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IS MINDFULNESS-BASED PROGRAM APPLIED VIA TELEREHABILITATION EFFECTIVE ON MENTAL AND PHYSICAL HEALTH IN POSTMENOPAUSAL WOMEN?

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Abstract

Objective: To compare the effects of mindfulness-based intervention with supervised telerehabilitation (ST) or video-based telerehabilitation (VBT) on endurance, sleep quality, mental health, quality of life, body awareness, physical activity level, and pelvic floor dysfunction symptoms in postmenopausal women.

Methods: Fifty postmenopausal women aged 50-65 years were randomly allocated to either the supervised telerehabilitation group (STG) (n=26) or the video-based telerehabilitation group (VBTG) (n=24). In both groups, 20 minutes of mindfulness-based intervention was applied every day for six weeks. Before and after intervention, Brief Resilience Scale, Beck Depression Inventory, Richard–Campbell Sleep Scale, Nottingham Health Profile, Body Awareness Questionnaire, short forms of International Physical Activity Questionnaire, and Pelvic Floor Distress Inventory were applied for assessment.

Results: The groups were similar in terms of sociodemographic characteristics and outcome measures ($p>0.05$). There was a statistically significant difference in all parameters measured in the STG before and after the intervention, and only in short forms of International Physical Activity Questionnaire, and Nottingham Health Profile scores in the VBTG ($p<0.05$). When the difference between groups was compared, there was a statistically significant difference between the groups in terms of Brief Resilience Scale, Nottingham Health Profile (except social isolation subscale score), Body Awareness Questionnaire, and Pelvic Floor Distress Inventory-20 scores ($p<0.05$).

Conclusion: These results suggest that Mindfulness-based intervention with ST is more effective than VBT in improving resilience, mental health, sleep quality, quality of life, body awareness, and pelvic floor dysfunction symptoms in postmenopausal women, and ST is an alternative approach.

Keywords: *Mental health, mindfulness, postmenopausal, telerehabilitation.*

Introduction

Menopause is a natural transition in most women, occurring between the ages of 45 and 52 years. Menopause is marked by changes in hormonal levels and cessation of the menstrual cycle[1] and is accompanied by noticeable psychological and physiological changes.[2] Approximately 1.2 billion women worldwide will be menopausal or postmenopausal by 2030[3] and it is estimated that as many as 85% of postmenopausal women have experienced menopause-related symptoms, including sleep disturbances, hot flushes, night sweats, mood disorders, sexual dysfunction, weight gain, and cognitive decline.

Transition into menopause may affect the quality of life of women in many respects and, in addition to medical treatment, many complementary and alternative therapies are used to manage postmenopausal symptoms. The most common of these is body-mind techniques, which can reduce symptoms of sympathetic activation and moderate vasomotor and other menopausal symptoms. In particular, mindfulness is an emerging concept in the healthcare field.[5] Mindfulness training purposely draws one's attention to one's experiences lived in the present moment, particularly noting inner experiences. In this training, called mindfulness meditation, attention is constantly focused on breathing, bodily sensations, emotions, or the flow of the mind, namely thoughts.[6] Mindfulness-based intervention (MBI) may increase facets of body awareness in pain patients with depression[7]; improve sleep quality in postmenopausal women[8]; improve quality of life in non-menopausal;[8,9] improve resilience;[10] and reduce perceived anxiety[9], depression[11], and genitourinary symptoms.[12,13]

Telerehabilitation is defined as the delivery of medical rehabilitation services at a distance using electronic information and communication technologies[14], and it may be an effective treatment option to manage postmenopausal symptoms, providing the opportunity to assist with hospital discharge, maintain function, and prevent future hospitalizations while maintaining physical distancing recommendations.[15] There is a growing body of evidence supporting the use of telerehabilitation in the treatment of musculoskeletal, neurological, and cardiorespiratory conditions.[16–18] However, to our knowledge there is no study investigating the effect of telerehabilitation-supervised MBI. Thus, the aim of our study was to compare the effects of MBI with supervised telerehabilitation or video-based telerehabilitation in postmenopausal women.

Methods

Participants

Fifty-six postmenopausal women aged 50-65 years were recruited by online invitation and enrolled in the study. Study inclusion criteria were: to have physical and sensory competence for exercise; to have no spinal pathology or deformity; to be hormonally, surgically, or naturally in confirmed menopause; to be in social isolation due to the Coronavirus Disease-2019 (Covid-19) lockdown; and to be capable of using smart devices. The study excluded patients with serious heart disease, malignancy, inflammatory or systemic disease and psychological dysfunction, who were illiterate, or who used corticosteroids. Participants signed an informed consent form to participate in the study. A simple computerized randomization method was used to randomly divide participants into two groups; the supervised telerehabilitation group (STG) (n=28) or the video-based telerehabilitation group (VBTG) (n=28). After being included in the study, 2 people from the STG group; Due to the city change, 4 people from the VBTG group left the study without giving any reason.

Study Design

The prospective, randomized, double-blind study of postmenopausal women was completed between July 2019 and October 2020 (clinicaltrials.gov number NCT04346979). Istinye University Human Researches Ethics Committee granted ethical approval on June 25 2020 (ID:7/2020.K-59). The study was conducted according to the Declaration of Helsinki guidelines for Good Clinical Practice.

The STG consisted of 26 participants who participated in a telerehabilitation-supervised MBI home program every day for six weeks, with evaluations before and after. The VBTG consisted of 24 participants who watched a video recording that included the same MBI home program every day for six weeks, with evaluations before and after. A research assistant followed and encouraged participants by calling them two days a week. Pre- and post-data was collected via a Google form and the video-conferencing application. Neither the investigator collecting pre- and post-intervention data, nor the participants knew of each subject's assignment to either the STG or VBTG. Participant evaluations and interventions were performed by different investigators (Figure 1.)

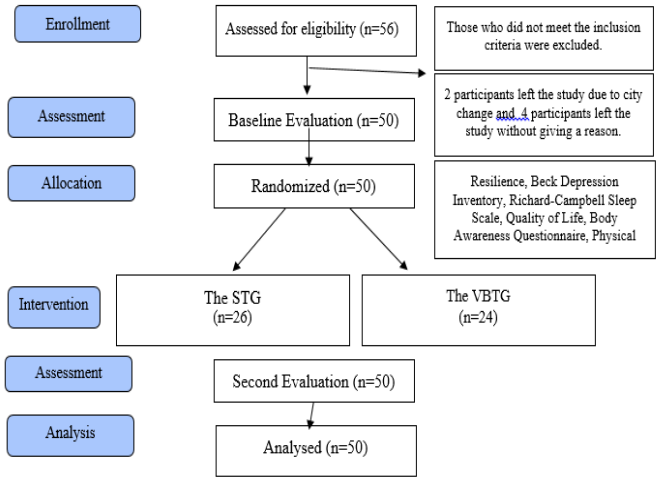

Figure 1. CONSORT flow diagram of study

Outcome Measures

All measurements were made before and after intervention. The primary outcome for this study was resilience, sleep quality, mental health, and quality of life. The secondary outcomes included body awareness, physical activity (PA) level, and symptoms of pelvic floor dysfunction.

Resilience (BRS): The Brief Resilience Scale (BRS) is a six-item scale that measures resilience of individuals. Respondents rate items on a scale from 1 (strongly disagree) to 5 (strongly agree). Items 1, 3, and 5 are positively worded, and items 2, 4, and 6 are negatively worded. High scores indicate high resilience[19].

Beck Depression Inventory (BDI): The Beck Depression Inventory (BDI) was developed by Beck et al. in 1961 to measure the behavioral symptoms of depression in adolescents and adults.[20] The BDI consists of 21 groups of items that assess both the cognitive/affective and neurovegetative symptoms of depression. Subjects are asked to circle the statement in each item group that best describes how they have been feeling in the past week, including today. The test scores violence on a scale: 0-10=no depression; 11-

17=mild depression; 18-23= moderate depression; and 23 and above=severe depression.[20]

Richard-Campbell Sleep Scale: The sleep quality was assessed using the Richard–Campbell Sleep Scale, which consists of a 6-item scale evaluating sleep depth, sleep latency, awakenings, return to sleep, sleep quality, and ambient sound. Each item is assessed on a scale of 0 to 100 using the visual analog scale technique. A score of "0-25" from the scale indicates very poor sleep quality, and a score of "76-100" indicates very good sleep quality. The 6-item assessment evaluating the noise level in the environment was excluded from the total score assessment, such that the total score was assessed on five items. The greater the score, the better the quality of the subjects' sleep.[21]

Quality of Life: The Nottingham Health Profile (NHP) was developed for use in population surveys in the 1970s to measure perceived health. The NHP consists of 38 dichotomous items that are grouped into six scales. Each scale ranges from 0 to 100. Low scores indicate perceived health as being less affected, and high scores indicate perceived health as being more affected.[22]

Body Awareness Questionnaire (BAQ): Body Awareness Questionnaire **(**BAQ) is a scale that assesses physical, emotional, and social indicators of one's sensitivity to physical reactions and normal/abnormal bodily conditions and processes. The questionnaire consists of four subgroups that predict body responses, sleep-wake cycle and disease onset and pay attention to changes and reactions in the body process. Subjects were asked to score 18 statements on a scale 1 to 7. The total score from the survey is a maximum of 126 and a minimum of 18. The higher the total survey score, the better the body awareness level.[23]

Physical Activity: PA was assessed using the self-administered short forms of the International Physical Activity Questionnaire (IPAQ). The IPAQ questionnaire requests estimated durations and frequencies for various activities engaged in over the preceding week. Durations are multiplied by known METs per activity and the results for all items summed for the overall PA score. The questionnaire's short version (seven items) provided information on time spent walking, in vigorous- and moderate-intensity activity, and in sedentary activity. Participants were instructed to respond for all domains of PA.[24]

Pelvic Floor Dysfunction: In the Pelvic Floor Distress Inventory (PFDI-20) patients reported whether they experienced symptoms of pelvic floor dysfunction and if so, the extent to which these symptoms were bothersome to them. The PFDI-20 has three scales: Pelvic Organ Prolapse Distress Inventory (POPDI-6), Colorectal-Anal Distress Inventory (CRADI-8), and Urinary Distress Inventory (UDI-6). Response options to rate distress associated with each symptom ranged from 0 ("no" as in no symptoms) to 4 ("quite a bit" as in symptoms are present and quite bothersome). Per scale, the mean score of answered items was multiplied by 25 to obtain the scale score (range 0–100).[25]

Interventions

Mindfulness-based Intervention: A physiotherapist specializing in pelvic health made six 15–20-minute videos, each including different progressive exercises. A different video was sent to participants every week for six weeks. Each video presented the equipment and environment requirements for the practice, then continued with the purpose and content. Practices were based on mindfulness principles and movements were sequenced based on motor development milestones. Emphasis was on natural breathing and moving with ease throughout the practices. The first practice was a breathing exercise focused on natural breathing, followed by motor milestones such as rolling and movements in sitting, crawling, and standing up. All came together in a mindfulness flow called moon salutation in the last week.

Statistical Analysis

All statistical analyses were performed using Statistical Package for the Social Sciences (SPSS), version 22.0 (SPSS Inc., Chicago, IL, USA). Kolmogorov-Simirnov/Shapiro-Wilk test was used to investigate normality of the distribution of the continuous variables. The descriptive statistics were given as the mean±standard deviation for the continuous variables and as number of patients and percent (%) for the categorical variables. Differences in nominal variables between the STG and the video-bsaed group were tested with the Chi-square test. Between-group comparisons were performed using Student t test and Mann Whitney U test. For within-group comparisons, paired sample t test and Wilcoxon test were used. The interaction effect between group and time was assessed using repeated measures analysis of covariance (ANCOVA) with the baseline as the covariate. To describe the differences in the related treatments, the effect size between-groups differences were calculated using the Cohen's d test and classified as small ($d \geq 0.20$ and <0.50), medium ($d \geq 0.50$ and <0.80), and large ($d \geq 0.80$). $P<0.05$ was regarded as statistically significant (Cohen, 1992). Power analysis was made using G*Power 3.0.10. Based on the medium effect size (0.50) and the bidirectional hypothesis, we estimated a sample size of 25 menopausal women in each group would have 80% capability of detecting a difference in body awareness at a value of 0.05.

Results

Participant characteristics

Fifty menopausal women participated in the study, split evenly but randomly between the STG (n=26) and VBTG (n=24). The mean age of participants was 52.69±4.76 in the STG and 54.13±6.53 in the VBTG. The menopause duration of participants in the STG group was 4.92±3.30 and 7.25±6.48 years in the VBTG. The STG and the VBTG members were similar in age, menopause duration, smoking and alcohol history and sociodemographic features ($p>0.05$, Table 1).

Mindfulness-based interventions

After intervention, there was a significant difference in BAQ (Figure 2.D), BRS (Figure 2.A) and RCSQ (Figure 2.C) scores between the groups ($p<0.05$, Table 2) (Figure 2.A) but no significant difference in BDI scores (Figure 2.B). Comparing the quality of life between the groups revealed a significant difference in the total and all subscale scores of NHP, except for the social isolation subscale score ($p<0.05$, Table 4). Before the intervention, only the physical activity score showed a significant difference of all the measures between the groups ($p<0.05$, Table 3), but after the intervention IPAQ-SF scores between the groups showed a significant difference ($p>0.05$, Table 2) (Figure 2.E) and there was also a significant difference in change in CRAD-8, UDI-6 and PFDI 20 scores between the groups ($p<0.05$, Table 5), but no significant difference in the POPDI-6 scores ($p>0.05$, Table 5).

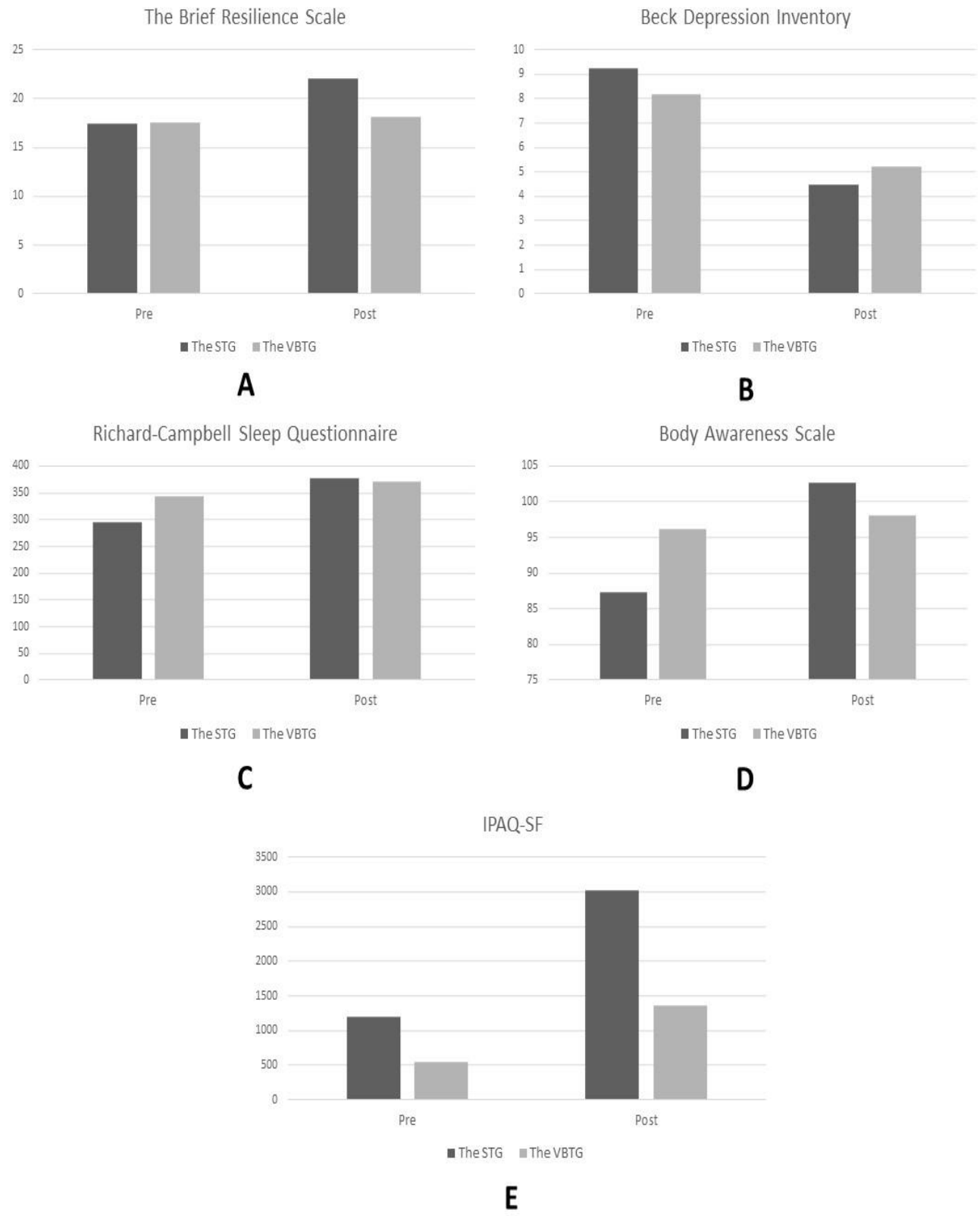

Figure 2. Graphic of Results (A: Biref Resilience Scale; B: Beck Depression Inventory; C: Richard-Campbell Sleep Questionnaire; D: Body Awareness Scale; E: IPAQ-SF)

Table 1. The sociodemographic features of the participants

Variable		STG (n=26)	VBTG (n=24)	*p* value
		X±SD	X±SD	
Age. years		52.69±4.76	54.13±6.53	0.378*
Menopause duration (years)		4.92±3.30	7.25±6.48	0.368*
		n (%)	**n (%)**	
Marital status	*Married*	24 (92.3)	18 (75)	0.095**
	Single	2 (7.7)	6 (25)	
Smoking	*Yes*	7 (26.9)	5 (20.8)	0.785**
	No	16 (61.5)	17 (70.8)	
	Quit	3 (11.5)	2 (8.3)	
Alcohol Use	*Yes*	8 (30.8)	18 (69.2)	0.119**
	No	3 (12.5)	21 (87.5)	
Working Status	*Not working*	13 (50)	7 (29.2)	0.161**
	Retired	6 (23.1)	12 (50)	
	Office worker	6 (23.1)	3 (12.5)	
	Working in physical work	1(3.8)	2 (8.3)	

*STG: Supervised Telerehabilitation Group; VBTG: Video-Based Telerehabilitation Group; n: number of subjects; X: mean/average value. Descriptive analyses are presented using mean±standard deviation (SD) for numerical variables. Statistically significant values are given in bold. Chi-square test**; Shapiro-Wilk test* p<0.05.*

Table 2. Comparison of all measurements taken before treatment between groups

Variable	Group	n	X±SD†	*p* value*
BMI	STG	26	25,1±0.4	0.362
	VBTG	24	24,1±0,5	
BRS	STG	26	17,5±4,83	0.932
	VBTG	24	17,62±5,48	
BDI	STG	26	9,26±7,26	0.630
	VBTG	24	8,20±8,22	
RCSQ	STG	26	294,61±110,60	0.162
	VBTG	24	342,91±129,89	
NHP Total Score	STG	26	121,56±109,74	0.882
	VBTG	24	125,71±83,64	
BAQ	STG	26	87,26±21,08	0.096
	VBTG	24	96,16±15,21	
IPAQ-SF	STG	26	1199,5±1386,25	**0.032**
	VBTG	24	552,45±478,26	
PFDI 20	STG	26	11,42±11,58	0.467
	VBTG	24	9,20±9,60	

STG: Supervised Telerehabilitation Group; VBTG: Video-Based Telerehabilitation Group; n: number of subjects; X: mean/average value; SD: Standart Deviation; BMI: Body Mass Index; IPAQ-SF: International Physical Activity Questionnaire - Short Form; BDI: Beck Depression Inventory; RCSQ: Richard-Campbell Sleep Questionnaire; NHP: Norhingam Health Profile; BAQ: Body Awarness Questionnaire; BRS: Brief Resilience Scale; PFDI-20: Pelvic Floor Distress Inventory; Shapiro-Wilk test p<0.05. Statistically significant values are given in bold.*

†Descriptive analyses are presented using mean±standard deviation (SD) for numerical variable

Table 3. Comparison of resilience, mental health, sleep quality, body awareness, and physical activity measurements between the groups

Variable	Study Group (n=26)		Within Group *p*	Control Group (n=24)		Within Group *p*	Group Difference *p*	Cohen's d	95% CI
	Pre	Post		Pre	Post				
The Brief Resilience Scale (BRS)	17.50 (4.83)	22.03 (4.52)	**0.000****	17.62 (5.48)	18.16 (4.90)	0.565	**0.001****	0.947	-0.70 to 4.45
Beck Depression Inventory (BDI)	9.26 (7.26)	4.46 (3.81)	**0.000****	8.20 (8.22)	5.20 (5.46)	**0.047***	0.318	0.618	-3.0 to 3.32
Richard-Campbell Sleep Questionnaire (RCSQ)	294.61 (110.6)	376.92 (97.06)	**0.000****	342.91 (129.89)	372.08 (116.80)	0.181	**0.035***	0.918	-81.66 to 38.20
Body Awareness Scale	87.26 (21.08)	102.65 (16.70)	**0.000****	96.16 (15.21)	98.12 (15.12)	0.530	**0.006****	0.821	-10.84 to 6.47
IPAQ-SF	1199.50 (1386.25)	3015.23 (2709.94)	**0.000****	552.45 (478.26)	1368.12 (1324.95)	**0.002****	0.190	0.377	350.51 to 1943.63

**p*<0.05; ***p*<0.001. Statistically significant values are given in bold.

Table 4. Comparison of quality of life between the group.

Variable	Study Group (n=26)		Within Group *p*	Control Group (n=24)		Within Group *p*	Group Difference *p*	Cohen's d	95% CI
	Pre	Post		Pre	Post				
Energy	24.4 (33.42)	3.35 (9.79)	**0.002****	27.86 (31.61)	17.56 (28.09)	0.134	**0.002****	0.311	-37.73 to -9.43
Pain	23.61 (24.47)	10.43 (17.67)	**0.000****	19.48 (23.25)	14.65 (23.26)	**0.039***	**0.000****	0.354	-20.60 to -5.75
Emotional reactions	37.88 (32.62)	16.0 (19.39)	**0.000****	18.01 (23.80)	10.32 (17.22)	**0.001****	**0.000****	0.685	-30.65 to -13.11
Sleep	22.07 (30.46)	12.32 (22.60)	**0.022***	32.05 (28.64)	21.89 (28.93)	**0.019***	**0.022***	0.190	-17.77 to -1.73
Social isolation	2.43 (7.12)	3.28 (9.90)	0.686	7.73 (15.37)	9.25 (25.53)	0.892	0.686	0.019	-3.60 to 5.30
Physical mobility	11.11 (12.81)	4.26 (8.81)	**0.003****	20.56 (19.41)	11.83 (15.77)	**0.002****	**0.003****	0.176	-11.01 to -2.68
NHP Total Score	121.56 (109.74)	49.66 (54.16)	**0.000****	125.71 (83.64)	85.53 (107.32)	**0.005****	**0.000****	0.289	-99.08 to -44.71

NHP. Nottingham Health Profile. **p*<0.05; ***p*<0.001. Statistically significant values are given in bold.

Table 5. Comparison of pelvic floor status between the groups

Variable	Study Group (n=26)		Within Group *p*	Control Group (n=24)		Within Group *p*	Group Difference *p*	Cohen's d	95% CI
	Pre	Post		Pre	Post				
Pelvic Organ Prolapse Distress Inventory 6 (POPDI-6)	2.34 (3.18)	0.96 (1.92)	**0.001****	1.87 (3.12)	0.83 (3.12)	0.081	0.160	0.377	-2.24 to -0.52
Colorectal-Anal Distress Inventory 8 (CRAD-8)	4.38 (5.06)	1.69 (2.86)	**0.000****	3.50 (3.77)	2.20 (3.77)	**0.028***	0.172	0.383	-4.09 to -1.28
Urinary Distress Inventory 6 (UDI-6)	4.69 (5.78)	1.92 (3.54)	**0.000****	3.83 (5.18)	2.04 (5.18)	**0.011***	0.121	0.439	-4.08 to -1.45
Pelvic Floor Distress Inventory – PFDI 20	11.42 (11.58)	4.57 (7.07)	**0.000****	9.20 (9.60)	5.08 (9.60)	**0.013***	**0.049***	0.584	-9.53 to -4.15

*$p<0.05$; **$p<0.001$. Statistically significant values are given in bold.

Discussion

This study is the first to compare mindfulness-based intervention with supervised telerehabilitation and video-based telerehabilitation applied to postmenopausal women. The study found all measured parameters to improve in both groups using either mechanism for delivering MBI but found telerehabilitation-supervised MBI to result in greater improvements in resilience, sleep quality, quality of life, body awareness and symptoms of pelvic floor dysfunction. The study found changes in PA and behavioral symptoms of depression were not significantly different between the two approaches.

Resilience is the ability to overcome or recover quickly from life difficulties or stressful events. It has neural, health, learning, genetic, economic, and social components. Menopause is a prolonged process lived in many cases with negative feelings and a lack of support.[26] There has been no study investigating the effects of mindfulness on resilience in menopausal women[27] found experimentally that cognitive behavior therapy intervention improved the psychological resilience of women, with no significant effect on VBTG.[27] Another study found MBI to improve resilience.[10] Mindfulness has been explained as cushioning the individual against the impact of life's difficult situations, which is thought to positively affect resilience.[28] Like other authors[10,28] we believe that mindfulness taps a wide range of cognitive and behavioral resources by improving the body's effectiveness in stressful situations.

This study showed that telerehabilitation-supervised MBI may alleviate depression and improve sleep quality in postmenopausal women. With regard to depression, the STG showed reduced BDI scores overall. A pilot study conducted by Waelde et al. resulted in similar findings[29] and a 2010 study by Way et al. examining the relationship between mindfulness and depression found that MBI reduces depressive symptoms.[30] Our results agree with the study by Garcia et al. (2014), indicating that MBIs may be beneficial to improving sleep quality in postmenopausal women.[8] Garcia et al. (2018) reported that eight weeks of MBI improved sleep quality and quality of life in postmenopausal women with insomnia[31] and, similar to our study, Son et al. (2013) found that compared to conventional care, MBI improved health-related quality of life in diabetic patients with lower levels of emotional well-being[32]. The results of the present study showed that supervised telerehabilitation was more effective than video-based telerehabilitation in improving sleep quality and quality of life but showed no difference between the two media in the effect on behavioral symptoms of depression. MBI is thought to function on arousal and neurocognitive processes that mediate the relationship between perception and stimulus appraisal and structural and functional brain changes support the role of MBI in modulating these processes. Sleep problems stem from automatic arousal, dysfunctional cognition, and consequential distress and MBI can attenuate these responses and increase the relaxation response by increasing attentional factors, reducing worry and rumination, and alleviating mood disturbances. The potential mechanisms of MBI include intrapsychic processes and cognitive behavior that influence arousal and reactivity in a manner that improves sleep, perceptions of sleep, wakefulness, and daytime functioning.[33] MBI has been associated with increased gray matter and functional activation of brain areas involved in body awareness. In addition, it may be valuable for assessing the neural bases of body awareness (e.g., intervention-dependent plasticity in the insula) to determine intervention effects.[34] Finally, changes in body awareness are a component of improving the quality of life in postmenopausal women. Jong et al. investigated the effect of Mindfulness-Based Cognitive Therapy on body awareness in patients with chronic pain and comorbid active depression and found that MBI may increase facets of body awareness[7]. A different study found MBI to improve psychological and emotional changes related to body image in breast cancer patients.[35] The results of the present study showed that body awareness improved more in the STG than in the VBTG.

Strowger et al. concluded American adults practicing MBI in the past year are more likely to be active and meet PA recommendations.[36] Tsafou et al. found that mindfulness during PA related to the satisfaction one feels with PA.[37] In our study, no difference was found between the groups, despite an increase in PA levels in both groups before and after treatment. Previous findings have demonstrated that mindfulness can facilitate awareness of positive emotions and is related to PA maintenance, and that satisfaction with a new behavior promotes returns to that behavior.[37] MBI enhances self-regulation, including behavior flexibility and emotion and attention regulation. Mindfulness could enhance acceptance of negative or uncomfortable thoughts and sensations likely to occur during exercise, particularly in novices.[38] Accordingly, it appears that mindfulness may increase the person's participation in physical exercise.

Bradley et al. found in their longitudinal study that pelvic organ prolapse (POP) is positively correlated with urogenital and colorectal symptoms in postmenopausal women and that POP descent level and symptom severity tends to increase over time.[39] They suggested interventions in the early stages of POP, regardless of the symptom severity. The results of the present study showed statistically and clinically significant improvements after a 6-week telerehabilitation program on urogenital symptoms related to pelvic floor and POP. Ai et al found that urogenital and colorectal symptom severity correlated positively with depression severity in postmenopausal women regardless of the POP severity.[40] In our study, urogenital and colorectal complaints were reduced after telerehabilitation in both the study and control groups. Depression scores in both groups were also positively affected, but the STG's improvement in depression was clinically more significant than the control group. This suggests that the clinician's role, perhaps together with the physical intervention, is important for psychological symptom reduction. MBI may be suited to treating the underlying psychological and physical symptoms associated with incontinence, including increased sensitivity to bladder urgency, depression and anxiety related to the sensations, and embarrassing urinary leakage. The study of Baker et al.'s comparing the effects of MBI and yoga on urinary incontinence during an 8-week program found that women participating in MBI had less urinary incontinence than women participating in yoga and that a substantial proportion of women continued to reap the benefits of MBI after one year.[13] Our findings suggest that participants in the VBTG had fewer urinary incontinence compared with participants in the STG.

Although this study extends the existing knowledge about the mental and physical states of individuals using MBI, several limitations should be acknowledged. The most important limitation was the absence of a VBTG in the study, which relied on responses people reported rather than objective responses.

This study highlights an accessible, technology-based, cost-effective means of improving body awareness and psychological state and increasing PA. This program can be effective for individuals at risk of Covid-19 infection or who cannot leave the house for any reason. In future studies it would be informative to compare MBI with conventional physical exercise.

Limitations

The most important limitation may be that both groups received an intervention, and there was no control group in the study. Another limitation was that due to the lack of technical equipment, the measurements of physiological values, such as bone density measurements, was not performed. These physiological evaluations should be included, together with long-term follow-up, in future studies.

Conclusion

In conclusion, the results of this study suggest that telerehabilitation-supervised MBI is an effective and beneficial stimulus for improving psychological and physical health and well-being in postmenopausal women. The results showed that: 1) resilience was higher following supervised telerehabilitation in comparison to video-based telerehabilitation; 2) mental health was improved following supervised telerehabilitation in postmenopausal women; 3) supervised telerehabilitation efficiently improved sleep and quality of life; 4) PA increased in response to MBI; and 5) suggested that changes in body awareness are a component of improved quality of life. Future research involving larger cohorts and including a control group, which does not receive MBI, should continue examining mental health and physical outcomes in postmenopausal women following both telerehabilitation-supervised and face-to-face MBI.

Conflicts of Interest

The authors have no potential conflicts of interest related to the research, authorship, and/or publication of this article.

Compliance with Ethical Statement

Istinye University Human Researches Ethics Committee, numbered 7/2020.K-59, dated June 25 2020.

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Author Contributions

YBÇ, GDYY: Hypothesis; YBÇ, GDYY, NDE: Design; YET, ZS, KK, BI: Data Collection; YET, ZS, KK, BI: Literature review; YBÇ, GDYY, NDE: Analysis and Interpretation of Results; YET, ZS, KK, BI: Writing; YBÇ, GDYY, ZS: Critical Review; YET, KK, BI Publishing Process.

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