Journal of Midwifery & Reproductive Health

JMRH.mums.ac.ir

The Effect of Group Counseling Based on Protection Motivation Theory on the Perceived Severity, Perceived Sensitivity and Perceived Reward of women's Breast Self-Examination Behaviour

Monireh Zahabi (BSc)[1], Mahin Tafazoli (MSc)[2*], Hadi Tehrani (PhD)[3,4], Tahereh Sadeghi (PhD)[5]

1 MSc of Counseling in Midwifery, Student Research Committee, Mashhad University of Medical Sciences, Iran
2 Assistant Professor, Nursing & Midwifery Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
3 Associate Professor, Social Determinants of Health Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
4 Department of Health Education and Health Promotion, School of Health, Mashhad University of Medical Sciences, Mashhad, Iran
5 Assistant Professor of Nursing, Nursing and Midwifery Care Research Center, Mashhad University of Medical Sciences

ARTICLE INFO

Article type:
Original article

Article History:
Received: 24-Oct-2022
Accepted: 06-Nov-2022

Key words:
Counseling
Protection Motivation Theory
Breast Self-examination
Breast Screening

ABSTRACT

Background & aim: The theory-based counseling can motivate clients to perform breast self-examination (BSE), which is an easy, safe and cost-effective method. This study evaluated the effect of group counseling based on the Protection Motivation Theory (PMT) on perceived severity, perceived sensitivity, and perceived reward of BSE behavior.

Methods: This clinical trial was conducted on 66 women aged 30-69 years referred to healthcare centers of Mashhad, Iran. The subjects were selected by convenience sampling and then assigned randomly in two intervention and control groups using time block. Data were collected using a demographic characteristics and a self-structured questionnaire on women's participation in BSE behavior based on the PMT. The intervention group received four weekly 60-minute group counseling sessions in groups of 8-10 people based on the PMT. The control group received the usual care. Perceived severity, perceived sensitivity, and perceived reward of BSE behavior was measured in two stages before and two months after the end of the intervention. Data were analyzed by SPSS V. 22) using independent and paired t-test, Man-Whitney, Chi-square, and Fisher exact tests.

Results: The total score of PMT was not significant in the two groups before the intervention. But after the intervention, mean score of the perceived sensitivity (25.62±3.78 vs. 20.86±2.29), perceived severity (21.06±3.58 vs. 16.06±3.41) and perceived reward (4.83±1.53 vs. 17.16±2.79) was significantly different in the intervention and control group ($p<0.001$).

Conclusion: Group counseling based on the PMT by overcoming fear and increasing motivation in women can increase BSE behavior in order to prevent breast cancer.

► *Please cite this paper as*:
Zahabi M, Tafazoli M, Tehrani H, Sadeghi T. The Effect of Group Counseling Based on Protection Motivation Theory on the Perceived Severity, Perceived Sensitivity and Perceived Reward of Women's Breast Self-Examination Behaviour. Journal of Midwifery and Reproductive Health. 2024; 12(2): 4187-4196. DOI: 10.22038/JMRH.2022.68607.2012

Introduction

Cancer is a chronic and non-communicable disease including a wide range of diseases. Breast cancer is the second cause of cancer-related death and accounts for 25% of all cancers in women (1). Several factors may cause breast cancer; these factors are generally divided into three categories: unchangeable, changeable and other factors. Unchangeable factors include: age, gender, family history, early menopause, late menopause and genetic predisposition. In addition to female sex, aging is considered the most important risk factor for breast cancer; so that its prevalence increases in

* *Corresponding author*; Mahin Tafazoli, Assistant Professor, Nursing & Midwifery Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran. Tel: 00989151019904; Email: tafazolim@mums.ac.ir

women after the age of 35 years and reaches a constant level after the age of 80 years (2).

World Health Organization (WHO) and American Cancer Society reported that early detection is the best way for controlling breast cancer. Since the disease goes through a long-hidden stage (about 8 to 10 years); therefore, the patient's life can be saved from premature death by identifying and diagnosing the mass in the early stages (3). Considering that in Iran, 50% of breast cancer patients refer in advanced stages of the disease, the need for early diagnosis of the disease is important, so it seems that prevention is the best way to control the disease. Primary prevention, by avoiding known risk factors and secondary prevention, with different screening methods for early tumor detection and timely treatment, can play an effective role in reducing socio-economic damage in the family and society. It is very important for women to consider screening methods to detect breast cancer in the early stages (4). Screening for cancer is a process in which a clinical test is applied to an asymptomatic but at-risk population to detect cancer before clinical symptoms appear. The American Cancer Society has recommended the use of breast self-examination screening method as the first and most important screening method for the early detection of breast cancer in asymptomatic patients (5).

Breast self-examination is the examination of breast by the person himself. This examination is applicable to any woman at any age. Breast self-examination is an easy, confidential, safe, cost-free method that does not require special equipment. If it is done correctly and regularly and carefully, it allows the person to discover the palpable masses in the early stages. The best time for breast examination is the 5th to 7th day of menstruation, and in postmenopausal women, it is better to do it on a specific day every month. Studies have shown that more than 65% of all breast masses are discovered by the patient (6). In a review study conducted by Babu et al., they reported the rate of breast self-examination in Iran from 3 to 17% (7). In a review study by Naqibi et al. (2015) women's awareness of screening methods and breast cancer was poor and their performance in using diagnostic methods was reported unfavorable (8).

One of the most important factors in disease control and prevention is health education to the society, the group at risk or the group which plays an important role in disease control. Studies have shown that theory-based interventions can motivate people to change their attitudes and behaviors in doing preventive and protective programs (9). The most success in health behavior promotion programs is achieved when, in addition to understanding the existing situation, attention is paid to the factors that somehow affect human behavior. One of the ways to increase doing behavior is to use the protection motivation theory developed by Rogers in 1975. In this theory, it is assumed that accepting health behavior (protective behavior) recommended against health risk is a direct action of the individual's motivation to protect himself (10).

Rogers proposed that fear increases protection motivation (or the intention to perform protective behavior against health risk) and protection motivation ultimately causes health behavior. In this theory, it is assumed that accepting protective behavior is directly influenced by the individual's motivation to protect himself, and environmental and personal factors together cause a potential health threat. The threat starts two cognitive processes including threat evaluation and coping evaluation. Protection motivation constructs in threat evaluation are: perceived sensitivity, perceived intensity, perceived reward and fear, which is an intermediate variable between sensitivity and perceived intensity. The constructs of this theory in coping evaluation also include: perceived self-efficacy, perceived response efficacy, perceived response costs, and motivation (11-13). So that Dezham et al. (2015) in their study showed that the structure of perceived severity and perceived sensitivity are the predictors of appropriate nutrition behavior in stomach cancer (13). Also, Steel et al. in their study, using the protection motivation model to identify effective determinants for cancer screening behavior, showed that the use of fear constructs, response efficacy, and self-efficacy indicate the results of predicting behavior in cancer (14).

To create the intention to protect against the threat in the individual, the perceived severity and perceived sensitivity must overcome the rewards of the incompatible response, and also the self-efficacy and efficacy of perceived response must overcome the costs of the compatible response. The intention (motivation to protect) is a mediating variable between the stages of threat assessment, coping assessment and protective behavior (15).

The studies conducted on this theory showed that the structures of this theory are very important in predicting cancer prevention behaviors (16). Also, the study of Conyne, which was conducted in 2005 using the protection motivation model in order to identify effective determinants for cancer screening behavior, showed the results of prediction of behavior using the constructs of fear, response efficacy, and self-efficacy (17).

On the other hand, according to the studies, if preventive behavior training is done based on groups with similar problems, it will be more effective. Therefore, group counseling is one of the educational methods that can be helpful in the field of self-care behaviors. Group counseling is a type of counseling in which one and sometimes two counselors together with approximately 8 to 10 participants find a solution to a problem. People in group counseling are involved in problems related to life-span developmental tasks and crisis pressures (15-16). Therefore, education and counseling about breast self-examination in a way that can increase the motivation and efficacy of clinical self-examination is considered as the front line of breast cancer screening methods as a cost-free and efficient method. For this purpose, the current study was designed to evaluate the effect of group counseling based on the protection motivation theory on the perceived severity, perceived sensitivity and perceived reward of women's breast self-examination behaviour.

Materials and Methods

This clinical trial study with a two-group pre-test, post-test design was conducted in 2022-2023 on 66 eligible women referred to Health Centres of Mashhad, irran (33 in the intervention group and 33 in the control group). Figure 1. This study was registered in the Iranian Registry of Clinical Trials with the code (IRCT20220103053610N1). It has been registered with ethics code: IR.MUMS.NURSE.REC.1399.106 in the ethics committee of Mashhad University of Medical Sciences. This center was selected due to its authorities' cooperation and the large number of referees.

The sample size was estimated using the mean comparison formula for the outcome of breast cancer preventive behavior and the mean comparison formula for breast self-examination with a confidence factor of 95% and a test power of 80. GPOWER software was used to estimate the sample size. A pilot study was used to investigate the variables affecting the sample size. With an impact factor of 0.33, the total sample size was calculated as 58, that taking into account 10% sample loss, the sample size increased to 66 people (33 in each group). Sampling was done as a multi-stage cluster random sampling from the health center No. 1, and the random allocation of participants was in the form of a time block, so that sampling was done on even days in two different centers.

The inclusion criteria were:, Iranian citizenship living in Mashhad, age of 30-69 years, being able to be trained (having no mental and psychological disorders), having no history of psychological diseases (or use of neuropsychiatric drugs, lack of hospitalization due to psychiatric problems), literacy of reading and writing, having no degree in medical and paramedical fields, no receipt of written education about breast cancer or breast diseases, no breast cancer in herself or in a first degree relative such as mother, sister, daughter, and having a phone number for coordination. The exclusion criteria were: unwillingness to continue cooperation during the study, and diagnosis of breast problems during the research.

The intervention and control groups received usual care during this period. The subjects in the intervention group participated in 4 group counseling sessions held weekly for 60 minutes by the researcher at the health center. The counseling sessions were held in groups with 8 to 10 women. The women in the same group in the first session were also in the same group in the next sessions. In the group counseling

sessions, after referring the health center, the researcher, while introducing herself to the patients and explaining the purpose of the research and its benefits, assured the patients about the confidentiality of data. Then, the subjects signed the informed consent form to participate in the study if they wish to cooperate.

A quiet and private environment was considered for counselling. In the group counselling sessions, the counsellor stated the purpose of forming the group and the duties of herself and the group members. The task of the counsellor is to guide, encourage participation in the group and facilitate. The process of group rules was proposed by the counsellor, and she created a therapeutic relationship, which was done with the help of listening skills, empathy, understanding emotions, sympathy, companionship, attention and other techniques. The content of the counselling sessions was described below:

The first session: establishing a good relationship between the counsellor and the group members and familiarity of the group members with each other, stating the purpose of conducting this study, the method of performing the plan, the number of sessions, the time of sessions, the duties of the participants, the benefits of participating in the plan, counselling based on the understanding sensitivity structure with questions in the form of questions and answers to express women's opinions and experiences about screening and its importance and the implementation of the pre-test

The second session: Counselling was based on the structure of perceived intensity. About breast anatomy and physiology, age-related changes in women's breast, expression of early symptoms of breast cancer, types of breast cancer, factors influencing its development, types of diagnostic methods and how to perform them

The third session: Perceived reward structure by expressing breast screening methods, the best times to perform diagnostic tests, and motivational video.

The fourth session: Conducting self-examination by each person and correcting mistakes during self-examination while maintaining privacy. The women were allowed to discuss their personal experiences and information about breast cancer with the counsellor and themselves.

Data were collected in two control and intervention groups using a demographic characteristics questionnaire and a questionnaire on women's participation in breast cancer preventive behaviors based on the protection motivation theory in two stages before the intervention and two months after the end of the intervention.

The questionnaire of women's participation in breast cancer preventive behaviors based on protection motivation theory measures the participation of women in breast cancer preventive behaviors based on protection motivation theory. This questionnaire contains 36 items in 8 structures. The questionnaire is scored in 5-point Likert scale, and the two constructs of reward and response cost are scored reversely.

In this study, content and face validity methods were used to ensure the validity of the questionnaire; so that, the questionnaire was given to 10 members of the Faculty of Nursing and Midwifery of Mashhad University of Medical Sciences and after making the necessary corrections, the final tool was used. The internal reliability of the questionnaire of women's participation in breast cancer preventive behaviors based on the protection motivation theory was calculated by the internal consistency method (Cronbach's alpha) and r=0.89 was obtained, which showed the internal reliability of the questionnaire. Reliability based on test-retest was ($p<0.001$, r=0.92), which showed the external reliability of the questionnaire.

The normal distribution of quantitative data was determined by the Kolmogorov Smirnov test. According to the normality or non-normality of the data, suitable parametric or non-parametric tests were used for the control and intervention groups. Descriptive statistics methods including relative and absolute frequency distribution, mean and standard deviation as well as tables and graphs were used in data analysis. In order to check the homogeneity in the control and intervention groups in terms of quantitative variables, independent t-test (if the variable is normal)

and Mann-Whitney test (if it is not normal or variables with an ordinal qualitative scale), and Chi-square test was used for nominal qualitative variables. Mann-Whitney, Wilcoxon, paired t and independent t tests were used to achieve the research objectives. In the conducted tests, the reliability coefficient was 95% and the significance level was α=0.05.

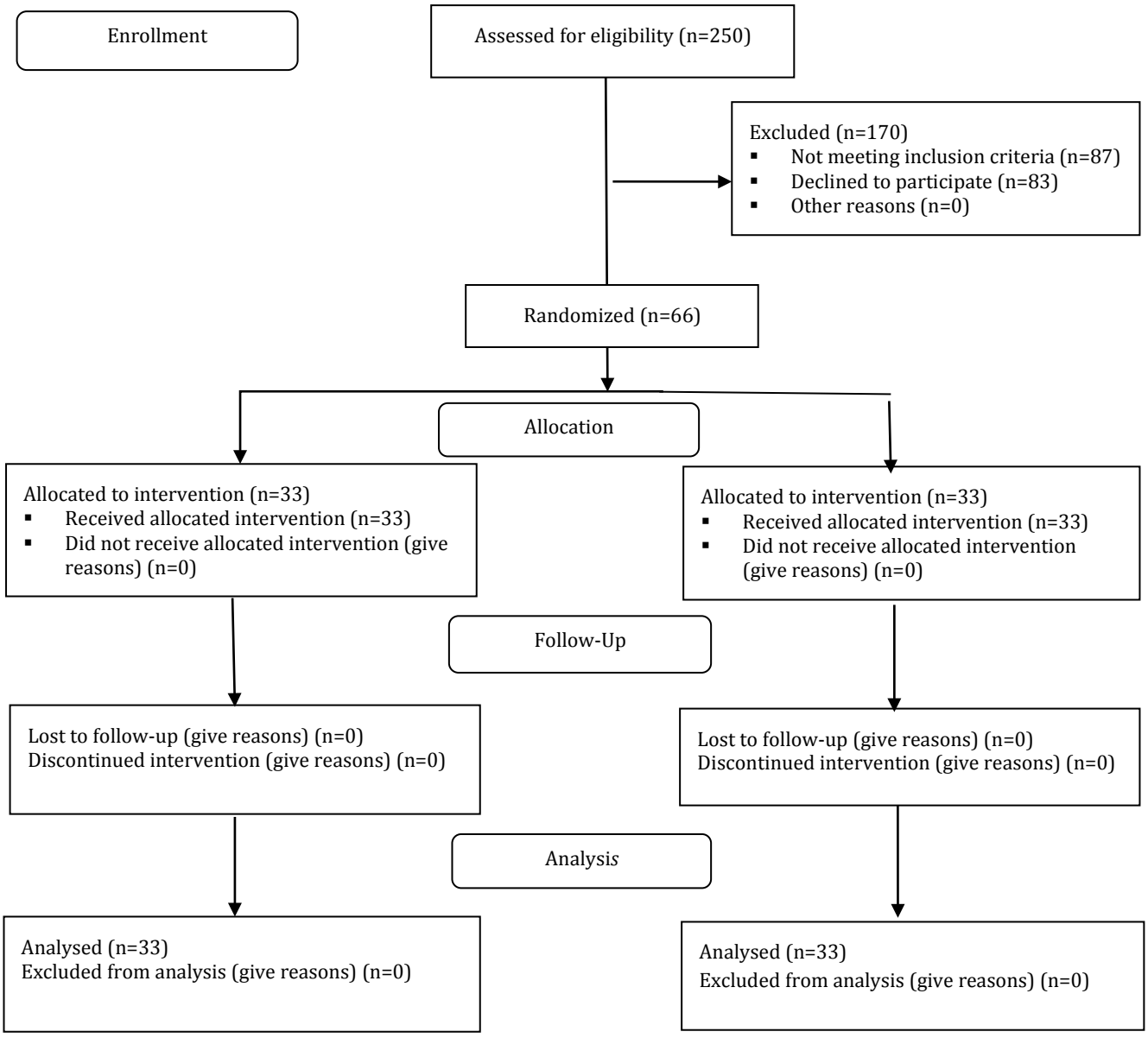

Figure 1. The CONSORT flow diagram of intervention in the two groups

Results

The research units included 66 women referring to the health centers, 33 were placed in each control and intervention group. In this study, there were 6 drops, of which 3 cases in the intervention group were removed due to palpation of the mass in the breast and one case of infectious folliculitis cyst and were referred to a gynecologist. Also, 2 cases in the control group did not refer again and were excluded. The two groups were evaluated in terms of homogeneity of the confounding variables using relevant tests, and the findings of this section were presented in Table 1.

Table 1. Demographic variables in two control and intervention groups in women referring to health centers

Variable	Intervention (N=30)	Control (N=30)	Test Results Mann-Whitney
	Mean±SD	Mean±SD	
Maternal age (year)	46.09±11.09	44.06±11.49	p=0.171 Z=-1.36
Age of menstruation onset (year)	11.93±2.65	12.06 ± 1.64	p= 0.78 Z=-0.26
Age of first pregnancy (year)	19.38±6.77	19.37±10.94	p=0.886 Z= 0.14
Age of menopause (year)	46.37±6.51	50.60±1.68	p=0.462 Z=-0.14
Number of pregnancy	3.55± 1.90	3.71±2.55	p=0.865 Z=-0.17
Number of delivery	3.1± 14.58	2.72± 1.64	p=0.291 Z=-1.05
Number of abortion	1.16± 0.71	2.07±0.99	p=0.270 Z=-2.32
Number of stillbirth	0.37 ±0.87	1.00 = 0.00	p=0.398 Z=0.84
Weight (kg)	73.96=15.98	67.76=10.63	p=0.462 Z=-1.48
Height (cm)	163.53=8.17	162.53=7/52	p=0.438 Z=-0.49
BMI (kg/m^2)	27.61=5.04	25.62=3.40	p=0.105 Z=-1.61
Contraceptive method	**Intervention**	**Control**	**Test result**
	N (%)	**N (%)**	**Exact Chi-square**
No method	20 (66.7)	20 (66.7)	P=1.0000 df= 4 Chi=0.55
Natural	8 (26.6)	8 (26.6)	
Hormonal	2 (6.7)	2 (6.7)	
Total	30 (100.0)	30 (100.0)	

According to the test results, weight, height, body mass index, and the mean score of the motivation theory questionnaire were normal, and the rest of the variables were abnormal.

Mean of perceived sensitivity score before the intervention was 19.51±2.85 in the intervention group and 21.65±2.58 in the control group. Mann-Whitney test showed no significant difference between the two groups in this regard (P=0.367).

Mean of perceived sensitivity score after the intervention was 25.62±3.78 in the intervention group and 20.86±2.29 in the control group. Mann-Whitney test showed significant difference between the two groups in this regard (P=0.001).

The perceived sensitivity score increased by 6.11±0.93 in the intervention group after the intervention compared to before the intervention. Wilcoxon test showed significant difference between the two groups in this regard (P=0.001) (Table 2).

Mean of perceived intensity score before the intervention was 14.60±4.16 in the intervention

group and 15.72±3.44 in the control group. Independent t-test showed no significant difference between the two groups in this regard (P=0.542).

Mean of perceived intensity score after the intervention was 21.06±3.58 in the intervention group and 16.06±3.41 in the control group. Independent t-test showed significant difference between the two groups in this regard (P=0.001).

Table 2. Mean perceived sensitivity score before and after the intervention in two groups

Variable	Intervention (N=30)	Control (N=30)	Mann-Whitney test result
	Mean±SD	Mean±SD	
Before intervention	19.51=2.85	21.65=2.58	0.367
After intervention	25.62=3.78	20.86=2.29	0.001
Difference before and after intervention	6.11=0.93	0.79=0.29-	0.001
Wilcoxon intragroup comparison	0.001	0.392	

The perceived intensity score after the intervention increased by 6.46±0.58 in the intervention group compared to before the intervention. Paired t-test showed significant difference between the two groups in this regard (P=0.001) (Table 3).

Mean of perceived reward score before the intervention was 11.30±3.35 in the intervention group and 10.76±2.38 in the control group. Mann-Whitney test showed no significant difference between the two groups in this regard (P=0.371).

Table 3. Mean score of perceived intensity before and after the intervention in two groups

Variable	Intervention (N=30)	Control (N=30)	Independent t-test result
	Mean±SD	Mean±SD	
Before intervention	14.60=4.16	15.72=3.44	0.542
After intervention	21.06=3.58	16.06=3.41	0.001
Difference before and after intervention	6.46=0.58	0.34=0.03	0.001
Paired t-test intragroup comparison	0.001	0.107	

Mean of perceived reward score after the intervention was 4.83±1.53 in the intervention group and 11.16±2.79 in the control group. Mann-Whitney test showed significant difference between the two groups in this regard (P=0.001).

The perceived reward score after the intervention was reduced by -6.47±1.82 in the intervention group compared to before the intervention. Wilcoxon test showed significant difference between the two groups in this regard (P=0.001) (Table 4).

Table 4. Mean score of the perceived reward before and after the intervention in two groups

Variable	Intervention (N=30)	Control (N=30)	Mann-Whitney test result
	Mean±SD	Mean±SD	
Before intervention	11.30=3.35	10.76=2.38	0.371
After intervention	4.83=1.53	11.16=2.79	0.001
Difference before and after intervention	-6.47=1.82	0.4=0.41	0.001
Wilcoxon intragroup comparison	0.001	0.070	

Mean of the total score of the motivation theory questionnaire after the intervention was 106.81±22.06 in the intervention group and 103.02±19.11 in the control group. Independent t-test showed significant difference between the two groups in this regard (P=0.001).

The total score of the motivation theory questionnaire increased by 4.56±2.96 in the intervention group after the intervention compared to before the intervention. Paired t-test showed significant difference between the two groups in this regard (P=0.001).

Table 5. Mean total score of the motivation theory questionnaire before and after the intervention in two groups

Variable	Intervention (N=30)	Control (N=30)	Independent t-Test Result
	Mean±SD	Mean±SD	
Before intervention	102.25=19.06	103.23=18.08	0.774
After intervention	106.81=22.06	103.02=19.11	0.001
Difference before and after intervention	4.56=2.96	0.21=1.03	0.001
Paired t-test intragroup comparison	0.001	0.070	

Discussion

The results of the present study showed that despite the effectiveness of people's intention to perform behavior, there are other factors which affect converting intention into behavior and should be considered to increase these behaviors. Therefore, by increasing people's sensitivity towards the vulnerability and being at risk for breast cancer, increasing people's knowledge about the severity of the disease's complications and the severity and seriousness of the disease's risks and expressing the importance of performing screening behaviors by reducing the costs and internal and external rewards of people, it is likely that the intention will lead to performing screening behaviors in women.

The findings of the present study showed that group counseling based on the protection motivation theory led to increase in self-care behaviors and breast self-examination in women.

The results showed that group counseling has increased the level of perceived sensitivity in the intervention group, while no significant difference was found in the control group. Didarloo et al. (2016) in their study which evaluated the effect of a theory-based training program on the preventive behaviors of male teachers against prostate cancer showed that training increases the level of perceived sensitivity in patients (18). Consedine et al. (2005) reported that people's perception of being at risk is one of the main factors of cancer prevention behavior. They showed that the more a person feels at risk, the more likely he is to perform screening behavior (19). Studies have shown that the reason for reluctance to perform prevention and screening programs can be related to the low understanding of sensitivity in patients, so this issue can be overcome to some extent by providing education about vulnerability and sensitivity (19).

The findings of the present study based on the significant increase in the perceived severity of the symptoms and consequences of breast cancer in the intervention group indicated the awareness of the risks of breast cancer, while after the intervention, no statistically significant difference was found in this regard in the control group. The study of Mabotja et al. (2021) showed that women who have a greater perceived severity of cancer and believe that the progress of the disease is dangerous for them and can disrupt their lives and even lead to their death, so they are more willing to perform Pap smear screening test (20). However, Tahmasebi et al. (2016) in their study entitled "Investigation of the effect of education based on the health belief model on women's performance regarding the pap smear test" showed that education reduces the level of perceived severity in women, which is contradictory to the present study; the reason for this contradiction can be the short duration of the intervention in the study of Tahmasebi et al., so that the educational intervention was provided in two sessions, but in the present study, four group counseling sessions were conducted (21).

The results of the present study showed that group counseling reduced the perceived reward in the intervention group, while no significant difference was found in the control group. This can be due to the effect of educational programs as well as stating the advantages of performing breast screening and self-examination behaviors and the disadvantages of not performing such behaviors. In this regard, the results of the study

by Malmir et al. (2018) aimed to determine the effect of the educational intervention based on the protective motivation theory on the prevention of cervical cancer in the women of western margins of Iran showed that the perceived reward can lead to the promotion of self-care behaviors and screening in women with cancer. This can be due to the effect of educational programs and knowledge about the advantages of performing screening and self-examination behaviors and the disadvantages of not performing such behaviors (22).

One of the important factors affecting the protection motivation in the present study is the use of the opinions of people with breast-related diseases, and another factor that seems to have an effect on the behavioral intention is the use of educational videos and pictures which show complications and problems, as well as diagnostic methods and preventing breast-related problems. In this regard, the results of the study by Saadat Nia et al. (2016) titled "the effect of group counseling based on the health belief model on the nutritional behavior of overweight pregnant women: a randomized controlled trial" showed that motivation is one of the most essential factors in choosing correct preventive behavior (23).

The current study had some limitations including the level of accuracy of the research units, individual and personality differences, mental status and cultural contexts of the research units that have always existed in all societies and have been effective in answering the questions. The researcher tried to control this limitation relatively by creating the suitable conditions and environment. Also, regarding the information such as history of breast diseases and history of breast cancer or history of mental disorders in the patient or in the family, the researcher considered the accuracy of the research unit's statements.

Conclusion

The results of this research can be used to improve the awareness and knowledge of women regarding screening and self-examination measures to control breast cancer. It can also increase the awareness and skills of midwives, gynecologists and women as well as increasing the screening rate. The results of this study showed that by promoting preventive behaviors, women will feel better about them and will be able to take better care of their health. Also, due to the importance and necessity of paying attention to mental health in the national guidelines for the care of women, it is appropriate for health officials and managers to observe the results of such studies with a new perspective to group counseling based on the protection motivation theory, and adopt the effective policies in the implementation of education and the necessary measures in applying this method to increase health-related behaviors and screening including breast self-examination behaviour.

Acknowledgements

The current article is the result of the master's thesis of the first author () in Midwifery Counseling approved by Mashhad University of Medical Sciences, Mashhad, Iran with grant number of 991314. The authors would like to thank the Deputy of Research of Mashhad University of Medical Sciences for finantial support of the thesis. We would also like to express our gratitude to all those involved in this study, including all the participating women, the officials of the Mashhad School of Nursing and Midwifery, all the personnel of the health centers of Mashhad and all who helped us to perform this research.

Conflicts of interest

The authors declared no conflicts of interest.

References

1. Siegel R, Ward E, Brawley O, Jemal A. The impact of eliminating socioeconomic and racial disparities on premature cancer deaths. Cancer Journal for Clinicians. 2011; 61(4): 212-236.
2. Li N, Deng Y, Zhou L, Tian T, Yang S, Wu Y, et al. Global burden of breast cancer and attributable risk factors in 195 countries and territories, from 1990 to 2017: results from the Global Burden of Disease Study 2017. Journal Hematology Oncology. 2019; 12(1): 140.
3. Nindrea RD, Aryandono T, Lazuardi L. Breast Cancer Risk From Modifiable and Non-Modifiable Risk Factors among Women in Southeast Asia: A Meta-Analysis. Asian Pacific Journal Cancer Prevention. 2017; 18(12): 3201-3206.

4. Tahergorabi Z, Moodi M, Mesbahzadeh B. Breast Cancer: A preventable disease. Journal of Birjand University of Medical Sciences. 2014; 21(2): 126-141.
5. Woeckel A, Albert US, Janni W, Scharl A, Kreienberg R, Stueber T. The screening, diagnosis, treatment, and follow-up of breast cancer. Deutsches Ärzteblatt International. 2018; 115(18): 316.
6. Rezabeigi Davarani E, Khanjani N, Falahi M, Daneshi S, Iranpour A. Breast Self-Examination and Its Effective Factors Based on the Theory of Planned Behavior among Women in Kerman, Iran. Journal of Education and Community Health. 2016; 3(3): 1-8.
7. Babu GR, Samari G, Cohen SP, Mahapatra T, Wahbe RM, Mermash S, Galal OM. Breast cancer screening among females in Iran and recommendations for improved practice: a review. Asian Pacific Journal of Cancer Prevention. 2011; 12(7): 1647-1655.
8. Seyed Abdolhasan Naghibi, Davood Shojaizadeh, Jamshid Yazdani Cherati, Ali Montazeri. Breast cancer preventive behaviors among Iranian women: a systematic review. Health Monitor Journal of the Iranian Institute for Health Sciences Research. 2015; 14(2): 181-191.
9. Smith RA, Cokkinides V, von Eschenbach AC, Levin B, Cohen C, Runowicz CD, Sener S, Saslow D, Eyre HJ. American Cancer Society guidelines for the early detection of cancer. A Cancer Journal for Clinicians. 2002; 52(1): 8-22.
10. Khazaee-Pool M, Naghibi M, Pashaei T, Chaleshgar Kordasiabi M. Use of Protection Motivation Theory to Assess Preventive Behaviors of COVID-19. Journal of Mazandaran University of Medical Sciences. 2021; 31(195): 19-29.
11. Kaviani Ah, roozbahani n, Khorsandi M. The assessment of the protection motivation theory construct of skin cancer preventive behaviors in rural women. Avicenna Journal of Nursing and Midwifery Care. 2016; 24(4): 229-237.
12. Morrowatisharifabad Ma, Hadi Varnamkhavasti L, Zare Sakhvidi Mj, Fallahzadeh H, Karimiankakolaki Z. Study of Determinants of Lung Cancer Protective Behaviors in Esfahan Steel Company Workers based on Protection Motivation Theory. Toloo-E-Behdasht. 2017; 16(3): 67-80.
13. Dezham S, Roozbahani N, Khorsandi M. Application of Theory of Planned Behavior in Predicting Screening Mammography in Housewives over 40 Years. Daneshvar Medicine. 2015; 22(114): 33-40.
14. Steele SK, Porche DJ. Testing the theory of planned behavior to predict mammography intention. Nursing Research. 2005; 54(5): 332-338.
15. Badrkhani M. The effectiveness of group counseling in increasing the degree of students' adjustment based on Glasser's choice theory. Journal of Educational and Management Studies. 2015; 5(1): 34-40.
16. Seyyed Moharrami I, Ghanbary Hashem Abady BA, Asghari Ebrahim Abad MJ. Effectiveness of group counseling with structured approach on Family Function and Marital Satisfaction. Research in Clinical Psychology and Counseling. 2017; 6(2): 63-78.
17. Berg RC, Landreth GL, Fall KA. Group counseling: Concepts and procedures. Routledge; 2017.
18. Didarloo A, Shekhi S, Sorkhabi Z, Sharafkhani N. Effect of Theory-Centered Educational Program on Prostate Cancer Preventive Behaviors among Male Teachers: A Quasi-Experimental Study. Iranian Journal of Health Education and Health Promotion. 2016; 4(3): 205-216.
19. Consedine NS, Magai C, Horton D, Neugut AI, Gillespie M. Health belief model factors in mammography screening: testing for interactions among subpopulations of Caribbean women. Ethnicity & Disease. 2005; 15(3): 444-452.
20. Chisale Mabotja M, Levin J, Kawonga M. Beliefs and perceptions regarding cervical cancer and screening associated with Pap smear uptake in Johannesburg: A cross-sectional study. Plos One. 2021; 16(2): e0246574.
21. Tahmasebi R, Hosseini F, Noroozi A. The effect of education based on the health belief model on women's practice about Pap smear test. Journal of Hayat. 2016; 21(4): 80-92.
22. Malmir S, Barati M, Khani Jeihooni A, Bashirian S, Hazavehei SMM. Effect of an Educational Intervention Based on Protection Motivation Theory on Preventing Cervical Cancer among Marginalized Women in West Iran. Asian Pacific Journal Cancer Prev. 2018; 19(3): 755-761.
23. Saadat Nia, Soltani, Farzaneh, Saber, Amir, Kazemi. The effect of group counseling based on the health belief model on the nutritional behavior of overweight pregnant women: a randomized controlled trial. Ibn Sina Journal of Nursing and Midwifery Care. 2021; 29(2): 102-112.