

Original Article

Impact of evidence-based care together with extended care on the psychological status of breast cancer patients

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Abstract: Objective: The purpose of this study was to evaluate the application of evidence-based care combined with extended care on the psychological status of patients undergoing breast cancer surgery. Methods: We included 42 female patients with breast cancer who received surgical treatment. The control group was provided traditional health care, whereas the experimental group was given psychological care comprising evidence-based care and extended care. We compared the psychological status of the two groups of patients before and after providing health care, and statistical analyses were performed to estimate the patients' satisfaction with the provided care. Results: Significant differences in Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS) scores between the two groups of patients were found after receiving health care ($P < 0.05$). Compared with the control group, improvement in PA, ALB, and HGB values after health-care provision were significantly higher in the experimental group ($P < 0.05$). The incidence of overall patient complications during postoperative treatment was 26.1% in the control group and 11.9% in the experimental group ($P < 0.05$). In the control group, 61.90% of patients ($n = 13$) were satisfied with the provided care, compared to 90.48% of patients ($n = 19$) in the experimental group and the differences between groups were statistically significant ($P < 0.05$). Conclusions: The application of evidence-based care in combination with extended care in the psychological treatment of patients with breast cancer can significantly improve the psychological status of patients, promote postoperative quality of life, and enhance satisfaction with the provided health care.

Keywords: Evidence-based care, extended care, breast cancer, psychological status

Introduction

In China, breast cancer is a very common malignancy among gynecological diseases, with a morbidity of 378.6 per 10,000,000 and a death rate of 114 per 10,000,000, which accounts for about 17% of all incidences of gynecological malignancy [1, 2]. Tumor surgical resection is the main treatment method for breast cancer, although it may cause psychological trauma [3]. Some recent studies have reported that poor psychological status strongly affects treatment outcomes, breast cancer prognosis, and quality of life for patients, and may even cause disease relapse [4, 5]. Conventional postoperative care methods cannot meet the constantly increasing treatment needs.

Evidence-based care is a scientific nursing method supported by providing scientific evidence to patients [6]. Evidence-based care effectively improves the quality of nursing staff and the quality of care through continuous nursing education [7]. One study reported that evidence-based care effectively improves postoperative insecurity and anxiety of patients with breast cancer, and positively impacts treatment and prognosis [8]. Extended care is also known as continuous care that helps the patients and their family members improve self-care skills through a number of nursing activities and enables patients to receive continuous care from different health care institutions [9]. Extended care is also widely used in the postoperative treatment of patients with

Table 1. Comparison of clinical data between the two groups

	Control	Experimental	Statistic	P-value
Number	21	21		
Age	31.6±8.3	32.7±8.6	0.422	0.676
Preoperative HGB (g/L)	125.91±8.76	126.32±8.78	0.148	0.883
Time of operation (min)	135.2±26.7	133.1±24.7	0.265	0.793
Surgery type [n (%)]			0.222	0.825
Breast-conserving surgery	7	8		
Total Mastectomy	14	13		
TNM stage			0.510	0.610
I	7	5		
II	10	10		
III	4	6		
Menopausal status			0.158	0.874
Non-menopause	12	13		
Postmenopausal	9	8		

Table 2. Psychological status scores of the two groups before and after provision of care

		Control	Experimental	Statistic	P-value
SAS	Before	58.12±11.32	57.56±10.94	0.134	0.894
	After	32.01±1.02*	24.72±0.79*#	25.89	<0.001
SDS	Before	60.14±8.11	61.03±7.97	0.359	0.722
	After	34.19±1.31*	29.01±1.13*#	13.72	<0.001

*, P<0.05, compared with before provision of care. #, P<0.05, compared with the control group.

breast cancer and can effectively improve post-operative recovery and quality of life [10, 11].

At present, few studies have reported the effects of application of evidence-based care in combination with extended care in the postoperative recovery of patients with breast cancer. Therefore, we aimed to evaluate the effect of evidence-based care in combination with extended care on the postoperative psychological status of patients with breast cancer, and to provide guidance for clinical care.

Materials and methods

Study participants

A total of 42 breast cancer patients who had radical surgery in the Second Affiliated Hospital of Harbin Medical University were selected in this study. These patients were randomly divided into two groups: a control group (n = 21) receiving traditional health care, and an experimental group (n = 21) receiving psychological care, including evidence-based care and ex-

tended care. All patients met the following requirements: diagnosis with breast cancer after pathological confirmation; no tumor metastasis as assessed by diagnostic imaging; no previous history of tumors; received a series of examinations and treatments in our hospital after diagnosis; underwent breast cancer surgery in our hospital; did not receive other adjuvant therapy before surgery; and were willing to obey the directives of the medical staff in our hospital. Patients were excluded who underwent chemoradiotherapy before surgery; were diagnosed with cardiovascular, cerebrovascular, or respiratory diseases; were discharged normally or were transferred to another hospital midway; and had mental disorders and difficulties in language communication. This study was approved

by the Ethics Committee of our hospital, and patients provided informed consent for participation in the research.

Methods

The control group adopted an evidence-based nursing program (traditional health care), which includes finding problems in clinical practice, conducting a systematic review of relevant literature based on the raised questions, and monitoring implementation of clinical evidence through self-assessment, peer review, and assessment. The joint nursing group is based on evidence-based care combined with extended nursing. Extended nursing is evidence-based and includes drug and dietary guidance, symptom management and identification, recommendations for home environment, use of community resources, and help for patients and families to contact home care. The care procedures were strictly conducted according to the 2013 guide for usual care, the 2013 guide for evidence-based care, and the 2013 guide for extended care [12-14].

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Table 3. Nutrition level indicators of the two groups before and after care

	Control	Experimental	Statistic	P-value
PA (mg/L) Before	234.18±37.79	238.72±38.99	0.383	0.704
After	196.33±39.88*	227.54±39.78*#	2.539	0.015
ALB (g/L) Before	39.68±3.59	39.14±3.63	0.487	0.629
After	35.25±3.12*	31.88±3.19*	3.009	0.005
HGB (g/L) Before	125.91±8.76	126.32±8.78	0.152	0.880
After	113.59±18.96*	120.33±19.36*#	2.493	0.017

*, P<0.05, compared with before provision of care; #, P<0.05, compared with the control group.

Table 4. Incidence of complications for the two groups of patients during the provision of care

	Control	Experimental	Statistic	P-value
Number	21	21		
Total rate	11 (26.1)	5 (11.9)	2.010	0.047
Incision infection	3 (14.3)	0 (0.00)	1.677	0.094
Breast necrosis	0 (0.00)	0 (0.00)	-	-
Breast asthenia	1 (4.8)	1 (4.8)	0.000	1.000
Lymphadenectasis	5 (23.8)	2 (9.5)	1.052	0.293
Gastrointestinal reaction	1 (4.8)	1 (4.8)	0.000	1.000
Dizziness	1 (4.8)	1 (4.8)	0.000	1.000

Outcome observation

The following data were collected from the two groups of patients before and after care intervention: pre- and post-care depression scores (SDS), anxiety score (SAS), the level of various nutrition indicators (pre-albumin [PA], albumin [ALB], and hemoglobin [HGB]), the incidence of complications, quality of life score (Quality of Life Rating Scale SF-36), and nursing satisfaction. The levels of PA, ALB, and HGB were tested using the Beckman Olympus AU-5800 analyzer (Beckman Coulter Co. Ltd., China). The nursing satisfaction questionnaire included 34 questions and six domains: information and communication with doctors (12 items), nursing care (8 items), comfort (6 items), visiting (4 items), privacy (2 items), and cleanliness (2 items) (See Additional file 1 - **Appendix I**), which chronologically follow the steps from the time a patient is admitted to the hospital until discharge [10].

Statistical analyses

SPSS 22.0 (Asia Analytics, formerly SPSS China) was used for statistical analyses. Enu-

meration data are presented as percentages and evaluated with the χ^2 test, whereas measurement data are presented as $\bar{X} \pm S$. Non-parametric K-S test was used for the comparison of data not following the normal distribution between the two groups. For normally distributed data, t-tests were used. We considered the differences statistically significant at P<0.05.

Results

General information

A total of 42 patients (aged 20-50 years) undergoing breast cancer surgery were selected, with 21 patients in the control group (average age 31.6±8.3 years) and 21 patients in the experimental group (average age 32.7±8.6 years). The two groups were equivalent (P>0.05) in terms of average age, preoperative Hb, time of operation, TNM staging, menopausal status, duration of hospital stay, and other relevant information (**Table 1**).

Psychological status scores in the two groups before and after postoperative care

There were no differences in the SAD and SDS scores between the two groups of patients before providing postoperative care (P>0.05). The SAD and SDS scores declined in both groups after providing postoperative care (P<0.05). Comparisons of the same indicators indicated the scores after providing postoperative care in the experimental group were lower than those in the control group, indicating better outcome (P<0.05) (**Table 2**).

Nutrition indicator levels before and after postoperative care

There were no group differences in PA, ALB, and HGB levels before providing postoperative care (P>0.05). The PA, ALB, and HGB levels declined in both groups after providing postoperative care and reached statistical significance (P<0.05). Comparing the same indica-

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Table 5. Quality of life scores in the two groups of patients before and after the care intervention

	Control	Experimental	Statistic	P-value
Care before				
Emotional functioning	50.93±12.37	51.43±12.47	0.130	0.897
Role function	48.62±11.47	49.26±11.01	0.185	0.855
Cognitive function	49.33±12.17	50.12±12.74	0.206	0.838
Physical function	47.97±10.69	47.34±11.01	0.188	0.852
Social function	47.63±12.14	48.02±12.37	0.103	0.918
After the nursing				
Emotional functioning	63.13±12.25	78.46±13.14	3.911	0.001
Role function	68.25±11.08	79.22±12.16	3.056	0.004
Cognitive function	61.52±6.72	76.03±8.22	6.263	<0.001
Physical function	62.37±9.28	76.33±10.01	4.687	<0.001
Social function	65.24±13.48	81.47±14.57	3.747	0.001

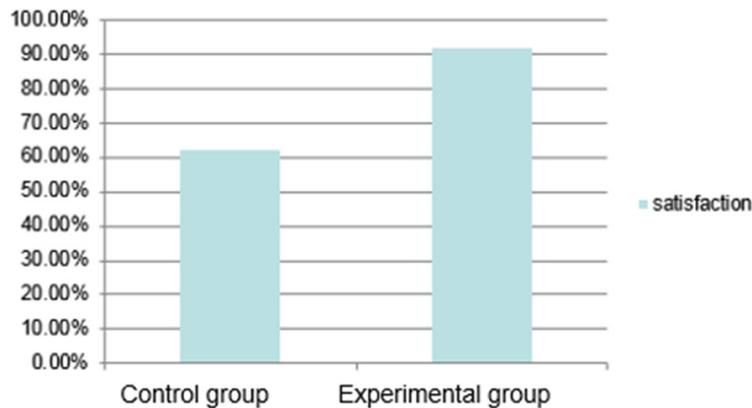


Figure 1. Comparison of satisfaction with provided care between two groups of patients. The percentage of patients satisfied with the provided care was 61.90% (n = 13) in the control group and 90.48% (n = 19) in the experimental group (P<0.05).

tors, the improvements in PA ALB, and HGB levels in the experimental group were higher than those in the control group (all P<0.05) (Table 3).

Incidence of complications in the two groups during postoperative care

We performed a statistical analysis on the incidence of complications during three months of postoperative care in the two groups of patients and the results showed that the incidence of total complications during postoperative care was 26.1% in the control group compared with 11.9% in the experimental group (P<0.05) (Table 4).

Quality of life scores before and after providing postoperative care

There were no group differences in the emotional, role, cognitive, physical, or social functions of patients before providing postoperative care (P>0.05). The functions of both groups increased after receiving postoperative care to different degrees, reaching a level of statistical significance (P<0.05). A comparison of the same indicators revealed the degree of improvement was higher in the experimental group than in the control group (P<0.05) (Table 5).

Comparison of satisfaction with provided postoperative care

Patients' satisfaction was compared with the three months of postoperative care provided and the results showed that 61.90% (n = 13) of the control group and 90.48% (n = 19) of the experimental group were satisfied with the provided care. These differences were statistically significant (P<0.05) (Figure 1).

Discussion

The most effective method for treatment for breast cancer is still surgery, but surgical treatment has a large impact on patients' perceptions of their physical appearance; moreover, postoperative long-term chemotherapy has greater toxic side effects on patients' bodies, which greatly affect their psychological and physical health [5, 15]. Along with improvements in people's legal consciousness and self-protection awareness, the requirements for a quality nursing model and superior nursing staff are increasingly high [16]. This study intended to observe the effects of evidence-based care in combination with extended care

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on the psychological status of patients by analyzing applications with patients after breast cancer surgery in order to provide guidance for clinical care.

We analyzed the SAS and SDS scores, nutrition level indicators, incidence of complications, quality of life scores, and satisfaction with care of 42 patients with breast cancer after three months of postoperative traditional care or evidence-based care and extended care. The study results showed that the SAS and SDS scores of 41 patients receiving evidence-based care and extended care decreased compared to the scores before care provision. However, the SAS and SDS scores for 21 patients after three months of evidence-based care in combination with extended care were lower than those of patients receiving traditional care. Therefore, the improvement effect of evidence-based care in combination with extended care on the postoperative psychological status of patients with breast cancer was superior to the effect of traditional care. By combining the problems encountered in clinical practice with a systematic review of relevant literature and other external evidence, evidence-based care uses scientific evidence and clinical knowledge to formulate a care regimen in line with patients' needs [14, 17].

However, rehabilitation care still needs to be provided to many patients with breast cancer after being discharged from hospital. Unfortunately, the care provided usually cannot reach the anticipated results due to a lack of systematic guidance, insufficient detectability of disease, poor health-related knowledge, and may even lead to adverse effects on the recovery of patients [18]. Studies indicate that the postoperative rehabilitation of patients with breast cancer is closely related to the patients' awareness of breast cancer, self-monitoring, and self-rehabilitation ability [19]. Extended care is the continuation of hospital care that provides direct, dynamic, continuous, and effective rehabilitation guidance for patients after discharge, by popularizing the relevant disease knowledge [20]. Extended care can scientifically and effectively supplement the care of patients after the completion of evidence-based care and hospital discharge. Extended care reduces recovery time, the occurrence of re-hospitalization due to disease relapse caused by insufficient understanding of

the disease by the patients or their family members, as well as by a lack of staff, financial resources, and other objective factors. Thus, under the concept of evidence-based medicine [21, 22], evidence-based care and extended care can influence nursing procedures to better serve patients.

We analyzed the nutrition level of the patients in the two groups by measuring the PA, ALB, and HGB values and found that the average nutrition level of patients receiving evidence-based care in combination with extended care was better than that in the usual care group. We interpreted these findings as follows: the improvement of patients' psychological status may have led to improvement in appetite. PA, ALB, and HGB are three relatively common indicators for the evaluation of nutrition levels [23]. One study found that the prognosis of patients with cancer who have good nutrition levels is significantly better than that of malnourished patients; therefore, if accompanied by malnutrition, both the postoperative incidence of adverse reactions and the risk of poor prognosis of patients increase significantly [24].

We also performed a statistical analysis of patients' satisfaction with the provided care and found that satisfaction was higher for the group receiving evidence-based care in combination with extended care compared to the usual care group. Additionally, the incidence of complications for patients during evidence-based care in combination with extended care was lower, which might also be a reason for patients' higher satisfaction with treatment. However, owing to the small sample size in this study, the study results still need to be verified by additional clinical data.

In conclusion, the application of evidence-based care in combination with extended care for the psychological care of patients with breast cancer can significantly improve their psychological status and nutrition level, promote postoperative quality of life, and enhance satisfaction with care.

Disclosure of conflict of interest

None.

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Appendix I

Summary of the questions included in the patient satisfaction questionnaire

Information & medical care

- Doctors' explanations of the disease
- Doctors' interest in patients' questions
- Doctors' care of patient
- Global assessment of the information
- Explanation at discharge
- Doctors' care
- Patients' need to ask for information about the health condition
- Doctors' professional training
- Patients' opinion of doctors' explanations
- Discharge report
- Explanations about treatment
- Doctors' use of technical words

Nursing care

- Nurses' care
- Nurses' empathy
- Nurses' care of patients
- Nurses' professional training
- Nurses' interest in patients' questions
- Global assessment of the care
- Contradictory orders
- Nurses' explanations of the disease

Comfort

- Room conditions for the patient
- Global assessment of the physical conditions of the hospital
- Quality of the food
- Room comfort for the family
- Sleep disturbance due to environmental conditions
- Hour patients were awakened

Visiting

- Visitors disturbed by staff
- Visiting hours
- Time the visitors spent in the room
- Quantity of visitors

Privacy

- Privacy during examination or tests
- Privacy on the way to testing

Cleanliness

- Toilet cleanliness
- Room cleanliness