Original Article

Impact of Health Information Prescription on Self-care of Women with Breast Cancer

Abstract

Background: Women with breast cancer experience various challenges. Prescription of health information provides appropriate information at appropriate time to the appropriate person and plays a role in empowering self-care and improving health. The current research aims to evaluate the effect of health information prescription on self-care power of women with breast cancer. **Materials and Methods:** This semi-experimental quantitative study was done using pretest and posttest method in one group of 61 women with breast cancer selected from the Women's Cancer Center of Khatamolanbia Hospital using purposive sampling method. Data were collected by an author-made self-care questionnaire and patients' self-care score was calculated at the first visit (before health information prescription) and the second visit (after health information prescription). Data were analyzed using the SPSS version 23 software and analysis of variance at a statistical significance level of $P < 0.05$. **Results:** Total mean score of self-care in women with breast cancer was 40.97 and 115.3 before and after health information prescription, respectively. Increase of mean was observed in all subscales of self-care score from pretest to posttest so that change in posttest was higher in subscales of effective implementation of treatment and prevention from disabilities and personal functioning regulation (39.44), specialized knowledge on breast cancer (30.46), searching medical services and cooperation with treatment group (28.59), and awareness and attention to impacts and results of breast cancer (16.81). **Conclusion:** Health information prescription improves self-care power of women with breast cancer, and it is necessary to provide health information services in order to support women's self-care by the health authorities.

Keywords: *Breast cancer, health information, prescription, self-care*

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Introduction

Breast cancer is one of the common cancers among Iranian women, and according to statistics of Iran Cancer Center, its prevalence and incidence have been rising in recent years.[1] So that it is the main death factor of women at the age of 20–45 years and the second death factor of women at all ages.[2] Women with breast cancer experience physical and psychological threats in all stages from diagnosis to treatment, which may lead to psychological damages such as depression and anxiety, change in lifestyle, feat and worry about the body's mental image, the disease's relapse, and even death.[3,4] In order to reduce physical, functional, and emotional consequences in patients with breast cancer and improve their life quality, various interventions have been included in their rehabilitation programs, such as health information prescription for self-care.[5] Health information prescription, or in other words, information therapy, is a novel approach that allows the provision of appropriate information at appropriate time to the patient. This information contains a wide range of subjects related to the health of patients such as treatment conditions and methods, care services, and advantages and disadvantages of different medical methods.[6] It allows participatory decision-making in health interactions. Participatory decision-making may strengthen the presence of patient in selection process for a treatment method and cause change in her behavior, because the prescribed information is completely in relation with the patient's education level, situation, and physical and psychological conditions and should be appropriate to her preferred learning style and needs.[7,8] It is believed that need for the health information prescription originates

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from the fact that patients are not always able to retrieve and acquire appropriate information for participation in management and treatment of their disease; patients forget about 50%–80% of what they hear in the doctor's office as soon as they reach home.[9] Searching health information in Internet though can be useful for a group of individuals with special diseases and conditions, often the information provided in the virtual world are not valid and cause to confusing or disappointment in women with breast cancer. Although sometimes one may acquire correct information, understanding the acquired information may be difficult for the patient.[10] Health information prescription may cause improvement of self-care process in this group of patients as a useful strategy for providing high-quality and evidence-based information. Self-care means aware, trained, and purposeful measures and activities that are done for surviving, providing, and promoting the health, and it is one of the factors affecting disease's improvement process and promotion of patients' life quality.[11]

Various studies have been conducted on health information prescription. Adams *et al*. identified the relationship between self-care in patients with breast cancer and health care following 6- and 9-month intervention. They reported the highest impact of self-care in the treatment stage and showed that mean score of self-care in pre-intervention was significantly different from post-intervention, and health information had the highest impact on treatment care. In addition, increased knowledge caused reduction of uncertainty, depression, anxiety, and increase of self-efficacy.[8] In an intervention with a personal guide to the women with breast cancer indicated that women tended to access to information for the management of self-care following the surgery.[12] Some studies also showed that although acquiring health information is effective in empowerment of self-care, promoting quality of life, and improving health in patients with cancer, individual obstacles such as fear, shame, inadequate information literacy, and economic obstacles such as economic status, lack of time in doctors and treatment staffs, unavailability of appropriate information sources, and challenge access of women with breast cancer to the required health information after mastectomy.[4,13-16]

A look at research suggests that although health information prescription for women with breast cancer is an effective and efficient step in providing patient-oriented services and their appropriate education, less attention has been paid to this fact in Iran. Therefore, due to the lack of research and the growing trend of breast cancer in Iran, a study on the impact of health information prescription on the self-care of women with breast cancer seems necessary. The necessity of this study is also due to the recent policies of the Women's and Family Cultural Social Council on the equal right of women to enjoy the highest standards of health. One of their most important strategies is increasing the central role of women in self-care, increasing the access of women to information, health care, and services of high quality, and in line with their needs in different life periods.[17] Hence, due to the role and importance of health information prescription on self-care of women with breast cancer, this study was conducted to analyze the relationship between health information prescription and self-care in women with breast cancer. The results of this study could provide information to information service providers and breast cancer health information interventions for the role of health information prescription on self-care.

Materials and Methods

This is an applied research in terms of purpose and quantitative methodology was used for it. Quasi-experimental method was used in the current research in order to investigate the impact of health information prescription on self-care of women with breast cancer using a single group pretest and posttest design. The dependent variable was measured before and after implementing the independent variable in this design. That is, the patients (women with breast cancer) were tested by self-care measurement tool (author-made questionnaire) following the first visit. Then, the patients were exposed to the test intervention (health information prescription), and then their self-care capacity level was reevaluated following the second visit. That is, a questionnaire similar to the pretest one was given to the subjects in posttest (second visit).

Research population included women with breast cancer referring to Women's Cancer Center in Khatam-Al Anbia Specialized Hospital during autumn 2017. Using purposive sampling method, 61 patients were selected. Research inclusion criteria included literacy of reading and writing, lack of receiving formal self-care training before inclusion in the study, lack of underlying diseases at the time of visit, participating in diagnosis, and treatment stages in Khatam-Al Anbia Hospital. Since there was no standardized tool for the measurement of self-care in patients with cancer, self-care capacity measurement questionnaire was designed using Dorothea Orem's Self-Care Theory and information content produced in the first research stage by provision of pathologist and general physicians. The author-made questionnaire was provided with the patients with two main parts including demographic information of patient and self-care capacity measurement of women with breast cancer so that their knowledge level about each item is shown on a 5-point Likert scale. The questionnaire included four major axes as specialized knowledge about breast cancer, awareness, and attention to impacts and results of cancer, effective implementation of treatment and prevention from disabilities and personal functioning regulation, and searching medical services and cooperation with treatment group. The questionnaire was sent to three breast surgeons and experts in order to ensure content validity. Following taking the feedbacks, modifications were done and final questionnaire was formulated. Cronbach's alpha was used

for determining reliability, which was estimated as 0.89 for this questionnaire.

Following pretest, the patients were individually trained for 60-min lecture, and question and answer methods were used. Finally, four educational booklets, two pamphlets, and their guides were trained to the patients. These booklets have educational content about breast cancer, types of surgeries and complementary therapies (chemotherapy, hormone therapy, radiation therapy, and their complications), the type of nutrition and care during the course of the treatment, searching information, and how to participate in the treatment process. The pamphlets include training on the correct examination of breast and genetic studies in breast cancer. In education, simple language was used and the use of medical terms was avoided. Patients were followed up every month by phone. Almost 4 months later, the self-care questionnaire was again completed by the patients. Finally, the impact of health information prescription on self-care capacity of patients before and after the study was measured. Before data collection, ethical principles of the research such as written consent form, confidentiality, privacy, and authority of participation for leaving the research were observed.

SPSS version 21 (SPSS Inc., Chicago, Ill., USA) was used for data analysis. Variance analysis with repeated measurement design was used to find that if the intervention (health information prescription) led to significant changes in the mean values of dependent variables in the case at the posttest stage.

Results

Demographic information indicates that 61 women at ages of 24–65 years participated in this research, 13 of whom were single and 48 were married and have children, 23 ones were at postmenopausal period, and 38 ones did not experience it. Among the patients, 23 ones were employed and the others were housewives that 39 ones had poor economic status, 12 ones with average economic status, and 8 ones with good economic status. Educational degree of below high school was reported in 72 ones, 18 ones had high school degree, 10 ones had BA degree, 3 had MA degrees, and 3 ones had PhD degree.

Findings in Table 1 give mean and standard deviation for self-care before and after intervention. According to these data, the total mean score of self-care in women with breast cancer was 40.97 before health information prescription. Mean self-care score was 115.3 following health information prescription. According to information in this table, increase was observed in mean of all subscales of self-care from pretest to posttest in the case group. So that this change in subscales of effective implementation of treatment and prevention from disabilities and personal functioning regulation (39.44), specialized knowledge on breast cancer (30.46), and searching medical services and cooperation with treatment group (28.59) was higher than subscale of awareness and attention to impacts and results of breast cancer (16.81). Significance of these changes should be tested over the time.

Variance analysis with repeated measurement design was used in order to find that if the intervention led to significant change in means of case group in dependent variables in the posttest stage. Table 2 indicates the results of multivariate analysis related to patients' self-care. Information in Table 2 indicates that Pulley test statistics and Wilks and Hoteling's tests are significance about difference in variables' score. It means that the intervention was generally effective.

Table 1: Mean and standard deviation of self-care power by the test time

Group	Variable	Test turn							
		Preexperiment				Postexperiment			
		Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
Self-care power	Knowledge about breast cancer	13	8	40	6.44	30.46	16	36	3.43
	Awareness and attention to the effects and outcomes of breast cancer	5.89	3	13	3.21	16.81	9	18	1.65
	Effective treatment, prevention of disability, and adjustment of individual performance	11.66	6	32	4.72	39.44	18	51	4.21
	Search for medical services and cooperation with treatment group	10.42	5	21	3.41	28.59	20	28	2.66
	Total score	40.97	22	106	17.87	115.3	63	133	11.55

SD: Standard deviation

Table 2: Results of multivariate analysis

Source of effect	Statistical test	Statistical value	*F*-ratio	DF hypothesis	DF error	*P*	η
Time	Pulley	0.809	81.34	4	56	0.001	0.901
	Wilkes	0.088	64.34	4	56	0.001	0.901
	Hoteling	9.66	72.64	4	56	0.001	0.901

DF: Degrees of freedom

Table 3 gives details of differences in four subscales of self-care and total score. Information in Table 3 indicates that the intervention could make a significant change in all four scales and total score of self-care over the time. So that highest change in statistical significance level of $P < 0.05$ was at subscale of effective implementation of treatment and prevention from disabilities and personal functioning regulation (f = 231.09) and specialized knowledge about breast cancer (f = 217.76).

Discussion

Health information is one of the success factors in self-care. Health information prescription causes that women with breast cancer are made determining element in self-care management through appropriate information and education.[4] Results indicate that mean self-care capacity of women with breast cancer before health information prescription in subscales of specialized knowledge about breast cancer is 13, 5.89 in awareness and attention to cancer effects, 11.66 in effective implementation of treatment, and 10.42 in searching medical services and cooperation with treatment group. Total self-care score is 40.97, which is below the mean total score of self-care questionnaire (62.5). These results indicate poor self-care in the target group before health information prescription. Related studies refer to the fact that self-care capacity of women with breast cancer is low before receiving health information.[5,8,12] Since economic status and educational level are among effective variables in seeking for information, individuals with lower economic status and educational level less seek for information.[4,18] This fact may justify the results, because in the current research, most participants reported their economic status as poor and average, and they do not refer to the physician because of the expenditures. Over half of the participants had below high school and high school education, thus they do not search for information because of inadequate literacy level, and most of their questions are left unanswered. In addition, in the study by Zarea, Gavgani, and Shiramin (2013), they mentioned obstacles such as time shortage of physicians, shortage of librarians and medical information specialists, and lack of electronic medical records systems as the most important barriers to health information prescription in Iran that have an impact on self-care capacity of patients.[16] Thus, an appropriate educational intervention by physicians, health staff, and health centers seem necessary to encourage women with breast cancer to be sensitive to their health and to take care of breast cancer interventions for functioning promotion.

The present study showed that health information prescription could enhance women's self-care capacity. So that subscales of effective implementation of treatment and prevention from disabilities and personal functioning regulation (39.44), specialized knowledge on breast cancer (30.46), searching medical services and cooperation with treatment group (28.59), and awareness and attention to impacts, and results of breast cancer (16.81) are obtained. In addition, total self-care score is 115.3 which is higher than average of total score of self-care questionnaire (62.5). Considering the fact that women with breast cancer experience highest physical and psychological threats, such findings were expected that health information prescription shows the highest impact on the subscale of effective implementation of treatment and prevention from disabilities and personal functioning regulation. Purposeful and proper prescription of information may provide a path for responding questions of women with breast cancer and preventing from their wrong decisions. In addition, increasing self-care capacity in treatment stage promotes care level for the patient at home and matched performance with the treatment group. It finally leads to the improvement of disease and increasing quality of living in women with breast cancer. With promoting self-care capacity, patients' awareness about the breast cancer is increased and their accuracy and speed in identification and taking action in similar cases are also raised. These findings are consistent with the findings of research that supports health information prescription for increasing self-care behaviors as one of the constructive actions in patients with breast cancer, especially in terms of treatment measures.[5,8,13-15]

Table 3: A summary of the within-subject test results in self-care power

Variable	Source of changes	Sum of squares	DF	Mean of squares	*F*-ratio	*P*
Knowledge about breast cancer	Time	6134.64	1	6134.64	217.76	0.001
	Error	1345.19	59	18.22	-	-
Awareness and attention to the effects and outcomes of breast cancer	Time	901.11	1	901.11	125.18	0.001
	Error	341.72	59	8.89	-	-
Effective treatment, prevention of disability, and adjustment of individual performance	Time	4321.63	1	4321.63	231.09	0.001
	Error	601.60	59	20.68	-	-
Search for medical services and cooperation with treatment group	Time	825.17	1	825.17	185.61	0.001
	Error	161.41	59	6.45	-	-
Total score	Time	12,182.55	1	12,182.55	759.64	0.001
	Error	2449.92	59	54.24	-	-

DF: Degrees of freedom

Results showed that mean score of self-care capacity in subscales of effective implementation of treatment and prevention from disabilities and personal functioning regulation, specialized knowledge on breast cancer, searching medical services and cooperation with treatment group, and awareness and attention to impacts and results of breast cancer had significant difference before and after health information prescription so that it can be concluded that the intervention (health information prescription) could make significant change in all subscales and total score of self-care capacity ($P < 0.05$). Significant change was observed in this work in subscales of effective implementation of treatment and prevention from disabilities, personal functioning regulation, and specialized knowledge about breast cancer before and after intervention. It can be judged in the way that self-care behavior is associated with higher awareness of the disease and the body. Women with breast cancer better communicate with their disease and body by receiving health information and are made aware of symptoms and signs resulting from the disease. Such awareness and insight in women with breast cancer help that they show self-care-based behaviors when needed, especially in treatment process, and thus they can participate and cooperate better with the treatment group and physicians and would be able to make constructive decisions. Similar findings were obtained in the study by Chesser *et al*.[13]

Conclusion

Therefore, considering that health information prescription is able to play a significant role in enhancing health of women with breast cancer and their self-care, it is necessary that measures are taken for health information prescription for women with breast cancer. As the first step, the establishment of health information research centers in universities of medical sciences is emphasized. Health information research centers will be able to produce systematic health information in accordance with health information standards, assess the quality and legibility of health information produced for women with breast cancer, track their information needs in different conditions and stages of the disease, and assess short-term and long-term effects of health information prescription on the body of the health system of the country and thus have important role in advancing national goals to promote the health of women with cancer and reduce the cost of treatment in the country. On the other hand, it is necessary to make basic changes in the health system of the country so that the culture of providing health information prescription services with emphasis on interpersonal doctor–patient communication skills, attention to needs, preferences, and literacy of patients, their encouragement to participate in medical decisions making and self-care is promoted among the physicians and treatment staffs. The target audience in the hospital libraries is currently the medical studies, physicians, and medical staffs, while the hospital libraries have the potential to become centers for provision of information services to the patients too. Realization of this goal may be an effective step. Since clinical librarians often enter the hospital libraries following passing Bachelor of Medical Librarianship, familiarity with the concept of health information prescription and its processes may prepare medical librarians for cooperation with other specialties to provide health information services.

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Conflicts of interest

There are no conflicts of interest.

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