to the recent increase in life expectancy, life after middle age has also been prolonged, and the health problems of middle-aged men are emerging as an important issue (1). Middle-aged men experience physical problems such as decreased muscle mass and strength, increased visceral fat, skin changes, and decreased bone density (2). In addition, they face psychological challenges, such as stress, depression, asthenia, insomnia, and lack of self-confidence, related to changes in their social standing (3).

Among these conditions, depression is the most

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important cause of psychological issues experienced by middle-aged men, as it causes a decrease in mood, loss of motivation or interest, a sense of guilt or incompetence, sleep and appetite disturbances, a decrease in energy, and reduced concentration. These factors negatively impact activities of daily and social life, ultimately lowering the overall quality of life (4). Moreover, since middle-aged men tend not to disclose these problems, they become more depressed, which further decreases their quality of life. In addition, these men often do not respond appropriately to their psychological challenges by failing to seek treatment or ask for help (5). However, since serious cases may develop psychosis or result in suicide, this population requires more attention from the state and society (6). In particular, the number of patients with depression is increasing every year, and the number of male patients is almost twice that of female patients. Moreover, the proportion of middle-aged men aged between 40 and 65 years is approximately 61%, which underscores the need for more research to identify alternative preventative and management strategies for depression in this population (7).

Self-esteem is the basis of mental health and refers to the degree to which one considers oneself as a valuable person based on a subjective judgment of oneself (8-9). Self-esteem tends to become unstable in middle age (10), and when self-esteem decreases, negative emotions and behaviors are activated, which is an important factor for reduced quality of life in middle-aged men (11-12). In addition, the decline in the quality of life of middle-aged men affects their future quality of life during their old age, which is a major social problem (13).

Mindfulness yoga can be an effective way to cope with these psychological problems in middle-aged men. Mindfulness yoga is a dynamic mindfulness training method that focuses on perceiving one's unconscious emotions and thought patterns while deliberately paying attention to the body sensations that change. This is achieved through heightened awareness of one's thoughts and performing yoga poses to stretch and move the body. Mindfulness yoga is attracting attention because the importance of body mindfulness in treatment and healing has been increasingly recognized in various fields, including psychotherapy (14-15). It is a highly effective method for increasing the ability to control the body and mind in an integrated manner (16), in addition to providing beneficial effects on mental health (16-20).

However, most studies on the effectiveness of mindfulness yoga have been conducted in women, and the frequency or degree of psychological difficulties experienced by middle-aged men has not received much attention. Moreover, research on how to manage the psychological difficulties in this population is also lacking (21-22).

We aimed to conduct a mindfulness yoga program to manage the psychological conditions of middle-aged men and investigate the effects of mindfulness yoga on depression, self-esteem, and quality of life in this population.

Methods

Participants

Participants of this study were middle-aged men (40 to 60 yr old) residing in Seongnam-si, Gyeonggi-do, Korea, who voluntarily responded to recruitment announcements distributed online and in local cafes. A total of 55 individuals with no history of injuries in the past year, no clinically diagnosed disease, no experience in mindfulness or yoga programs, and who were not engaged in any other exercise program, were selected as participants for the study.

Thirty randomly selected individuals constituted the experimental group, and the remaining 25 participants were selected as the control group. The data from 25 individuals from the experimental group were used for the analysis, after excluding five individuals (dropouts). The study was conducted in a physical fitness room located at Gachon University in Gyeonggi-do, and the experimental period was from November 4, 2019 to January 24, 2020 (12 weeks). The intervention included a total of 24 sessions that were conducted twice a week. The average age of the participants in the study was 48.9 (standard deviation=5.24)

years in the experimental group and 49.9 (standard deviation=4.85) years in the control group.
All study participants provided informed consent, and the study design was approved by the Ethics Committee of Gachon University, Korea.

Instruments

Depression

The Beck Depression Inventory was used to measure depression (23). This scale was developed to assess the degree and type of depressive symptoms. It consists of 21 self-reported items. Each item is assigned a score between 0 and 3 points. The total score ranges from 0 to 63, indicating greater severity of depressive symptoms with increasing scores. The reliability (Cronbach's α) values in this study were as follows: baseline=0.964, 4 weeks=0.957, 8 weeks=0.959, and 12 weeks=0.981; the overall reliability value was 0.986.

Self-esteem

The Rosenberg Self-Esteem Scale (RSES) (9) was used to measure self-esteem. This scale is composed of five positive and five negative questions to be answered on a 5-point Likert scale. For the negative questions [3, 5, 8, 9, and 10], the total score of all questions is calculated after reverse scoring, and higher scores indicate higher self-esteem. The reliability (Cronbach's α) values found in this study at the different time points were as follows: baseline=0.925, 4 weeks=0.898, 8 weeks=0.843, and 12 weeks=0.908, with an overall reliability value of 0.955.

Quality of life

To measure quality of life, the WHO Quality of Life assessment instrument (WHOQOL) developed by Min et al (24) was used. This scale consists of a total of 26 questions, categorized into physical, psychological, social relational, environmental, and overall quality of life. The questions are self-rated by the examinee on a 5-point Likert scale. The total score is calculated as the sum of the scores for each sub-domain, and higher scores indicate higher quality of life. The reliability (Cronbach's α) found in this study was as follows: baseline=0.933, 4 weeks=0.917, 8 weeks=0.938, 12 weeks=0.972, and a total reliability of 0.968.

Experimental procedure

The control group comprised subjects who did not participate in any physical activities. The experimental group completed a mindfulness yoga program that consisted of twice-weekly sessions for a total of 12 weeks, with each session lasting approximately 75 min. In the first session, a preliminary test was conducted before the program began. Questionnaires were completed after the 4th, 8th, and 12th weeks of the program, and the control group underwent psychological tests at the same time points.
The mindfulness yoga program was constructed based on the guidelines and contents developed by Feuerstein and Boccio (25). Each session consisted of a 15-min training period on mindfulness practices and methods, followed by 50 min of yoga movements, 5 min of relaxation, and 5 min of sharing experiences. Participants were guided to perform the movements delivered through mindfulness education along with the yoga movements, and the yoga movements were slightly modified according to the participants' physical ability and situation. The individuals in the control group were instructed to continue with their activities of daily life without participating in other sports. The content of the mindfulness yoga program used in this study is shown in Table 1.

Statistical analysis

The collected data were analyzed by 2-way (2×4) repeated measures using SPSS software (version 22.0; IBM Corp., Armonk, NY, USA). When the interaction effect was significant in the analysis of variance, a post-hoc test (Bonferroni) using syntax was performed to investigate the difference more accurately in score change patterns according to repetition between the groups. The statistical significance level for all tests was set at P=0.05.

Table 1: Mindfulness yoga program

Week	*Core contents (15 min)*	*Main posture (50 min)*	*Relaxation (5 min)*	*Sharing (5 min)*
1	Body image drawing	Tāḍāsana	Śavāsana and Padmāsana, after taking a comfortable position, recognizing the sensation of each body part through relaxation and awareness of the changes in breathing	Expanding the experience and broadening understanding by sharing the training experience (such as one's perceived body sensations and emotions) with others
2	Finding the part of the body where breathing is felt	Uttānāsana		
3	Awareness of body sensations and emotions through attention regulation	Vīrabhadrāsana		
4	Pain awareness and movement throughout the body	Trikoṇāsana		
5	Finding specific words for body sensations			
6	Accepting physical limitations	Vajrāsana		
7	Becoming aware of emotions without judgment	Bhujaṅgāsana		
8	Observing the desires that arise during postures	Cakravākāsana		
9	Awareness of positive body functions			
10	Body image changes according to emotions, thoughts, beliefs, and sensations	Dvipādapīṭham		
11	Awareness of comfort and appreciation for physical changes	Jaṭhara Parivṛtti		
12	Expressing overall impressions and building willingness of practice	Apānāsana		

Results

Depression

An analysis of the difference in depression status between the experimental and control groups showed that the main effects of the group, repetition, and interaction effect of repetition × group were all statistically significant ($P<0.001$) (Tables 2 and 3). The Bonferroni correction revealed that the depression severity in the experimental group significantly decreased at 4 weeks compared to that at baseline, at 8 weeks compared to that at 4 weeks, and at 12 weeks compared to that at 8 weeks ($P<0.05$). No significant differences were observed in the control group.

Table 2: Descriptive statistics of depression severity, self-esteem, and quality of life

Variables		*Group*	*Baseline*	*4th week*	*8th week*	*12th week*
Depression severity		Experimental	38.72±13.38	29.72±8.92	23.20±7.34	16.12±7.60
		Control	40.36±14.08	41.04±13.45	40.72±12.57	40.12±11.83
Self-esteem		Experimental	3.04±0.79	3.11±0.61	3.30±0.45	3.84±0.42
		Control	2.82±0.46	2.96±0.47	2.94±0.56	3.08±0.60
Quality of life	Physical	Experimental	2.12±0.37	2.22±0.40	2.28±0.47	2.43±0.75
		Control	2.19±0.43	2.20±0.40	2.19±0.43	2.18±0.54
	Psychological	Experimental	2.50±0.60	2.75±0.43	2.97±0.42	3.57±0.56
		Control	2.39±0.49	2.41±0.46	2.39±0.49	2.41±0.65
	Social	Experimental	2.05±0.61	2.28±0.43	2.79±0.47	3.69±0.64
		Control	1.89±0.56	1.88±0.48	1.89±0.56	1.91±0.63
	Environmental	Experimental	2.10±0.31	2.34±0.38	2.33±0.50	2.47±0.64
		Control	2.25±0.41	2.26±0.37	2.25±0.41	2.32±0.60
	Overall	Experimental	2.12±0.60)	2.54±0.45)	2.76±0.39	3.56±0.77
		Control	2.08±0.53)	2.09±0.40)	2.07±0.53	2.08±0.57

Values reported as means±standard deviations

Table 3: The results of differences in depression, self-esteem, and quality of life

Variables		*Sort*	*Sum of squares (df)*	*F*	*Post-hoc*
Depression		Group	9275.220 (1)	20.521***	Experimental group: Baseline > 4th week > 8th week > 12th week Control group: N.S.
		Rep.	3549.456 (3)	59.363***	
		Group × rep.	3356.224 (3)	56.132***	
Self-esteem		Group	6.882 (1)	8.718**	Experimental group: Baseline, 4th week, 8th week < 12th week Control group: N.S.
		Rep.	6.906 (3)	17.212***	
		Group × rep.	2.162 (3)	6.262**	
Quality of life	Physical	Group	0.255 (1)	0.568	Experimental group: N.S. Control group: N.S.
		Rep.	0.536 (3)	1.086	
		Group × rep.	0.676 (3)	1.390	
	Psychological	Group	15.033 (1)	34.326***	Experimental group: Baseline < 4th week, 8th week < 12th week Control group: N.S.
		Rep.	8.233 (3)	12.829***	
		Group × rep.	7.597 (3)	11.839***	
	Social	Group	32.805 (1)	81.835***	Experimental group: Baseline, 4th week < 8th week < 12th week Control group: N.S.
		Rep.	20.335 (3)	24.723***	
		Group × rep.	19.393 (3)	23.578	
	Environmental	Group	0.075 (1)	0.240	Experimental group: N.S. Control group: N.S.
		Rep.	1.191 (3)	2.171	
		Group × rep.	0.667 (3)	1.216	
	Overall	Group	22.111 (1)	47.604***	Experimental group: Baseline < 4th week, 8th week < 12th week Control group: N.S.
		Rep.	13.771 (3)	19.201***	
		Group × rep.	13.714 (3)	19.144***	

**$P<0.01$, ***$P<0.001$; tested via repeated analysis of variance
df, degrees of freedom; N.S., not significant, rep., repetition

Self-esteem

As shown in Tables 2 and 3, the main effect of the group ($P<0.01$), repetition ($P<0.001$), and the interaction effect of repetition × group ($P<0.01$) were all statistically significant. The Bonferroni correction revealed an interaction effect, and the change in self-esteem in the experimental group was significantly increased at 12 weeks compared with the results at baseline, 4, and 8 weeks. No significant difference was found in the control group.

Quality of life

The analysis of physical quality of life showed that the main effects of the group, repetition, and the interaction effect of repetition × group were not significant. The psychological quality of life assessment revealed that the main effects of the group, repetition, and the interaction effect of the repetition × group were statistically significant ($P<0.001$). The Bonferroni correction showed that the psychological quality of life of the experimental group significantly increased at 4 weeks and 8 weeks compared with the results at baseline and at 12 weeks compared to that at 4 and 8 weeks. No significant differences were observed in the control group. The social quality of life analysis showed that the main effects of the group, repetition, and the interaction effect of repetition × group were statistically significant ($P<0.001$). The Bonferroni post-hoc analysis showed that the social quality of life of the experimental group was significantly increased at 8 weeks compared with the results at baseline and 4 weeks and at 12 weeks compared with the result at 8 weeks. By comparison, there were no significant differences in the control group. The environmental quality of life analysis showed no significant differences in the main effects of the group or repetition. There was also no significant difference in the interaction effect of repetition × group. The analysis of overall quality of life revealed significant main effects of the group, repetition, and the interaction effect of repetition × group ($P<0.001$). Bonferroni correction showed that the overall quality of life in the experimental group was significantly increased at 4 weeks and 8 weeks compared with the result at baseline and at 12 weeks compared with the results at 4 and 8 weeks. No significant differences were observed in the control group (Tables 2 and 3).

Discussion

In this study, we investigated the effects of a 12-week mindfulness yoga program on depression, self-esteem, and quality of life in middle-aged men. Our analysis revealed that depression severity among participants of the mindfulness yoga program was significantly decreased at 4 weeks compared with the result at baseline, at 8 weeks compared with the result at 4 weeks, and at 12 weeks compared with the result at 8 weeks. However, no significant change was observed in the control group. These results suggest that depression decreases with the practice of mindfulness yoga: it improves one's ability to recognize and accept negative thoughts and feelings by being aware of one's thoughts and physical sensations. Similarly, mindfulness-based cognitive therapy (MBCT) and mindfulness-based stress reduction (MBSR) programs are available for high school students (26), general college students (27), nursing students (28), middle-aged women (29), and older people (30). These programs reduced symptoms of depression, which is consistent with the results of this study. In addition, yoga programs have a positive effect on depression in adult women (31-33) and breast cancer surgery patients (34), supporting the results of this study. However, in these previous studies, mindfulness and yoga programs were conducted separately. Mindfulness yoga, which combines the two methods, is expected to be a more practical and effective intervention method to improve the most common depressive symptoms in various mental disorders.

Our results revealed that the self-esteem of middle-aged men who took part in the mindfulness yoga program increased significantly at 12 weeks compared with the results at baseline, 4, and 8 weeks, whereas the control group showed no significant changes. These results are consistent with

the arguments of Randal et al (35), who stated that the intervention effect of mindfulness-based programs on self-esteem may not be effective in the short term, and that it is necessary to repeat training after sufficient time has elapsed. Studies on MBCT programs for college students (28,36) and a yoga program for middle-aged women (37) reported that these programs had positive effects on self-esteem, supporting the results of the present study. Self-esteem is negatively correlated with depression. Therefore, the results indicate that the effect of increasing self-esteem occurs by learning how to rid the mind of negative emotions through the daily practice of mindfulness yoga and fostering positive emotions toward oneself. In addition, the increase in self-esteem in middle-aged men through mindfulness yoga is believed to be helpful in overcoming the psychological crises that occur in men at this age by bringing positive changes in their lives.

Our analysis revealed an increase in the quality of life of middle-aged men who participated in the mindfulness yoga program. The psychological, social, and overall quality of life were found to improve significantly over time in the experimental group but not in the control group. In addition, among the sub-domains of quality of life, there were no significant changes in the physical and environmental quality of life. This indicates that middle-aged men can learn to control their thoughts by participating in a mindfulness yoga program, and experience positive effects on the quality of psychological and social life. These findings are consistent with the results of studies that reported positive effects of MBSR programs on the quality of life of the general population (38), cancer patients (39), and older women (40).

Overall, mindfulness yoga is a highly efficient method to help middle-aged men reduce symptoms of depression, increase self-esteem, and improve their quality of life. However, despite the advantages of these programs, the level of participation of middle-aged men in such programs remains low (41-43). Therefore, there is a need to actively create awareness and encourage the practice of mindfulness yoga among middle-aged men. Mindfulness yoga induces natural healing without the need of medication. It can be used as a treatment strategy for psychological challenges in middle-aged men. Therefore, mindfulness yoga can be used as an alternative medical management strategy.

Our study has some limitations. We were unable confirm the long-term positive effect of the mindfulness yoga program. Thus, future studies on this topic are warranted to evaluate the long-term effectiveness of mindfulness yoga programs. In addition, since the degree of each variable was identified through a questionnaire, the understanding of psychological changes in the participants was limited. Therefore, it is necessary to collect data simultaneously in the form of interviews that complement this in future studies. Finally, there is a need for research on more efficient program development by adding other psychological intervention techniques to the mindfulness yoga program, and it is expected that these programs can be applied to verify the effects of more diverse variables.

Conclusion

Middle-aged men who completed the mindfulness yoga program showed a significant decrease in depression, a significant increase in self-esteem, and improvements in various sub-domains of quality of life, including psychological, social, and overall quality of life. In contrast, the control group did not show any significant change. Thus, we suggest that awareness about the value of mindfulness yoga is actively created and that middle-aged men are encouraged to participate in such programs. Mindfulness yoga programs can be applied as an alternative therapy that facilitates the natural healing of emotional and psychological issues faced by middle-aged men.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors have no conflicts of interest to declare.

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