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The effect of motivational interviewing on healthy lifestyle behaviors and quality of life in on menopausal women: a pilot randomized controlled trial

İlksen Orhan^{1*} and Yurdagül Yağmur²

Abstract

Background This study aims to determine the effect of motivational interviewing (MI), an effective communication technique, on healthy lifestyle behaviors and quality of life in menopausal women.

Methods This is a randomized controlled empirical study. The study was conducted with a total of 136 women, including 68 for experimental group and 68 for control group. The data were collected using an introductory information form, the Health Promoting Lifestyle Profile II (HPLPL II) and the Menopause-Specific Quality of Life (MENQOL). Women in the experimental group received 6 sessions of motivational interviewing and 2 follow-up interviews in two family health centers (FHCs) from the researcher. No intervention was applied to women in the control group. The data were analyzed using number, percentage, mean, standard deviation, chi-square test, Bonferroni test, independent samples t test and repeated ANOVA.

Results There was a statistically significant difference between the HPLPL II total scale and health responsibility, nutrition, spiritual development, interpersonal relationships, and stress management subscales pre-test, interim test and post-test mean scores of women in the experimental group, and their mean scores increased positively ($p < 0.001$). In addition, a statistically significant difference was also found between their MENQOL vasomotor, psychosocial, physical and sexual domains pre-test, mid-test and post-test mean scores ($p < 0.05$).

Conclusion Motivational interviewing was found to be effective in increasing healthy lifestyle behaviors and quality of life in menopausal women.

Trial registration Current Controlled Trials NCT06802458, 17/01/2025 (<https://clinicaltrials.gov/study/NCT06802458>), "Retrospectively registered".

Keywords Menopause, Nursing, Motivational interviewing, Healthy lifestyle behavior scale, Menopause specific quality of life scale

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Women spend a significant portion of their life cycle, about one-third, in the postmenopausal period, which increases the importance of addressing possible problems during menopause. Postmenopausal problems can vary in intensity and can be influenced by women's attitudes towards menopause and healthy lifestyle behaviors. As a counseling approach, motivational interviewing can improve the quality of life of menopausal women, while promoting their adaptation to healthy lifestyle behavioral changes. Thus, the purpose of this randomized controlled article was to investigate the effect of motivational interviewing on menopausal women on healthy lifestyle behaviors and quality of life. The results of this study are quite remarkable and contribute to the literature.

Introduction

Women's health is directly related to the health of families and communities, posing an important issue for public health. Therefore, women's health is emphasized in the delivery and implementation of healthcare services, and the provision of healthcare services to women varies according to their stages of life [1, 2]. Recently, rapid technological advancements have affected people's health, and their life expectancy has increased thanks to improvements in medical and living conditions [3]. In Turkey, the average life expectancy and average age of menopause onset for women are reported to be 80.7 years [4] and between 45 and 47 years, respectively [5–8]. Therefore, women spend a significant portion of their life cycle, about one-third, in the postmenopausal period, which increases the importance of addressing possible problems during menopause [9]. The reduced estrogen production during menopause can lead to various systemic side effects [6], including vasomotor, psychological, and atrophic problems in the early stage, as well as increased incidence of cardiovascular diseases, cancer, and musculoskeletal disorders in the late stage [7, 10–11]. Postmenopausal problems can vary in intensity and can be influenced by women's attitudes towards menopause and healthy lifestyle behaviors. Therefore, several changes in women's quality of life occur during menopause [11].

Women's health and problems differ according to the level of development of the countries, but the problems are universal. The development status of the country is influenced by many factors such as education level, socio-cultural characteristics and lifestyle behaviors [12]. Study on women's healthy lifestyle behaviors during both reproductive and menopausal periods have reported that menopausal women have worse healthy lifestyle behaviors compared to reproductive women [13]. An Iranian study has noted that middle-aged women in developing countries have lower rates of healthy lifestyle behaviors compared to those in developed countries, suggesting a need for intervention programs such as counseling and

education to improve women's healthy lifestyle behaviors [14].

Motivational Interviewing (MI) is an effective communication technique preferred in creating healthy lifestyle behaviors and acquiring developing behaviors [15–17]. MI is a client-centered interview format in which suggestions are given to provide behavioral changes by helping people discover and solve their problems [18]. There is evidence that the change in health behaviors is based on internal motivation rather than external influence, introducing the concept of motivational interviewing, a self-centered and goal-oriented approach, into counseling sessions [19]. Motivational interviewing has gained a lot of attention as a guiding and client-centered method to increase the intrinsic motivation for change by researching and solving the ambivalence (want-not-want dilemma). Standard approaches focus on solving the problem, assume that the person is motivated and prescribe goals. Motivational interviewing addresses the person's concerns, provides an approach according to the individual's motivation level, sets goals together, offers options and emphasizes individual-specific solutions. In recent years, motivational interviewing, an effective communication technique for promoting and developing appropriate health behaviors, has reported promising results [20]. In recent years, motivational interviewing (MI) studies, which incorporates the principles of behavior change, is effective in reducing sedentary behaviors, relieving depressive symptoms, and improving quality of life [15].

In their randomized controlled study on epilepsy patients, Hosseini et al. found positive results in improving quality of life through motivational interviewing [16]. Meta-analyses have indicated that motivational interviewing achieves desired outcomes in weight loss among overweight individuals [21]. Motivational interviewing, which has been proven effective in numerous studies, is considered a counseling method that can be easily used for women seeking alternative treatments in promoting health behaviors during menopause [15, 16, 22–24].

In this context, the present study can provide guidance and contribute to the literature by addressing menopausal symptoms and maintaining healthy lifestyle behaviors, which vary in prevalence across cultures, and ultimately improving women's quality of life. Thus, this study aimed to examine the effect of motivational interviewing on healthy lifestyle behaviors and quality of life in menopausal women.

Methods

Study design

This randomized controlled trial was conducted in two different Family Health Centers (FHCs) in a province in eastern Turkey. A schematic of the experimental design is given in Fig. 1. This randomized controlled experimental

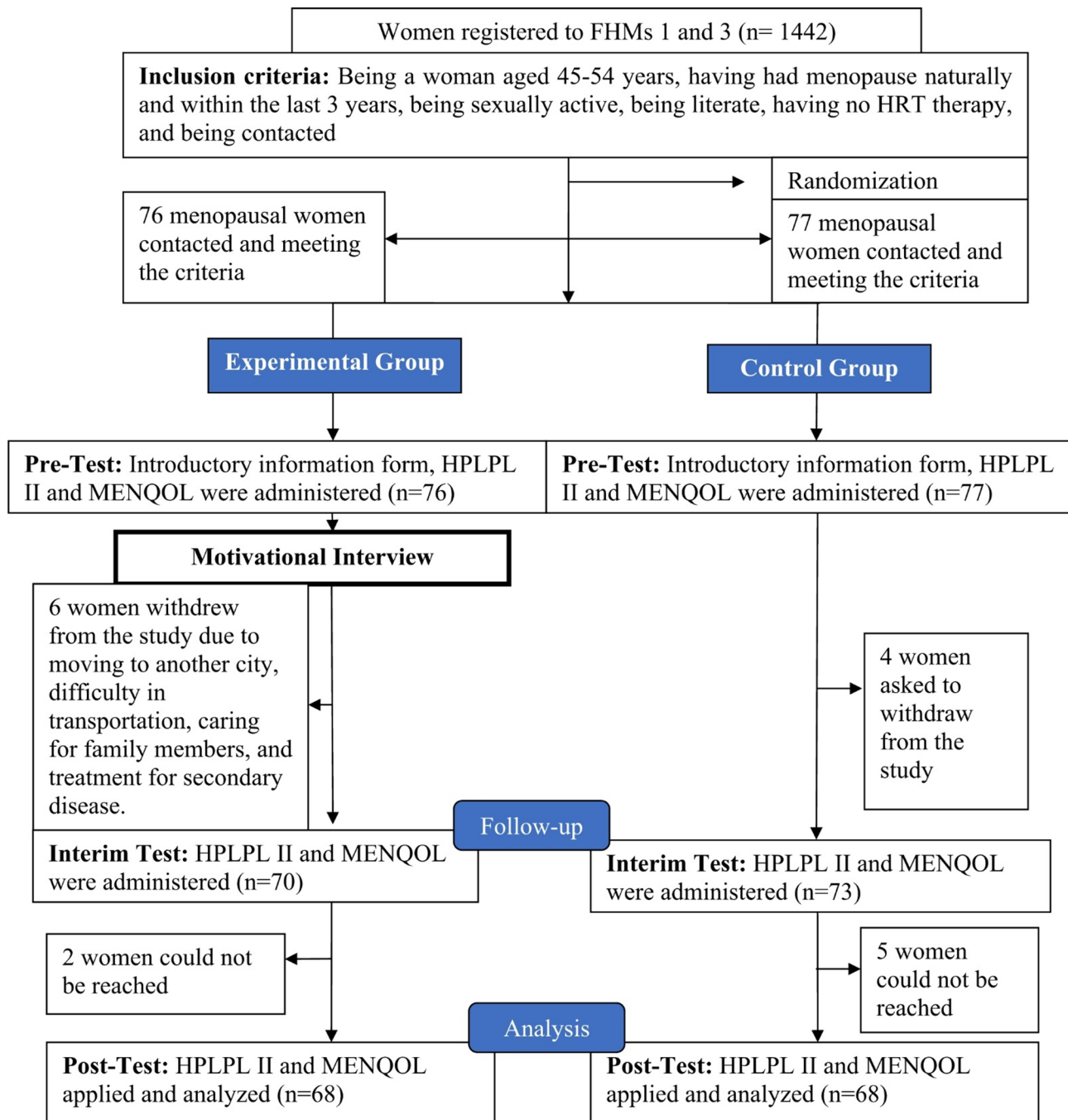


Fig. 1 The study protocol

design was conducted in accordance with the CONSORT checklist steps.

Setting and sample

The sample size for this study was determined by G power analysis. The population of the study consisted of 1442 women aged between 45 and 54 years and registered to Family Health Centers No. 1 and 3 in a city center, according to the updated data from Tunceli

Provincial Health Directorate in 2018. The sample of the study was determined based on a similar study [11], using the Menopause-Specific Quality of Life (MENQOL) and the Health Promoting Lifestyle Profile II (HPLPL II). A power analysis was conducted, using G*Power 3.1.9.2 and considering the total MENQOL score after education, with an effect size of 0.48, standard deviation of 7.22, power of 0.80, β of 0.05, and α of 0.05. Accordingly, the sample was determined to consist of 136 menopausal

Table 1 Motivational interviewing steps

Session	Content
Preparation Session	The preparation session focused on building a trusting relationship with the women and learning about their expectations from the interview program. The women were explained the content and duration of the program and asked to fill in the data collection.
Session 1	This session focused on seeking solutions to nutritional problems. The researcher encouraged women to talk about the difficulties they may face when changing their eating habits and to think about ways to solve these problems. The usual questions were as follows: (1) What brought you here? Where do we start? (2) What do you think about your current nutrition attitudes and their impact on your quality of life? (3) In your opinion, what are the benefits of proper nutrition during menopause? (4) How do you think a proper nutrition will affect your quality of life regarding menopause? (5) How do you feel when you eat more fruits and vegetables during the day without exceeding the daily/weekly calorie or fat limit? (6) What will be your next step in healthy nutrition? What do you plan to do?
Session 2	This session focused on raising awareness about increasing physical activity. The usual questions were as follows: (1) In your opinion, what are the benefits of exercising in your life? (2) What problems do you experience when you don't exercise? (3) Discussing the question "What do you deduce from this?" regarding the scientific information shared by the researcher about exercise. (4) How important is it for you to...?
Session 3	This session focused on increasing the women's self-confidence and their effective participation in managing regular sleep and sexual life to enhance their quality of life. The usual questions were as follows: (1) In your opinion, what are the benefits of regular/high-quality sleep in your life? (2) What problems do you face in your daily life when you don't have regular/high-quality sleep? (3) How would your life be different if you were successful in achieving regular sleep? (4) What would you like to say about your sexual relationship with your partner? (5) What are your three main reasons for maintaining a regular sexual life?
Session 4	This session focused on increasing the women's individual awareness, self-confidence and motivation towards vasomotor complaints. The usual questions were as follows: (1) How does your vasomotor symptom affect your daily life and quality of life? (2) Can you tell us your reasons for change? (3) What do you think will happen if there is no change in your life? (4) If you were to say that I have to do this, what would you say?
Session 5	This session focused on encouraging the women to avoid stressful situations, participate in social activities, increase social relations, and develop behavioral changes in coping with stress. The usual questions were as follows: (1) What do you want to achieve? (2) How does your... problem affect your daily life and relationships? (3) Why do you want to change in your... attitudes? What are your three most important reasons for this? (4) In your opinion, what could be the worst outcome if you don't make such a change? (5) Can you complete this sentence: "I can't keep living like this anymore because..."
Session 6	This session focused on increasing the women's awareness of the value of their own health, their ability to engage in protective and health-enhancing behaviors, and their adaptation to skin changes. The usual questions were as follows: (1) What do you know about the health check-ups you should have during menopause? (2) What are the positive aspects of undergoing health screenings and tests? (3) What changes have you noticed in your skin during menopause? (4) What would you like to see in your life five years from now?
Follow-up Interviews	Following MI principles, the experimental group was called for interviews 1 and 4 weeks after the sessions were completed. Women were considered unfollowed when they did not come to 3 consecutive invitations within the follow-up weeks. The interviews (counseling) were planned to last approximately 10–15 min. The main contents were as follows: discussing the effects of changing behaviors on the health status, life, work, and others; encouraging the participant to talk about the obstacles and difficulties during changing behaviors; providing professional suggestions to participant; encouraging participant to continue to implement the plan. The HPLPL II and MENQOL scales were administered to the women after each follow-up interview by the researcher.

women, including 68 in the experimental group and 68 in the control group. A computer-generated random number table was used, which can be used when the sample size is $n < 100$. For selecting women in the sample, those in the age group of 45–54 years were numbered according to their registration number in the FHCs, using simple random sampling method and a random number table. To prevent cross-contamination between the groups, data for the experimental group were collected from the Health Center No. 1, and data for the control group were collected from the Health Center No. 3. Similarly, in FHC No. 1 and 3, there are 4 physicians, 4 family health personnel, 2 auxiliary health personnel, 4 polyclinics, 1 nurse room, 1 vaccination room, 1 pregnant-baby monitoring room, 1 intervention room and 1 training room. During the practice, no intervention regarding MG was performed on menopausal women in FHCs.

Ethical approval

For conducting the study, an ethical approval was obtained from the Munzur University Scientific Research and Publication Ethics Committee (Date: 03/09/2018/4579) and written permissions from the Tunceli Provincial Health Directorate and the responsible physicians of Health Centers No. 1 and 3. The participants were informed about the purpose of this study, and their written informed consent was obtained using an informed consent form. Compliance with ethical principles was ensured at every stage of the study. Additionally, permission was obtained for using both HPLPL II and MENQOL. No interventions were conducted on women in the control group until the experimental research was completed. After the post-test was administered to women in the experimental and control groups, those in the control group also participated in a motivational interviewing session upon their wishes.

Participants

Between August 15, 2018, and December 30, 2019, the eligibility of women registered with two different FHCs in the city center of Tunceli was evaluated for inclusion in this study. A total of 8 women from the experimental group, 6 women due to transportation difficulties, moving to another city, caring for family members, treatment of secondary disease, and 2 women due to inaccessibility, were excluded from the study. In addition, a total of 9 women from the control group were excluded from the study 5 of them could not be reached and 4 did not participate in the post-test without submitting any reason.

Inclusion criteria

The inclusion criteria were as follows: (1) being literate; (2) being able to make a conscious decision to participate in the study, being able to communicate verbally, and

being able to sign a consent form; (3) having had menopause naturally and within the last 3 years; (4) being sexually active; (5) having no hormone replacement therapy.

Exclusion criteria

The exclusion criteria were as follows: (1) unwilling to continue the study; (2) having a psychiatric diagnosis according to the FHC records.

Termination criteria of the study

The termination criteria were as follows: (1) intending to leave the study and (2) move to another city.

Study protocol

The search was randomized by a computer programming module (<http://www.randomizer.org/form.htm>) designed for controlled trials; a randomization list was prepared, and the participants were randomly assigned either to the experimental group ($n = 68$) or to the control group ($n = 68$).

Instruments for evaluation

The following measurement tools were used in this study.

Introductory information form

The introductory information form was prepared by the researcher in line with the literature [24–30]. It consists of a total of 10 questions about the menopausal women's socio-demographic characteristics (age, education level, income level, place of residence for the longest time) and history of menopause (duration of being in menopause, training on menopause, thoughts about menopause and coping methods for menopausal complaints).

Health promoting lifestyle profile II (HPLPL II)

The HPLPL II was prepared by Walker et al. in 1987 [31]. This scale is suitable for use in research to evaluate health promotion behaviors within the framework of the health promotion model [11]. The scale includes six dimensions, namely, nutrition, physical activity, stress management, interpersonal relationships, responsibility for health, and spiritual growth (52 items in total). The items are scored based on a 4-point Likert scale (never, sometimes, often, and usually). The total score of the scale ranges from 52 to 208. The score of each dimension is calculated separately and a higher scores mean better health. The Cronbach's alpha coefficient was found as 0.92 for the total scale and ranged between 0.64 and 0.80 for its dimensions, suggesting that the Turkish version of the scale has sufficient validity and reliability [32]. In the present study, the Cronbach's alpha value of the scale was 0.88.

Menopause-Specific quality of life (MENQOL)

The MENQOL was developed by John R. Hilditch et al. in 1996 to create a health-specific quality of life scale for menopausal women [33], and its Turkish validity and reliability study was conducted by Kharbouch and Şahin in 2007 [34]. This is a 7-point Likert-type scale containing 29 items and consists of four domains: vasomotor, psychosocial, physical and sexual. Each item is scored from “0” to “6”, where “0” refers to “not bothersome” and “6” to “extremely bothersome”. A higher scale score indicates greater severity of the complaint. The Cronbach's alpha coefficient of the scale domains was found to range between 0.81 and 0.89 [34]. In the present study, the Cronbach's alpha value of the scale domains ranged between 0.71 and 0.83.

Nursing interventions

Since the method is a technique that generally requires expertise, it is recommended that practitioners undergo a certain training and certification process in order to apply the technique effectively. The researcher participated in the motivational interviewing program and received a certificate prior to the application in this study. Additionally, expert opinions were received from 5 experts during the preparation of motivational interviewing steps. The nursing intervention was applied to 68 menopausal women included in the experimental group. A total of 9 sessions were conducted, including 1 preparation session, 6 motivational interviews, 1 initial follow-up interview one week after the intervention, and 2 follow-up interviews 4 weeks after the initial follow-up. Considering the interactive training method, the motivational interviewing sessions were conducted in the training room of the Health Center in groups of 10 at three different days (Monday, Thursday, Friday) once a week, through face-to-face sessions each lasting 50–60 min. During the interviews, the women were provided with counseling to activate their own sources of motivation, develop healthy lifestyle behaviors and improve their quality of life specific to menopause. The specific contents of the interventions were as follows:

During the research period, no interventions were applied to women in the control group by the researcher, and they filled in the data collection forms simultaneously with those in the experimental group. During the application, no interventions of motivational interviewing were conducted for menopausal women at the FHCs.

Statistical analysis

The data were coded and statistically analyzed using the Statistical Package for Social Science (SPSS 24) software package. Fisher's exact test and chi-square test were employed by the researcher to determine the homogeneity of women in the experimental and control groups.

The effects of healthy lifestyle behaviors and menopausal-specific quality of life between the groups were analyzed using independent samples t-test and repeated measures ANOVA. Cohen's *d* value was calculated to determine the effect size for women in the experimental and control groups. The results were evaluated at a 95% confidence interval and a significance level of 0.05.

Results

Women in the experimental and control groups ($n = 136$) had similar descriptive characteristics. Their mean age was 50.94 ± 3.55 years. Their descriptive characteristics are shown in Table 2.

Table 3 shows the scores of HPLPL-II at baseline, 1 week after the training, and at 4 weeks after the discharge. Healthy lifestyle behaviors scores of both groups were low before the intervention and no statistically significant differences were found between them for each subscale and total scale scores ($p > 0.05$).

The scores of all items in HPLP-II improved after the intervention, except for the physical activity subscale, and the difference was statistically significant ($p < 0.01$) compared to the baseline scores. The development of healthy lifestyle behaviors in the experimental group was more significant than the control group and had a medium and strong effect size ($p < 0.01$).

Table 4 shows the scores of MENQOL at baseline, 1 week after the trainings, and at 4 weeks after the discharge. The quality of life scores of both groups were low before the intervention, and there was no statistically significant difference between them for each subscale and total scale scores ($p > 0.05$). After the intervention, all scores for the quality of life domains on MENQOL improved, and the difference was statistically significant ($p < 0.01$) compared to baseline scores. The improvement in quality of life in the experimental group was more significant than the control group and had a medium and strong effect size ($p < 0.01$).

Discussion

Although menopausal women have similar physiopathological symptoms, there can be differences in their adaptation to menopausal process. Menopause is defined as a life crisis influenced by biological, psychological, and socio-cultural factors and can lead to changes in women's lifestyle and quality of life [9]. Within the framework of the main hypothesis of this study, motivational interviewing appears to be a promising communication method for healthy lifestyle changes and increased quality of life levels for menopausal women. On the other hand, since there is no sufficient number of studies on menopausal women of motivational interviewing, which is the main component of this study, the discussion section is

Table 2 Distribution of the women's descriptive and menopausal characteristics by groups

Descriptive Characteristics	Experimental Group (n = 68) n (%)	Control Group (n = 68) n (%)	X ²	p
Educational level				
Literate	7(10.3)	4(5.9)	3.938	0.268*
Primary education	26(38.2)	36(52.9)		
Secondary education	26(38.2)	18(26.5)		
High education	9(13.2)	10(14.7)		
Spouse's educational level				
Literate	5(7.4)	4(5.9)	6.416	0.093*
Primary education	13(19.1)	21(30.9)		
Secondary education	30(44.1)	34(50.0)		
High education	20(29.4)	9(13.2)		
Income status				
Income less than expenses	37(54.4)	43(63.2)	1.093	0.384**
Income equal to/more than expenses	31(45.6)	25(36.8)		
Having training on menopause				
Yes	4(5.9)	3(4.4)	0.151	0.698**
No	64(94.1)	65(95.6)		
Perception of the menopausal period				
Positive	44(64.7)	42(61.7)	2.772	0.428*
Negative	24(35.3)	26(38.3)		
Using methods for menopausal complaints*				
Yes	6(8.8)	6(8.8)	0.001	1.000
No	62(91.2)	62(91.2)		
Mean Values	$\bar{X} \pm SS$	$\bar{X} \pm SS$	t	p
Age (year)	50.94 ± 3.55	50.57 ± 3.71	0.590	0.556
Duration of having menopause (years)	1.85 ± 0.91	2.00 ± 1.07	-0.856	0.394

* Regular practices of walking, going to the gym, taking frequent showers, and doing pilates

structured with the findings of studies obtained from the literature using similar psycho-social approaches.

The present study found that women in the experimental group experienced an increase in their healthy lifestyle behaviors. A study on the effect of education on healthy lifestyle and self-efficacy in women diagnosed with gestational diabetes reported that education had a positive impact on adopting a healthy lifestyle [35]. Another study about the impact of fertility-supportive behavior education on healthy lifestyle behaviors in women diagnosed with infertility found that healthy lifestyle behaviors significantly increased in the intervention group [36]. Our results suggest that motivational interviewing contributes positively to the implementation of specified health behaviors in menopausal women. In the present study, women in the experimental group experienced an increase in their responsibility for health, nutrition, spiritual growth, interpersonal relationships, and stress management behaviors, except for physical activity behaviors. Dasthi et al. stated that motivational interviewing led to an increase in nutrition, physical activity, stress management, interpersonal relationships, and responsibility for health behaviors in individuals with multiple sclerosis both two weeks and one month after

the intervention [23]. Studies on individuals with diabetes mellitus have indicated that motivational interviewing is an effective and promising method in promoting health and disease adaptation in their nutrition, physical activity, weight control, and psychosocial adjustment [37, 38]. A study on the effect of a health promotion program in women reported an increase in their exercise behaviors after two-session training, while there was no significant change in their nutrition behaviors [39]. The lack of difference between the groups' physical activity behaviors in the study may be because the motivational interviewing session on the importance of physical activity and exercises during menopause was conducted only once and the number of relevant interviews may not have been sufficient.

In addition, our study found that women in the experimental group had a moderate effect size compared to those in the control group for the subscales of responsibility for health (Cohen's d: 0.72) and interpersonal relationships (Cohen's d: 0.65). Accordingly, motivational interviewing is considered effective in increasing responsibility for health and interpersonal relationships in women in the experimental group. A study used a group counseling method based on solution-focused approach

Table 3 Comparison of the HPLPL II pre-test, interim-test, and post-test mean scores of women in the experimental and control groups

HPLPL II Total and Subscales Scores	Experimental Group						Control Group						Intergroup Comparisons																			
	I-Pre-test			II-Interim Test			III-Post-test			F			I-Pre-test			II-Interim Test			III-Post-test			F			t							
										p ^a												p ^a						p ^b				
	mean±SD			mean±SD			mean±SD			Cohen d*			mean±SD			mean±SD			Cohen d*			3's			mean±SD			3's			1-1	2-2
Responsibility for Health	23.58±5.28			25.51±5.38			26.85±3.57			13.598	0.72		20.29±6.81			20.01±6.12			20.26±5.73			0.400	0.00		0.400	0.00		3.150	5.561	8.039		
										0.001												0.671					0.002	0.001	0.001			
Physical Activity	17.30±5.39			16.91±5.29			17.35±4.41			0.406	0.01		14.29±5.37			14.27±4.87			14.42±4.78			0.114	0.02		0.114	0.02		3.267	3.017	3.707		
										0.649												0.881			0.881			0.001	0.003	0.001		
Nutrition	23.01±4.51			23.92±4.60			26.98±3.77			24.294	0.95		23.55±4.68			24.13±4.18			23.76±3.70			1.656	0.04		1.656	0.04		-0.690	-0.273	5.017		
										0.001												0.201			0.201			0.491	0.785	0.001		
Spiritual Growth	27.67±4.87			29.86±6.03			32.33±3.52			26.277	1.09		27.36±6.12			28.02±5.15			27.95±5.03			1.490	0.10		1.490	0.10		0.325	1.190	5.881		
										0.001												0.231			0.231			0.745	0.058	0.001		
Interpersonal Relationships	28.19±4.71			28.94±5.41			30.82±3.21			10.012	0.65		28.66±5.06			28.82±4.67			28.23±5.01			1.539	0.08		1.539	0.08		-0.561	0.136	3.582		
										0.001												0.218			0.218			0.576	0.892	0.001		
Stress Management	21.35±4.10			21.97±4.87			24.75±3.40			25.414	0.90		19.79±4.64			20.45±4.51			20.22±4.26			2.188	0.09		2.188	0.09		2.073	1.880	6.839		
										0.001												0.116			0.116			0.040	0.062	0.001		
Scale Total Score	141.13±18.88			147.13±23.54			159.10±14.54			31.026	1.06		133.97±23.78			135.73±21.17			134.86±20.23			0.964	0.04		0.964	0.04		1.945	2.968	8.021		
										0.001												0.375			0.375			0.054	0.004	0.001		

p^a- Repeated Anova, p^b- Unpaired t Test, SD - standard deviation

*The effect sizes were interpreted according to Cohen's general rule and calculated based on the pre- and post-test group means. A d value less than 0.2 indicates a weak effect, between 0.5 and 0.79 indicates a moderate effect, and greater than 0.8 indicates a strong effect. 1-1, comparison of pre-test mean scores of experimental and control groups

2-2, comparison of interim-test mean scores of experimental and control groups, 3-3, comparison of post-test mean scores of experimental and control groups

and reported an increase in the participants' responsibility for health and interpersonal relationships subscales mean scores after the counseling, indicating the effectiveness of such counseling program [40]. Our results are consistent with those of previous psychosocial interventions in the literature, suggesting that motivational interviewing improves interpersonal relationships and responsibility for health.

The present study found that women in the experimental group had a strong effect size compared to those in the control group for the subscales of nutrition (Cohen's d : 0.95), spiritual growth (Cohen's d : 1.09), and stress management (Cohen's d : 0.90) subscales, as well as for the HPLPL II total score (Cohen's d : 1.06). Previous studies have indicated the significance of post-test means scores for both HPLPL II total scale and its nutrition, spiritual growth, and stress management subscales [36, 40]. Unlike our study, a study found no statistically significant difference between the participants' nutrition and spiritual growth subscales mean scores, but there was a significant difference between their stress management subscale mean scores [41]. Our results are consistent with those in the literature in terms of the HPLPL II total scale, but there are differences for the subscales. Motivational interviewing is not only a method of interview but also a clinical strategy and skill to encourage participants to make change in their negative behaviors [42, 43]; therefore, its application makes a clinical difference, increasing healthy lifestyle behaviors of menopausal women in the experimental group.

The present study found a statistically significant difference between the MENQOL vasomotor, psychosocial, physical and sexual domains pre-test, interim test, and post-test mean scores of women in the experimental group, indicating an improvement in their quality of life ($p < 0.05$). Although there was also a significant difference between the physical and psychosocial domains pre-test, interim test, and post-test mean scores for women in the control group, there was a greater decrease in the mean scores of women in the experimental group compared to those in the control group, indicating a higher level of significance in the experimental group. Similar to our study, an experimental study about the effects of a 5-session, 45–60 min educational program on the quality of life (MENQOL) of menopausal women found that the women's quality of life improved in terms of vasomotor, psychosocial, sexual, and physical domains three months after the intervention [44]. An Iranian study administered a 5-session motivational interviewing intervention to individuals diagnosed with epilepsy, and reported that their quality of life increased significantly, emphasizing motivational interviewing as an effective intervention method to improve quality of life in epilepsy patients [16]. An 8-session Cognitive Behavioral Therapy applied

on Spanish women in the postmenopausal period was reported to reduce their menopausal symptoms [45]. Our results indicate that women in the experimental group experienced a decrease in their menopausal complaints and an improvement in their quality of life in terms of vasomotor, psychosocial, physical, and sexual domains.

Our study found that for women in the experimental group, the effect size of vasomotor (Cohen's d : 0.72) and physical domains (Cohen's d : 0.65) was moderate and the effect size of psychosocial (Cohen's d : 0.85) and sexual domains (Cohen's d : 1.21) was strong. Based on these results, motivational interviewing reduced the complaints of women in the experimental group. Similar to our study, a study about the effects of education based on Roy Adaptation Model on various parameters and quality of life in women with surgical menopause emphasized that the women's mean scores were significant in all dimensions, their menopausal-specific quality of life improved, and their menopausal symptoms decreased [46]. An experimental study about the effects of motivational interviewing on sedentary behaviors, depressive symptoms, and health-related quality of life in Taiwanese women reported that motivational interviewing both facilitate behavioral changes and promote psychological adjustment to life and disease processes, making it an effective approach to improve the quality of life for women [15]. Our results are consistent with those in the literature, suggesting that motivational interviewing positively affects women's quality of life by reducing their complaints. In light of these results, motivational interviewing is considered effective in increasing women's intrinsic motivation, self-confidence, and desires related to behavioral change, reducing their menopausal complaints and improving their quality of life.

According to the hypotheses of the present study, motivational interviewing is an effective approach in supporting healthy lifestyle behaviors and improving quality of life for women in the menopausal period. Therefore it may be functional for gynecology nurses to utilize motivational interviewing interventions in clinical settings in order to activate women's coping mechanisms and enhance their quality of life during the menopausal process.

Limitations

This study has some limitations. First, there was no mandatory attendance for menopausal women at the FHMs where the study was conducted, which could lead to data loss. Another limitation is the long duration of the study, which could also lead to data losses during data collection. Additionally, the study was conducted in only one city and two FHMs, therefore the results of the study cannot be generalized to the general population.

Table 4 Comparison of the MENQOL Pre-Test, Interim-Test, and Post-Test mean scores of women in the experimental and control groups

MENQOL Subscales	Experimental Group					Control Group					Intergroup Comparisons				
	I-Pre-test		II-Interim Test		III-Post-test		I-Pre-test		II-Interim Test		III-Post-test		F		t
	mean ± SD		mean ± SD		mean ± SD		mean ± SD		mean ± SD		mean ± SD		3's	p ^a	
															p ^b
															1-1
															2-2
															3-3
Vasomotor Domain	8.57 ± 6.24		7.66 ± 5.82		5.52 ± 5.24		10.54 ± 5.24		10.01 ± 4.85		10.14 ± 4.53		2.243	0.08	-1.992
													0.110		0.048
Psychosocial Domain	19.50 ± 9.65		16.36 ± 9.79		12.22 ± 7.10		20.64 ± 9.43		19.10 ± 9.15		19.64 ± 8.16		3.495	0.11	-0.701
													0.033		0.485
Physical Domain	52.25 ± 19.52		46.98 ± 20.86		40.75 ± 18.24		49.04 ± 17.50		45.94 ± 16.06		47.63 ± 15.21		3.364	0.08	1.008
													0.038		0.315
Sexual Domain	6.32 ± 6.58		3.92 ± 5.95		0.35 ± 2.29		9.03 ± 6.18		8.57 ± 6.40		9.22 ± 6.16		1.751	0.03	-2.471
													0.181		0.015
															0.001

p^a-Repeated Anova, p^b-Unpaired t Test, SD - standard deviation

*The effect sizes were interpreted according to Cohen's general rule and calculated based on the pre- and post-test group means. A d value less than 0.2 indicates a weak effect, between 0.5 and 0.79 indicates a moderate effect, and greater than 0.8 indicates a strong effect. 1-1, comparison of pre-test mean scores of experimental and control groups

2-2, comparison of interim-test mean scores of experimental and control groups, 3-3, comparison of post-test mean scores of experimental and control groups

Conclusion and recommendations

This pilot study aimed to evaluate the effect of motivational interviewing on healthy lifestyle behaviors and quality of life in menopausal women. Our results showed that motivational interviewing effectively improved healthy lifestyle behaviors and quality of life in menopausal women. Compared with traditional health education, motivational interviewing had a more significant effect. It is a very important to solve the problems of nutrition, monitoring of body weight, physical activity, adequate sleep, regular sexual life, coping with vasomotor complaints, stress management and health responsibility, evaluation of symptoms in order to develop healthy lifestyle behaviors and achieve satisfactory quality of life in menopausal women.

In conclusion, promoting the applications of motivational interviewing has significant importance in the management of menopausal period and complaints. However, fostering additional medical personnel with motivational interviewing skills and promoting the lasting effect of motivational interviewing remain to be further researched and explored.

Abbreviations

MI	Motivational Interview
FHCs	Family Health Centers
MENQOL	Menopause-Specific Quality of Life
HPLPL II	Health Promoting Lifestyle Profile II
SPSS 24	Statistical Package for Social Science

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12905-025-03807-y>.

Supplementary Material 1

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Author contributions

Study conception and design: IO, YY. Data collection: IO. Data analysis and interpretation: IO, YY. Drafting of the article: IO, YY. Critical revision of the article: IO, YY.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

For conducting the study, an ethical approval was obtained from the Munzur University Scientific Research and Publication Ethics Committee (Date: 03/09/2018/4579) and written permissions from the Tunceli Provincial Health Directorate and the responsible physicians of Health Centers No. 1 and 3. The participants were informed about the purpose of this study, and their written informed consent was obtained using an informed consent form.

Compliance with ethical principles was ensured at every stage of the study. Additionally, permission was obtained for using both HPLPL II and MENQOL. No interventions were conducted on women in the control group until the experimental research was completed. After the post-test was administered to women in the experimental and control groups, those in the control group also participated in a motivational interviewing session upon their wishes.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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