



The effect of the family-centered empowerment model on the health literacy and self-efficacy of menopausal women in Iran

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Abstract

Background and aims: This study aimed to assess the effect of the Family-Centered Empowerment Model on the self-efficacy and health literacy of Iranian menopausal women.

Methods: This randomized controlled trial (RCT) was carried out on 80 menopausal women aged 40–59 years. The participants were divided randomly into an intervention group (n=40) and a control group (n=40).

Results: The results showed that the design and implementation of a Family-Centered Empowerment Model can enhance the health literacy and self-efficacy of menopausal women.

Conclusion: Family-Centered Empowerment Model for health literacy and self-efficacy can be crucial in managing menopausal symptoms. Therefore, authorities should consider this model as a strategy for enhancing quality of life and health of menopausal women.

Keywords: Women's health, Menopause, Randomized controlled trial, Iran

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Introduction

As a natural part of aging, menopause marks a significant transition in a woman's life, occurring at a certain age (1). Defined as the final menstrual period happening naturally, menopause typically occurs between the ages of 40 and 61 in Western societies (2). Cultural factors play a crucial role in determining the onset of menopause and the range of symptoms experienced (3). Studies show that in Iran, the average age of menopause is 48.7 years (4).

Globally, a substantial number of women reports experiencing menopausal symptoms, emphasizing the need for greater attention to this issue (5). Researchers predict that by 2030, there will be approximately 1.2 billion menopausal or postmenopausal women worldwide. In Iran, the aging population is also increasing rapidly. Projections indicate that by 2030, older adults will constitute 19% of the population, and by 2050, this percentage will rise to 23% (6). Despite the growing need for specialized care, research highlights a significant

gap in addressing menopausal health. Approximately 75% of women experiencing menopausal symptoms do not receive adequate management, even when quality healthcare is accessible. This highlights the critical importance of identifying and addressing women's health needs during this life stage to enhance their overall health outcomes and quality of life (7).

During menopause, women often experience a variety of symptoms, including irregular menstrual cycles, physical discomfort, vasomotor disturbances such as hot flashes, and psychological challenges. They are also at greater risk for life-threatening conditions like osteoporosis, cardiovascular diseases, weight gain, and cognitive decline, all of which can negatively affect their quality of life (8). These challenges underline the importance of healthcare providers' understanding of middle-aged women's needs, enabling them to offer appropriate support and promote lifestyle changes that improve health outcomes (9). Empowering women with accurate

and accessible information is essential for preventing diseases and managing menopausal symptoms effectively. Enhancing health literacy among women enables them to make informed healthcare decisions and recognize when to seek professional care (10).

While efforts have been made to improve health literacy in Iran, studies reveal that a significant portion of the adult population, particularly those over 60, still has low health literacy (11,12). This limitation is a critical barrier to effective self-care and highlights the urgent need for targeted interventions to address these gaps. Globally, low health literacy is also a widespread challenge among older adults (13). Family-focused approaches are particularly valuable in promoting health literacy, as they foster support networks that empower women to navigate health challenges. Research by Zambrana et al. demonstrates the effectiveness of family-centered networks in providing health literacy information to underrepresented groups, especially on complex issues like cancer prevention (14).

Studies also show a strong relationship between health literacy and self-efficacy in managing menopausal symptoms, such as hormone therapy (15). Self-efficacy, defined as the confidence individuals have in mobilizing resources to achieve desired outcomes, is a vital factor in initiating and maintaining health-promoting behaviors (16). Given that Iranian elderly women report low to moderate levels of self-efficacy, this attribute must be strengthened to foster better health outcomes and improved behaviors (16). The family-centered empowerment model (17) has emerged as an effective strategy for promoting self-efficacy, emphasizing motivation and psychological well-being. This model focuses on enhancing self-esteem, self-control, and perceived self-efficacy in individuals and their families, leading to better health-related behaviors and improved quality of life (18).

Self-control, as a critical component of this model, facilitates improved interactions with caregivers, better treatment adherence, and enhanced health outcomes (19–21). Moreover, family-centered networks play a pivotal role in disseminating health literacy information, reducing disease-related mortality, and improving decision-making processes (14).

This study evaluates the effectiveness of a family-integrated empowerment intervention on menopausal women with low health literacy, aiming to address these gaps and promote sustainable health improvements.

Methods

This study used a clinical trial method and two groups and included pre and post-tests for 80 participants. The study was conducted for three months, from July to September 2019. Participants were purposively recruited, and data were collected using random stratified sampling in which three out of ten health centers in Isfahan, Iran, were included. These were selected from the files of women attending these health centers according to the following inclusion and exclusion criteria. Participants

were split into experimental and placebo groups based on simple random sampling. The participants in the study included 40 participants who were given education targeted towards a family member, and 40 participants in the control group received no education. Before implementing the interventions, all subjects were given information about the study goal and process. The researcher first sought written and oral permission, where simple random sampling was used. Specific criteria for the participants included the following: adults of 40-59 years of age, mentally healthy individuals, those with no hearing, visual, or speech impairments, and the ability to grasp concepts related to learning, as well as low to moderate empowerment evaluation questionnaire scores, and adequate literate ability. For each of the participants of the study, the following criteria were considered: They are a permanent family member of the menopausal woman, a spouse, child, or grandchild, living together with them, being able to make decisions, and agreeing to participate in this study, as well as having moderate or weak scores in the evaluation of the empowerment questionnaire. Such participants were mainly excluded if there was any unwillingness to participate, subjects who did not complete the questionnaire, and those who missed more than one session.

Data collection

The data collection tools included (1) a self-developed demographic checklist and (2) The Health Literacy Questionnaire for Iranian Adults (HELIA). The demographic checklist collected information on participants' age, gender, education level (categorized as high school degree or lower, associate's degree, bachelor's degree, and higher), and marital status (single or married). The HELIA questionnaire, designed to assess health literacy, includes 33 items that address various aspects: This instrument includes 31 items under five dimensions namely access to health information (6 items), reading (4 items), understanding (7 items), appraisal (4 items) and behavioral intention (12 items). Each of the items is responded to on a four-point Likert scale where 1 = 'Not at all', 2 = 'Poor', 3 = 'Fair', 4 = Good and the total score, therefore, ranges from 0 to 400. This set of questions was found to have good validity by Montazeri and his team in a study done in 2014 (22). The self-administered questionnaire used in this study was estimated to take 10 minutes to complete. The scoring ranges for the questionnaire are categorized as follows: Health literacy is categorized into low health literacy, which is 0-50; low adequate health literacy, which is 50.1-66; adequate health literacy, which is 66.1-84; and good health literacy, which is 84.1-100. Self-efficacy was assessed based on the General Self-Efficacy Scale (GSES) by Schwarzer et al. Thus, dealing with optimism about difficult life experiences is used in the present study; this self-report scale reflects optimistic expectancies about handling different difficulties of life, and it is the Beck risk

inventory. The respondent's highlighted items are on a Likert Scale of 1, 'not at all true' to 4, 'exactly true'. The total scores can range between 10 and 40, and the higher scores reflect a higher level of self-efficacy. The reliability estimate for the scale regarding Cronbach's alpha was between 0.76 and 0.90 across 23 countries, and 15 out of 23 studies had values near 0.80 (23).

Before exercising the management of the empowerment program, it was mandatory to determine and validate its content. The material was discussed with different active participants of the families and women 40-59 years old to determine the material strengths and weaknesses when explaining complex concepts and terms between the women and their families. The program content concerns included a definition of menopause, menopausal symptoms within four domains: vasomotor, psychosocial, physical, and sexual, and severe medical complications of menopause, for example, bone loss and subsequent osteoporosis, and heart diseases, blood pressure, and cholesterol levels. It also focused on treatment and care, diets, and exercise. The information collected from family members and women was then counter-checked with the help of experts and professors in the subject.

The content was developed by five participants from the Isfahan nursing and midwifery faculties, three midwives, and a doctor from the health centers. This material was used on all the participants without any exceptions. At first, 40 women and one of their female relatives filled in the questionnaires for the application to the control group. In the sixth week, the tools were readministered to the participants. To complete the assessment for the intervention group, 40 women and a family member of the women who met the inclusion criterion were selected. Afterward, an empowerment program that focused on the family was adopted in this regard for such a group. Women's empowerment in this program is focused on four key constructs: Knowledge, self-efficacy, training participation, and evaluation.

First step: perceived threat

The first approach of the family-centered empowerment model highlights the importance of matters regarding menopausal women. In order to increase women's awareness of their condition, they were divided into groups of 7-8 and attended six educational sessions, each lasting 45 minutes. The number and length of these sessions were decided on from a pilot study. The researcher conducted the study sessions using the ABM protocol as a guide. The sessions were held during the week and had a one-week interval in between. Ironically, these included areas of (1) menopausal symptoms, (2) medical risks associated with menopause, (3) treatment leads to both medical and non-medical, and (4) life changes.

Second step: Self-efficiency

Practical presentation and group discussion methods enhanced the women's self-efficacy. During this phase,

the participants were grouped into 7-8 members and had six educational sessions. Each session contained content on lifestyle, primary care-seeking, menopausal symptoms self-awareness, perceived behavioral control, and exercise planning. These were sessions where the women sat back and listened to speeches or lectures and also listened, spoke, and learned from each other.

Third step: Self-esteem

In this phase, the women were allowed to take home to their family members the discussions they had in their group sessions and the education cards or pamphlets. Four different sessions of 45 minutes each were organized to evaluate the explicit and implicit knowledge of the family participants, during which the views of the family members about what they had learned were recorded.

The program was assessed in two passes. The first intervention, which was implemented, entailed administering two oral questions at the beginning of each training session to determine knowledge. The second was the last assessment made six weeks after completing the program. At that time, the obtained instruments were handed back to the participants, and the data gathered from the questionnaires were processed.

Fourth step: Evaluation (process and final evaluation)

Process evaluation

Additional educational sessions were provided for the women expectant at delivery and their supporters so that participants could pose questions and engage in focused discussions. These sessions went on until all questions were answered or asked and answered. , questionnaires were completed, and participants were interviewed one week after the empowerment program as part of the assessment of program efficacy. After this, a post-test was offered to the participants for the practical demonstration of the Family-Centered Empowerment Model.

Final evaluation (after intervention)

Two months after the intervention, the women were given the questionnaires during a 45-minute session for the final evaluation.

After completing the third step, the control group of women and their family members participated in another 45 minutes of education on the topics given to the women in the intervention group two months ago. After completing the program, the instruments were returned to the participants, and the data collected from the questionnaires were analyzed.

Event Response Outcome (ERO)

The outcomes of the study were centered on self-efficacy and health literacy. Five subscales were used to evaluate health literacy: reading ability, accessibility, comprehension, appraisal competencies, and the utilization of health information. This was further classified as inadequate (Score 0-50), marginal (score

50.1-66), adequate (Score 66.1-84), and excellent (Score 84.1-100). Studied was conducted as a clinical trial and was approved by the ethical committee with code IR.MUI.RESEARCH.REC.1397.011.

Statistical analysis

For the quantitative data, the mean with SD and frequency with percentage were used to summarize continuous and nominal variables. The t-test was used to compare continuous variables to see if the data followed a normal distribution. The non-parametric test was used for data that did not follow the normal distribution. The chi-square or Fisher exact tests compared categorical variables between the intervention and control groups. A repeated measures ANOVA was conducted to examine the changes in outcomes after implementing the intervention procedure, with the null hypothesis testing for normality and sphericity of the collected data. Further, the logistic regression was conducted with the overall treatment estimate for insufficient health literacy, including a 95% CI estimate.

Results

The intervention group included 40 women, while the control group consisted of 40 women as well. Following menopausal women were assessed for eligibility. The analysis involves each participant. The study flowchart is presented in Figure 1. There were no apparent differences between the intervention and control groups in the women's demographics, underlying medical conditions,

or menopausal symptoms (Table 1).

The control group's average knowledge score was substantially higher ($P=0.04$). In contrast, the mean \pm SD of the self-efficacy and health literacy subscales were homogeneous at baseline ($P>0.05$), according to Table 2. Compared to the control group, Figure 2 shows a substantial upward trend in the intervention group's scores for every outcome over time. Immediately before the intervention and two and four months after the study, the intervention group's mean scores for self-efficacy, health literacy, and its subscales were considerably higher than those of the control group ($P<0.001$).

Repetitive actions After adjusting for baseline values, an ANOVA demonstrated that the intervention substantially improved self-efficacy over time ($F=172.71$, $P<0.001$). Additionally, the intervention group's overall health literacy score and subscales—reading skills, availability, understanding, evaluation skills, and use of health information—improved significantly over time compared to the control group ($F=430.9$, $P<0.001$).

In both groups, all patients had poor health literacy at baseline; this distribution remained the same after the study, but four months after the intervention, 7 patients (17.5%) in the intervention group and 39 patients (97.5%) in the control group were discovered to have inadequate health literacy, whereas 33 patients (82.5%) in the intervention group had adequate health literacy. In contrast, only 1 patient (2.5%) in the control group had this condition.

The control group had a 14.7-fold higher chance of

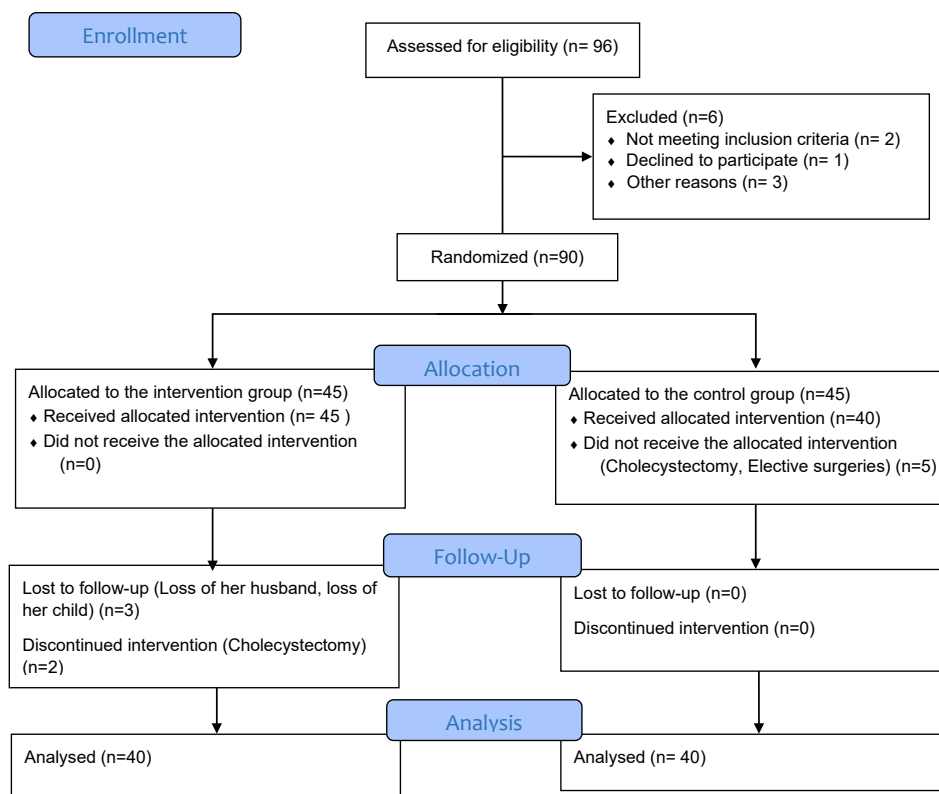


Figure 1. CONSORT flow diagram

Table 1. Comparing the features of the women in the control group with the intervention group

Characteristics	Intervention group	Control group	P
Age, mean \pm SD	49.78 \pm 4.58	50.2 \pm 4.48	0.67
Age at menopause, mean \pm SD	48.27 \pm 3.25	48.7 \pm 2.88	0.53
Medicine use, yes, No. (%)	12 (30)	20 (50)	0.068
Gender active member, female, No. (%)	19 (47.5)	22 (55)	0.502
Ethnic, No. (%)			0.225
Persian	9 (22.5)	12 (30)	
Bakhtiari	28 (70)	24 (60)	
Turkish	3 (7.5)	4 (10)	
Marital status, No. (%)		0	
Unmarried	3 (7.5)	2 (5)	0.975
Married	32 (80)	33 (82.5)	
Divorced	4 (10)	4 (10)	
Widowed	1 (2.5)	1 (2.5)	
Education, No. (%)			0.46
Diploma and lower	30 (75)	35 (87.5)	
Higher than diploma	10 (25)	5 (12.5)	
Job-status, No. (%)			0.39
Housewife	5 (12.5)	23 (57.5)	
Retired	13 (32.5)	0	
Employee	11 (27.5)	11 (27.5)	
Worker	11 (27.5)	6 (15)	
Relationship, No. (%)			0.646
Child	9 (22.5)	7 (17.5)	
Grandchild	7 (17.5)	4 (10)	
Husband	16 (40)	18 (45)	
Relatives	8 (20)	11 (27.5)	
Underlying disease, No. (%)			0.226
Heart/CVD	11 (27.5)	12 (30)	
Eye	3 (7.5)	5 (12.5)	
Type II diabetes mellitus	0	3 (7.5)	
Respiratory	0	1 (2.5)	
None	26 (65)	19 (47.5)	
Menopause symptoms, No. (%)			
Night sweating	26 (65)	25 (62.5)	0.816
Joint and muscle pain	23 (57.5)	24 (60)	0.82
Hot flashes	31 (77.5)	37 (92.5)	0.06
Fatigue	28 (70)	27 (67.5)	0.809
Decreased libido	31 (77.5)	30 (75)	0.793
Insomnia	23 (57.5)	18 (45)	0.263
Weight gain	24 (60)	22 (55)	0.651
Forgetfulness	14 (35)	12 (30)	0.966
Unary syndrome	21 (52.5)	24 (60)	0.499
Depression	23 (57.5)	22 (55)	0.822

having insufficient health literacy than the intervention group (odds ratio: 14.7, 95% CI: 2.01, 28.1; $P=0.008$). According to these results, participants in the intervention

Table 2. Comparison of the mean \pm SD of self-efficacy and health literacy subscales between the two groups

Variable	Mean ± SD		P
	Intervention group	Control group	
Self-efficacy			
Baseline	14.46 ± 4.73	15.15 ± 5.39	0.549
Post 1	23.10 ± 2.44	18.77 ± 3.55	<0.001
Post 2	27.95 ± 2.25	19.45 ± 3.07	<0.001
Health literacy subscales			
Reading skills			
Baseline	30.62 ± 21.5	32.03 ± 19.7	0.761
Post 1	39.37 ± 10.1	20.31 ± 6.89	<0.001
Post 2	49.53 ± 9.84	22.34 ± 6.31	<0.001
Availability			
Baseline	20.83 ± 10.5	19.89 ± 15.3	0.75
Post 1	38.85 ± 6.42	24.16 ± 12.2	<0.001
Post 2	60.62 ± 6.86	26.77 ± 11.5	<0.001
Understanding			
Baseline	13.66 ± 9.42	18.66 ± 12.1	0.043
Post 1	34.37 ± 7.48	19.82 ± 10.9	<0.001
Post 2	47.94 ± 5.17	21.87 ± 9.22	<0.001
Evaluation skills			
Baseline	13.28 ± 8.74	16.25 ± 11.9	0.21
Post 1	34.84 ± 9.16	18.12 ± 10.0	<0.001
Post 2	49.21 ± 5.69	22.03 ± 8.83	<0.001
Use of health information			
Baseline	14.11 ± 10.3	17.18 ± 13.5	0.259
Post 1	34.01 ± 5.62	20.41 ± 11.3	<0.001
Post 2	59.84 ± 4.34	24.47 ± 9.99	<0.001
Total			
Baseline	18.50 ± 9.42	20.80 ± 12.23	0.349
Post 1	36.29 ± 4.73	20.56 ± 9.05	<0.001
Post 2	53.43 ± 3.41	23.50 ± 7.45	<0.001

Post 1 is immediately after study completion; Post 2 is two months after study completion.

group significantly enhanced their health literacy compared to those in the control group.

This study shows the usefulness of promoting a family-centered empowerment model for increasing health literacy and perceived self-efficacy among menopausal women, primarily since this approach provides a unique shift in understanding training and family engagement in health education. However, it should be recalled that some women may need the services of a healthcare practitioner to help them handle menopausal symptoms. There are several treatment methods, which include making use of estrogen and progesterone, impactful alteration of your diet and exercise regimes, as well as no estrogen and progesterone pills. These options can be made to reflect individual clients' needs so that all their needs can be fully met during this transition (24). Women going through the menopausal period should not just suffer through

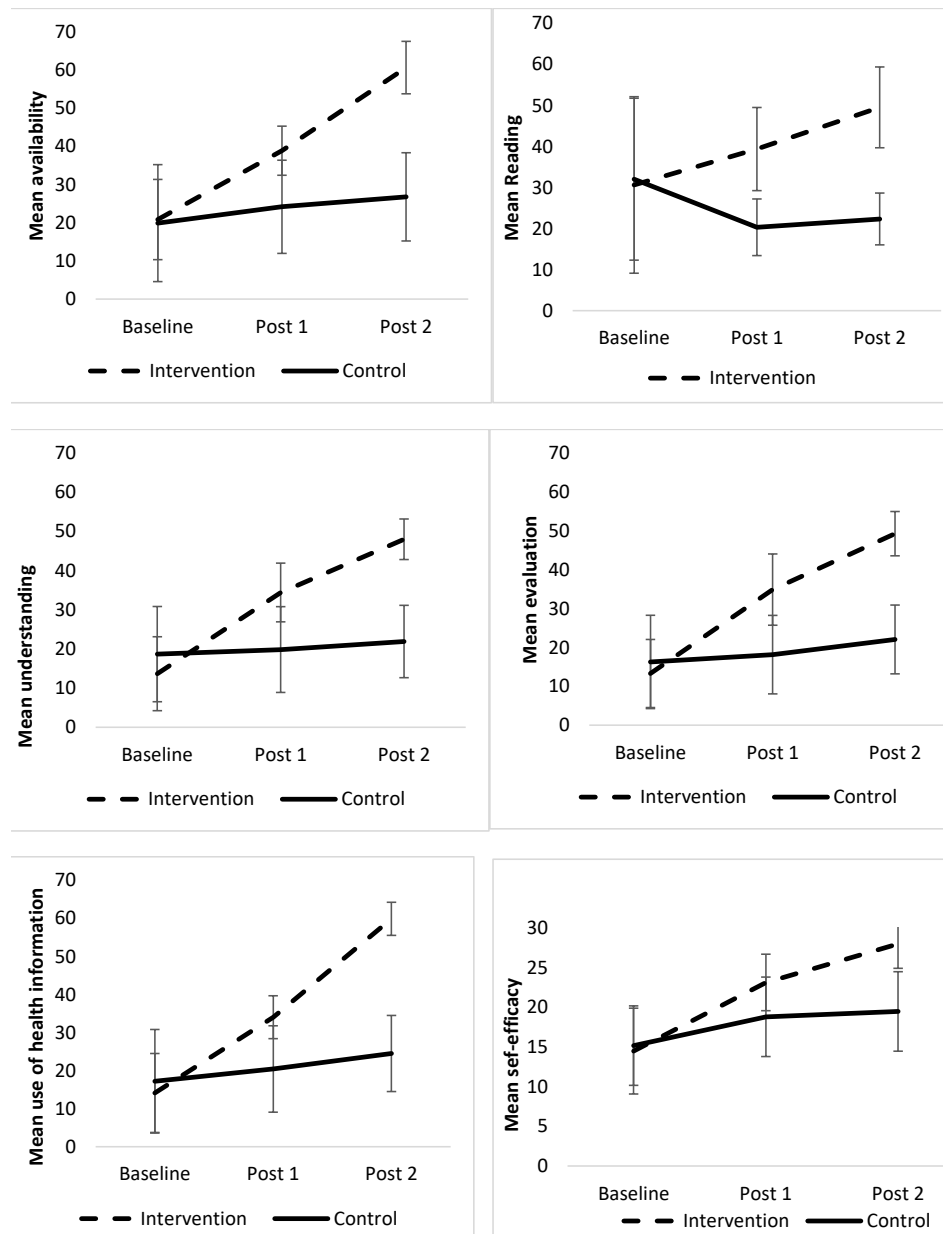


Figure 2. Error-bar for health literacy subscales (first five figures) and self-efficacy (the last figure) over time for the intervention and the control group

their discomfort, as this can be highly beneficial to getting better (10). The article has identified the possibility of health literacy quality as a modifiable factor in the contexts of the analyzed communities that influence the quality of life in menopausal women (25). Health literacy is the core of a health asset, as it makes it possible for individuals to use the right strategies to overcome their problems (26). A meta-analysis conducted in the United States showed that the overall inadequate health literacy level was 25%, and the marginal level was 20% (27). According to studies done on Iranian menopausal women, the health literacy level was found to be low as only 35.1% of the participants had adequate health literacy, 47.8% had low levels of health literacy, and 17.2% had borderline levels of health literacy. All the findings indicated that many women are hardly health literate. In addition, it was noted that women need sufficient information to deal

with their symptoms and need the proper treatment to be empowered to manage menopause and its consequences (28). Therefore, the mean health literacy in the present study indicates a moderate/low level among menopausal women, thus the importance of health literacy training. More so, the caregivers' health literacy level was poor, which was connected to poor caregiving practices. The result was utilizing higher health services and rising care pressure (29). Varvani Farahani et al also published a research study about applying a family-empowered model of pediatric leukemia patients' families; this model helps patients and their families understand what they face and gather the strength from within to make changes for the better in their lives (30).

Among these coping factors, self-efficacy has been reviewed as an important focus of psychologists in recent years in adapting to change and new situations

(31). It was also established that the perimenopausal woman underestimates her capacities, and consequently, improving self-efficacy decreases psychological problems (32).

In the current study, self-efficacy among menopausal women was statistically significant ($P < 0.05$), differentiating between the interventional and control arms. The findings showed that the Family-Centered Empowerment Model can significantly increase self-efficacy in the intervention group. Also, Moshki et al found that introducing an educational intervention like a group lesson helps increase the amount of self-efficacy of menopausal women, while Çakar stated that higher self-efficacy results in increased life satisfaction (33). Past researches indicate that promoting educational courses concerning menopause has some beneficial effects on the health of women going through menopause (32,34). Other research has shown that counseling on self-efficacy can play a profound role in supporting as well as controlling the psychological aspects of menopausal symptoms (35). While assessing the impact of the family-centered empowerment model on menopausal women, Sah also delineated the part of the family in moderating or aggravating the following complications of menopause (36). The postmenopausal women's empowerment model was presented as a possible way of managing the problem of menopause and could give health policymakers the notion of what it means to empower women (37).

Conclusion

Based on this study's findings, the Family-Centered Empowerment Model for health literacy and self-efficacy can be crucial in managing menopausal symptoms. Therefore, authorities should consider this model as a strategy for enhancing the quality of life and health of menopausal women.

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Authors' Contribution

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Competing Interests

The authors declare that there is no conflict of interest.

Ethical Approval

Ethical considerations in this study included obtaining permission from the University's Ethics Committee (IR.MUI.RESEARCH.REC.1397.011) and obtaining written consent from the participants to participate in the study.

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