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ORIGINAL RESEARCH

Knowledge, Attitude, and Practice Towards Rehabilitation in Patients with Breast Cancer: A Cross-Sectional Study

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Background: Research on rehabilitation in breast cancer (BC) patients is scarce. This study explored the knowledge, attitude, and practice (KAP) toward rehabilitation in BC patients who underwent surgery.

Methods: This cross-sectional survey study was conducted between August 2022 and February 2023 in eight hospitals in Yixing City, Jiangsu Province. An investigator-designed survey was used to evaluate the participants' KAP toward BC rehabilitation.

Results: The analysis included 578 valid surveys. The participants displayed good knowledge, positive attitudes, and proactive practice toward rehabilitation after surgery for BC. The multivariable logistic regression analysis showed that the knowledge scores and attitude scores were independently and positively associated with proactive practice, while age 45–55, age 56–60, ≥ 6 years BC duration, modified radical surgery, and radical surgery were independently and negatively associated with proactive practice (all $P < 0.05$). The structural equation model revealed a positive direct effect of knowledge on both attitude and practice. In addition, attitudes had a positive direct influence on practice.

Conclusion: Patients with BC exhibited favorable KAP rehabilitation after surgery for BC, but targeted education could be needed to enhance specific points of understanding and reinforce proactive engagement in clinical practice.

Keywords: breast cancer, knowledge, attitude, practice, rehabilitation, cross-sectional study

Introduction

Breast cancer (BC) is the most common cancer diagnosed in females worldwide,[1,2] with an estimated 2,308,897 new cases in 2022 and 665,684 deaths.[2] About 95% of the cases occur in women >40 years old.[3,4] The factors increasing the risk of BC include genetic variations, age, no reproductive history, long hormone exposure (endogenous or exogenous), lifestyle, medical history, and radiation.[3,5,6] The 5-year survival of women with BC is 99% for localized disease, 85% for regional disease, and 27% for distant metastases in the United States of America (USA).[1] BC implies multidisciplinary management, but surgery is considered the only possible curative treatment for BC.[3,4,7] Several surgical options are available, including lumpectomy and mastectomy, with or without sentinel lymph node biopsy and axillary dissection.[3,4,7] In addition, axillary dissection can lead to a limitation of arm movements and lymphedema.[8,9] BC surgery and its complications (like breast appearance, lymphedema, and limited arm movement) can have bodily issues and lead to negative emotions.[10,11] Therefore, several patients require physical rehabilitation after BC surgery.[12] The World Health Organization endorses rehabilitation after BC treatments.[13–15] Available guidelines recommend comprehensive, flexible rehabilitation after BC.[3,16,17] Rehabilitation is necessary for patients after breast cancer surgery.

The knowledge, attitude, and practice (KAP) methodology is a quantitative and qualitative approach to identify the deficiencies, misconceptions, and misunderstandings that hinder the correct implementation of a specific subject in

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a specific population.[18,19] In psychological research, the KAP model has been widely applied to assess and improve knowledge, attitudes, and practices regarding mental health.[20,21] Although several studies are available regarding the KAP toward BC in various populations,[22–25] none specifically examined the KAP of patients with BC toward rehabilitation after BC. A proper knowledge of the options available after mastectomy is essential to optimize BC survivorship. The active participation of the patients is necessary during rehabilitation. Still, before designing interventions to improve that KAP, it is essential to determine where the gaps are.

It was hypothesized that patients with BC could have an insufficient KAP toward rehabilitation. Hence, this study aimed to explore the KAP of BC patients toward rehabilitation. Improving the KAP toward rehabilitation would have psychological benefits for the patients.

Materials and Methods

Study Design and Participants

This cross-sectional survey study was carried out between August 2022 and February 2023 in eight hospitals in Yixing City, Jiangsu Province, and included BC patients who had undergone surgical treatment. Yixing City is a county-level city with a population of about 1,075,800 and a population density of 540/km^2. Yixing enjoyed a gross domestic product of 183.221 billion renminbi in 2020. The city is home to 42 different ethnic minorities, representing 1.4% of the population. This study included two tertiary hospitals: Yixing People's Hospital, affiliated with Jiangsu University, and Yixing Traditional Chinese Medicine Hospital, as well as six secondary hospitals: Yixing Second People's Hospital, Yixing Fifth People's Hospital, Yixing Sixth People's Hospital, Zhangzhu People's Hospital, Xushe People's Hospital, and Guanlin People's Hospital. The inclusion criteria were: 1) patients diagnosed with BC, 2) underwent surgical treatment, and 3) postoperative survival for > 6 months. The exclusion criteria were: 1) patients with severe cognitive impairment or mental disorders that hinder the completion of the questionnaire, 2) patients who are unable to communicate effectively in the local language (Mandarin) or those with speech and hearing impairments that affect their ability to respond to the survey, 3) patients who refused this survey. The study was approved by the Yixing Medical Ethics Committee (ethical approval No. 2023–027). Informed consent was obtained from the study participants.

Questionnaire Introduction

The KAP survey was designed by the investigators according to the literature.[26–28] Two rounds of expert consultation were performed after the design was completed. In the first round, three experts (two breast oncologists and one rehabilitation specialist) gave their comments, and five modifications were made (clarifying the demographic information collected in the survey and setting specific questions for the KAP). In the second round, two additional experts (one breast oncologist and one rehabilitation specialist) were selected, and two further adjustments were made based on their comments (questions with ambiguities in the KAP were censored). Then, 36 randomly selected patients completed the reliability test, and Cronbach's α was 0.756.

The final survey contained patient characteristics (age, education, occupation, reproductive history, menopausal history, family history, years of breast cancer disease, and type of surgery), knowledge dimension, attitude dimension, and practice dimension. The knowledge part consisted of 14 questions, scoring 1 point for correct answers and 0 points for wrong or unclear answers, with a range of 0–14 points. The attitude dimension consisted of seven questions using a 5-point Likert scale, with positive questions assigned a score of 5 to 1 point from strongly agree to strongly disagree, and negative questions (Question 4) reverse assigned. The scores ranged from 7 to 35 points. The practice dimension consisted of seven questions, also using a 5-point Likert scale, ranging from always (5 points) to never (1 point), with scores ranging from 7 to 35 points. Adequate knowledge, positive attitude, and proactive practice were considered, with a total score of > 70% for each dimension.[29]

Survey Distribution and Quality Control

In this study, convenience sampling was conducted with secondary or tertiary hospitals in the Yixing area of Jiangsu province, and 12 of them were planned to be included, but responses were received from eight of them. Four hospitals were excluded due to the low number of BC performed or the low number of postoperative patients meeting the criteria. The electronic survey was designed in Sojump, and a QR code was generated. The participants could scan the QR code via WeChat to complete the survey. Only one survey could be submitted for a given IP address. All items had to be answered. Five uniformly trained research assistants were responsible for collecting patient data from breast surgery wards, oncology wards, and outpatient clinics at each facility, teaching patients to scan and complete surveys, and verifying patient information and the accuracy of completion. All surveys were checked for missing responses, internal consistency, and reasonableness. Those with all the same option answers were invalid.

Statistical Analysis

SPSS 22 (IBM, Armonk, NY, USA) was used for statistical analysis. The continuous variables were tested for normality using the Kolmogorov–Smirnov test. If they conformed to the normal distribution, they were expressed as means ± standard deviations (SDs), and group comparisons between two groups were performed using Student's *t*-test or ANOVA for comparisons among three or more groups. Correlations were examined using the Pearson correlation analysis. Multivariable logistic regression analysis was conducted to analyze the factors associated with knowledge, attitude, and practice. 70% of the total score was used as the cut-off value. Variables with P<0.05 of univariable analysis were enrolled in multivariable analysis. Since cross-sectional studies cannot determine causality, structural equation modeling (SEM) analysis was used to estimate the relationships between the KAP dimensions.[30–32] According to the KAP framework, knowledge is the basis for attitude and practice, while attitude is the force driving practice.[18,19] Hence, the SEM was based on the predefined hypotheses that 1) knowledge influences attitude, 2) knowledge influences practice, and 3) attitudes influence practice. P-values <0.05 (two-sided) were considered statistically significant.

Results

Characteristics of the Participants

Initially, 588 surveys were included, and 10 were excluded because all answers were the same option. Finally, 578 valid surveys remained (response rate of 98.30%). The majority of the participants were 45–55 years old (41.87%), with middle school or below education (55.19%), retired (37.89%), with a history of childbirth (97.23%), menopausal (67.65%), without a familial history of BC (66.44%), < 3 years since their BC (40.14%) and underwent modified radical surgery (52.94%) (Table 1).

Knowledge, Attitude, and Practice Dimensions

The mean knowledge score was 10.00±2.71 (/14, 71.43%), indicating adequate knowledge. Higher knowledge scores were observed in younger women (P<0.001), with higher education (P=0.002), among employed women and housewives (P=0.001), non-menopausal (P=0.026), without a familial history of BC (P<0.001), and with a shorter time since BC (P<0.001) (Table 1). The three items with the lowest correctness rates were observed for K6 (43.77%, "Postoperative psychological care does not affect the postoperative survival rate)", K10.5 (53.29%, "The reduction in estrogen levels after breast cancer surgery and continued radiotherapy may lead to respiratory system diseases)", K10.3 (60.21%, "The reduction in estrogen levels after breast cancer surgery and continued radiotherapy may lead to hyperlipidemia)". The three knowledge items with the highest correctness rates were K1 (95.58%, "Postoperative rehabilitation for breast cancer includes functional exercises, psychological interventions, and a proper diet)", and K5 (89.46%, "Postoperative psychological care can help to reduce mental stress, control emotions and maintain an optimistic state of mind)", and K4 (89.46%, "Postoperative functional exercises can promote the recovery of fine movements of the hand and upper limb, enhance the mobility of the shoulder joint and strengthen muscle strength)" (Supplementary Table 1).

The mean attitude score was 27.19±2.75 (/35, 77.69%), indicating positive attitude. Better attitude scores were observed in younger women (P<0.001), higher education (P<0.001), without a history of childbirth (P=0.008), non-

Table 1 Characteristics of the Participants

Variables	n (%)	Knowledge		Attitude		Practice	
		Mean ± SD	P	Mean ± SD	P	Mean ± SD	P
Total	578	10.00±2.71		27.19±2.75		27.81±4.70	
Age, years			<0.001		<0.001		<0.001
≤44	80 (19.84)	11.01±2.33		28.15±2.52		30.39±4.04	
45–55	242 (41.87)	10.56±2.57		27.38±2.76		27.70±4.52	
56–60	107 (18.51)	9.54±2.56		26.89±2.81		26.63±4.77	
≥61	149 (25.78)	9.74±3.03		26.57±2.63		27.36±4.80	
Education			0.002		<0.001		<0.001
Middle School and below	319 (55.19)	9.96±2.92		26.92±2.80		27.29±4.96	
High School	170 (29.41)	10.27±2.47		27.06±2.56		27.67±4.06	
Junior college and above	89 (15.39)	11.09±2.16		28.40±2.62		29.84±4.37	
Type of occupation			0.001		0.123		<0.001
Employed	189 (32.70)	10.65±2.23		27.38±2.63		28.14±4.76	
Unemployed	37 (6.40)	9.87±2.78		26.79±2.98		26.47±4.69	
Retired	219 (37.89)	9.68±2.74		26.91±2.81		27.04±4.96	
Housewife	133 (23.01)	10.62±3.09		27.50±2.71		28.96±3.84	
History of childbirth			0.708		0.008		0.031
Yes	562 (97.23)	10.22±2.71		27.14±2.72		27.73±4.66	
No	16 (2.77)	10.47±2.72		28.94±3.01		30.24±5.45	
Menopausal			0.026		0.001		0.002
Yes	391 (67.65)	10.05±2.85		26.94±2.73		27.38±4.79	
No	187 (32.35)	10.58±2.35		27.71±2.71		28.68±4.40	
Relatives with breast cancer			<0.001		<0.001		0.003
Yes	194 (33.56)	9.68±2.59		26.50±2.70		27.01±4.81	
No	384 (66.44)	10.51±2.73		27.55±2.71		28.22±4.60	
Duration of breast cancer			<0.001		<0.001		<0.001
<3 years	232 (40.14)	10.89±2.61		27.80±2.66		29.13±4.58	
3–5 years	222 (38.41)	9.84±2.74		26.64±2.56		27.29±4.54	
≥6 years	124 (21.46)	9.70±2.59		27.07±3.01		26.25±4.59	
Type of surgery			0.218		0.362		0.080
Modified radical surgery for breast cancer	306 (52.94)	10.39±2.83		27.02±2.76		27.92±4.68	
Radical surgery for breast cancer	148 (25.61)	10.02±2.53		27.49±2.58		27.01±4.81	
Extended radical surgery for breast cancer	41 (7.09)	10.12±2.35		27.29±3.37		28.66±4.30	
Breast-conserving surgery	54 (9.34)	10.46±2.34		27.52±2.46		28.80±4.38	
Unclear	29 (4.93)	9.31 ± 3.15		26.83±2.89		27.62±5.12	

menopausal (P=0.001), without a familial history of BC (P<0.001), and with a short time since BC (P<0.001) (Table 1). Supplementary Table 1 presents the distribution of the responses to the attitude items.

The mean practice score was 27.81±4.70 (/35, 79.46%), indicating active practice. Higher attitude scores were observed in younger women (P<0.001), higher education (P<0.001), employed and housewives (P<0.001), without a history of childbirth (P=0.031), non-menopausal (P=0.002), without a familial history of BC (P=0.003), and with a short time since BC (P<0.001) (Table 1). Supplementary Table 1 presents the distribution of the responses to the practice items.

Pearson Correlations Analysis

Correlations were observed between the knowledge and attitude scores (r=0.265, P<0.001), between the knowledge and practice scores (r=0.460, P<0.001), and between the attitude and practice scores (r=0.550, P<0.001) (Table 2).

Multivariable Logistic Regression Analysis

Multivariable logistic regression analysis showed that the knowledge scores (OR=1.42, 95% CI: 1.28–1.58, P<0.001), attitude scores (OR=1.56, 95% CI: 1.41–1.73, P<0.001), age 45–55 (OR=0.32, 95% CI: 0.14–0.71, P=0.005), age 56–60 (OR=0.29, 95% CI: 0.10–0.82, P=0.019), ≥ 6 years BC duration (OR=0.41, 95% CI: 0.21–0.80, P=0.009), modified

Table 2 Correlation Analysis Between the Dimensions

	Knowledge	Attitude	Practice
Knowledge	1		
Attitude	0.265 (P<0.001)	1	
Practice	0.460 (P<0.001)	0.550 (P<0.001)	1

radical surgery (OR=0.46, 95% CI: 0.22–0.95, P=0.036), and radical surgery (OR=0.37, 95% CI: 0.17–0.81, P=0.013) were independently associated with the proactive practice (Table 3).

SEM Model

The fit of the SEM model was good (Supplementary Table 2), and the results showed the positive direct effect of knowledge on both attitude (β = 1.715, P < 0.001) and practice (β = 0.824, P < 0.001), as well as of attitude on practice (β = 0.714, P < 0.001) (Table 4 and Figure 1).

Table 3 Multivariable Logistic Regression Analysis on Practice

Variables	Knowledge		Attitude		Practice	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Knowledge score	–	–	1.19 (1.10 1.29)	<0.001	1.42 (1.28 1.58)	<0.001
Attitude score	–	–	–	–	1.56 (1.41 1.73)	<0.001
Age						
≤44	Ref.		Ref.			
45–55	0.79 (0.40 1.53)	0.482	0.95 (0.47 1.89)	0.877	0.32 (0.14 0.71)	0.005
56–60	0.34 (0.15 0.81)	0.015	0.89 (0.37 2.14)	0.802	0.29 (0.10 0.82)	0.019
≥61	0.51 (0.22 1.17)	0.113	0.56 (0.23 1.36)	0.200	0.47 (0.17 1.31)	0.146
Education level						
Middle school and below	Ref.		Ref.		Ref.	
High school	0.88 (0.55 1.39)	0.581	0.64 (0.39 1.04)	0.073	0.73 (0.40 1.33)	0.304
Junior college and above	1.30 (0.68 2.48)	0.427	1.28 (0.66 2.46)	0.463	0.97 (0.44 2.10)	0.929
Type of occupation						
Employed	0.52 (0.30 0.88)	0.015	0.63 (0.36 1.11)	0.63	0.97 (0.49 1.92)	0.940
Unemployed	0.51 (0.23 1.13)	0.098	0.83 (0.36 1.95)	0.83	0.84 (0.30 2.35)	0.734
Retired	0.47 (0.29 0.77)	0.002	1.22 (0.73 2.04)	1.22	1.30 (0.70 2.43)	0.409
Housewife	Ref.		Ref.		Ref.	
History of childbirth						
Yes	1.61 (0.53 4.91)	0.403	0.44 (0.15 1.29)	0.134	0.80 (0.22 2.90)	0.336
No	Ref.		Ref.		Ref.	
Menopausal						
Yes	1.65 (1.00 2.73)	0.049	0.72 (0.43 1.20)	0.205	1.37 (0.72 2.63)	0.414
No	Ref.		Ref.		Ref.	
Relatives with breast cancer						
Yes	0.53 (0.36 0.80)	0.002	0.60 (0.40 0.92)	0.019	1.24 (0.74 2.05)	0.414
No	Ref.		Ref.		Ref.	
Duration of breast cancer						
<3 years	Ref.		Ref.		Ref.	
3–5 years	0.56 (0.37 0.84)	0.005	0.48 (0.31 0.75)	0.001	0.66 (0.39 1.12)	0.124
≥6 years	0.53 (0.31 0.88)	0.015	0.77 (0.45 1.30)	0.328	0.41 (0.21 0.80)	0.009
Type of surgery						
Breast-conserving surgery	Ref.		Ref.		Ref.	
Modified radical surgery for breast cancer	0.94 (0.50 1.76)	0.845	0.87 (0.44 1.69)	0.674	0.46 (0.22 0.95)	0.036
Radical surgery for breast cancer	0.56 (0.28 1.10)	0.094	0.99 (0.49 2.02)	0.980	0.37 (0.17 0.81)	0.013
Extended radical surgery for breast cancer	0.57 (0.22 1.45)	0.236	1.57 (0.62 3.93)	0.340	0.76 (0.26 2.16)	0.603
Unclear	0.59 (0.22 1.61)	0.301	0.64 (0.21 1.94)	0.429	0.65 (0.19 2.15)	0.477

Table 4 SEM Results

			Estimate	P
Attitude	←	Knowledge	1.715	<0.001
Practice	←	Attitude	0.714	<0.001
Practice	←	Knowledge	0.824	<0.001

Discussion

The results showed that women who underwent surgery for BC had good knowledge, positive attitudes, and proactive practice toward rehabilitation. Nevertheless, specific knowledge areas remain to be improved. This study may help design future education interventions for patients undergoing surgery for BC.

The present study suggested that the women with BC had adequate knowledge of postoperative BC rehabilitation. This finding is consistent with recent studies that reported relatively good KAP among BC survivors in general.[22–25] Nevertheless, a study highlighted the need for proper information and support for home rehabilitation after BC.[33] In addition, two studies in China revealed poor knowledge of lymphedema among patients with BC,[34,35] which was lower than in California.[36] Such adequate knowledge is probably multifactorial, with the physicians correctly informing their patients, the women seeking information from the healthcare providers and peers, and the wealth of information available on BC. Nevertheless, specific knowledge areas appear to require clarifications, especially the importance of psychological health, the physical and health impacts of estrogen deprivation therapies, and the importance of maintaining an appropriate sex life. Housewives appeared to have the highest knowledge of BC rehabilitation, probably because they had more time available to seek information. Not having relatives with BC was associated with higher knowledge, probably due to more direct sources of correct information from the physicians. Longer intervals since BC were also

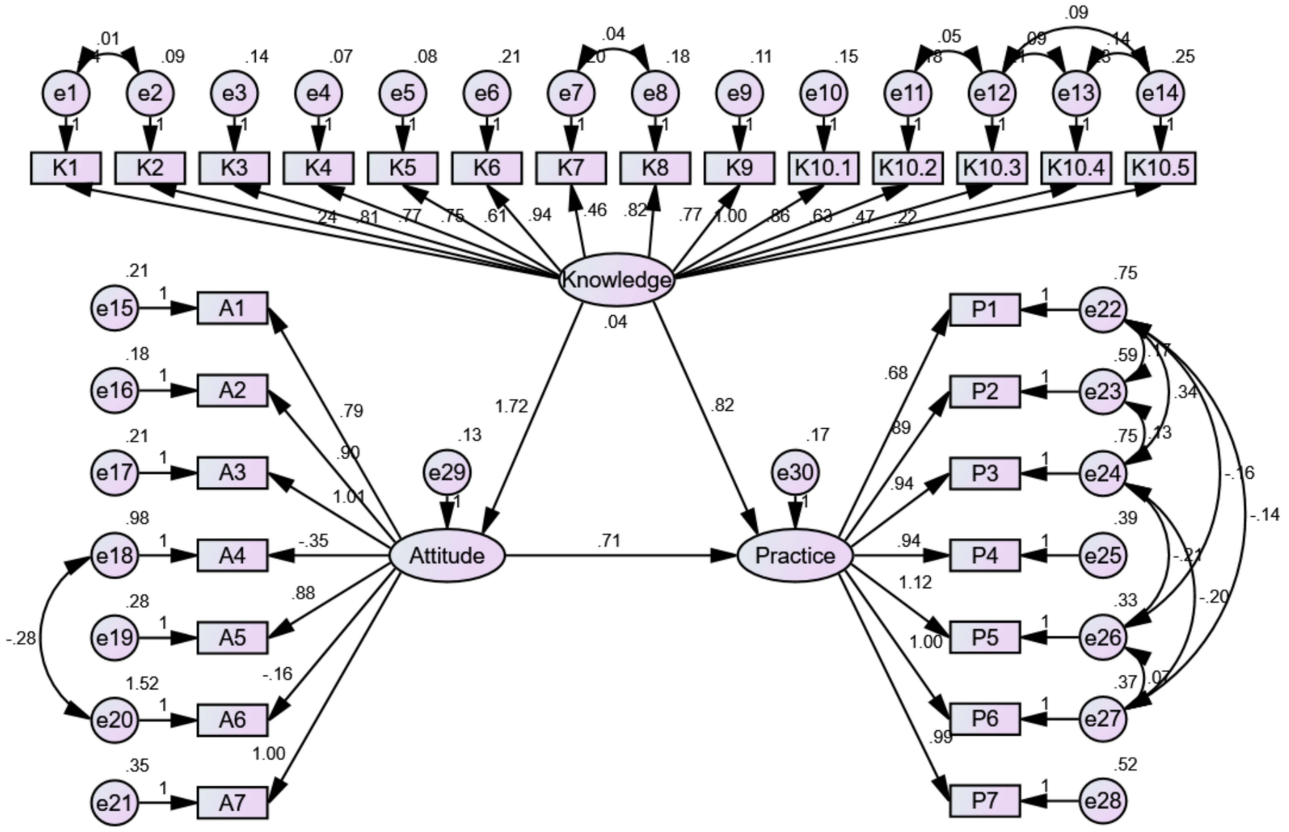

Figure 1 Structural equation model.

associated with decreasing knowledge. This may result from reduced follow-up care and less frequent reinforcement of rehabilitation information, leading patients to prioritize other aspects of life, thus diminishing retention and adherence to rehabilitation practices over time.

Here, the women reported a positive attitude and active practice toward BC rehabilitation. A previous study in Southwest China reported moderate adherence to postoperative exercises.[37] Of course, local and regional disparities in healthcare resources and practice can influence the results. Surprisingly, the women with a radical mastectomy had less active practice than those with breast-conserving therapy. Women who underwent radical mastectomy are those at the highest risk of loss of movement and lymphedema and are those primarily targeted by rehabilitation programs, but limited movements, fear of pain, lymphedema, and the risk of injury might be the reasons for a poorer practice. The exact reasons should be explored in future studies.

Several nursing models are available for the postoperative care of patients with BC, and the KAP model is one of them.[38] The KAP nursing models aim to enhance the patient's knowledge about the disease, encourage healthy beliefs, and promote healthy behaviors.[39] Lv et al[40] demonstrated the efficacy of the KAP model in improving compliance with rehabilitation in patients with BC. The content of their intervention was mostly on the importance of rehabilitation after radical surgery, explaining the concept of self-image after surgery, and providing general information on BC survivorship.[40] Hence, enhancing the KAP of patients with BC is important. Hence, based on the present study, a KAP intervention could improve the KAP toward rehabilitation in patients with BC. The results of the multivariable analysis could also help determine who might be the primary targets for the intervention. Such an intervention could even be internet-based since such interventions appear beneficial.[41] Although a recent randomized controlled trial demonstrated that a KAP-based rehabilitation program improved arm function and quality of life after BC surgery, it did not reduce the incidence of lymphedema.[42] This may suggest that while improving knowledge, attitude, and practice can enhance overall well-being and functional outcomes, more targeted interventions specifically addressing lymphedema prevention, such as specialized exercises and early interventions, are necessary to effectively reduce the risk of this condition. A study in China revealed that healthcare providers should strengthen lymphedema prevention and management.[35] Therefore, rehabilitation interventions after BC surgery should be carefully designed to encompass all aspects of postsurgical care, including lymphedema prevention and management. A review concluded that there was a lack of effective and rigorous rehabilitation intervention studies for breast cancer survivors.[43] Therefore, the results could help design educational interventions to strengthen patient knowledge of the risk of lymphedema and proper rehabilitation and risk reduction, particularly in setting promoting integrated healthcare. Survival to BC is high, leading to ever increasing prevalence of BC survivors. Hence, improving patient awareness and education about rehabilitation after surgery, decreasing the risk of lymphedema, and improving care after BC diagnosis are needed. Indeed, prospective lymphedema surveillance and early detection and intervention are associated with a decreased risk of chronic lymphedema.[44] A systemic review of self-management showed that exercises and complete decongestive therapy (including compression garments/bandages, exercises, and skin care) effectively prevented lymphedema.[45] Hence, it highlights the importance of cultivating a proper KAP toward rehabilitation in women with BC since such improved knowledge might result in more actions to promote their health, as previously shown in various diseases and conditions.[46,47] Still, the multidisciplinary care of BC has to be enforced since patients with BC facing the risk of lymphedema have challenges in self-management and the balance of internal and external resources to cope with negative emotions.[48] The SEM analysis yielded robust results, affirming a positive direct effect of knowledge on both attitude and practice. This underscores the foundational role of knowledge in shaping breast cancer patients' attitude and behaviors, aligning with the widely accepted knowledge-attitude-practice model. Furthermore, the positive direct effect of attitude on practice reinforces the interconnectedness of these dimensions, emphasizing the need for interventions targeting attitude improvement to enhance practical engagement.[49]

This study had limitations. The survey's design, content, and administration may introduce response biases. Indeed, the survey was designed by local investigators based on local practice and policies and to reflect the social and clinical reality of the target population. The survey is probably not exportable in its current form and would require adaptation before its use in other populations. The study was performed in eight hospitals, but all eight were in the same city, limiting the generalizability of the results. Only participants who could read were included, possibly excluding some

illiterate women with a lower socioeconomic status. Because the survey was completed by the women, the clinical characteristics of their BC were not collected because of the high risk of recall bias. The results represent the women's situations at a specific moment, preventing causative analysis. The number of knowledge items was relatively small, and the knowledge was only generally assessed, not comprehensively. As for all qualitative studies, KAP surveys are subject to social desirability bias, in which the participants can be tempted to answer what is wanted of them instead of what they do.[50] Since the knowledge scores were relatively high, there is a possibility that some women responded what they thought or knew they should think or do in a desire to appear good or better, even though they were made aware at the beginning of the survey that the survey was anonymous, and their responses could not be traced back to them. Unfortunately, except by observing the patients in their everyday real life, there are no recognized statistical or analysis methods to cope with the social desirability bias.[50,51] Finally, nursing methods in different hospitals can affect the rehabilitation of patients,[52,53] and different nursing modes and procedures among the eight hospitals might affect the rehabilitation of the patients.

Conclusions

In conclusion, women who underwent surgery for BC demonstrated adequate knowledge, positive attitudes, and proactive practices regarding rehabilitation. However, specific knowledge gaps persist, particularly in areas related to postoperative psychological care and the impact of estrogen reduction. Targeted educational interventions are needed, especially for patients with a longer time since surgery and specific demographic characteristics (eg, older age, non-menopausal status), to enhance their understanding and encourage more active participation in rehabilitation.

Data Sharing Statement

All data generated or analyzed during this study are included in this published article.

Ethics Approval and Consent to Participate

All procedures were performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments. The study was approved by the Yixing Medical Ethics Committee (ethical approval No. 2023-027). Informed consent was obtained from the study participants.

Consent for Publication

Informed consent was obtained from the study participants.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

Yan Zhou and Qin Lu are co-first authors for this study. The authors declare that they have no competing interests in this work.

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