



Evaluating Effect of Social Support Programs Based on the Roy's Adaptation Model on Patients with Breast Cancer: A Systematic Review

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Abstract

Background: Many women become hopeless and are unable to adapt to disease after diagnosis of breast cancer. Social support plays a major role in adaption of patients to cancer. The present systematic review aimed to determine effects of social support programs based on the Roy's adaptation model on patients with breast cancer.

Methods: In the present systematic review, articles published in English that have been indexed in PubMed, Scopus and Web of Science databases until the end of September 2019 were included. Searches were made using the following keywords: "Social Support", "Roy Model", "Breast Cancer" and their synonyms. The publications were selected through screening, selection, quality evaluation and data extraction. Interventional and qualitative studies were included in the study, which used the Roy's adaptation model for social support in women with breast cancer or used the model for evaluation the consequences of implementing support programs. Overall, 98 articles published were reviewed. After exclusion of unrelated articles, five articles were included in the analysis.

Results: Of five high-quality articles, three were qualitative and two were interventional. The findings indicated that the implementation of support programs based on the Roy's adaptation model had beneficial effects on patients' adaptive responses, attitudes towards breast cancer, spiritual health, mood and loneliness.

Conclusion: Implementing support programs can positively affect the adaptation of patients with breast cancer. Therefore, social support based on the Roy's adaptation model can be utilized as a non-invasive, non-pharmacological, cost-effective and comprehensive nursing intervention to provide support for patients with breast cancer.

Highlights:

What is current knowledge?

Breast cancer is a common disorder among women.
Patients with breast cancer need help to adapt with the disease.
The Roy's adaptation model is helpful in a variety of patients with chronic disorders.

What is new here?

Implementing the Roy's model improves a sense of being socially supported in patients with breast cancer.
Using the Roy's model will improves patients' attitudes towards disease in those with breast cancer.

Introduction

Breast cancer is the second most common cancer and the fifth leading cause of cancer death in the world (1). In Iran, it is the most common type of cancer among women and mainly occurs between the ages of 40 and 50 (2, 3). Breast cancer is associated with physical complications such as fatigue and decreased muscle strength as well as psychosocial problems such as anxiety, mood disorders, low self-esteem, job problems and sadness. Physical, emotional and social effects of breast cancer cause patients to feel lonely, hopeless and helpless, and they need help in order to return to their normal lives (4). Research has found that social support plays a major role in adaptation to chronic diseases, such as cancer (5-7). Social support is an important aspect of modern care. Some methods of social support include increase self-confidence, sense of belonging to group and strengthening the ability or competence to perform essential tasks (8). Roy's adaptation model is a major effective nursing model that is widely used for adaptation of patients with chronic diseases (9). According to the model, adaptation to environmental stimuli occurs in three psychosocial modes and a physiological mode. Psychosocial modes include role function, self-concept and interdependence (10). Aghakhani et al. indicated that the application of Roy's adaptation model increased adaptive responses in chronic diseases (11). Various studies have examined the effect of social support and reported contradictory

results. For instance, in a study by Samarel et al., social support based on the Roy's adaptation model reduced mood disorders and feelings of loneliness and increased the quality of communications in women with breast cancer (12). Tangible support is a type of social support. Hirschman et al. (2005) reported breast cancer patients require tangible support to help them play roles that have been affected by the disease (13). In another study by Samarel et al., the results indicated that even though the implementation of a support program based on the Roy's adaptation model significantly improved adaptive response of most patients in terms of self-concept, it did not affect adaptive responses of about half of patients in role function and physiological dimensions and one-third of patients in the interdependence dimension (14). Also in a study by Zeigler et al., the response of 40% of patients changed from "adaptive" before the intervention to "ineffective" after the program (15). The use of nursing models in patient care creates a framework for developing mental structure for analyzing different situations, organizing thoughts and decision making for patient care (10). Given the growing prevalence of breast cancer among women, patients need support to adapt to the disease, and use of the Roy's adaptation model can improve the quality of support programs. Furthermore, due to the contradictory results of studies on the evaluation of social support programs based on this model on breast cancer patients, there was no study to review and categorize results of the studies and finally provide a general conclusion; therefore, the present systematic review study aimed to determine the effects of social support programs based on the Roy's adaptation model on patients with breast cancer.

Methods

The present systematic review was conducted by searching in PubMed (Title/Abstract and MeSH), Scopus (TITLE-ABS-KEY) and Web of Science (Topic) using the keywords "Social Support", "Roy Adaptation Model", "Roy Model", "Adaptation Model", "Roy's adaptation", "RAM", "Breast Neoplasm", "Breast Cancer", "Breast Tumor", "Malignant Neoplasm of Breast", "Breast Malignant Neoplasm", "Malignant Tumor of Breast", "Breast Malignant Tumor", "Cancer of Breast", "Cancer of the Breast", "Mammary Cancer", "Mammary Carcinoma", "Human Mammary Carcinoma", "Human Mammary Neoplasm", "Breast Carcinoma" and the full search strategy is presented in Appendix 1. To preserve valuable data, there was no time limit and all published articles were reviewed by the end of September 2019.

After searching for sources, articles were selected through screening, selection, quality evaluation and data extraction steps. To this end, after the search process by an expert (ZB), all retrieved texts were entered into the software EndNote and duplicates were removed. Then, the articles were evaluated independently by two members of the research team. All articles were screened based on the titles and abstracts and according to inclusion and exclusion criteria. Any disagreement among the research team members was resolved according to the opinion of a third party.

Based on the inclusion criteria, we included all interventional and qualitative studies that used the Roy's adaptation model for social support in breast cancer patients or used the model to evaluate the consequences of implementing social support programs in women with breast cancer. Descriptive articles that only explained the Roy's adaptation model and review studies were excluded (Figure 1).

Two researchers evaluated the methodological quality of the studies independently. In evaluating the quality of articles, Cochran (16), Greenhalgh et al. (17) and COREQ (18) checklists were used for experimental, quasi-experimental and qualitative studies, respectively. In the evaluation of experimental and quasi-experimental studies, each criterion on the Cochran and Greenhalgh scales was given a score of zero to 2. If the criterion was fully observed in the study, it received a score of 2, and if it was partially mentioned, it received a score of 1, and if it was not mentioned in the article, it received no score. On this basis, experimental study was rated from zero (weakest study) to 12 (strongest study) and quasi-experimental study from zero to 16 (Tables 1 and 2).

We used COREQ 32-Items checklist to evaluate qualitative studies in three domains, the research team and reflexivity (8 items), study design (15 items) and analysis and findings (9 items). Studies that covered all or half of the COREQ checklist criteria were given a score of 2 and 1, respectively. All qualitative studies covered more than half of the checklist criteria (Table 3).

The two authors separately studied the full text of each article and extracted data using a pre-designed form. Information including the first author's name, year of publication, place of study, type of study, research purpose, target group and number of participants, summary of the methods and conclusion were extracted according to the results. The third party's perspective was requested to resolve disagreements between reviewers (Table 4).

Table 1. Quality of experimental study according to the Cochran checklist

Quality variable	Samael et al. 2002
Allocation concealment	2
Follow-up all patients/personals care randomized	2
Blinded assessment of primary outcomes	0
Baseline comparability of groups	2
Reliable primary outcome measures	2
Protection against contamination	1
Total Score	9

Table 2. Quality of quasi-experimental study according to the Greenhalgh checklist

Quality variable	Otaghi et al. 2018
Research question/design clear and appropriate	2
Intervention independent of other changes over time	1
Sufficient data point	2
Statistical tests appropriate	2
Outcomes measures valid and reliable	2
Data collection same before and after	2
Completeness of data set	2
Long enough follow-up to show impact	0
Total Score	13

Table 3. Quality of qualitative studies according to the COREQ checklist

Qualitative studies	score
Hirschman et al. 2005	1
Zeigler et al. 2004	1
Samarel et al. 1998	1

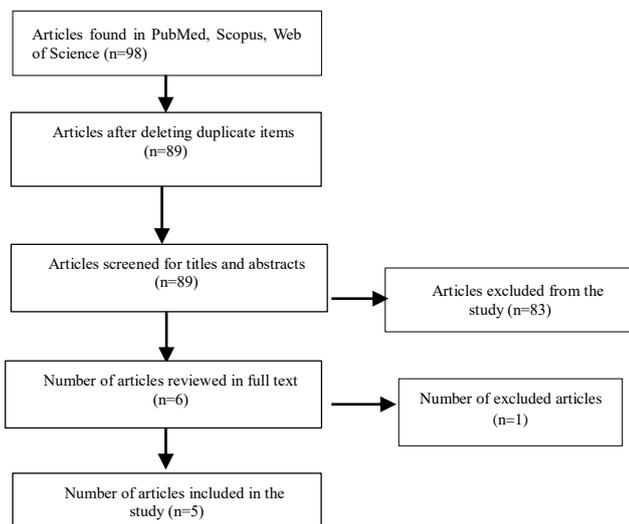


Figure 1. The process of study selection and evaluation

Results

Of five studies included in the review, one was conducted in Iran (19) and four in the United States (12-15). Two studies were interventional (12-19) and three studies were qualitative (13-15). Table 4 presents details of the articles included in the study.

In all reviewed studies, social support or assessment based on Roy's adaptation model in breast cancer patients was considered as the main variable. Two studies had used the Roy's adaptation model for social support in women with breast cancer (12-19). Two studies had used the model to evaluate the consequences of implementing social support programs in women with breast cancer (14, 15). A study also had utilized the Roy's adaptation model as a framework for conceptualizing different roles affected by breast cancer and the impact of social support on the roles (13). After reviewing the studies, we classified the effect of social support on breast cancer patients in four domains of patients' adaptive responses based on the four modes of Roy's adaptation model, patients' attitudes towards breast cancer, spiritual health, mood disorders and loneliness.

Adaptive responses

Based on the research findings, the patients' adaptive responses based on the Roy's adaptation model in four modes, namely physiological, role function, self-concept and interdependence, were as follows:

Physiological mode

In a study by Samarel et al., the implementation of a social support program improved adaptive responses of more than half of patients in the physiological mode (14). In the study by Zeigler et al., the responses of 25% of patients in the physiological mode changed from "ineffective" to "adaptive" after the support program (15).

Role function mode

In the study by Hirschman et al., all women reported that they needed someone for tangible support to help them play the primary and secondary roles affected by breast cancer. Most women also reported that tangible support helped them in order to better adapt with their ability to perform and manage responsibilities relating to primary and secondary roles (13). In another study, the implementation of a support program improved patient responses in the role function mode in half of the patients (14).

Self-concept mode

In the study by Samarel et al., the implementation of a support program improved the responses of 91.4% of patients in terms of self-concept (14). On the other hand, Zeigler et al., showed the implementation of a support program improved adaptive responses in terms of perception of their physical condition in 12.5% of patients. However, the adaptation did not improve in the patients in terms of perception of self-identity. Moreover, the adaptive responses of 25% of patients with adaptive responses before the intervention changed to "ineffective" (15).

Interdependence mode

Samarel et al. found a statistically significant difference between patients receiving telephone and group social support with patients in the control group, in terms of the quality of communication with others (12). Another study by Samarel et al. indicated an increase in adaptive responses of 65.7% of patients in the field of communication with family and friends after the implementation of a support program (14). In the study by Zeigler et al., it was found that the responses of all patients were adaptive in the interdependence dimension before the implementation of the support program, and the implementation of the support program had no effect on the patients' responses in this dimension (15).

Patients' attitudes towards breast cancer

Samarel et al. found that the implementation of a social support program improved the attitude of patients (72.9%) towards breast cancer (14).

Spiritual health

Otaghi et al. indicated that the intervention based on the Roy's adaptation model increased spiritual health in patients with breast cancer so that the spiritual health score significantly increased in the intervention group (19).

Mood disorders and feelings of loneliness

Samarel et al. found that mood disorders and feelings of loneliness significantly decreased in patients who received telephone and group social support compared with patients who did not receive any social support (12).

Table 4. Details of the articles on the effects of support programs based on the Roy's adaptation model on women with breast cancer

First author	Place	Study type	Aims	Target group and number of participants	Method	Results
Samarel, 2002	USA	Experimental	Investigating the effect of social support based on the Roy's adaptation model and educational intervention for women with early stage of breast cancer	125 women in early stage of breast cancer	The patients were assigned into three groups: experimental group (received social support and education through individual telephone call, in-person and group sessions), control group 1 (only received social support and education through individual telephone-call), control group 2 (only received educational material via mail)	At the end of intervention, both experimental group and control group 1 demonstrated better mood, less loneliness, and better communication than the control group 2. The results showed the effective role of social support. The results also showed that telephone support could be a good alternative to group support.
Hirschman, 2005	USA	Qualitative	Investigating the effect of tangible support on adaptation with changes in role function of women affected by breast cancer	33 women with breast cancer	Conducting semi-structured interviews about patients' experiences of role function disorders following breast cancer and the effect of tangible support on their adaptation	All women relied on someone for tangible support to help them in playing primary and secondary roles (such as self-care, mothering, household activities, etc.). Tangible support also helped the subjects make better use of their own abilities in managing and playing their primary and secondary roles.
Samarel, 1998	USA	Qualitative	Investigating the women's views about the impact of breast cancer and participation in group support program	70 women with breast cancer	Structured telephone interviews were conducted with women who had previously participated in a group support program, to assess level of adaptation, attitude toward illness and participation in the program	All women indicated that participating in the program had positive effects on them. A majority of women experienced an improved attitude and they felt better wellbeing. Some changes were observed in patients' adaptive responses based on the Roy's adaptation model.
Zeigler, 2004	USA	Qualitative	Investigating effect of implementing a program based on social and emotional support and providing educational information to breast cancer patients	10 women with breast cancer and 2 nurse facilitators	Investigating the patients' experience of participating in the Common Journey Breast Cancer Support Group and nurses' experiences as facilitators of the support program. The questions were adjusted to reflect the four dimensions of the Roy's adaptation model	Responses of patients and nurses showed that the combination of providing educational information to patients and emotional and social support through the implementation of the Common Journey Breast Cancer Support Group was relatively effective.
Otaghi, 2018	Iran	Quasi Experimental	Investigating the effect of intervention based on the Roy's adaptation model on spiritual well-being of women with breast cancer	80 women with breast cancer	Patients were allocated into experimental and control groups. For experimental group, 10 two-hour sessions were held based on the Roy's adaptation model	No significant difference was found between the mean spiritual well-being scores of the two groups at baseline. However, after the intervention, the mean spiritual well-being score increased significantly in the experimental group. No significant changes was observed in the control group.

Discussion

The present review aimed to determine the effects of social support programs based on the Roy's adaptation model on patients with breast cancer. The results of most studies indicated that the implementation of a support program could affect the adaptation of patients with breast cancer. The patients' participation in support groups, increasing awareness about lifestyle and learning other patients' experiences have a great impact on increasing patients' adaptation to the physiological mode. Similar to our findings, in a study by Khajeh Goodari et al., the implementation of an educational program based on the Roy's adaptation model improved the adaptation of patients with heart failure in the physiological mode. Patients who received higher levels of social support had fewer physiological problems and were in better physical condition (20). Social support and acquaintance with other patients decrease stress and anxiety and increase optimism and a sense of well-being in patients (21). As a result, it affects adaptation in the self-concept and role function modes. In a previous study, maladaptive behaviors of patients with type 2 diabetes decreased significantly in terms of self-concept and role function after an intervention based on the Roy's adaptation model (22). However, another study indicated a training program based on the Roy's adaptation model significantly improved adaptation in the role function mode but did not affect self-concept in veterans with amputation (21). These contradictory findings may be due to differences in the type of disease. Communicating with other members of a group during social support sessions improves patients' communication skills and helps them communicate properly with family and friends, which in turn increases adaptive behaviors in the interdependence mode (14). Sadeghnazhad Forotgeh et al. also indicated that implementation of a care program based on the Roy's adaptation model improved adaptation of patients with diabetes in the interdependence mode (23). However, Azarmi et al. found no significant change in adaptive behaviors of the interdependence mode after the intervention (21). The difference in the duration of the training course, follow-up of patients and involvement of other medical staff in the intervention could justify the contradictions of the results. Given the patients' adaptation after social support based on the Roy's adaptation model, the results of a study indicated that the implementation of the support program did not have much effect on patients' adaptation to the physiological, self-concept, and role function modes, because the patients had high levels of adaptation in these modes before the intervention (15).

Based on the results, the implementation of a social support program not only increased patients' adaptation but also affected patients' attitudes towards breast cancer (14). This is in line with the findings of a study by Fegghi et al. (24). It seems that the implementation of support and educational programs increases patients' familiarity with the disease and thus increases their awareness and attitude towards treatment and control of disease complications. Furthermore, supporting patients with breast cancer increases their spiritual health (19). The increasing spiritual health of patients improves the quality of life as well as

physical and psychological health (25-27). Another result of social support is the reduction of mood disorders and loneliness in patients with breast cancer (12). It seems that the presence of these patients in groups and acquaintance with people, who experience situations like themselves or even more difficult, increases patients' resistance and reduces their mood disorders and feelings of loneliness. Providing social support can play an important role in maintaining patients' psychological health when dealing with chronic diseases such as cancer. It can also empower patients to cope with stresses associated with the disease, which ultimately results in greater adaptation. The Roy's adaptation model with a comprehensive approach can identify maladaptive behaviors in various biological, psychological, social dimensions and then would help planning based on needs and stimuli that cause maladaptive behaviors. Therefore, this model can be used as an effective and convenient nursing intervention for providing social support and education for breast cancer patients. Future studies should be carried out to examine the effects of support programs on patients with other diseases. It is also recommended that more interventions should be implemented to investigate the impact of social support on other dimensions. A limitation of the present study is that some manuscripts or unpublished studies might be lost since eligible articles were found through database searches.

Conclusion

The results of the present study indicated the positive effect of implementing a social support program based on the Roy's adaptation model on adaptation, attitudes towards disease and spiritual and psychological health of patients with breast cancer. Therefore, this model can be used as a non-invasive, non-pharmacological, low-cost and comprehensive nursing intervention for providing social support and education for breast cancer patients.

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Ethical statement

We tried to review all the accessible documents according to the inclusion criteria and honestly reported that results of the reviewed studies.

Conflict of interest

The authors declare that there is no conflict of interest

Author contributions

MAH and FM designed the project, wrote the manuscript, assessed the quality of the documents, and analyzed them, ZB performed the document searching, and

made critical points on the manuscript. MAH supervised the study. All the authors approved the content of the manuscript .

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