

The Effect of a Program Based on the Common-Sense Model on Illness Perception and Health-Promoting Behaviors in Women with Breast Cancer: A Randomized Clinical Trial Study

Abstract

Background: Breast cancer survivors face substantial challenges, including the risk of disease recurrence and the development of secondary chronic conditions. These issues create significant burdens for both patients and healthcare systems. Many survivors struggle to maintain health-promoting behaviors, which highlights the need for tailored educational interventions. This study examines the effectiveness of an intervention program, based on the Common-Sense Model, in improving illness perception and promoting healthy behaviors among breast cancer survivors. **Materials and Methods:** A randomized controlled trial was conducted between November 2023 and February 2024, enrolling 72 women with breast cancer from selected treatment centers in Isfahan, Iran. Participants were recruited using convenience sampling and randomly allocated to either the intervention group ($n = 36$) or the control group ($n = 36$). The educational intervention was delivered by a multidisciplinary team over four consecutive weeks and included virtual support sessions. Both groups completed validated questionnaires measuring illness perception and health-promoting behaviors at baseline and post-intervention. Data analysis employed descriptive and inferential statistical methods. **Results:** Prior to the intervention, no significant differences were observed between the groups ($p > 0.05$). However, the intervention group demonstrated significant improvements in the mean scores for overall illness perception and health-promoting behaviors following the intervention ($p < 0.001$). **Conclusions:** The results indicate that educational interventions based on the Common-Sense Model can effectively enhance illness perception and health-promoting behaviors among breast cancer patients. It is recommended that nurses incorporate this model into their clinical practice to improve patients' illness perceptions and promote healthy behaviors alongside standard care protocols.

Keywords: Breast neoplasms, disease management, health behavior, Iran, nursing care, patient education, women's health

Introduction

Breast cancer is the most prevalent cancer among women globally and the fourth leading cause of cancer-related mortality.^[1] In Iran, it ranks first, with an incidence rate of 44 cases per 100,000 women reported in 2016 and a projected 63% increase in new cases by 2025.^[2] The prognosis for breast cancer has improved significantly, with five-year survival rates around 90% in Western countries and approximately 75% in Iran, where ten-year survival rates are about 80% and 60%, respectively.^[3] However, survivors continue to face challenges such as disease recurrence and secondary chronic conditions.^[4] Unhealthy lifestyles are among the most significant modifiable risk factors

for breast cancer, leading to increased risks of metastasis, mortality, and recurrence.^[5] Conversely, a health-promoting lifestyle—including spiritual growth, health responsibility, interpersonal relationships, stress management, physical activity, and nutrition has been associated with better survival outcomes and Quality of Life (QoL).^[6-9]

Despite these benefits, many breast cancer survivors do not adhere to healthy lifestyle recommendations, emphasizing the need for effective health promotion interventions.^[10-12] Nurses play the crucial role in this area, as they typically spend more time with cancer patients than other healthcare providers.^[13] Illness perception significantly influences

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health behaviors and coping strategies. Research shows that breast cancer patients often have insufficient knowledge and misconceptions about their condition, which can change over time.^[14,15] The Common-Sense Model (CSM) suggests that an individual's understanding of their illness directly impacts their coping strategies.^[16] This model posits that coping responses are guided by cognitive and emotional representations of the illness, formed through various interactions, including personal experiences and medical consultations. Illness representation includes aspects such as identity, cause, timeline, consequences, and controllability/treatment. Modifying illness perception through education or psychological interventions can foster adaptive behaviors such as treatment adherence and lifestyle changes, making this model crucial for designing health interventions.^[17,18]

Evidence indicates that altering illness perception can lead to varying effects on health-promoting behaviors. Consistent with previous findings, studies have highlighted the effectiveness of educational programs grounded in illness perception as a promising strategy for enhancing lifestyle and promoting health-oriented behaviors among patients with chronic conditions. However, contrary findings have also been reported.^[19-21] For instance, some studies demonstrated that illness perception-based interventions did not exert significant effects across all dimensions of illness perception, their impact was not maintained over time, and in some cases, modifying illness perception failed to improve dependent outcomes such as overall health status and death anxiety.^[22-24]

Considering conflicting evidence and limited number of studies in breast cancer populations, the present research aims to investigate the effects of a CSM-based program on illness perception and health-promoting behaviors among women with breast cancer.

Materials and Methods

This randomized clinical trial, registered in the Iranian Clinical Trials Center (IRCT20230904059360N1), was conducted without blinding from November 2023 to February 2024. The study involved 72 women diagnosed with breast cancer, with 36 participants in the control group and 36 in the intervention group, recruited from Omid Hospital, the Al-Zahra (S) Specialized Charity Clinic, and various oncology specialist clinics in Isfahan, Iran. Participants were recruited through convenience sampling and randomly assigned to groups using the Random Sequence Generator website.

To calculate the sample size, a 95% confidence level and 80% power were considered. The standard deviations for health-promoting behaviors were $S_1 = 0.32$ for the intervention group and $S_2 = 0.37$ for the control group. Substituting these values yielded a sample size of 30 participants per group,^[25] which, after adjusting for a 20% dropout rate, resulted in 36 participants per group, totaling 72 participants. The CONSORT diagram of the study is presented in Figure 1.

Inclusion criteria included a confirmed breast cancer diagnosis based on pathology, patient awareness of their condition, a minimum age of 18 years,^[26] verbal communication ability, and literacy in Persian. Participants were required to be at least 2 months and no more than 1 year post-active treatment,^[26] diagnosed with cancer stages I to IIIA,^[27,28] and have no history of psychiatric disorders requiring hospitalization or medication. In addition, participants must have no family history of breast cancer among their first-degree relatives, including their mother, sister, father, or brother.^[29]

At the study's start, both groups completed a demographic form, the Brief Illness Perception Questionnaire (Brief IPQ), and the health-Promoting Lifestyle Profile II (HPLP II). The demographic form included age, marital status, education level, employment status, family income, treatment type and duration, and comorbidities. The Brief IPQ consists of nine questions, with items 1 to 8 rated on a scale of 1 to 10, and item nine being an open-ended question regarding perceived causes of the illness. Scores range from 0 to 80. The tool's Cronbach indicated a reliability's alpha of 0.80 and a stability coefficient of 0.75, with content validity indices between 0.83 and 0.91. In Iran, the Cronbach's alpha for this questionnaire is reported as 0.68.^[15,30] The HPLP II questionnaire, which has a Cronbach's alpha of 0.83 in Iran, includes 52 items rated on a five-point Likert scale (0 = never to 4 = always), with scores ranging from 0 to 208. Subscale reliability coefficients for cancer patients range from 0.73 to 0.98.^[30,31]

The intervention included four 60-min in-person sessions based on the CSM, addressing six illness perception concepts over four consecutive weeks [Table 1]. From the second session, topics such as nutrition, physical activity, and stress management were discussed. Weekly discussion sessions were held via Eitaa, an internal messenger used in Iran, from weeks five to seven. In the eighth week, both groups completed the illness perception and health-promoting behavior questionnaires again. Exclusion criteria included unwillingness to participate, death, disease progression, severe illness, and missing more than one-quarter of sessions [Figure 1]. Participants in the control group received no educational recommendations but were later provided with an educational booklet. Data were analyzed using SPSS version 16 (SPSS Inc., Chicago, IL, USA), employing descriptive and inferential statistics.

Ethical considerations

The study received ethical approval from the Isfahan University of Medical Sciences (IR.MUI.NUREMA.REC.1402.102). Written informed consent was obtained from participants, in accordance with the Helsinki Declaration. After data collection, educational materials from the intervention group were provided to control group participants through the Eitaa platform to ensure ethical compliance.

Results

In terms of demographic information, most participants in both the control and intervention groups were married, with the mean age being 42.14 in the control group and 44.14 in the intervention group. The demographic details of the participants in this study are presented in Table 2. The Chi-square test revealed no significant differences in the distribution of demographic variables between the control and intervention groups before the intervention ($p > 0.05$), indicating that the distribution of variables was homogeneous between the two groups.

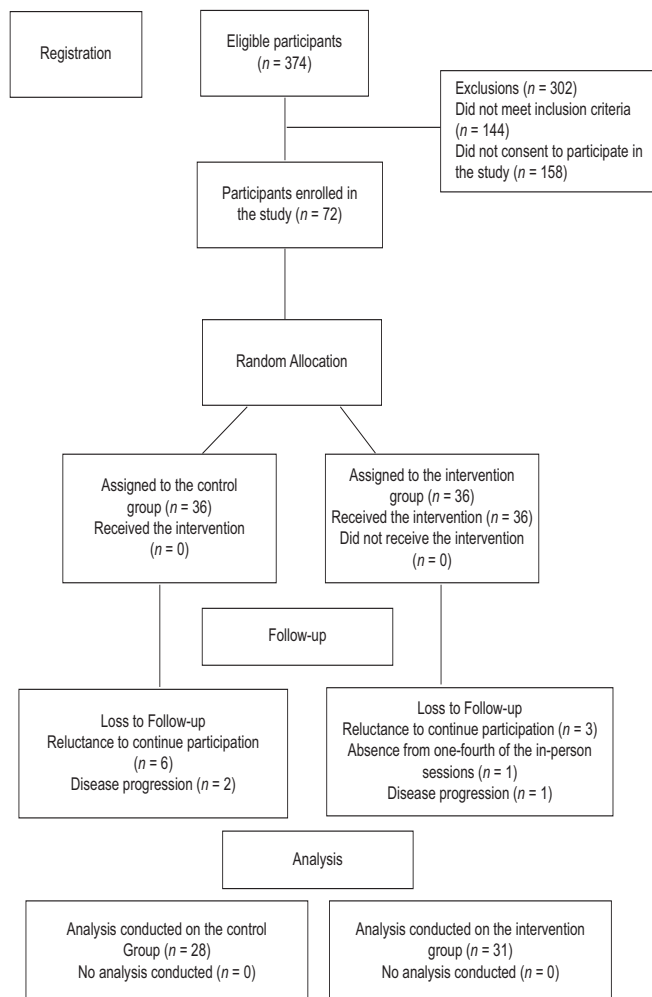


Figure 1: CONSORT diagram of the study

The paired t -test showed a significant difference in the mean (SD) scores of illness perception 7.68 (14.48), and health-promoting behaviors 24.45 (17.64), before and after the intervention in the intervention group. However, the paired t -test revealed no significant changes in the mean scores of illness perception and health-promoting behaviors before and after the intervention in the control group. Based on the statistical tests, there was a significant difference in the mean scores of illness perception and health-promoting behaviors between the two groups before and after the intervention [Table 3].

Discussion

This study aimed to investigate the impact of a program based on the CSM on illness perception and health-promoting behaviors in women with breast cancer attending selected centers in Isfahan. These findings align with another study,^[19] which reported the effectiveness of educational interventions in enhancing disease perception and self-management behaviors. Furthermore, Kordvarkane *et al.*^[20] highlighted improvements in self-management of hypertension among patients receiving CSM-based education, with significant reductions in diastolic blood pressure, systolic blood pressure, and mean arterial pressure scores post-intervention. Similarly, the study by Fann *et al.*^[21] demonstrated that the nurse-delivered intervention had a positive effect on illness perception and QoL in trauma patients at 3- and 6-month follow-ups.

Conversely, the results of the study by Ginnerup-Nielsen *et al.*^[22] indicated that the effect of the illness perception-based intervention, relative to a Research Participation Conversation (RPC), showed no significant difference in the intensity of placebo-induced pain in patients with knee osteoarthritis. The study by Sadeh Tabarian *et al.*^[23] also demonstrated that, although the illness perception-based intervention did not affect all dimensions of illness perception, it was effective in improving blood glucose control in patients with diabetes. Furthermore, the study by Soleimani *et al.*^[24] showed that the effect of the illness perception-based intervention on reducing death anxiety in hemodialysis patients was not statistically significant.

Discrepancies in findings may arise from variations in study designs, participant characteristics, intervention types, and measured variables. Although our study focused on illness

Table 1: Summary of the educational sessions based on the common-sense model

Session number	Topics	Presentation method	Presenter
1	Introduction, goal setting, and discussion about illness perception	Video and educational pamphlet	Nurse
2	Summary of previous content and discussion about personal control, treatment, and exercise recommendations	Video presentation, Discussion	Nurse
3	Summary of previous content and discussion about illness's impact on mental, spiritual, and social health, featuring a psychologist's lecture on stress management and personal growth	Discussion, Lecture	Nurse, Psychologist
4	Summary of previous content and discussion about healthy nutrition and lifestyle choices	Lecture, Discussion	Nurse, Nutritionist

perception and health-promoting behaviors, comparisons with research targeting QoL or treatment adherence reveal common patterns, suggesting the CSM's broad applicability in influencing various health outcomes. These results underscore the importance of educational interventions and call for further research with diverse methodologies to examine specific characteristics of target populations. The study's limitations include a small sample size, a brief intervention duration, reliance on self-reported data, and an emphasis on immediate intervention effects. These factors should be considered in future research.

Conclusion

The study demonstrates that a CSM-based educational program effectively enhances illness perception and

health-promoting behaviors in women with breast cancer. Nurses can utilize this program to help patients comprehend their disease and adopt health-oriented behaviors. Due to the enduring nurse-patient relationship and the program's simplicity and low cost, it can be integrated into routine care. This approach allows nurses to deliver targeted education and monitor patient behaviors, ultimately improving disease management and QoL for patients.

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Table 2: Demographic characteristics of participants

Variable	Control group n (%)	Intervention group n (%)	p
Marital status			1.00
Single	4 (11.10%)	5 (13.90%)	
Married	29 (80.60%)	28 (77.80%)	
Other	3 (8.30%)	3 (8.30%)	
Education level			0.06
Below High School	8 (22.20%)	17 (47.20%)	
High School Diploma	13 (36.10%)	11 (30.60%)	
Higher Education	15 (41.70%)	8 (22.20%)	
Employment status			0.77
Unemployed	28 (77.80%)	29 (80.60%)	
Employed	8 (22.20%)	7 (19.40%)	
Income level (in Rial)			0.31
Below 5,000,000	7 (19.40%)	12 (33.30%)	
Between 5,000,000 and 10,000,000	19 (52.80%)	17 (47.20%)	
Above 10,000,000	10 (27.80%)	7 (19.40%)	
Type of treatment			0.61
Chemotherapy	1 (2.80%)	0 (0.0%)	
Radiation therapy	1 (2.80%)	0 (0.0%)	
Surgery	2 (5.60%)	1 (2.80%)	
Hormone therapy	0 (0.0%)	2 (5.60%)	
Combined therapy	32 (88.90%)	33 (91.70%)	
Treatment duration			0.64
Less than 6 months	3 (8.30%)	3 (8.30%)	
6 to 12 months	22 (61.10%)	18 (50.0%)	
More than 12 months	11 (30.60%)	15 (41.70%)	
History of other illnesses			0.23
Has history	12 (33.30%)	17 (47.20%)	
No history	24 (66.70%)	19 (52.80%)	
Age M (SD)	42.14 (5.90)	44.14 (7.13)	0.20

Table 3: The statistical test results for between-group comparisons of mean scores on illness perception and health-promoting behaviors, before and after the intervention

Variable	Control group				Intervention group			
	Before intervention	After intervention	Changes	p	Before intervention	After intervention	Changes	p
IPQ*	51.47 (12.48)	50.86 (9.85)	-0.61 (14.23)	0.798	51.54 (13.27)	59.22 (6.01)	7.68 (14.48)	0.006
HPLP**	131.02 (18.16)	125.63 (9.02)	-5.38 (21.09)	0.13	127.58 (25.96)	145.22 (19.47)	17.64 (24.45)	0.000

*Illness Perception Questionnaire. **Health-Promoting Lifestyle Profile

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Conflicts of interest

Nothing to declare.

References

- Bray F, Laversanne M, Sung H, Ferlay J, Siegel RL, Soerjomataram I, *et al.* Global cancer statistics 2022: Globocan estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2024;74:229-63.
- Aryannejad A, Saeedi Moghaddam S, Mashinchi B, Tabary M, Rezaei N, Shahin S, *et al.* National and subnational burden of female and male breast cancer and risk factors in Iran from 1990 to 2019: Results from the Global Burden of Disease study 2019. *Breast Cancer Res* 2023;25:47.
- Meshkat M, Baghestani AR, Zayeri F, Khayamzadeh M, Akbari ME. Survival rate and prognostic factors among Iranian breast cancer patients. *Iran J Public Health* 2020;49:341-50.
- Kang D, Kang M, Hong YS, Park J, Lee J, Seo HJ, *et al.* Temporal patterns of chronic disease incidence after breast cancer: A nationwide population-based cohort study. *Sci Rep* 2022;12:5489.
- Ghosn B, Benisi-Kohansal A, Ebrahimpour-Koujan S, Azadbakht L, Esmailzadeh A. Association between healthy lifestyle score and breast cancer. *Nutr J* 2020;19:4.
- Antoni MH, Moreno PI, Penedo FJ. Stress Management interventions to facilitate psychological and physiological adaptation and optimal health outcomes in cancer patients and survivors. *Annu Rev Psychol* 2023;74:423-55.
- Adam A, Koranteng F. Availability, accessibility, and impact of social support on breast cancer treatment among breast cancer patients in Kumasi, Ghana: A qualitative study. *PLoS One* 2020;15:e0231691.
- Wang X, Wang N, Zhong L, Wang S, Zheng Y, Yang B, *et al.* Prognostic value of depression and anxiety on breast cancer recurrence and mortality: A systematic review and meta-analysis of 282,203 patients. *Mol Psychiatry* 2020;25:3186-97.
- Wang F, Cai H, Gu K, Shi L, Yu D, Zhang M, *et al.* Adherence to dietary recommendations among long-term breast cancer survivors and cancer outcome associations. *Cancer Epidemiol Biomarkers Prev* 2020;29:386-95.
- Welch WA, Solk P, Auster-Gussman L, Gavin KL, Whitaker M, Cullather E, *et al.* User-centered development of a smartphone application (Fit2Thrive) to promote physical activity in breast cancer survivors. *Transl Behav Med* 2022;12:203-13.
- Abdous N, Nazarali P, Ramezankhani A, Fallah F. The assessment of knowledge, attitude, nutritional practice and physical activity and its relation with quality of life in patients with breast cancer. *Basic Clin Cancer Res* 2021;13:72-83.
- Chang YC, Yeh TL, Chang YM, Hu WY. Short-term effects of randomized mindfulness-based intervention in female breast cancer survivors: A systematic review and meta-analysis. *Cancer Nurs* 2021;44:E703-14.
- Peixoto NMDSM, Peixoto TADSM, Pinto CAS, Santos CSVB. Nursing intervention focusing on health promotion behaviors in adult cancer patients: A scoping review. *Rev Esc Enferm USP* 2021;55:e03673.
- Kugbey N, Oppong Asante K, Meyer-Weitz A. Illness perception and coping among women living with breast cancer in Ghana: An exploratory qualitative study. *BMJ Open* 2020;10:e033019.
- Mirzaei F, Nourizadeh R, Farshbaf-Khalili A. Understandings of illness and its predictors in Iranian women with breast cancer referring to oncology centers of ARAK, 2017-2018. *Nurs Midwifery J* 2020;18:662-71.
- Breland JY, Wong JJ, McAndrew LM. Are Common Sense Model constructs and self-efficacy simultaneously correlated with self-management behaviors and health outcomes: A systematic review. *Health Psychol Open* 2020;7:2055102919898846.
- Hagger MS, Orbell S. The common sense model of illness self-regulation: A conceptual review and proposed extended model. *Health Psychol Rev* 2022;16:347-77.
- Shen Z, Xu J, Yin W, Liu Q, Fan M, Luo C. Common Sense Model program on illness perceptions in patients with impaired awareness of hypoglycemia. *Contemp Nurse* 2022;58:171-91.
- Yasmin F, Ain Q, Liaqat A, Danish AH, Saddique H. Role of home based educational intervention on illness perception and health services utilization among chronic obstructive pulmonary disease patients. *J Health Rehabil Res* 2024;4:502-8.
- Kordvarkane Z, Oshvandi K, Mohammadi Y, Azizi A. Effect of education based on the Common-Sense Model of Self-Regulation on blood pressure and self-management of hypertensive patients: A clinical trial study. *Int J Nurs Sci* 2023;10:294-301.
- Fann WC, Hung CC, Chaboyer W, Lee BO. Effectiveness of a nurse-delivered intervention on illness perceptions and quality of life in patients with injury. *J Nurs Res* 2021;29:e163.
- Ginnerup-Nielsen E, Jørgensen TS, Dew-Hattens C, Christensen R, Berg JJ, Vase L, *et al.* The impact of an illness perception conversation on open-label placebo response in knee osteoarthritis: A randomised controlled trial. *Osteoarthritis Cartilage* 2024;32:1610-9.
- Sadeh Tabarian M, Ghyasvandian S, Haghani S. Effect of education based on illness perception on glycemic control in diabetic patients. *Iran J Endocrinol Metab* 2020;21:364-71.
- Soleimani MA, Tabiban S, Bakhshande H, Asghary M. Effect of illness perception intervention on death anxiety in hemodialysis patients: A randomized clinical trial. *J Mazandaran Univ Med Sci* 2018;28:12-24.
- Hamed Bieyabanie M, Mohammad-Alizadeh Charandabi S, Mirghafourvand M. Effect of counseling on the health-promoting lifestyle and quality of life among mastectomised women. *Health Educ Health Promot* 2021;9:317-24.
- Stan DL, Cutshall SM, Adams TF, Ghosh K, Clark MM, Wieneke KC, *et al.* Wellness coaching intervention for increasing healthy behaviors in breast cancer survivors. *Clin J Oncol Nurs* 2020;24:305.
- Veličković K, Borrebaeck CAK, Bendahl PO, Hegardt C, Johnsson P, Richter C, *et al.* One-year recovery from breast cancer: Importance of tumor and treatment-related factors, resilience, and sociodemographic factors for health-related quality of life. *Front Oncol* 2022;12:891850.
- Sadeghi E, Gozali N, Tabrizi FM. Effects of energy conservation strategies on cancer related fatigue and health promotion lifestyle in breast cancer survivors: A randomized control trial. *APJCP* 2016;17:4783.
- Karabulutlu EY, Avcı İA, Karayurt Ö, Gürsoy A, Köşgeroğlu N, Tuna A, *et al.* Evaluation of illness perception of women with breast cancer in Turkey. *Eur J Breast Health* 2019;15:98-104.
- Rakhshan M, Rahimi M, Zarshenas L. The effect of an education program based on illness perception on the lifestyle of patients with metabolic syndrome: A randomized controlled clinical trial. *Int J Community Based Nurs Midwifery* 2019;7:279-87.
- Basharpoor S, NasriNasrabadi B, Heidari F, Molavi P. The role of health beliefs and illness perceptions in predicting health-promoting behaviors in cancer patients. *Iran J Health Educ Health Promot* 2018;6:102-13.