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Research Article

A Qualitative Study on the Prehabilitation Needs of Patients and Medical Personnel for Breast Cancer Patients Following Neoadjuvant Chemotherapy

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Background: Breast cancer poses a significant threat to the health of women worldwide. This study comprehensively explored the need for breast cancer patients to enhance their quality of life following neoadjuvant chemotherapy.
Objective: To understand the real-life experiences of breast cancer patients after preoperative neoadjuvant chemotherapy and healthcare professionals' awareness of prehabilitation post-neoadjuvant chemotherapy, providing references for developing targeted intervention measures.
Methods: Using descriptive phenomenology, 32 patients from breast surgery departments of five tertiary hospitals nationwide and 28 healthcare professionals were selected for semistructured interviews between March 2025 and May 2025. The data analysis followed Colaizzi's seven-step method.
Results: Four key themes emerged: the preoperative needs of breast cancer patients after neoadjuvant chemotherapy, personal patient goals, healthcare professionals' understanding of prehabilitation, and optimal timing for prehabilitation interventions.
Conclusion: Healthcare providers should address breast cancer patients' psychological, physical activity, nutritional, underlying health conditions, economic, and health education needs following neoadjuvant chemotherapy. Enhanced attention should be given to changes in patients' role perception and attitudes toward rehabilitation. Improving medical staff's prehabilitation awareness and developing multidisciplinary personalized prehabilitation programs post-neoadjuvant chemotherapy will facilitate patient recovery.

Keywords: breast cancer; healthcare professionals; neoadjuvant chemotherapy; nursing; patient; prehabilitation; qualitative research

1. Introduction

Cancer remains a major social, public health, and economic challenge in the 21st century, ranking among the leading causes of noncommunicable disease mortality worldwide [1]. Breast cancer has surpassed lung cancer to become the most prevalent cancer globally, representing the malignancy with the highest mortality rate among women [2]. According to statistics from the World Health Organization (WHO), approximately 2.3 million new breast cancer cases were reported worldwide in 2020, with China accounting for approximately 420,000 new cases [3]. Breast cancer poses a serious threat to women's health in China and globally, significantly affecting their quality of life (QOL). Effective nursing interventions are essential to improve patients' QOL and consequently enhance the health outcomes of patients with breast cancer.

In recent years, perioperative enhanced recovery after surgery (ERAS) nursing measures in breast cancer treatment, including pain management, anesthesia management, early feeding, and early mobilization, have demonstrated clinical effectiveness [4]. These approaches accelerate postoperative rehabilitation, shorten hospital stay, and ultimately improve patients' QOL. Currently, surgery and chemotherapy are crucial treatment options for breast cancer. Although chemotherapy effectively kills cancer cells, enhances therapeutic outcomes, and prolongs patient survival, it concurrently diminishes patients' QOL [5]. Neoadjuvant chemotherapy (NACT) has emerged to improve surgical resection rates. It has now been widely adopted for breast cancer treatment and has demonstrated remarkable clinical efficacy [6]. Although NACT enhances therapeutic effectiveness for breast cancer, it still carries inherent treatment risks, such as deteriorating patients' physiological and psychological status, and may even increase surgical difficulty and complicate subsequent treatments [7–10], thereby affecting the patient's prognosis. Owing to the inherent metabolic demands of breast cancer, surgical trauma, and adverse effects of NACT, patients often experience issues such as nutritional imbalances and reduced exercise capacity. Therefore, implementing preoperative prehabilitation to enhance patient readiness for surgery and subsequent treatments is crucial.

Currently, most scholars consider prehabilitation as an innovative preoperative rehabilitation strategy developed from the ERAS concept. Fleurent-Grégoire et al. [11] define prehabilitation as a process spanning from disease diagnosis to surgery, incorporating one or more intervention measures including exercise, nutrition, psychological strategies, and respiratory training. This multimodal approach aims to enhance patients' physical function and physiological reserves, enabling them to withstand treatment stressors, such as surgery, while improving postoperative outcomes and facilitating recovery. Currently, prehabilitation research in China is in its nascent stages. Breast cancer studies within the prehabilitation context are relatively limited, with contradictory findings among existing studies, and optimal intervention protocols remain to be developed [12]. This study developed an interview guide based on four fundamental characteristics of empowerment theory (ET). Originating from social movement consciousness, ET [13] is characterized by four features: collaborative participation, theoretical knowledge, awareness enhancement, and open communication [14]. The WHO emphasizes that empowerment involves patients' proactive engagement in self-management to improve their health outcomes [15]. Based on the ET, this study explores the lived experiences of breast cancer patients following NACT, gaining in-depth insights into their preoperative prehabilitation needs and healthcare professionals' awareness of preoperative prehabilitation. This study aimed to elucidate the physiological and psychological development patterns of breast cancer patients after neoadjuvant therapy, thereby providing a reference for developing targeted prehabilitation intervention measures to enhance patients' QOL.

2. Subjects and Methods

2.1. Study Participants. Using purposive sampling, we recruited interview participants from breast surgery departments, including healthcare professionals, rehabilitation specialists, nutritionists, psychiatrists, and patients, across five tertiary Grade A general hospitals nationwide, between March and May 2025. The patient inclusion criteria: ① Age ≥ 18 years and post-NACT breast cancer patients; ② Possess adequate communication skills; ③ Voluntarily participate in this study. Patients with a history of speech impairment or mental illness preventing normal communication; ② Those who refuse to participate, and participants in other studies. Nurse inclusion criteria: ① Possess valid Nurse Practicing Certificate with active registration; ② clinical nursing experience of ≥ 5 years in the Breast Surgery Department with intermediate or higher professional title; ③ Demonstrate strong comprehension and communication skills; and ④ Provide informed consent and voluntarily participate in this study. Physician inclusion criteria: ① Possession of a valid registered medical license and completion of Standardized Training; other criteria aligned with nurse inclusion standards. Healthcare professionals were excluded if they were rotating in the department, undergoing further education, or on leave exceeding 6 months. The details are presented in Table 1. Sample saturation in this study was determined by cessation of the new thematic generation. During the interview process, three patients declined participation due to unwillingness to communicate and two Breast Surgery Department Physicians refused due to workload constraints. Ultimately, 32 patients and 28 healthcare professionals were included in this study. The demographic data are presented in Tables 2 and 3. This study was approved by the Hospital Ethics Committee (no. 2023110801). The interviews adhered to the principle of informed consent, with researchers committing to confidentiality principles. The participants retained the right to withdraw unconditionally at any time.

2.2. Research Methods

2.2.1. Delphi Consultation Method

2.2.1.1. Design of the Delphi Consultation Questionnaire. The consultation questionnaire was developed according to the requirements of the Delphi consultation method [16], which consists of three parts. (1) Cover Letter: includes expressions of gratitude, research purpose and significance, instructions for completing the form, etc. (2) Questionnaire Content: comprises indicator items and an expert comment section. Experts rated the importance of each indicator using a Likert 5-point scale, with scores ranging from 1 to 5 corresponding to Unimportant, Slightly Important, Moderately Important, Important, Very Important, respectively. The experts may provide supplementary or revised comments on the designated section. (3) Expert Information Survey: contains experts' demographic information, their familiarity with consultation content, and the basis of judgment. Familiarity with consultation content (Cs) was

Table 1: Inclusion and exclusion criteria for healthcare professionals.

	Inclusion criteria (differentiation)	Exclusion criteria
Nurse	Valid nurse practicing certificate with active registration;	Healthcare professionals rotating through the department, undergoing further education, or having taken leave exceeding 6 months
Physicians	Valid physician qualification certificate with active registration; completion of standardized training	

Table 2: General demographic information of patients ($n = 32$).

Id	Age	Gender	Education level	Marital status	Employment status	Cancer type	Medical insurance	Medical history
A1	30	Female	Bachelor	Married	Designer	Left breast	Employee medical insurance	
A2	50	Male	Primary school	Unmarried	Porter	Left breast	Urban resident medical insurance	Hypertension
A3	55	Female	Primary school	Married	Farmer	Left breast	Urban resident medical insurance	
A4	60	Female	High school	Widowed	Retired	Right breast	Employee medical insurance	Diabetes mellitus
A5	69	Female	High school	Married	Retired	Right breast	Employee medical insurance	Hypertension
A6	55	Female	Primary school	Married	Farmer	Left breast	Urban resident medical insurance	
A7	60	Female	Junior high school	Married	Retired	Right breast	Employee medical insurance	
A8	62	Female	Junior high school	Married	Retired	Left breast	Employee medical insurance	
A9	54	Female	Primary school	Married	Farmer	Left breast	Urban resident medical insurance	
A10	57	Female	Primary school	Married	Farmer	Left breast	Urban resident medical insurance	
A11	51	Female	Junior high school	Married	Farmer	Right breast	Urban resident medical insurance	
A12	63	Female	Primary school	Married	Farmer	Right breast	Urban resident medical insurance	
A13	69	Female	Primary school	Widowed	Farmer	Left breast	Urban resident medical insurance	Hypertension
A14	45	Female	Junior high school	Second marriage	Farmer	Left breast	Urban resident medical insurance	
A15	56	Female	High school	Married	Retired	Left breast	Employee medical insurance	
A16	60	Female	Bachelor	Married	Retired	Left breast	Employee medical insurance	
A17	52	Female	High school	Married	Freelancer	Right breast	Urban resident medical insurance	
A18	34	Female	High school	Married	Freelancer	Left breast	Commercial insurance	
A19	66	Female	Junior high school	Married	Freelancer	Left breast	Urban resident medical insurance	Hyperthyroidism
A20	45	Male	Bachelor	Married	Freelancer	Left breast	Urban resident medical insurance	
A21	60	Male	College	Widowed	Retired	Left breast	Employee medical insurance	
A22	44	Female	Bachelor	Married	Lawyer	Right breast	Employee medical insurance	
A23	56	Female	Junior high school	Widowed	Retired	Left breast	Employee medical insurance	
A24	68	Female	Primary school	Married	Farmer	Left breast	Urban resident medical insurance	
A25	39	Female	Bachelor	Married	Teacher	Right breast	Employee medical insurance	Hyperthyroidism
A26	65	Female	High school	Married	Retired	Left breast	Employee medical insurance	Diabetes mellitus
A27	67	Female	Primary school	Married	Farmer	Right breast	Urban resident medical insurance	Hypertension
A28	68	Female	Primary school	Married	Farmer	Right breast	Urban resident medical insurance	Diabetes mellitus
A29	60	Female	Bachelor	Married	Retired	Right breast	Employee medical insurance	
A30	48	Female	Bachelor	Married	Teacher	Right breast	Employee medical insurance	
A31	42	Female	Master	Married	Physicians	Left breast	Employee medical insurance	
A32	54	Female	Bachelor	Married	Retired	Right breast	Employee medical insurance	Pneumonia

Table 3: General information of healthcare professionals ($n = 28$).

Id	Gender	Age (years)	Education level	Professional title	Years of work experience	Department/unit
B1	Female	35	Master	Charge nurse	9	Breast surgery department
B2	Female	36	Bachelor	Charge nurse	11	Breast surgery department
B3	Female	34	Bachelor	Charge nurse	10	Breast surgery department
B4	Male	45	Master	Associate chief physician	20	Breast surgery department
B5	Male	53	Bachelor	Associate chief physician	30	Breast surgery department
B6	Female	32	Bachelor	Charge nurse	10	Breast surgery department
B7	Male	29	Bachelor	Charge nurse	7	Breast surgery department
B8	Female	35	Bachelor	Charge nurse	10	Breast surgery department
B9	Male	43	Master	Associate chief physician	18	Department of rehabilitation
B10	Male	50	Master	Chief physician	26	Department of rehabilitation
B11	Female	38	Bachelor	Charge nurse	14	Breast surgery department
B12	Female	33	Bachelor	Charge nurse	8	Breast surgery department
B13	Female	50	Bachelor	Charge nurse	27	Breast surgery department
B14	Female	33	Master	Attending physician	8	Breast surgery department
B15	Female	54	Bachelor	Chief nurse	35	Breast surgery department
B16	Female	38	Bachelor	Charge nurse	14	Breast surgery department
B17	Female	30	Bachelor	Charge nurse	7	Breast surgery department
B18	Female	45	Master	Associate chief physician	20	Department of psychology
B19	Female	48	Master	Associate chief physician	22	Department of psychology
B20	Male	48	Master	Associate chief physician	20	Breast surgery department
B21	Female	45	Master	Associate chief physician	20	Breast surgery department
B22	Female	40	Master	Attending physician	7	Breast surgery department
B23	Female	50	Master	Associate chief physician	25	Breast surgery department
B24	Male	69	Master	Chief physician	34	Breast surgery department
B25	Female	37	Bachelor	Charge nurse	12	Breast surgery department
B26	Male	50	Master	Associate chief physician	25	Department of nutrition
B27	Female	48	Doctoral	Associate chief physician	18	Department of nutrition
B28	Female	39	Bachelor	Charge nurse	16	Breast surgery department

assessed using a Likert 5-point scale: 1 = very unfamiliar, 2 = unfamiliar, 3 = moderately familiar, 4 = familiar, 5 = very familiar. Judgment basis (Ca) encompassed four dimensions: practical experience, theoretical analysis, domestic/foreign literature references, and subjective judgment [17].

2.2.1.2. Expert Selection for Delphi Method. The inclusion criteria for experts were established following Delphi expert selection requirements: ① bachelor's degree or higher; ② minimum 8 years of work experience; ③ associate senior professional title or higher; ④ informed consent and voluntary participation. The basic characteristics of the experts are listed in Table 4.

2.2.1.3. Delphi Consultation. (1) Consultation process. Two rounds of Delphi consultation were conducted. Researchers distributed and collected questionnaires via email, requiring experts to return completed consultation forms within 1 week. The researchers systematically collated and analyzed the responses. After group discussions, the revised questionnaire was developed into a second-round consultation form and returned to experts for reevaluation. The exclusion criteria for indicators were an importance score < 4.0 and a coefficient of variation > 0.25 [18]. (2) Expert enthusiasm. Fifteen questionnaires were distributed in each of the two Delphi consultation rounds, achieving a 100% response rate (enthusiasm coefficient = 1.00 for both rounds). (3) The expert authority level. The Ca and Cs values were 0.820 and 0.896, respectively, in the first round, and 0.850 and 0.915, respectively, in the second round, resulting in expert authority coefficients of 0.858 and 0.883, respectively. (4) The expert coordination level. Kendall's concordance coefficient W in the first Delphi consultation round was 0.403 ($\chi^2 = 54.351$, $p < 0.001$), and Kendall's coefficient of concordance (W) for the second round of Delphi consultation was 0.553 ($\chi^2 = 74.594$, $p < 0.001$). The difference was statistically significant ($p < 0.05$).

2.2.1.4. Consultation Results

1. First round of consultation. Revisions were made as follows: Delete the secondary indicator, "What were your feelings when first diagnosed with the disease?" Modify the secondary indicator "What changes did you experience in your life (diet, sleep, family, social interactions, etc.) and work from the post-NACT to the pre-surgery period?" Revised to: "What difficulties did you encounter during the period between NACT completion and surgery?"; Revised the secondary indicator "Are you currently undergoing rehabilitation exercises? Do you think initiating rehabilitation exercises between NACT and surgery would affect postoperative recovery?" to "During the period between NACT and surgery, have you engaged in exercise? If so, do you perceive any differences in

Table 4: Basic information of experts ($n = 15$).

Experts	Age	Gender	Education level	Professional title	Years of experience	Professional field
1	68	Male	Specialty	Chief physician	50	Breast cancer treatment
2	51	Female	Master	Chief physician	28	Breast cancer treatment
3	46	Male	Master	Associate chief physician	16	Breast cancer treatment
4	49	Male	Master	Chief physician	23	Breast cancer treatment
5	44	Male	Master	Associate chief physician	15	Breast cancer treatment
6	46	Female	Bachelor	Associate chief physician	16	Breast cancer treatment
7	36	Female	Master	Attending physician	9	Breast cancer treatment
8	49	Female	Bachelor	Associate chief nurse	29	Nutritional care
9	43	Female	Master	Associate chief physician	20	Nutrition physician
10	52	Female	Bachelor	Associate chief nurse	30	Psychological care
11	59	Female	Master	Professor	37	Psychological care
12	51	Female	Master	Chief nurse	30	Psychological care
13	31	Male	Master	Resident physician	3	Rehabilitation therapy
14	40	Male	Bachelor	Associate chief physician	17	Rehabilitation therapy
15	36	Female	Bachelor	Chief technician	15	Rehabilitation therapy

postoperative recovery outcomes compared with fellow patients who did not exercise?"; Include healthcare professionals from exercise, nutrition, and psychology-related departments among interview participants; Remove the secondary indicator "Are you aware of preoperative prehabilitation? Through which channels did you learn about it?"

2. Second-round Delphi consultation. Secondary indicator "Did you experience any emotional changes after chemotherapy?" was revised to "What is your greatest concern or source of stress during the period between NACT and surgery?" Secondary indicator "Did you have any specific needs during the period between NACT and surgery?" was revised to "What are the inadequate aspects of the assistance provided by healthcare professionals and family/friends during the period between NACT and surgery?"; The secondary indicator "What is your perception of preoperative prehabilitation?" Revised to: "How do you understand the concept of preoperative prehabilitation? How does it differ from the traditional preoperative preparations?" and categorized under "Theoretical knowledge"; moved "What do you consider the main barriers to implementing prehabilitation?" to the "Enhance Awareness" section. The results of the second round of Delphi consultation are presented in Table 5.

2.2.2. Development of the Interview Guide. The research team consisted of six members, including two breast surgery department specialists [19] (one department director and one head nurse), one breast cancer surgeon [19], one breast surgery department nurse [19], one breast cancer researcher with specialized knowledge, and one graduate student (details in Table 6). Based on the four characteristics of ET [14], the team members reviewed relevant literature according to the research objectives, drafted the preliminary interview guide through group discussions, conducted a Delphi consultation with experts, and finalized the interview guide based on pre-interviews with two healthcare professionals and two breast cancer patients post-NACT as follows. Interview Guide for Postoperative Breast Cancer Patients After NACT: ① Open Communication: What were your greatest concerns or stressors during the period between NACT completion and surgery? ② Enhance Awareness: What difficulties did you encounter between NACT completion and surgery? ③ Collaborative Participation: What gaps did you perceive in the support provided by healthcare professionals and family/friends during the period between NACT completion and surgery? Theoretical knowledge: Do you engage in exercise between NACT completion and surgery? If yes, did you notice any differences in the postoperative recovery outcomes between yourself and fellow patients who did not engage in exercise? Interview Guide for Breast Medicine Department Healthcare Professionals: ① Theoretical knowledge: How would you define the concept of preoperative prehabilitation? How does it differ from the traditional preoperative preparations? ② Enhance Awareness: What do you consider to be the primary barriers to implementing prehabilitation? Collaborative Participation: What specific needs do you identify for breast cancer patients during the period between NACT completion and surgery? What support systems should be established for such patients? ④ Open Communication: Do you believe prehabilitation after NACT is necessary? When is the optimal time to initiate such interventions?

2.2.3. Data Collection and Quality Control Methods. The descriptive phenomenology research method was adopted from qualitative research [20, 21]. Face-to-face semi-structured interviews were conducted to allow participants to fully express their thoughts, thereby enhancing interview quality. All research team members received systematic qualitative research training and completed the assessments. Prior to the interviews, the interviewer established trust through sufficient engagement with participants. Researchers communicated the study's purpose, procedures, and methodology to the participants in advance,

Table 5: Results of the second round of Delphi consultation.

Primary indicators	Secondary indicators	Importance score ($\bar{\chi}$ Mean ± SD)/points	Coefficient of variation
Interview guide for postoperative breast cancer patients		5.00 ± 0.00	0.000
	Open communication	4.80 ± 0.41	0.086
	Enhance awareness	4.60 ± 0.63	0.137
	Collaborative participation	4.00 ± 0.53	0.134
	Theoretical knowledge	4.60 ± 0.63	0.137
Interview guide for breast cancer department healthcare professionals		4.00 ± 0.54	0.134
	Theoretical knowledge	4.73 ± 0.46	0.097
	Enhance awareness	3.07 ± 0.80	0.260
	Collaborative participation	4.13 ± 0.52	0.125
	Open communication	4.00 ± 0.54	0.134

Table 6: General information of research team members ($n = 6$).

Id	Age	Gender	Education level	Professional title	Years of experience
Department director	54	Male	Master's degree candidate	Chief physician	28
Head nurse	53	Female	Bachelor's degree	Associate chief nurse	30
Physicians	40	Male	Master's degree	Attending physician	13
Nurse	33	Female	Bachelor's degree	Charge nurse	12
Researcher	45	Female	Doctoral degree	Associate professor	20
Graduate student	26	Female	Bachelor's degree	Master's student	

emphasizing their right to withdraw from the study at any time without compromising their entitlements. Interviews with healthcare professionals were scheduled during their rest periods, whereas patient interviews were conducted during their free time. All interviews were conducted in a quiet, undisturbed demonstration classroom. Throughout the interviews, the entire process was audio-recorded by two researchers: one conducting the interview and the other managing recording and note-taking. Each session lasted for 30–45 min. Researchers actively listened to and employed appropriate probing techniques to ensure content accuracy while documenting the participants' facial expressions, eye contact, and body language. Data coding and analysis were independently conducted by two researchers. Discrepancies were resolved through discussion with a third researcher. Data authenticity was verified by the respondents. Data collection and analysis progressed concurrently, with the interviews continuing until no new content or themes emerged.

2.2.4. Data Analysis Methods. Open coding was adopted [22]. Within 24 h after each interview, two researchers independently transcribed the audio recordings and field notes verbatim into word documents. A third researcher promptly cross-checked transcripts. Upon confirmation of accuracy, the transcripts were imported into NVivo 14.0 software and analyzed using Colaizzi's seven-step method [23]. For analysis, researchers repeatedly review the materials to familiarize themselves with the content while "suspending" presuppositions to develop a holistic impression; line-by-line analysis of the materials should be conducted to identify and label meaningful statements relevant to the research questions; Code recurring viewpoints, transforming them into abstract condensed meaning units through professional sensitivity and an open-minded approach; Aggregate coded viewpoints to cluster preliminary themes while "suspending" preconceptions; Elaborate each theme with detailed descriptions incorporating typical original statements; Compare similar themes and descriptions to synthesize concise and dense thematic constructs; Finally, circulate the thematic structure back to participants for verification, with reanalysis conducted if discrepancies emerge.

3. Results

The following four themes and 12 subthemes were identified by organizing and analyzing the interview data. The word cloud is shown in Figure 1.

Figure 1: Word cloud.

3.1. Preoperative Needs of Breast Cancer Patients After Completing NACT. Psychological needs such as fear, anxiety, depression, disease stigma, and body image disturbance are prevalent psychological issues among breast cancer patients, which can significantly impact treatment adherence and prognosis. Patients often experience insomnia because of concerns about chemotherapy efficacy, surgical outcomes, and cancer recurrence. Psychological prehabilitation can effectively alleviate negative emotions in patients. A3: "My sleep quality was poor, waking up frequently at night with intrusive thoughts. I was the most fearful of incomplete surgery and potential recurrence. However, after receiving guidance from psychological physicians, my condition significantly improved, and I regained my ability to sleep." A5: "I kept waking up repeatedly at night, only managing about 3 h of sleep daily. I harbored intense anxiety about failing to regain consciousness postsurgery and constantly fearing that I might not survive the surgical procedure. The physicians provided intraoperative photographs and arranged for support from fellow patients who had undergone similar surgeries. Through these interventions, my preoperative anxiety substantially diminished." The vast majority of breast cancer patients experience anxiety and depression, with some even resorting to suicide due to severe

depression. B1: "Some optimistic patients may overcome their psychological distress after a few counseling sessions, while others require continuous support. We encountered cases in which patients committed suicide due to an inability to accept their diagnosis (which is truly lamentable). This highlights the fact that patients' psychological issues should be the primary concern." B6: "I believe nearly all patients require psychological counseling. Despite completing several chemotherapy cycles, patients continue to manifest various psychological issues that differ across the treatment phases. We assessed the patients' psychological status at different stages and provided targeted counseling. Consequently, suicide rates have significantly decreased. Currently, many patients in our department maintain a positive outlook and demonstrate better treatment compliance." A30: "I feel my condition is far more serious than what the physicians said. I think everyone is lying to me that I have lost all treatment opportunities. I truly want to die—I do not want to live anymore (fear, sobbing)." Male patients exhibited a stronger sense of stigma associated with breast cancer. A2: "As a man with breast cancer, I fear neighbors gossiping behind my back... I don't even want my colleagues at the factory where I work to know." A20: "Me... a grown man (bitter laugh), who could imagine I'd get this disease? I don't dare go out. I am afraid that people will talk to me." A21: "So humiliating! So humiliating! (Angrily) Getting this kind of illness, how can I face people? What do others think of me? Every morning, I wake up thinking why I have become like a woman, contracting this disease." The toxic side effects of chemotherapy and mastectomy often trigger body image disturbance in patients. A4: "After chemotherapy, all my hair fell. I became dark skinned and gained significant weight. I cannot accept this appearance—I have never been this ugly in my entire life. To become so unattractive in old age, I completely cover my face whenever I go out." A7: "After chemotherapy, not only did my hair fall out, but even my eyebrows were completely gone. I could not recognize myself in the mirror. During that period, I dared not go outside—no amount of mental fortitude could make me accept that version." B8: "Following NACT, patients often experience significant physical changes such as alopecia, pigmentation, and weight gain. Many struggles to accept these alterations lead to body image disturbances." B3: "Some patients require mastectomies. They frequently develop anxiety about their altered appearance postsurgery, fear of loss of attractiveness, and spousal rejection. In such cases, we organized group communication sessions to strengthen marital bonds, which has proven effective in mitigating body image disturbances." A8: "The physician said my surgery would involve breast removal, which made me particularly fearful of becoming unattractive postoperation. I was worried that my husband would disdain me even more (we have been arguing frequently lately, and he has grown increasingly distant). Although options such as prosthetic breasts exist, I still fear an asymmetrical appearance. Later, the nurse showed me mastectomy bra. When I tried it on, I found that it looked no different from a real one, which alleviated my concerns." Healthcare professionals and sociofamilial support can effectively alleviate negative emotions such as anxiety and depression in breast cancer patients. A1: "I was already experiencing daily anxiety due to this illness, but my in-laws kept pressuring us to have children and questioning whether I could still conceive. Instead of supporting me, they added to my distress during such a critical time... However, the physicians and nurses became aware of this situation and had discussions with my in-law. Afterward, my in-laws became supportive and my anxiety significantly diminished." B18: "For patients in remarriages, some husbands refuse treatment or visitation after the diagnosis, while others are widowed. These patients often experience heightened anxiety because of the absence of spousal support. In such cases, modifying behavioral and cognitive awareness, for both patients and their family members, is critical. For some remarried patients, implementing behavioral and cognitive modifications for both spouses proved effective." B19: "I decorate the psychological counseling room with plants and flowers to create a relaxed atmosphere. First, I establish rapport with patients through casual conversations before collecting their medical information, including family history, past medical history, and assessment of their current emotional state. Regarding treatment plans, I develop them collaboratively with patients to enhance their motivation. Some patients may prefer muscle relaxation therapy, while others enjoy experiencing novel activities, and others find comfort in reminiscing about positive memories. I typically conduct progress reviews every 3–5 days, adjusting the plan based on evaluation outcomes. Upon achieving the therapeutic goals, I mutually agree with the patient to terminate the intervention." Methods that modify patients' cognitive behaviors in this manner can effectively alleviate negative emotions and enhance treatment motivation.

Exercise Needs Breast cancer surgery to disrupt blood and lymphatic circulation in the affected limb, often leading to varying degrees of upper limb dysfunction postoperatively. Severe cases may develop complications, such as lymphedema and muscle atrophy, consequently impairing limb mobility. Regular exercise can prevent or reduce the incidence of lymphedema and muscle atrophy. Preoperative exercise has been shown to significantly improve surgical tolerance in patients. A18: "After completing chemotherapy, I followed exercise apps to do daily gymnastics for about 40 min. Post-surgery, my arm did not experience prolonged stiffness, which physicians and nurses had warned me about." A25: "As a teacher, I returned to work normally between completing chemotherapy and undergoing surgery. I hope that physicians can design office-friendly rehabilitation exercises for working professionals like ours." A30: "I wish to receive personalized exercise guidance suited to my physical condition during this phase. The physicians advised me to jog for 30 min daily and perform affected-arm exercises, but their instructions were too vague and challenging for me. B9: "Patients' exercise is essential, as it not only improves their resistance, surgical tolerance, and postoperative rehabilitation but also enhances their psychological status." B10: "Exercise for breast cancer patients requires greater attention. In clinical practice, we observed

that patients who engaged in preoperative exercise experienced faster postoperative recovery."

Nutritional needs can cause significant gastrointestinal dysfunction, including nausea, vomiting, loss of appetite, diarrhea, and constipation. Patients may still experience severe gastrointestinal disturbances even after completing chemotherapy cycles, leading to nutritional challenges. A2: "After chemotherapy, I still have no appetite. The sight of the greasy food made me nauseous, so I ended up eating steamed buns with pickles every day." A9: "I had no appetite, but I forced myself to eat for my health—sticking to eggs and yogurt daily. I gained weight but lost it shortly after the surgery." A27: "When I noticed weight gain during chemotherapy, I immediately consulted physicians. They advised incorporating vegetables such as cucumbers and tomatoes into my diet, so I started eating cucumbers daily to manage my weight. After completing chemotherapy, I avoided being near family members during meals at home because even the sight of food made me nauseous." B26: "With advancements in medical science, contemporary patients undergoing chemotherapy now experience less severe gastrointestinal reactions compared to previous cases where constant proximity to waste containers was necessary. Many patients gain weight after several cycles of chemotherapy. However, we do not recommend preoperative weight loss, because surgical procedures require adequate nutrition. Moreover, weight reduction typically occurs naturally after surgery." B27: "When patients exhibit malnutrition, we promptly inform them and recommend increased consumption of high-protein foods. Surgical intervention is only conducted after patients meet the established nutritional criteria."

3.1.1. Management of Underlying Diseases. The majority of breast cancer patients are elderly individuals, often accompanied by chronic conditions such as hypertension and diabetes. These comorbidities may affect both the surgical process and long-term prognosis. A2: "I sometimes argue with my husband. After these arguments, my blood pressure spikes, causing severe dizziness. Even the use of antihypertensive drugs is helpful." A13: "I'm always worried about potential interactions between antihypertensive drugs and breast cancer medications. Sometimes, I am too afraid to accept them." A4: "After chemotherapy, my appetite diminished, leading to highly unstable blood glucose levels. Paradoxically, prolonged hunger sometimes causes blood sugar levels to surge." A28: "I constantly experience excessive thirst but avoid drinking more water due to concerns about elevated blood glucose levels." B4: "Some hypertension patients discontinue their antihypertensive medication post-discharge, fearing it may exacerbate gastrointestinal side effects." B7: "Many patients, whether with hyperglycemia or hypertension, require daily medication reminders—they'll forget without prompts. Elderly patients do not even know what medications they are taking."

Economic Needs: Financial issues are a critical determinant of patients' ability to sustain continuous treatment. A2: "As a childless individual working manual labor at construction sites, with only a few hundred yuan from national subsistence allowance each month, my limited funds can't cover medical costs. Despite higher reimbursement rates for welfare recipients, upfront payments remain unaffordable—I have borrowed substantial amounts." A6: " Most of my medical expenses were covered by donations from fellow villagers. The village also enrolled me in a subsistence allowance program, which barely sustained my treatment." A14: "I'm remarried. After learning about my illness, my husband abandoned me. As a rural resident without stable income, I worry daily and struggle to borrow money." B11: "Some patients discontinue treatment due to financial constraints. Those persisting might seek village assistance or turn to social fundraising platforms such as Shuidichou and foundations." B13: "Breast cancer treatment cycles are relatively long, and financial burden poses a major challenge. The higher reimbursement rate from employee medical insurance is significant. Some commercial insurance plans may provide additional hospitalization subsidies, whereas urban resident medical insurance has comparatively lower reimbursement rates."

3.1.2. Health Education Needs. A lack of disease-related knowledge can exacerbate patients' psychological burden and potentially impact treatment adherence. B2: "Unprofessional television dramas and misleading advertisements intensify patients' fear of the disease (indignantly)." B25: "Many patients perceive their situation akin to medical dramas, harboring profound fear toward the disease. Some resort to Internet searches, ultimately exacerbating their anxiety." A10: "After hospitalization, I realized the reality differs significantly from television portrayals. This experience proved less daunting than anticipated, with physicians and nurses demonstrating exceptional professionalism." A17: "I habitually researched this condition online during leisure time, yet the more I searched, the greater my apprehension grew—to the extent of suspecting physicians of deliberate deception." A22: "During a period of frequent short-video consumption, I developed profound distrust toward healthcare professionals. I became convinced of my fictitious diagnosis, believing that they complicit in financial exploitation (appears apologetic)." A29: "Physicians regularly update me about my condition progression, next treatment steps, and therapeutic outcomes. This comprehensive communication keeps me completely reassured."

3.2. Personal Goals of Patients. Role Perception: Patient role adaptation constitutes a protracted process, with significant individual variation observed in the required adaptation timeframe across cases. A11: "It coincided with the busy farming season. My hospital confinement caused urgent anxiety—I was desperate to return home for agricultural work." A12: "With farming demands approaching, coupled with household responsibilities including my young grandson, my hospital stay rendered me unable to contribute to essential tasks or childcare. This critical family dependency intensifies the urgency of discharge." A31: "As a physician, I can't leave my patients behind. I have the time

to visit my patients in the department daily." B5: "Many patients, whether employed or unemployed, struggle to fully adapt to their new roles." B12: "Regulations require patients to remain hospitalized after admission, but many secretly leave due to unresolved personal commitments." B28: "We healthcare professionals need to invest significant effort in guiding patients through role transitions. Given the current economic challenges, many find it difficult to fully commit to hospitalization and treatment."

Treatment Adherence: Poor treatment adherence in patients may prolong the disease course and potentially exacerbate clinical conditions. Prehabilitation can effectively enhance adherence to treatment. A15: "After chemotherapy, I did not want to continue treatment. It felt too arduous. My family and healthcare professionals kept encouraging me, and gradually I became less resistant." A19: "I strictly follow my physicians' instructions—doing what they recommend and avoiding prohibited actions. I have full trust in my doctors." A23: "There were days when I completely lost motivation for treatment. After my husband passed away, I wanted to join him. When the physicians noticed their condition, they contacted my daughter to accompany me. With my daughter's and grandson's support, I regained hope in life." A32: "This was my first surgery in life. I requested discharge because of fear of the procedure. Physicians understood my situation and provided surgical photographs to explain the process. Subsequently, doctors from the Department of Psychology taught me relaxation techniques and suggested listening to music. I eventually realized that the surgery was not terrifying and stopped resisting it." B14: "It poses significant challenges when patients are uncooperative with treatment." B17: "Some patients resist treatment due to fears about surgical pain or chemotherapy side effects. We typically show patients our surgical process diagrams, emphasizing that the procedure is completed while under anesthesia. For chemotherapy-resistant cases... we implement adjusted chemotherapy regimens and Psychological Counseling, encourage family members to provide companionship and support, and organize fellow patient support groups. These interventions generally effectively resolve patient concerns." B24: "The treatment process for breast cancer is relatively prolonged, and patients often exhibit suboptimal adherence. We regularly organized patient communication sessions and maintained WeChat groups where patients could chat, share experiences, and mutually encourage each other. Within this supportive environment... the majority of patients demonstrate enhanced treatment engagement."

3.3. Healthcare Professionals' Awareness of Prehabilitation

3.3.1. Disparities in Healthcare Professionals' Understanding. The interviewed healthcare professionals exhibited varying levels of familiarity with "preoperative prehabilitation." B15: "I possess substantial knowledge about prehabilitation. As a Head Nurse, I routinely reviewed the literature and attended academic conferences to remain informed about advancements in the field." B16: "I heard the head nurse mention prehabilitation. She also said that our hospital will implement it in the future, but I do not know its specifics." B20: "To be honest, I don't know much about prehabilitation. I am aware of the concept, but I have never seen concrete implementations or considered how to apply it." B22: "I have a solid understanding and have applied it in my work." B28: "I'm currently implementing prehabilitation in my practice, though the program isn't fully optimized yet."

3.3.2. Imbalanced Healthcare Development. The pace of medical advancement varies across regions. Healthcare systems in coastal areas align more closely with international standards. B21: "Prehabilitation hasn't been initiated here yet. In fact, many are not aware of what prehabilitation entails." B22: "We have already implemented prehabilitation, though it's not yet fully established." B23: "Our administrators have mentioned prehabilitation. Coastal cities have already initiated prehabilitation programs and leadership hopes that we can learn from their experiences." B28: "We have developed multimodal prehabilitation, though it remains in its nascent stages, hoping for further improvements."

3.4. Intervention Timing for Prehabilitation. Healthcare professionals expressed divergent views on prehabilitation intervention timing. B3: "I believe that it should commence after the final cycle of chemotherapy." B8: "I think implementation should begin after the surgery date is confirmed." B20: "I think initiating it 1 week before surgery would be appropriate, as long as it lasts no less than 5 days." B23: "Starting implementation 2 weeks before surgery would be just right." B26: "I believe it could be implemented during each chemotherapy interval." B28: "I think the prehabilitation implementation period should not be shorter than 2 weeks."

3.4.1. Prehabilitation Implementation Presents Certain Challenges. The implementation of prehabilitation poses specific challenges, as healthcare professionals' varying levels of awareness and acceptance, combined with patients' adherence and receptiveness, all influence its execution. A16: "I do not think anything needs to be done before the surgery. I waited for the operation." A24: "I already have no energy, why should I exercise? Why forced myself to eat when I had no appetite?" A26: "After completing chemotherapy, I don't feel like doing anything. I do not want to interact with anyone, just want to be alone." B6: "Physicians spend 90% of their time on paperwork—when would they have time for prehabilitation? We only have 0.01% of our time for patient interaction. How can we implement prehabilitation?" B13: "The entire process of breast cancer treatment is already costly enough. Few patients are willing to spend additional money on prehabilitation." B22: "Patient adherence is not particularly high. They perceived it as unnecessary." B28: "The patient felt they could manage on their own and did not need to spend money on physician guidance."

4. Discussion

4.1. Individualized Interventions to Address Preoperative Needs of Breast Cancer Patients Following NACT. This study explored the preoperative needs of patients with breast cancer following NACT from both patient and healthcare professional perspectives. The patients exhibited psychological needs, exercise requirements, nutritional demands, management of underlying diseases, economic needs, and health education requirements. Respondents emphasized the necessity for increased attention to psychological issues including anxiety, depression, fear, disease stigma, and sleep disturbances, consistent with the findings of Civilotti et al. [24] and Czech [25], which is consistent with the research findings. Healthcare professionals usually provide support to patients with breast cancer to meet their needs. However, some patients do not actively seek assistance from healthcare providers. Given the varying preoperative needs of patients, psychologists should develop personalized psychological care interventions based on individual psychological assessment results. Some chemotherapy-sensitive patients develop more severe psychological issues post-chemotherapy, manifesting as negative emotions and decreased appetites. These patients may withdraw socially, choose to lie in bed, and refuse communication [26]. Healthcare professionals should provide personalized psychological care to patients, offer encouragement, and strengthen their confidence in recovery. With regard to exercise interventions, developing optimal exercise plans tailored to individual patients can maximize their surgical readiness [12]. In terms of nutrition, adjuvant chemotherapy may induce multiple adverse reactions in patients, including gastrointestinal, fatigue–pain–sleep disturbance, and psychological symptom clusters [27]. Moreover, as surgical trauma exacerbates protein catabolism, establishing personalized preoperative nutritional plans for patients enhances surgical tolerance and reduces the risk of postoperative complications. Regarding the management of underlying diseases, physicians providing corresponding management plans for patients with comorbidities, such as blood pressure control and glycemic management, help improve disease prognosis and QOL for patients. In terms of economic needs, studies indicate that breast cancer patients experience varying degrees of financial toxicity, influenced by multiple factors. Healthcare professionals should prioritize the continuous assessment of patients' financial status and develop effective intervention measures to enhance patient welfare [28]. With regard to health education, it can effectively alleviate patients' preoperative anxiety and enhance treatment adherence.

4.2. Problem-Solving Therapy (PST)-Based Intervention to Enhance Life Well-Being in Breast Cancer Patients Post-NACT. This interview study revealed that NACT-induced adverse reactions exacerbate breast cancer patients' concerns about disease prognosis, intensify surgical fear, and reduce life well-being and treatment adherence, ultimately being detrimental to recovery. PST is a cognitive-behavioral intervention program focusing on cultivating problem-solving attitudes and skill development, enabling patients to cope with daily stressors actively and effectively, thereby enhancing their well-being [29]. A randomized controlled trial study of 134 women with breast cancer screening positive for depression at the Colombian Cancer Center [30] demonstrated that PST can effectively reduce negative emotions in patients with breast cancer and improve their QOL, thereby enhancing their well-being. Le et al. [31] Researchers searched six databases—Cochrane Library, PubMed, Scopus, CINAHL, NeuroBITE, and OTseeker—and found that by evaluating the effectiveness of PST in improving patients' mental health, functional abilities, QOL, and mortality rates, clinical treatments based on PST can effectively enhance patients' psychological status and improve their QOL. Therefore, healthcare professionals should implement preoperative prehabilitation interventions based on PST. This study revealed significant variations in prehabilitation awareness among healthcare professionals; due to imbalanced medical development, the implementation of prehabilitation varies across hospitals in different regions. Noncoastal regions should prioritize hospital development to address this disparity. Hospitals should provide systematic prehabilitation training guided by PST for healthcare professionals, including organizing prehabilitation lectures, arranging professional development programs, and purchasing relevant courses. These initiatives aim to enhance the understanding of preoperative prehabilitation, eliminate implementation concerns among medical staff, and encourage its active application in clinical practice. Healthcare professionals should not limit their learning to the knowledge within their departments. Prehabilitation interventions require multidisciplinary collaboration, necessitating coordinated efforts across the Breast Medicine Department, Department of Psychology, Nutrition Department, and Rehabilitation Department [32]. Healthcare administrators should adopt proactive measures to develop specialized training programs, establish prehabilitation teams, and cultivate breast cancer specialist nurses. This will enhance healthcare professionals' capacity for effective dissemination [33]. Breast cancer specialist nurses play an indispensable role in delivering high-quality care, improving patients' QOL, alleviating anxiety and depression, and enhancing their overall well-being [34].

4.3. Establishing a Diversified Social Support System to Alleviate the Disease Burden Among Breast Cancer Patients Following NACT. This interview revealed that adverse effects of NACT can cause severe negative impacts on patients' physiological status, psychological well-being, and daily living. Because patients require prolonged treatment, their families face a substantial financial burden. Extended caregiving responsibilities may lead to income loss, increased physical strain, and occupational instability among family members. Studies indicate that the effective utilization of social support can enhance patients' acceptance of their disease [35]. Social support can improve and maintain physical activity in breast cancer patients, which is beneficial

for them to actively cope with interventional therapies for breast cancer [36]. However, diverse social networks (spouses or intimate partners, religious/social affiliations, volunteer services, number of close friends and relatives) and multifaceted social support (tangible support, emotional/informational support, affection, positive social interactions) can more effectively alleviate patients' disease burden and enhance their QOL [37]. Healthcare professionals can establish WeChat group chats to regularly share knowledge, schedule dedicated Q&A sessions, encourage patients to communicate and support each other, organize patient exchange meetings, and promote family involvement to enhance interactions between patients and their families, thereby alleviating psychological burdens. Unlike developed countries, such as the United Kingdom and the United States, China adopts a government-led social medical insurance model. China's medical security system comprises Urban Employee Basic Medical Insurance (UEBMI), Urban Resident Basic Medical Insurance (URBMI), New Rural Cooperative Medical Scheme (NCMS), and Commercial Medical Insurance (CMI) [38]. NCMS has been integrated into URBMI. Among these, CMI demonstrates the highest reimbursement rate of up to 100%, yet only a 7.3% enrollment rate; UEBMI offers reimbursement rates of 85%–95% with a 19% enrollment rate [39], and the reimbursement rates vary between 50% and 65% depending on the level of the hospital where the patient receives treatment, covering rural residents, students, children, unemployed, jobless individuals, and disabled persons [39].

4.4. Systematic Training to Enhance Healthcare Professionals' Awareness of Prehabilitation. This study found significant disparities in healthcare professionals' cognitive attitudes toward prehabilitation, reflecting uneven regional healthcare development across different areas. Some healthcare professionals cited a heavy workload, procedural complexity, insufficient patient communication time, poor patient adherence, and inadequate prehabilitation awareness as barriers to effective implementation. Healthcare professionals expressed reservations about prehabilitation implementation, concerned about potential increases in workload, time, and energy investment, while also questioning whether expected outcomes could be achieved. Healthcare administrators should systematically train healthcare professionals to enhance their awareness and motivation regarding prehabilitation, such as conducting prehabilitation knowledge lectures, encouraging literature review, purchasing systematic courses, seeking assistance from coastal hospitals, and establishing a comprehensive multidisciplinary disease management system, which will effectively improve patients' health outcomes and QOL, thereby reducing mortality rates [40]. Simultaneously, strengthening patient education and guidance to improve their understanding of and adherence to prehabilitation constitutes an urgent issue that requires immediate resolution. In research and clinical practice, emphasis should be placed on multidisciplinary collaboration to further advance prehabilitation research and provide more comprehensive and personalized services for breast cancer patients following NACT. At the national level, measures should be implemented to optimize resource allocation, strengthen professional training, encourage technological innovation, and increase financial investment in health care to reduce regional resource disparities and achieve balanced development.

5. Summary

For patients with breast cancer after NACT, healthcare professionals should address their psychological needs, exercise requirements, nutritional support, management of underlying diseases, financial considerations, and health education demands. Simultaneously, attention should be paid to the changes in patients' role perception and treatment adherence. Enhancing healthcare professionals' awareness of prehabilitation and developing individualized prehabilitation programs through multidisciplinary collaboration will provide scientifically feasible rehabilitation strategies to promote patient recovery. This study employed an interview guide based on ET to conduct a descriptive phenomenological investigation with both post-NACT breast cancer patients and healthcare professionals from the Breast Surgery Department, enabling a deeper understanding of patient experiences following NACT for breast cancer. The current research exclusively focused on qualitative interviews with patients undergoing post-NACT for breast cancer. Future studies could expand these investigations through quantitative approaches and incorporate perspectives from caregivers and other stakeholders.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Ethics Statement

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. This study was approved by the Hospital Ethics Committee (no. 2023110801).

Conflicts of Interest

The authors declare no conflicts of interest.

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