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The effect of a training program on women's health promotion and protective behaviors: A randomised controlled study

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Abstract

This was a randomised controlled study to investigate the effect of a "HASCV-R" training program on the health-promoting and protective behaviors of women. The study included a total of 90 women, including control group (n:45) and experimental group (n:45). Data collection was conducted using a questionnaire form, "General health behaviors for reproductive health protection sub-dimension of determination of married women's reproductive health protective attitudes scale (RHPAS)" and "Health Promoting and Protective Behaviours Scale (HPPBS)". After the training program, there was an increase in the scores of the women in the experimental group in the general health behaviours sub-dimension of the RHPAS for protecting reproductive health, the total score of the HPPBS and the Psychosocial and Protection sub-dimension of the HPPBS. According to the findings of the study, a training program was found to be effective on women's health promoting and protective behaviours. *(Afr J Reprod Health 2025; 29 [10]: 90-99).*

Keywords: Women's health; Health education; Health promoting; Protective behaviors; Nursing

Résumé

Il s'agit d'une étude contrôlée randomisée visant à étudier l'effet d'un programme de formation « HASCV-R » sur les comportements de promotion et de protection de la santé des femmes. L'étude a porté sur un total de 90 femmes, dont le groupe de contrôle (n:45) et le groupe expérimental (n:45). La collecte des données a été effectuée à l'aide d'un questionnaire, de la sous-dimension « Comportements généraux en matière de santé pour la protection de la santé reproductive » de l'échelle de détermination des attitudes de protection de la santé reproductive des femmes mariées (RHPAS) et de l'échelle des comportements de promotion et de protection de la santé (HPPBS). Après le programme de formation, on a constaté une augmentation des scores des femmes du groupe expérimental dans la sous-dimension des comportements de santé générale de l'échelle RHPAS pour la protection de la santé reproductive, dans le score total de l'échelle HPPBS et dans la sous-dimension psychosociale et de protection de l'échelle HPPBS. Selon les résultats de l'étude, un programme de formation s'est avéré efficace sur les comportements de promotion et de protection de la santé des femmes. *(Afr J Reprod Health 2025; 29 [10]: 90-99).*

Mots-clés: : Santé des femmes; éducation à la santé; promotion de la santé; comportements protecteurs; soins infirmiers

Introduction

Women are considered a high-risk group due to their various roles in family and society, physiological changes such as puberty, menstruation, childbirth, and menopause, relatively higher risks of poverty, hunger, and malnutrition compared to men, intensive workloads and gender discrimination[1]. Over the years, the increase in health problems and the emergence of environmental conditions that threaten health have placed a great burden on public health practices and necessitated the emergence of various strategies such as health education, disease prevention, health protection and health promotion[2,3].

Health promotion is the process of facilitating people to increase their control over their health and improve their health through advocacy, enabling and mediating individuals and communities to act on their own through joint efforts[3,4]. Health protection is defined as a set of organisational, technical, social, economic and legal measures aimed at protecting the health of individuals or social groups from the harmful effects of environmental factors or minimising their risks[5]. Health-protective behaviours are known as the main

determinants of health in the prevention of many diseases[6,7]. Healthy behaviours include activities such as a balanced diet, regular physical activity, getting enough sleep, managing stress, avoiding tobacco and excessive alcohol use and seeking medical help when necessary[8]. In order for individuals to acquire positive health behaviours, they need to have an idea about the whole of these behaviours and transform their knowledge into behaviours[9].

Reproductive health behaviours also play an important role in improving women's overall health and women have the right to make their own choices about Sexual and Reproductive Health (SRHR). SRH emphasises equal rights to access accurate information on safe, effective, affordable and acceptable contraceptive methods, and access to prevention and treatment of sexually transmitted infections[10]. SRH is also of great importance for sustainable development goals due to its impact on gender equality, women's health and survival, maternal, newborn, child and adolescent health, and economic development[11]. There are findings that women implement health promotion behaviours at a low level[12-14]. It is recommended that women should be informed about health behaviours and supported with health education in order to put this knowledge into practice[15]. Organising correct and regular trainings in the protection and development of health can help individuals in this regard. Health education is a process that develops knowledge and skills and can also help individuals take responsibility for their health and gain positive health behaviours[16,17]. Evidence shows that well-designed health education programs can significantly improve women's health-related knowledge, attitudes and practices such as nutrition, physical activity, antenatal care. Therefore, empowering women with knowledge, skills and resources to adopt and maintain healthy behaviours is a crucial step in improving women's health outcomes[14,18]. The group that will ensure the improvement of women's health, informing them about healthy behaviours and guiding them are nurses who provide professional care in health institutions and have the responsibility to provide positive behaviours. For this reason, it is important to address the health services they will provide to women in the whole life cycle, continuity and integrity[19]. Considering that health-promoting behaviours have an important role in the acquisition and maintenance of health and there is insufficient research evidence on the status of women's health-promoting behaviours, we hope that this study will be referenced and disseminated by other researchers to fill the gap in the literature.

The main objective of this study is to examine the impact of a health education program developed by the researchers on women's health-promoting and protective behaviors.

Research hypotheses

H_0: Implementation of the Training Program (HASCV-R) does not affect women's health promoting and protective behaviours of women in the experimental and control groups.

H_1: After HASCV-R implementation health promoting and protective behaviours women in the experimental group compared with women in the control group.

Methods

Study design

We have made a work to respect the report of the two-group, double-blind, randomised controlled trial. The study was conducted between May 2023 – November 2023, was conducted with the women living in Tokat province in Türkiye. Trainings within the scope of the HASCV-R program were provided and measurement tools were applied at Hanımeli culture and art centers. The RCT pursued the Consolidated Standards of Reporting Trials (CONSORT) statement for reporting RCTs (Figure 1).

Settings and participants

The following inclusion criteria were met for this study; volunteering to participate in the study, be between the ages of 18 and 49, being a women, no communication barriers and to be married.

Randomisation

The randomisation was performed at the individual level.Computerised random number generators were used to generate randomisation sequences with external research assistance (https://www.randomizer.org/). Eligible women who consented to participate were randomly assigned to either the intervention (experimental) group or the control group on a 1:1 basis.

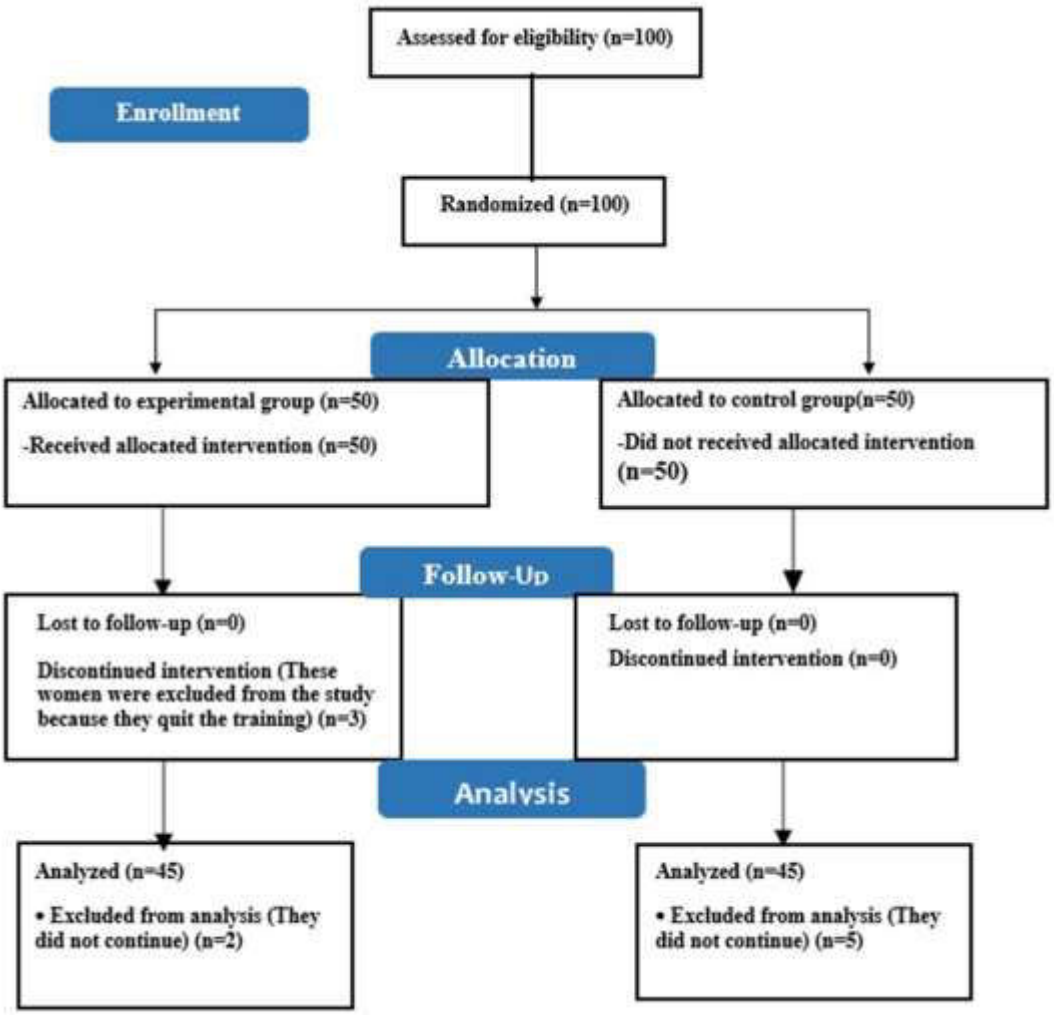

Figure 1: CONSORT flow diagram

Sample size

To determine the sample size, the researchers used the G Power Clinic Calc program. In the previous studies, women's attitudes towards reproductive health and their health-promoting and health-protective behaviours were examined as the outcome measure. Means and standard deviations from the literature were used to calculate the effect size (d)[19,20]. The estimated sample size of women who reached the primary outcome provided 90% power at a 95% confidence interval based on a value of 0.05. The minimum number needed was set at 90 women. In addition to the minimum sample size, 10% more participants than the calculated sample size were included in the groups, considering possible losses. Thus, the sample size was determined as 50 people for each group and 100 people in total and the study was conducted at Hanımeli culture and art centres. The study was completed with 45 women in the experimental group (3 women left the training group, 2 woman did not do the post-test) and 45 women in the control group (5 women did not do the post-test).

Data collection

In this study, after getting consent from the women, data were obtained from the control and experimental groups at two time points, before the program was implemented and three months after the program was implemented. Data were collected using a questionnaire on demographics, general health behaviours for reproductive health protection sub-dimension of RHPAS and the health promoting and protective behaviours scale (HPPBS) through face-to-face interviews conducted by the researchers.

Outcome variables

General health behaviours for reproductive health protection (measured via the relevant sub-dimension of the RHPAS scale).
Total and sub-dimension scores of the Health Promoting and Protective Behaviors Scale (HPPBS), which include: Physical, Psychosocial, and Protection sub-dimensions.

Explanatory (independent) variable

Participation in the HASCV-R health education program (intervention vs. control).

Control variables (covariates)

Age, education, income level, employment status, smoking status, medication use, and presence of chronic disease.

Instruments

The socio-demographic characteristics form

The socio-demographic characteristics form; developed by the researchers on the basis of the literature, includes the socio-demographic characteristics of the women, such as age, education status, income status, smoking, alcohol and substance use status, the presence of chronic diseases[19-22].

General health behaviors for reproductive health protection sub-dimension of determination of married women's reproductive health protective attitudes scale (RHPAS)

The RHPAS was validated and reliability was tested by Demirci and Karanisoğlu in 2004. It is a five-point, self-administered, easy-to-understand likert scale, containing 39 items. The scale has five subscales, i.e. consulting a doctor for reproductive health problems, protection against cancers of the reproductive organs and breasts, general health behaviour to protect reproductive health, protection against infections of the genital tract and prevention of unwanted pregnancies. The total score for the scale ranges from 5 to 50. The higher the score, the more favourable are the attitudes and behaviours that protect reproductive health[23]. The Cronbach's alpha for the scale was found to be 0.86 in this study.

Health Promoting and Protective Behaviors Scale (HPPBS)

HPPBS developed by Bostan *et al.* It is a five-point likert-type scale consisting of 3 subscales (physical, psychosocial and protection) and 24 items. The higher the score, the more health promoting (regular exercise, meeting physiological requirements such as eating and drinking, making time for oneself and family etc.) and protective behaviors[20]. The Cronbach's alpha of the scale was 0.83, and the Cronbach's alpha of the sub-scales ranged from 0.61 to 0.76. The Cronbach's alpha of the scale was 0.75, and the Cronbach's alpha of the sub-scales ranged from 0.64 to 0.77 in this study.

Interventions of the HASCV-R program

Content of the training intervention

The HASCV-R (**H**ealthy nutrition; **A**ctive living; ways to cope with **S**tress; **C**ancer screening; **V**accination according to the life cycle in adults; and **R**eproductive health) training program developed by the research team is based on the health services protocols of the Turkish Ministry of Health and includes five training courses. A whatsapp group was organised to contact with the women in the experimental group. The trainings in the HASCV-R program applied to the women in the experimental group were implemented through group education once a week for 5 weeks at the Hanımeli culture and art centers. The program includes five sessions, the trainings were implemented in a single session of 45-60 minutes. The educational intervention began with an introductory session where women were welcomed and introduced to the content of the training program. During this phase, their current health status, personal characteristics, and knowledge of health behaviors were assessed, and pre-test measurement tools were administered. The first topic covered was healthy nutrition, providing information on dietary frequency, healthy food choices, salt consumption, the benefits of adequate water intake, and the importance of food hygiene. This was followed by a session on active living, emphasizing the importance of regular physical activity and precautions to prevent accidents. Coping with stress was another key area, where participants were informed about the value of

making time for oneself and maintaining healthy social relationships.

The program also addressed cancer and cancer screening, offering information about cancer in general, its causes, and the significance of early detection through screenings. Another session focused on adult vaccination across the life cycle, highlighting the importance of protection against infectious diseases. Reproductive health education was also included, with information on contraceptive methods and the prevention of sexually transmitted infections. Finally, the program concluded with an evaluation phase involving feedback from the participants. Three months after the program's completion, post-test measurement tools were applied to assess the impact of the intervention. Training program consisting of power point presentations, interactive discussions, brainstorming and question-answer (Q&A) sessions. No training program was applied to the women in the control group and only pre-test and post-test measurement tools were applied.

Statistical analysis

Data were analyzed using IBM SPSS Statistics ver. 23.0. The Kolmogorov-Smirnov test was used to determine whether the data were normally distributed. Independent samples t-test and Mann-Whitney U test were used to compare data between groups according to the normality test. Paired samples t-test and Wilcoxon test were used to compare pre-test and post-test scores within groups. The chi-squared test and the two-tailed test were used to analyse the categorical data. The significance level was set at $p < 0.05$.

Ethical approval

- The authors declare that the research presented in the manuscript was approved by Tokat Gaziosmanpaşa University Social and Human Sciences Researchs Ethics Committee (Date: 16.05.2023, No:01-54/08).

Results

The average age of the women in the experimental group was 40 years, while the average age of the women in the control group was 41 years. The majority of the women in both the experimental group and the control group live in nuclear families (84.4% and 75.6%). While 28.9% of the women in the experimental group were employed, 31.1% of the women in the control group were employed. 35.6% of the women in the experimental group had chronic diseases. Of the women with chronic diseases, 21.4% had diabetes, 21.4% had hypertension and 7.1% had asthma. In the experimental group, 13.3 % of the women were smokers and 66.7 % of the smokers smoked 5-10 cigarettes per day (Table 1).

In the control group, 15.6% of the women had chronic diseases. Of the women with chronic diseases, 33.3% had diabetes, 16.7% had hypertension and 16.7% had asthma. Twenty per cent of the women in the control group were smokers and 8.9% of the women smokers smoked 5-10 times a day. There is no significant difference between the groups interms of control variables ($p > 0.05$, Table 1).

It was found that the General health behaviours for reproductive health protection sub-dimension of RHPAS score of the women in the experimental group before the intervention was lower compared to the control group. Total score of HPPBS, HPPBS scale Psychosocial sub-dimension score and HPPBS scale Protection sub-dimension score of women in the experimental group were found to be lower compared to the control group. HPPBS scale Physical sub-dimension score was found to be the same. General health behaviours for reproductive health protection sub-dimension of RHPAS (U: 783.0, $p>0.05$), Total score of HPPBS (U: 854.5, $p>0.05$), Physical sub-dimension of HPPBS scale (U: 942. 0, $p>0.052$), HPPBS scale Psychosocial sub-dimension (U: 887.5, $p>0.05$) and HPPBS scale Protection sub-dimension (U: 783.0, $p>0.05$) scores were not statistically significant ($p>0.05$, Table 2).

After the intervention, it was found that the General health behaviours for reproductive health protection sub-dimension of RHPAS score and Total score of HPPBS total score of the women in the experimental group were higher compared to the control group. HPPBS scale Physical sub-dimension score, HPPBS scale Psychosocial sub-dimension score and HPPBS scale Protection sub-dimension score were found to be the same when compared with the control group. After the intervention, it was found that there was a statistically significant relationship between the General health behaviours for reproductive health protection sub-dimension of RHPAS (U: 705.0, $p<0.05$) scores of the women in the experimental and control groups ($P<0.05$).

Table 1 : Socio-demographic characteristics of the women in the study sample

Demographic characteristics	Experimental group (n=45) x̄ ± SD	min-max	Control group (n=45) x̄ ± SD	min-max	Statistics	p
Age	40.00±6.49	21 - 49	41.82±5.79	29-49	-1.405*	0.559
	s	%	s	%	Statistics	p
Family Type						
Nuclear family	38	84.4	34	75.6		
Large family	6	13.3	6	13.3		
Broken family	1	2.2	5	11.1	1.443**	0.242
Education						
Literate	2	20.8	0	00.0		
Primary school	19	42.2	11	24.4	2.180**	0.096
High school	9	20.0	16	35.6		
University and above	15	33.3	18	40.0		
Employment sıtuatıon						
Working	13	28.9	14	31.1	0.818***	0.053
Not working	32	71.1	31	68.9		
Income status						
Bad	12	26.7	17	37.8		
Moderate	26	57.8	27	60.0		
Good	7	15.6	1	2.2	0.052**	0.821
Status of using smoke						
Use	6	13.3	9	20.0	0.720**	0.396
Not use	39	86.7	36	80.0		
Status of regular / prescribed medication use						
Use	19	42.2	11	24.4	3.200**	0.074
Not use	26	57.8	34	75.6		
Presence of chronic diseases						
With chronic diseases	16	35.6	7	15.6	0.926**	0.819
No chronic disease	29	64.4	38	84.4		

*t test,**One way ANAOVA,***Chi Square test (X^2)

Table 2: Pre-intervention general health behaviors for reproductive health protection sub-dimension of RHPAS and total score of HPPBS and sub-dimensions of women in the experimental and control group

	Experimental group's Median	Control group's Median	(Min-Max)	U*	p
General health behaviors for reproductive health protection sub-dimension of RHPAS	29	31	10-50	783.0	0.063
Total score of HPPBS	73	76	45-98	854.5	0.202
Physical	29	29	10-50	942.0	0.568
Psychosocial	17	18	6-30	887.5	0.331
Protection	29	31	8-40	783.0	0.063

*Mann Whitney U

Table 3: Post-intervention general health behaviors for reproductive health protection sub-dimension of RHPAS and total score of HPPBS and sub-dimensions of women in the experimental and control group

	Experimental group's Median	**Control group's Median**	**(Min-Max)**	**U***	**p**
General health behaviors for reproductive health protection sub-dimension of RHPAS	34	31	10-50	705.0	0.013
Total score of HPPBS	78	77	24-120	943.5	0.577
Physical	29	29	10-50	944.5	0.581
Psychosocial	18	18	6-30	902.0	0.370
Protection	30	30	8-40	1005.0	0.951

*Mann Whitney U

Table 4: Pre-intervention and post-intervention general health behaviors for reproductive health protection sub-dimension of RHPAS and total score of HPPBS and sub-dimensions of women in the experimental group

	Pre-test Median	**Post-test Median**	**(Min-Max)**	**Z***	**p**
General health behaviors for reproductive health protection sub-dimension of RHPAS	29	34	10-50	-5.674	0.000
Total score of HPPBS	73	78	24-120	-2.905	0.004
Physical	29	29	10-50	-0.893	0.372
Psychosocial	17	18	6-30	-1.425	0.154
Protection	29	30	8-40	-2.060	0.039

*Wilcoxon signed-rank test

It was found that there was no statistically significant difference between the Total score of HPPBS (U: 943.5, $p>0.05$), HPPBS scale Physical sub-dimension (U: 944.5, $p>0.05$), HPPBS scale Psychosocial sub-dimension (U: 902.0, $p>0.05$) and HPPBS scale Protection sub-dimension (U: 1005.0, $p>0.05$) scores of women (Table 3). After the HASCV-R program was intervention to the women in the experimental group, an increase was observed in the General health behaviors for reproductive health protection sub-dimension of RHPAS score (Z: -5.674, $p=0.000$). There was an increase in the total score of HPPBS (Z: -2.905, $p<0.05$) and Protection sub-dimension score of HPPBS scale (Z: -2.060, $p<0.05$). These increases were found to be statistically significant. There was no change in the HPPBS scale Physical sub-dimension score (Z: -0.893, $p>0.05$) of the women in the experimental group, and there was an increase in the HPPBS scale Psychosocial sub-dimension score (Z: --1.425, $p>0.05$), but this increase was not found to be statistically significant (Table 4).

Discussion

The present study was conducted to evaluate the impact of the HASCV-R training intervention on women's health promoting and protective behaviours. In our study, it was found that the pre-intervention General health behaviours for reproductive health protection sub-dimension of RHPAS scores and Total score of HPPBS total score of women in the experimental and control groups were at a moderate level. In the study conducted by Duruduran et al. (2022) with family art centre trainees, pre-test scores of reproductive health knowledge level were found to be low. In the study of Taner and Demirel Bozkurt (2021), women's reproductive health knowledge assessment scores were found to be low before the training program[24,25]. In another study investigating the effect of education on women's health behaviours in Iran, it was determined that healthy lifestyle questionnaire scores were low before the training[26]. Reasons for these results include a lack of appropriate

promotional programs to improve women's health, lack of awareness of the impact of health-promoting behaviours on disease prevention, or not taking them seriously. Evidence suggests that there is a need for education among women.

In the literature, there is no training program in which health-promoting and protective behaviours are given to women together and a topic related to the protection of reproductive health is included. The studies conducted are mostly aimed at improving women's health or evaluating the effectiveness of sexual and reproductive health education programs[1,24,27]. In our study, after the intervention of the HASCV-R program in the experimental group, a significant increase in general health behaviours was observed for the total score of the SHPDS and the sub-dimension of reproductive health protection ($p<0.001$), and this result highlights the effectiveness of the health education program in improving women's understanding of healthy behaviours. Similar to our study finding, there is convincing evidence supporting the effectiveness of such educational interventions in increasing health-related knowledge, promoting positive behaviours and supporting the adoption of healthy behaviours in women[1,14,24]. These significant improvements in knowledge scores observed in the experimental group indicate that positive health behaviours were understood by the women with the health education intervention. In addition, this result is particularly encouraging in terms of suggesting that the knowledge and positive attitudes gained will turn into concrete actions in women.

It is also reported in the literature that the decision to consciously and voluntarily change stable behavioural patterns to achieve, maintain and promote health and a healthy lifestyle depends on the ability to receive, understand, analyse and use health information and forms the basis for the success of educational programs, and health information also constitutes an effective communication between providers and recipients of health services[26,28]. Most individuals engage in multiple unhealthy behaviours (e.g. poor diet, low physical activity and tobacco use) that can have a negative impact on health. Multiple behaviour change interventions that target multiple risky behaviours simultaneously within the same intervention have the potential to make an impact on public health by creating synergistic health benefits and reducing the risk of death and disease. Successful behaviour change in one health behaviour and increases in motivation, confidence and self-efficacy may also facilitate the adoption of subsequent health behaviours[29]. A democratic and responsible use of information on women's health should be promoted at all levels of decision levels of decision making as insurance and support for actions promoted by the States to achieve their health goals[30]. In this context, it can be considered as an effective method for health policy makers and public health nurses to implement health education programs to protect and improve women's health.

Strength and limitation

A study evaluating the effectiveness of an educational program that combines health-promoting and protective behaviors along with reproductive health preservation topics for women has not been encountered in the literature. The study found that the developed educational program was effective in increasing the knowledge of women and contributed to the literature. The research was conducted with a limited sample residing in the central region of Türkiye. Therefore, the results cannot be generalized to all women in Turkey.
Because the effects were measured over a short 5-week period, the long-term effects could not be veri fied. This is the limitation of this study.

Conclusion

This study revealed that an educational intervention was effective in protecting and promoting women's health. The results indicated that that women significantly increased their knowledge and gained positive attitudes towards health protection after the educational intervention. Available evidence suggests that health education-based interventions should be planned to protect and promote women's health. Conclusion, it is recommended that educational programs for women's health promotion should be integrated into existing health systems and studies should be conducted with larger samples.

Conflict of Interest

The authors declare that they have no conflict of interest.

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None.

Authors contributions

MK and TS conceived the original idea of the assessment. TS collected the data. MK, TS, and DÖÖ analyzed the data. MK, TS, and DÖÖ interpreted the results. MK,TS, and DÖÖ wrote the original draft of the paper. MK,TS, and DÖÖ reviewed the paper. All authors reviewed and approved the final version.

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