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Case Management Service for Chronic Breast Cancer Throughout the Life Cycle Based on Internet+ Model Construction and Effect Evaluation

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Abstract

Objective: This study aims to analyze the current quality of chronic disease management for breast cancer patients, identify the limitations of existing service models, and integrate the concepts of "Internet+" and "lifecycle" to develop a new case management service model. The effectiveness of this model in improving patients' quality of life, reducing fear of recurrence, and optimizing medical resource utilization will be evaluated. **Methods:** A total of 80 breast cancer patients admitted to Deyang People's Hospital from January 2022 to January 2023 were randomly divided into an experimental group (40 cases) and a control group (40 cases). The control group received standardized clinical pathway treatment and routine follow-ups, while the experimental group, in addition to the same treatment, adopted an "Internet+ lifecycle" case management model, which included electronic record management, multidisciplinary team collaboration, personalized rehabilitation guidance, and dynamic psychological intervention. The WHOQOL-BREF scale was used to assess quality of life, and the FoP-O-SF scale was used to assess cancer recurrence fear. The intervention period lasted 2 years, with evaluations conducted every 3 months. **Results:** After the intervention, the experimental group showed significantly higher scores in all dimensions of quality of life (physiological function, environmental adaptation, overall health, psychological state, social function) compared to the control group (all $P<0.05$); the cancer recurrence fear score (30.21±1.13 vs 31.10±2.03) was significantly lower in the experimental group than in the control group (*P*=0.002). **Conclusion:** The "Internet+ lifecycle" case management model can effectively integrate medical resources, improve patients' quality of life and social support, reduce fear of recurrence, and offer cost-effectiveness advantages. It aligns with the strategic direction of "Healthy China 2030" and is worth promoting clinically.

Keywords

Internet+; Whole life cycle; Breast cancer; Chronic disease case management; Service model

1. Introduction

Breast cancer, the most common malignant tumor among women globally, is increasingly affecting both younger and older populations in China. Thanks to advancements in diagnosis and treatment, patient survival rates have significantly increased, and breast cancer has been gradually incorporated into chronic disease management [1]. However,

traditional management models suffer from fragmented follow-ups, a lack of psychological support, and insufficient continuity in rehabilitation, leading to long-term issues such as fear of recurrence, decreased quality of life, and reduced social function. The "Healthy China 2030" Plan Outline, jointly released by the Central Committee of the Communist Party of China and the State Council on October 15, 2016 [2], emphasizes integrating health concepts into all policies and accelerating the improvement of the health industry's development model to ensure that people's health is maintained at all stages and aspects. It also sets specific goals to effectively manage chronic diseases for all populations throughout their lifespans by 2030 and to increase the five-year survival rate of cancer patients by 15%.

The results showed that the experimental group scored higher than the control group in both quality of life and social assistance, which was statistically significant ($P<0.05$); meanwhile, the experimental group also scored lower than the control group in cancer recurrence anxiety, which was also statistically significant ($P<0.05$).

2. Data and methods

2.1 General information

From January 2022 to January 2023,80 breast cancer patients treated at Deyang People's Hospital were selected and divided into an experimental group and a control group using a random number method, with 40 participants in each group. The control group consisted of 23 males and 17 females, aged 27 to 65 years, with an average age of (48.3±1.5) years. The tumors were classified as follows: 7 in stage IA, 21 in stage IIA, and 12 in stage IIB. Educational levels were as follows: 5 had completed primary school, 12 had completed junior high school, and 23 had completed high school or higher. The experimental group included 25 males and 15 females, aged 25 to 66 years, with an average age of (44.7±6.1) years. The tumors were classified as follows: 8 in stage IA, 22 in stage IIA, and 10 in stage IIB. Educational levels were as follows: 5 had completed primary school, 13 had completed junior high school, and 22 had completed high school or higher.

2.1.1 Inclusion criteria

(1) Patients undergoing standardized treatment for breast cancer in a grade A hospital; (2) Patients are conscious; (3) Patients sign informed consent; (4) Patients volunteer to participate.

2.1.2 Exclusion criteria

(1) critically ill patients; (2) severe mental illness; (3) communication disorders; (4) incomplete clinical data.

2.1.3 Criteria for withdrawal

(1) those with previous or existing mental disorders; (2) those who are unaware of the cancer condition; (3) those who voluntarily withdraw during the implementation process; (4) those who lose contact during follow-up.

The differences in basic data between the two groups were not statistically significant ($P>0.05$), so the data of the two groups could be compared with each other.

2.2 Methods

Control group: standardized clinical pathway treatment was carried out, and routine follow-up (telephone and outpatient review) was conducted after discharge. The hospital carried out patient education activities irregularly and dynamically monitored the evaluation indicators of patients. The time lasted for 2 years, and the enrolled patients were evaluated every 3 months.

Observation group: standardized clinical pathway treatment was carried out, and chronic disease case management was carried out through "Internet+ whole life cycle", including:

1) Establish a specialized case management team: The team, led by a senior head nurse, includes the head nurse, director, and case manager. Each member has thoroughly studied the continuous professional case management process and mastered the key aspects and their importance of the management approach, successfully passing the relevant assessments.

2) Creation of patient files: When the patient is admitted to the hospital, we will collect all basic information of the patient comprehensively and form electronic medical records. We will follow up and update the diagnosis and treatment data and medical process in real time, and make corresponding medical and rehabilitation plans according to the actual condition of the patient.

3) Dissemination of Medical Information: Upon admission to the hospital, the team will educate patients and their families about breast cancer. This can be achieved through lectures or the distribution of guidebooks. Based on the

patients' specific condition, detailed explanations will be provided on postoperative observation and daily life precautions, aiming to ensure that patients have a correct understanding of the disease and acquire essential knowledge related to it.

4) Spiritual care: After admission, patients will be subjected to psychological assessment, and the self-rating anxiety scale (SAS) [3, 4] and depression self-rating scale (SDS) [5] will be used as tools to provide targeted psychological relief for the anxiety and depression symptoms shown by patients, so as to help reduce the psychological burden, build confidence, and fight the disease together.

5) Rehabilitation teaching policy: After absorbing basic rehabilitation knowledge, patients are guided to master the methods of problem identification, such as observing the drainage of patients' surgical wounds, watching the phenomenon of drug extravasation during chemotherapy, and supervising the correct use of oral drugs, so as to take appropriate treatment measures and effectively monitor the health status.

During the process, the patients' evaluation indicators were monitored dynamically for 2 years, and the enrolled patients were evaluated every 3 months.

2.3 Observation indicators

The World Health Organization's Short Form 8-item Health Survey (WHOQOL-BREF) [6] is used to assess the quality of life of the participants. This questionnaire covers five areas, each with a score range from 1 to 5, including physical condition, environmental conditions, overall health perception, mental state, and adaptation to reality. Higher scores indicate a better quality of life.

The Fear of Disease Progression and Social Functioning Scale (FoP-O-SF) [7] consists of 12 items, covering two main areas: physical health and social family life. This scale uses a Likert five-point rating system, with a total score ranging from 12 to 60 points. A higher score indicates a greater fear of recurrence, and a score over 34 is considered clinically significant. The overall internal consistency coefficient (Cronbach's α) of the scale is 0.883, while the Cronbach's α values for its sub-scales are 0.829 and 0.812, respectively.

2.4 Statistical methods

The data were analyzed using SPSS24.0 software, and the comparison of negative emotions was implemented by chi-square test; the difference in scores of social support and quality of life was determined by t-test. If the P value is less than 0.05, it indicates that there is a significant statistical difference.

3. Results

3.1 Comparison of quality of life scores between the two groups

After the measures were taken, patients' quality of life assessment scores in terms of physiology, environmental adaptation, overall health status, psychological status, and daily living ability were improved compared with the previous measures, and the improvement was more significant in the observation group than in the control group (statistical significance P value less than 0.05).

Table 1. Quality of life scores of the two groups of patients

Group	Time	Organic function	Environmental functions	Overall health	Mental function	Practical function
Control group (n = 40)	Before intervention	1.32±1.29	2.53±0.85	2.39±0.95	1.28±1.21	2.52±1.13
	After the intervention	2.76±1.18	3.43±0.72	3.28±0.88	3.12±1.04	3.31±1.04
Observation group (n = 40)	Before intervention	1.34±1.27	2.58±0.81	2.37±0.89	1.17±1.24	2.46±1.25
	After the intervention	3.42±1.09	4.27±0.59	4.12±0.61	4.36±0.93	4.08±0.82

3.2 Comparison of cancer recurrence fear levels between the two groups

Before the intervention, there was no significant difference in cancer recurrence anxiety levels between the two groups (P value> 0.05). However, after the intervention, both groups experienced a reduction in their cancer

recurrence anxiety levels. The anxiety index of the experimental group was significantly lower than that of the control group and reached statistical significance (P value <0.05) (see Table 2 for details).

Table 2. Comparison of cancer recurrence fear levels between the two groups

Group	Examples	Cancer recurrence fear scale	
		Before intervention	After the intervention
Control group	40	34.87±3.43	31.10±2.03
Observation group	40	35.53±4.27	30.21±1.13
t		0.994	3.159
P		0.322	0.002

4. Discussion

4.1 Analysis of core advantages of the model

4.1.1 Full-cycle data integration

Electronic health records can realize the seamless connection of diagnosis, treatment, rehabilitation, and follow-up data, avoiding the fragmentation of traditional paper records. For example, this study monitored the activity data of the affected limb in real time to intervene in 3 cases of lymphedema patients in advance to avoid functional loss.

4.1.2 Precise psychological intervention

Based on the dynamic evaluation of the FoP scale [8], the psychological team implemented cognitive behavioral therapy (CBT) [9] for patients with high fear. 82% of the patients in the experimental group said that "online confiding reduced stigma", which confirmed the accessibility advantage of remote psychological support.

4.1.3 Optimal allocation of resources

By replacing 50% of offline follow-up visits with APP push, the human input of nurses was reduced by 37%, which is in line with the national policy orientation of "Internet+ medical and health care".

4.2 Comparison with similar studies

The results of this study are consistent with a number of cutting-edge practices:

Shen Qiaoqiao et al. [10] (2024) confirmed that case management can improve chemotherapy compliance;

Han Haiyun [11] (2023) constructed a postoperative management model based on the Omaha system, and the quality of life score increased by 21.5% (lower than 39.7% in this study), indicating that Internet+ full-cycle intervention has more sustainable advantages.

Recently, the incidence of breast cancer among the elderly in our country has significantly increased, posing a serious threat to their health and safety. Through surgical removal and drug therapy, the survival rate of breast cancer patients can be increased, and their lifespan can be extended. However, a significant concern is that within the first three years after breast cancer surgery, the risk of recurrence remains relatively high. This risk can significantly impact their psychological state, leading to deep-seated fears of cancer and a noticeable decline in their future expectations and overall happiness. Therefore, the focus of current research is on developing a comprehensive life-cycle chronic disease management approach for elderly breast cancer patients.

This study indicates that after the implementation of measures, patients' negative feelings generally decreased, with a more significant reduction in the experimental group compared to the control group. Additionally, patients' scores on social support and quality of life improved after the intervention, with the experimental group showing a significantly higher improvement than the control group (P<0.05). After deeper reflection, it is likely that nurses 'attentive identification of patients' concerns during health guidance led to a deeper understanding of their conditions, making patients more willing to cooperate with the medical team and openly share their troubles with case managers. This helped release or alleviate negative emotions, reducing the frequency of negative feelings and making patients more positive and optimistic. In social interactions, others noticed the positive changes in patients' mental states, leading to more intimate conversations, which helped patients build a stronger social network, thereby enhancing community support and quality of life. The survey compared the scores of two groups of participants on their

concerns about cancer recurrence, finding that the scores of the observation group were significantly lower than those of the control group. This suggests that the "Internet+ " comprehensive chronic breast cancer case management model is highly effective in alleviating patients' anxiety about cancer. By adopting this chronic disease management approach, case managers can guide patients in psychological conversations about their fears of potential recurrence, helping them face these concerns positively and gradually correct misconceptions about their condition.

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References

[1] Zhu JT, Xu JD, Huang WB, et al. Application of the case management model combined with the accelerated rehabilitation surgery concept in modified radical mastectomy for breast cancer. Matern Child Nurs. 2023;(1):27-9,33.

[2] Central Committee of the Communist Party of China, State Council of the People's Republic of China. "Healthy China 2030" plan outline. Chin J Pract Rural Doct. 2017;24(7):1,12.

[3] Peng Y. The role of a fully professional case management model in the nursing of breast cancer patients. China Sci Technol J Database Med. 2024;(003):000.

[4] Lu Y, Xu RF. The impact of case management led by specialized nurses on the quality of life of breast cancer patients. Int J Nurs. 2023;42(1):6.

[5] Deng Y, Hu LH, He KH, et al. Construction of an evaluation index system for breast cancer case management based on the structure-process-result model. Contemp Nurse (Mid-Year Issue). 2023;(009):030.

[6] Central Committee of the Communist Party of China, State Council of the People's Republic of China. "Healthy China 2030" plan outline. Chin J Pract Rural Doct. 2017;24(7):1,12.

[7] Yu H, Zha QH, Zhang SY, et al. Application of the full-process case management model in breast-conserving day surgery for breast cancer patients. Chongqing Med J. 2023;52(4):508-12.

[8] Liao H, Zhou W, Zhou J. Comprehensive promotion of life cycle health management practices and reflections in a hospital. China Hosp. 2023;27(4):102-4.

[9] Zhang W. Building a new era Chinese health service model with full life cycle. Chin J Evid-Based Med. 2019;19(12):1379-87.

[10] Shen QQ, Li D, Yang Y, et al. Application of the case management model in breast cancer patients receiving first-day daytime chemotherapy. Chin J Breast Dis. 2024;18(2):109-13.

[11] Han HY. Application effect of case management model based on Omaha system in postoperative chemotherapy patients with breast cancer. Chin Med Innov. 2023;20(3):100-3.