

Analysis of the Effect of Nursing Based on the Theory of Gratitude Extension-Construction on Improving Hope Levels in Postoperative Breast Cancer Patients

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Abstract: *Objective:* To explore the practical effectiveness of nursing intervention based on the theory of Gratitude Extension-Construction in improving the sense of hope in breast cancer patients. *Methods:* A total of 104 breast cancer patients treated in our hospital from January 2023 to May 2024 were included and divided into a control group (routine nursing, 52 cases) and an observation group (routine nursing + nursing based on the theory of Gratitude Extension-Construction) using a random number table method. The Benefit Finding Scale (BFS), Hope Level Scale (HHI), and Quality of Life Questionnaire-Core 30 (QLQ-C30) were used to compare and analyze the scores of the two groups before intervention, 3 months after intervention, and 6 months after intervention. *Results:* There was no statistically significant difference in BFS, HHI, and QLQ-C30 scores between the two groups before intervention ($P > 0.05$). Both BFS and HHI scores increased in the two groups at 3 and 6 months after intervention compared to before intervention ($P < 0.05$), and the observation group had better BFS and HHI scores compared to the control group ($P < 0.05$). Before intervention, there was no significant difference in QLQ-C30 scores between the two groups in all dimensions ($P > 0.05$). Data comparison at 6 months after intervention showed that the observation group had better scores in all dimensions of QLQ-C30 than the control group ($P < 0.05$). *Conclusion:* Nursing intervention based on the theory of Gratitude Extension-Construction can effectively improve the benefit-finding ability of postoperative breast cancer patients, enhance their level of hope, and improve their quality of life. It is worthy of promotion and application in clinical nursing.

Keywords: Breast cancer; Gratitude Extension-Construction theory; Nursing; Hope level

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1. Introduction

Breast cancer is a common malignant tumor among women worldwide and one of the leading causes of death for women. Domestic data shows that there are 304,000 new cases and 70,000 deaths from breast cancer annually. Among female malignancies, its incidence rate ranks first, and its mortality rate ranks fifth^[1]. For breast cancer patients, besides enduring the physical pain caused by the disease, they also need to deal with a series of issues,

such as role changes, family relationship changes, and loss of feminine identity. These factors collectively have a negative impact on their physical and mental health as well as quality of life. Hope, as a positive psychological trait when facing difficulties, plays a key role in stimulating patients' treatment compliance and enhancing their confidence in coping with the disease.

Therefore, improving the level of hope among post-operative breast cancer patients has become an important goal of clinical nursing. The Broaden-and-Build Theory of Gratitude was proposed by Fredrickson and has now become a mainstream intervention theory in positive psychology ^[2]. This theory advocates that emotional feedback, as a positive psychological state, exhibits unique regulatory value. In the short term, it can expand individuals' boundaries of thinking and behavior and weaken negative emotional experiences. In the long run, it helps individuals form positive psychological resource accumulation, strengthens resilience in facing adversity, and enhances environmental adaptability. The application of this theory has achieved significant results in intervening in psychological disorders such as anxiety and depression, as well as emotional disorders caused by major physical illnesses and chronic diseases. In view of this, this study aims to analyze the effect of nursing based on the Broaden-and-Build Theory of Gratitude on improving the level of hope among breast cancer patients.

2. Materials

2.1. General information

A total of 104 breast cancer patients who visited our hospital from January 2023 to May 2024 were included in the study. They were randomly divided into two groups using a coin toss method, with 52 patients in each group.

2.1.1. Inclusion criteria

- (1) Highly suspicious malignancy indicated by at least two imaging examinations, such as breast ultrasound, mammography, and MRI, and pathologically confirmed as breast cancer by puncture or surgical biopsy, with laboratory and pathological results confirming breast cancer ^[3].
- (2) Undergoing breast cancer surgery.
- (3) Voluntary participation in this study.
- (4) Stable condition, clear consciousness, and good communication skills after surgery.

2.1.2. Exclusion criteria

- (1) Cases with other concomitant malignancies.
- (2) Patients participating in other studies.
- (3) Presence of cognitive impairment.
- (4) Those who withdrew from the study midway.
- (5) Poor medication compliance.

The general information of the two groups of patients is compared in **Table 1**. All patients in this study provided informed consent and signed an informed consent form, which has been approved by our hospital's medical ethics committee.

Table 1. Comparison of general information between the two groups of patients

Group	n	Age (years)	BMI (kg/m ²)	Lesion location		Surgery type	
				Unilateral	Bilateral	Breast- conserving	Modified radical
Control	52	45.62 ± 3.37	23.12 ± 1.86	45	7	12	37
Observation	52	44.84 ± 3.45	23.36 ± 1.79	43	9	15	40
<i>t/χ² value</i>	-	1.234 [#]	0.670 [#]	0.296*		0.450*	
<i>P</i> -value	-	0.220	0.504	0.587		0.502	

Note: # represents the t-value; * represents the χ^2 value.

3. Methods

3.1. Control group (routine care)

The nursing period covers the patient's hospital stay and extends to 6 months after discharge. During the hospital stay, continuous nursing care is provided from 8:00 to 17:00 every day, specifically including: monitoring vital signs (body temperature, blood pressure, pulse) every 4 hours, changing surgical incision dressings twice a day and observing healing progress; conducting one-on-one health education from 15:00 to 16:00 daily, covering the causes of breast cancer, key points of postoperative recovery, usage of targeted therapeutic drugs, and management of adverse reactions, with the simultaneous distribution of graphic manuals to aid understanding; communicating with patients and their families from 19:00 to 19:30 every day, listening to emotional concerns, providing targeted comfort, and answering treatment-related questions. On the day before discharge, a 1-hour discharge guidance session is conducted, including instructions on home wound care procedures, nutritional plans, and reminders for follow-up visits. Within 1 month after discharge, weekly follow-up calls are made on Wednesdays from 15:00 to 15:30 to inquire about home recovery status and reinforce compliance with healthy behaviors.

3.2. Observation group (Routine nursing + Nursing based on the Theory of Gratitude Extension-Construction)

The routine nursing content is the same as the control group, and on this basis, special nursing based on the Theory of Gratitude Extension-Construction is superimposed. The intervention cycle is 6 months, specifically as follows:

3.2.1. During hospitalization

- (1) Knowledge lectures: Conduct 3 lectures in the form of symposiums, each lasting 1–2 hours (on the 2nd, 5th, and 10th days after admission). The team member's design stepped content based on the Theory of Gratitude Extension-Construction. The first lecture explains the core of the theory, practical value, and the advantages of participating in the study; the second lecture provides targeted guidance based on the patient's cognitive level, answering difficulties in understanding the theory; the third lecture plays inspirational videos on the theme of gratitude and anti-cancer, shares real anti-cancer cases, and distributes supporting health brochures.
- (2) Positive memories: Conduct one-on-one conversations 1–2 times a day (10:00 AM or 4:00 PM), guiding

patients to relax, recall beautiful moments in life such as family gatherings and friends' care, and strengthen their positive attitude.

- (3) Gratitude meditation: Hold conversations every Tuesday and Friday from 2:00 PM to 3:00 PM, assisting patients in sorting out the most positively experienced moments in their lives (such as career achievements, parenting moments), and discussing future life goals they hope to achieve (such as traveling after recovery, spending time with family).
- (4) Gratitude expression: Encourage patients to convey gratitude and wishes to friends and family through letters, WeChat, or face-to-face communication 30 minutes after dinner every day.

3.2.2. After discharge

- (1) Health education: Establish a WeChat group, push gratitude concept knowledge and examples from Monday to Friday every week, encourage patients to share gratitude records and meaningful people and events in life, carry out mutual encouragement; team members answer questions online from 8:00 PM to 9:00 PM every day, understand the progress of gratitude practice and give encouragement, share recovery tips.
- (2) Patient communication: Organize online meetings from 3:00 PM to 4:00 PM on the last Saturday of each month. Researchers will explain the positive effects of gratitude intervention, invite 2–3 recovered patients to share their own practice process and effects, and answer patients' real-time questions.
- (3) Follow-up: Conduct telephone follow-ups every 15 days (each lasting 20–30 minutes) to understand the physical and mental state to ensure the implementation of the intervention, answer questions, remind of follow-up visits, provide targeted guidance to those with poor intervention effects, and adjust the intervention plan.

3.3. Observation indicators

- (1) Benefit finding: The Chinese version of the Benefit Finding Scale (BFS) was used to evaluate patients' perception of the benefits of illness before intervention, 3 months after intervention, and 6 months after intervention^[4]. The scale consists of 19 items, with each item scored from 0 to 4. A higher score indicates a higher level of individual perception of the benefits of illness.
- (2) Hope level: The Herth Hope Index (HHI) scale was used to quantitatively evaluate the hope level of the subjects. The scale consists of three dimensions: positive attitude, positive action, and intimate relationship, with a total of 12 items and a total score of 48. Based on score differences, hope levels are divided into three categories: low (below 23 points), medium (23–36 points), and high (36 points and above)^[5].
- (3) Quality of life of cancer patients: The Quality of Life Questionnaire for Cancer Patients (QLQ-C30) scale was used to evaluate the quality of life of patients before intervention and 6 months after intervention. The scale consists of two parts: function (physical, emotional, cognitive, role, and social functioning) and symptoms (fatigue, nausea and vomiting, pain). Each dimension has a maximum score of 100. The functional domain scores are positively correlated with the patient's quality of life, while the symptom domain scores are negatively correlated with quality of life^[6].

3.4. Statistical methods

Comprehensive statistical analysis of the data was performed using SPSS 24.0 software system, with a significance level of $P < 0.05$. Measurement data were presented as mean $\pm$ standard deviation and analyzed using the t-test.

Count data were expressed as frequency (n) and percentage (%), and analyzed using the χ^2 test.

4. Results

4.1. Comparison of BFS scores before and after intervention between the two groups

There was no statistically significant difference in BFS scores between the two groups before intervention ($P > 0.05$). However, at 3 and 6 months after intervention, the observation group showed better BFS scores compared to the control group ($P < 0.05$), as shown in **Table 2**.

Table 2. Comparison of BFS scores before and after intervention between the two groups ($\bar{x} \pm S$, scores)

Group	n	Before intervention	3 months after intervention	6 months after intervention
Control	52	44.33 $\pm$ 5.17	45.03 $\pm$ 6.64	46.83 $\pm$ 6.35
Observation	52	43.42 $\pm$ 5.31	47.56 $\pm$ 4.55	50.47 $\pm$ 4.32
<i>t</i> -value	-	0.885	2.267	3.418
<i>P</i> -value	-	0.378	0.026	0.001

4.2. Comparison of HHI scores before and after intervention between the two groups

The HHI scores of the observation group were more advantageous at 3 and 6 months after intervention ($P < 0.05$), as shown in **Table 3**.

Table 3. Comparison of HHI scores before and after intervention between the two groups ($\bar{x} \pm S$, scores)

Group	n	Before intervention	3 months after intervention	6 months after intervention
Control	52	36.37 $\pm$ 4.59	36.76 $\pm$ 3.64	39.71 $\pm$ 6.13
Observation	52	35.14 $\pm$ 5.77	38.57 $\pm$ 4.25	43.62 $\pm$ 4.19
<i>t</i> -value	-	1.203	2.333	3.797
<i>P</i> -value	-	0.232	0.022	< 0.001

4.3. Comparison of QLQ-C30 scores before and after intervention between the two groups ($\bar{x} \pm S$, scores)

After intervention, the scores of each dimension of QLQ-C30 improved in both groups compared to before intervention, and the scores of each dimension in the observation group were better than those in the control group ($P < 0.05$), as shown in **Table 4**.

Table 4. Comparison of QLQ-C30 scores before and after intervention between the two groups

Group	Physical function		Emotional function		Cognitive function		Role function	
	Before	After	Before	After	Before	After	Before	After
Control (n=52)	60.02 $\pm$ 2.46	68.36 $\pm$ 3.27*	59.48 $\pm$ 3.54	65.43 $\pm$ 2.89*	64.93 $\pm$ 3.78	68.58 $\pm$ 2.46*	48.58 $\pm$ 3.45	53.65 $\pm$ 2.72*
Observation (n=52)	59.44 $\pm$ 2.91	73.43 $\pm$ 2.64*	60.24 $\pm$ 3.13	69.58 $\pm$ 2.37*	65.66 $\pm$ 3.72	71.32 $\pm$ 2.11*	49.56 $\pm$ 3.37	57.73 $\pm$ 2.53*
<i>t</i> -value	1.098	8.699	1.160	8.007	0.993	6.097	1.465	7.920
<i>P</i> -value	0.275	< 0.001	0.249	< 0.001	0.323	< 0.001	0.146	< 0.001

Continued Table 4:

Group	Social function		Fatigue (Tiredness)		Nausea and vomiting		Pain	
	Before	After	Before	After	Before	After	Before	After
Control (n=52)	42.25 ± 3.45	50.21 ± 3.34*	54.82 ± 2.86	45.23 ± 2.36*	36.68 ± 3.44	32.64 ± 2.18*	48.57 ± 3.93	43.63 ± 2.45*
Observation (n=52)	41.66 ± 3.27	53.62 ± 3.21*	55.06 ± 2.65	40.63 ± 2.28*	36.13 ± 3.21	30.45 ± 2.12*	49.44 ± 4.02	40.58 ± 2.37*
t-value	0.895	5.308	0.444	10.109	0.843	5.193	1.116	6.452
P-value	0.373	< 0.001	0.658	< 0.001	0.401	< 0.001	0.267	< 0.001

Note: * $P < 0.05$ compared to before intervention

5. Discussion

Breast cancer, as a malignant tumor with a high incidence among women worldwide, poses a serious threat to patients' physical and mental health due to its high morbidity and mortality rates. Currently, the clinical treatment for breast cancer mainly focuses on surgery combined with postoperative chemotherapy. Although this approach can effectively control disease progression, patients often endure multiple pressures during treatment, such as physical pain, role changes, and loss of feminine identity, resulting in decreased hope levels and reduced quality of life [7]. The conventional nursing model primarily revolves around basic care and health education related to the disease itself. While it can meet patients' basic medical needs, it has limitations in psychological intervention and finds it difficult to comprehensively improve patients' positive psychological traits. On the other hand, the broaden-and-build theory of gratitude, based on a positive psychology perspective, emphasizes guiding individuals to focus on positive events in life, cultivating a sense of gratitude, activating positive emotional resources, and ultimately expanding cognitive and behavioral capabilities. This helps build more durable psychological resilience, providing emotional support and self-identity to patients after breast cancer surgery [8].

In this study, the observation group showed better performance in terms of BFS and HHI scores compared to the control group after intervention ($P < 0.05$), suggesting that nursing based on the broaden-and-build theory of gratitude can effectively enhance patients' benefit-finding ability. This theory helps patients re-examine the relationship between illness and life and extract positive elements from negative experiences by guiding them to recall positive moments in life and express gratitude [9]. This approach breaks patients' single negative perception of illness, prompts them to actively discover support and meaning in life, and improves their benefit-finding ability. Regarding hope level, the observation group had significantly higher HHI scores than the control group ($P < 0.05$). This is attributed to the synergistic effect of multi-dimensional intervention measures. Knowledge lectures helped patients understand the significance of gratitude practices in recovery and built confidence in the intervention. Mutual communication and regular follow-ups within the WeChat group provided continuous social support to patients, allowing them to receive peer encouragement and professional guidance when facing treatment difficulties. Simultaneously, the gratitude expression session further strengthened patients' psychological capital to cope with the disease by enhancing their emotional connection with loved ones, thereby promoting a positive attitude and willingness to act and boosting hope levels [10].

Additionally, comparing the quality of life between the two groups of cancer patients, the observation group scored better in all dimensions of QLQ-C30 than the control group. This is due to the integration of multi-dimensional psychological resources by the nursing model based on the broaden-and-build theory of gratitude. On the one hand, it effectively improved patients' functional dimensions (physical, emotional, social functions, etc.),

as the positive psychological state of patients promotes physiological recovery. Gratitude, through broadening the scope of thinking, enhances patients' enthusiasm for cooperating with treatment, such as adhering to rehabilitation training and implementing a reasonable diet, thereby improving physical function ^[11]. On the other hand, improving emotional function reduces the interference of negative emotions such as anxiety and depression on quality of life, further improving symptom dimensions (such as fatigue and pain). This is related to the regulation of pain perception by psychological state. Positive emotions can decrease patients' focus on physical discomfort, thereby alleviating subjective symptom experiences. This bidirectional regulation mechanism between psychology and physiology achieves multi-dimensional enhancement of quality of life ^[12]. It should be noted that this study has limitations: the sample size was only 104 cases from a single center, which may introduce selection bias; the follow-up period was only 6 months, making it difficult to evaluate long-term effects; the randomization method used was coin tossing, which is less random than the random number table method. Future studies should expand the sample size, conduct multi-center research, and use more rigorous randomization methods to validate the conclusions.

6. Conclusion

In summary, nursing based on the gratitude extension-construction theory, through systematic intervention design, fully utilizes the positive psychological effects of gratitude emotions, and provides psychological support for post-breast cancer surgery patients from multiple levels, such as cognition, emotions, and social support, effectively improving their ability to discover benefits and level of hope, and enhancing their quality of life. It is worthy of clinical promotion and application.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Gong W, Yang J, Cai M, 2020, Observational Study on the Improvement of Bad Emotions and Self-Management Behaviors of Peritoneal Dialysis Patients by Gratitude Extension-Construction Theory Therapy. *Chinese Journal of Blood Purification*, 19(4): 4.
- [2] Qian L, Zhang Y, Chen H, et al., 2024, The Clinical Effect of Gratitude Extension-Construction Theory Nursing Program on Bladder Cancer Patients With Fear of Cancer Recurrence. *Frontiers in Oncology*, 14: 1364702.
- [3] Chinese Anti-Cancer Association Breast Cancer Professional Committee, 2021, Guidelines and Standards for the Diagnosis and Treatment of Breast Cancer by the Chinese Anti-Cancer Association (2021 Edition). *Chinese Journal of Cancer*, 31(10): 954–1040.
- [4] Hu Y, 2014, Localization Research of the Benefit Finding Rating Scale in Breast Cancer Patients, thesis, Anhui Medical University.
- [5] Yuan X, Wei X, 2023, Correlation Analysis of Cancer-Related Fatigue, Social Support, and Hope Level in Patients With Multiple Myeloma Undergoing Chemotherapy. *Journal of Bengbu Medical College*, 48(10): 1445–1450.
- [6] Katja D, Michael S, Xinke Z, 2022, Interpreting Within-Patient Changes on the EORTC QLQ-C30 and EORTC QLQ-LC13. *The Patient*, 15(6): 691–702.

- [7] Sun Q, Tang T, Xiao S, et al., 2022, Research on the Benefit Finding and Hope Level of Breast Cancer Patients After Surgery and Chemotherapy Based on Gratitude Extension-Construction Theory. *Sichuan Medical Journal*, 2022(3): 43.
- [8] Wu J, Zhang H, Liu X, et al., 2021, The Influence of Nursing Intervention Based on the Broaden-and-Build Theory of Gratitude on Gratitude Level, Fear of Recurrence, and Negative Emotions of Post-Breast Cancer Surgery Patients. *Journal of Nurses Training*, 2021(14): 36.
- [9] Huang Q, Fu X, Ouyang Y, et al., 2022, Application of the Broaden-and-Build Theory of Gratitude in Continuous Nursing Care for Elderly Patients With Bronchiectasis and Depression. *Chinese Nursing Research*, 36(1): 171–174.
- [10] Yang X, Zhang Y, Zhao L, et al., 2023, The Influence of Health Belief Intervention on Hope Level and Quality of Life in Breast Cancer Chemotherapy Patients. *Oncology Progress*, 21(11): 1269–1272.
- [11] Wang J, Yang L, Cheng S, 2024, The Effect of MDT Continuous Nursing Model on Hope Level, Fear of Progression, and Quality of Life in Patients After Liver Cancer Surgery. *Chongqing Medicine*, 53(21): 3349–3351.
- [12] Xu Y, Liu F, Tang L, 2021, The Influence of Perioperative Health Education Based on the Knowledge, Attitude, and Behavior Model on Psychological Endurance, Hope Level, and Personality Characteristics of Breast Cancer Patients Undergoing Breast-Conserving Surgery. *Maternity and Child Health Care of China*, 36(23): 4.

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