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A Study on the Influencing Factors of Self-Acceptance Status and Demoralization Syndrome in Breast Cancer Patients and the Nursing Effect of Acceptance and Commitment Therapy

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Abstract: *To comprehensively investigate the current status of self-acceptance among breast cancer patients and its correlation with demoralization syndrome, as well as to evaluate the effectiveness of Acceptance and Commitment Therapy (ACT) nursing model, we systematically conducted a retrospective analysis of clinical data from 372 breast cancer patients treated in our hospital's breast surgery department between June 2022 and May 2024. These patients were categorized into a demoralization group (n=168) and a non-demoralization group (n=204), based on the presence or absence of demoralization syndrome. By meticulously collecting clinical and psychological information from both groups, we employed a Logistic regression model to conduct an in-depth data analysis, aiming to identify and quantify various risk factors that contribute to the development of demoralization syndrome in breast cancer patients. Furthermore, based on the probability values fitted by the regression equation, we plotted an ROC curve to visually demonstrate the model's performance in predicting the risk of demoralization syndrome occurrence..The results showed that multivariate Logistic regression showed that: education level, occupation, per capita monthly family income, place of residence, breast cancer stage, cancer metastasis, operation method, physical discomfort, SAQ score and SSRS score were important influencing factors for demoralization syndrome ($P < 0.05$). ROC analysis showed that the AUC of combined prediction and evaluation of demoralization syndrome in breast cancer patients was 0.926, 95%CI was 0.900-0.953, sensitivity was 0.857, specificity was 0.892.The conclusion is that education level, occupation, family per capita monthly income, place of residence, breast cancer stage, cancer metastasis, operation method, physical discomfort, social support level and self-acceptance level are important factors affecting the occurrence of demoralization syndrome in breast cancer patients. ACT nursing can be used for these risk factors. To improve patient mentality.*

Keywords: *Breast cancer, demoralization syndrome, Self-acceptance, Acceptance and commitment, Nursing care*

1. Introduction

Breast cancer is the most common malignant tumor in women. With the significant improvement of diagnosis and treatment, the survival time of patients continues to be prolonged, and their quality of life has attracted further attention. Self-acceptance means that individuals can objectively recognize their own strengths and weaknesses, accept their own status quo, accept their own experience, emotions and bodies, accept and recognize themselves, and regard themselves as someone worthy of appreciation respect [1]. Patients with low self-acceptance are prone to negative emotions, such as depression, and even demoralization syndrome. demoralization syndrome is a state of psychological maladjustment in which individuals show continuous depression, helplessness, loss of life goals and other symptoms after suffering a major blow. It has a high incidence in breast cancer patients [2]. This study aims to analyze the current status of self-acceptance, influencing factors of demoralization syndrome nursing effect of acceptance and commitment (ACT) in breast cancer patients, so as to provide a reference for clinical intervention.

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2. Materials and Methods

2.1 Subjects

A total of 372 patients with breast cancer who underwent breast surgery in our hospital from June 2022 to May 2024 were randomly selected. Inclusion criteria: ① Breast cancer was confirmed by pathological examination; ② women aged ≥18 years old; ③ They were aware of their own condition, had clear consciousness, had smooth communication, and could effectively complete the questionnaire. Exclusion criteria: ① combined with other serious organ or mental diseases; ② family history of mental disorders; (3) suffering other major blows in the past 3 months. This study was approved by the ethics committee of the hospital, and informed consent was signed by the patients and their families.

2.2 Methods

During the investigation, researchers talked to patients face to face and explained the purpose, content and confidentiality principle to patients. With the informed consent of patients and their families, patients were instructed to complete the questionnaire independently using unified and standardized instructions. If the patient had a low education level or had other difficulties in reading and filling in, the researchers would explain in detail or record for them. The questionnaires were distributed, retrieved and checked on the spot, and errors were corrected in time. In this study, a total of 403 sets of questionnaires were distributed and 372 valid questionnaires were collected, with an effective recovery rate of 92.31%. Clinical data were collected from the electronic medical record system.

General information questionnaire: including age, education level, occupation, family monthly income per capita, residence, marital status.

Demoralization Scale (DS) : According to the self-evaluation of the feelings and experiences in the past 2 weeks, the subjects included 5 dimensions of meaninglessness, irritability, frustration, helplessness and failure, with a total of 24 items. Each item was scored by Likert5 method, with five options of "strongly disagree", "disagree", "uncertain", "agree" and "strongly agree", which were calculated as 0-4 points respectively. The total score ranged from 0 to 96. The higher the score, the more serious the degree of demoralization.

Social Support Rating Scale (SSRS) included 10 items in three dimensions: objective support, subjective support and social support utilization. Each of the 4 options in items 1-4 and 8-10 was assigned 1-4 points. Item 5 was divided into 4 subitems, and each subitem was assigned 1-4 points from "none" to "full support", which were summed to obtain the total score of item 5. For Items 6 and 7, the score is determined by the number of sources mentioned.. All scores were summed to obtain a total score, with higher total scores indicating higher social support received. The criteria of low, medium and high social support were <33, 33-45 and >45, respectively.

Self Acceptance Questionnaire (SAQ) : Each item was scored by Likert4 method. "Strongly disagree", "disagree", "agree" and "strongly agree" were calculated as 1-4 points in order, and the total score was 16-64. Higher scores indicate higher levels of self-acceptance.

2.3 Statistical analysis

The collected information was entered into Excel using the double-entry method for review, and statistical analysis was conducted using SPSS 26.0. Measurement data were expressed as ($\bar{x}\pm s$), and t-tests were used for comparisons between groups. Count data were expressed as n and percentages (%), and chi-square (χ^2) tests were employed for comparisons between groups. Logistic regression analysis was performed on indicators with significant differences. The ROC curve was utilized to evaluate the accuracy of predictive variables. A P-value of <0.05 was considered statistically significant.

3. Results

3.1 Univariate analysis of demoralization syndrome in breast cancer patients

Among 372 breast cancer patients, 168 (45.16%) had demoralization syndrome and 204 (54.84%)

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did not. There were statistically significant differences in age, education level, occupation, family monthly income per capita, residence, marital status, breast cancer stage, cancer metastasis, surgical method, physical discomfort, SSRS score, SAQ score between the demoralization group and the non-demoralization group ($P < 0.05$).See Table 1 for details.

Table 1 Univariate analysis of demoralization syndrome in breast cancer patients

	Demoralization group(n=168)	No demoralization group(n=204)	χ^2/t	P
Age	48.68±13.63	52.18±15.42	3.606	0.022
Degree of education			17.094	<0.001
High school and above	44(26.19)	96(47.06)		
Junior high school and below	124(73.81)	108(52.94)		
Occupations			22.822	<0.001
Retire or work in an enterprise or institution	67(39.88)	132(64.71)		
Individual or farmer	101(60.12)	72(35.29)		
Per capita monthly household income			17.758	<0.001
≥3000	72(42.86)	132(64.71)		
<3000	96(57.14)	72(35.29)		
residence			17.040	<0.001
city	66(39.29)	124(60.78)		
Town or countryside	102(60.71)	80(39.22)		
Marriage situation			5.614	0.018
married	126(75.00)	173(84.80)		
unmarried	42(25.00)	31(15.20)		
Staging of Breast Cancer			68.762	<0.001
I~II	82(48.81)	180(88.24)		
III~IV	86(51.19)	24(11.76)		
Cancer metastasis			34.527	<0.001
No	54(32.14)	128(62.75)		
Yes	114(67.86)	76(37.25)		
Type of surgery used			17.586	<0.001
Breast preservation or no surgery	45(26.79)	98(48.04)		
Mastectomy	123(73.21)	106(51.96)		
Physical discomfort			40.308	<0.001
mild	67(39.88)	148(72.55)		
Moderate to severe	101(60.12)	56(27.45)		
SSRS Score	39.65±6.59	44.33±6.08	7.113	<0.001
SAQ Score	38.45±6.64	43.86±6.12	8.165	<0.001

3.2 Multivariate analysis of demoralization syndrome in breast cancer patients

The dependent variable was whether the patient had demoralization syndrome (no demoralization =0, demoralization =1). Variables with $P < 0.05$ in univariate analysis (age, education level, occupation, family per capita monthly income, residence, marital status, breast cancer stage, cancer metastasis, use of surgical methods, physical discomfort, SSRS score, SAQ score) were included in Logistic regression analysis, and the specific assignment is shown in Table 2.The results of multivariate analysis showed that education level, occupation, family monthly income per capita, place of residence, breast cancer stage, cancer metastasis, surgical method, physical discomfort, SSRS score and SAQ score were the important influencing factors of demoralization syndrome ($P < 0.05$). Logit (P) =16.303-1.106 Education level -0.901 occupation -1.567 family monthly income per capita -1.159 place of residence -2.252 breast cancer stage -1.130 cancer metastasis -0.888 use of surgical methods -1.079 physical discomfort -0.124SSRS score -0.117SAQ score. See Table 3.

ISSN 2706-6819 Vol.6, Issue 8: 44-50, DOI: 10.25236/IJFM.2024.060806

Table 2 Variable assignment methods

Variable	assignment methods
age	Actual value input
education level	High school and above=0, Junior high school and below=1
occupation	Retire or work in an enterprise or institution=0, Individual or farmer=1
Family per capita monthly income	≥3000=0, <3000=1
residence	City=0, Town or countryside=1
Marriage situation	In marriage=0, unmarried=1
breast cancer stage	I~II=0, III~IV=1
cancer metastasis	No=0, Yes=1
Type of surgery used	Breast-conserving or no surgery=0, mastectomy =1
Physical discomfort	Mild=0, Moderate to severe=1
SSRS Score	Actual value input
SAQ Score	Actual value input

Table 3 Multivariate analysis of demoralization syndrome in breast cancer patients

	B	SE	Wald	P value	OR value	95%CI
age	-0.012	0.011	1.027	0.311	0.989	0.967~1.011
education level	-1.106	0.351	9.932	0.002	0.331	0.166~0.658
occupation	-0.901	0.326	7.625	0.006	0.406	0.214~0.770
Family per capita monthly income	-1.567	0.346	20.474	<0.001	0.209	0.106~0.411
residence	-1.159	0.330	12.309	<0.001	0.314	0.164~0.600
Marriage situation	-0.564	0.411	1.887	0.169	0.569	0.254~1.272
breast cancer stage	-2.252	0.388	33.653	<0.001	0.105	0.049~0.225
cancer metastasis	-1.130	0.323	12.225	<0.001	0.323	0.171~0.609
Type of surgery used	-0.888	0.334	7.061	0.008	0.412	0.214~0.792
Physical discomfort	-1.079	0.330	10.682	0.001	0.340	0.178~0.649
SSRS Score	-0.124	0.027	20.845	<0.001	0.883	0.838~0.932
SAQ Score	-0.117	0.024	23.177	<0.001	0.889	0.848~0.933

3.3 Predictive value of predictors for demoralization syndrome in breast cancer patients

Taking the occurrence of demoralization syndrome as the dependent variable, The ROC curve was fitted by education level, occupation, family monthly income per capita, residence, breast cancer stage, cancer metastasis, Type of surgery used, physical discomfort, SAQ score, SSRS score combined with probability values in the Logistic regression model.The results showed that the AUC of combined prediction for evaluating demoralization syndrome in breast cancer patients was 0.926, 95%CI was 0.900-0.953, the sensitivity was 0.857, and the specificity was 0.892. The predictive value was good. See Table 4 and Figure 1.

Table 4 Predictive value of predictors for demoralization syndrome in breast cancer patients

	AUC	P	95%CI	sensitivity	specificity
education level	0.604	0.001	0.547~0.662	0.738	0.471
occupation	0.624	<0.001	0.567~0.681	0.601	0.647
Family per capita monthly income	0.609	<0.001	0.552~0.667	0.571	0.647
residence	0.607	<0.001	0.550~0.665	0.607	0.608
breast cancer stage	0.697	<0.001	0.624~0.752	0.512	0.882
cancer metastasis	0.653	<0.001	0.597~0.709	0.679	0.627
Type of surgery used	0.606	<0.001	0.549~0.664	0.732	0.480
Physical discomfort	0.663	<0.001	0.607~0.719	0.601	0.725
SSRSScore	0.706	<0.001	0.653~0.759	0.583	0.738
SAQScore	0.726	<0.001	0.674~0.778	0.730	0.643
Joint prediction	0.926	<0.001	0.900~0.953	0.857	0.892

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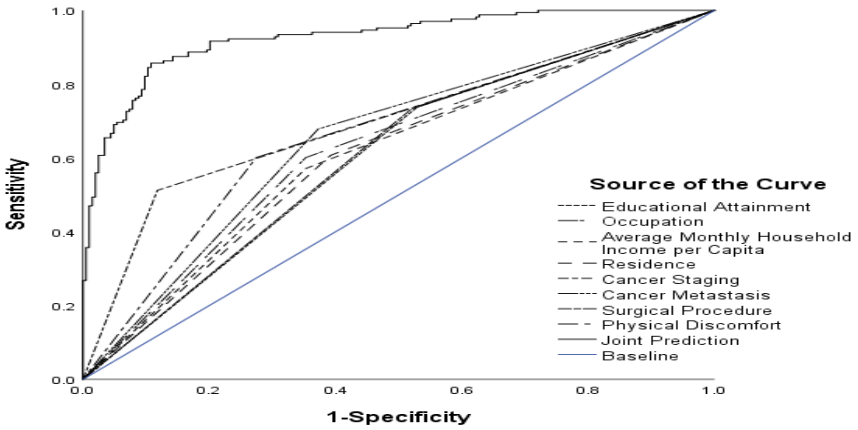

Figure 1a Joint prediction

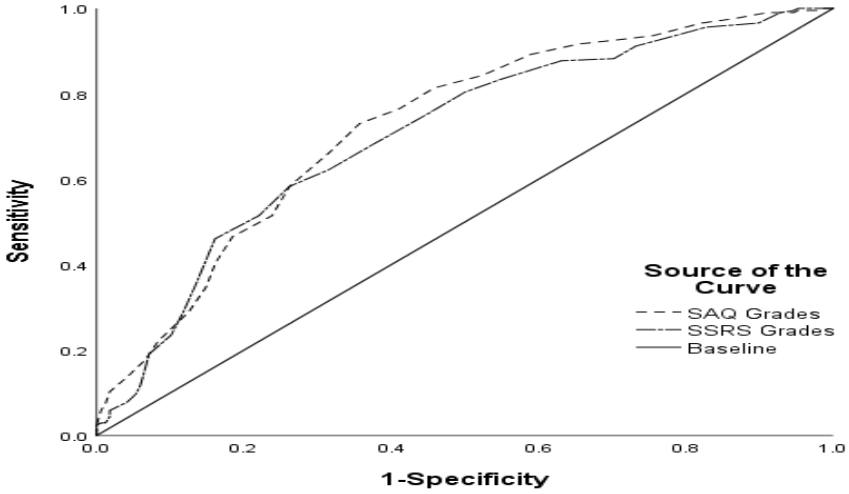

Figure1b SSRS Score , SAQ Score

4. Discuss

In the process of diagnosis and treatment, breast cancer patients, in addition to a series of physical, mental, energy and economic difficulties common to cancer patients, also face damage of secondary sexual characteristics, often accompanied by more serious negative emotions and lower degree of self-acceptance, and are prone to demoralization syndrome, mainly manifested by helplessness and depression [3]. In order to reduce the negative emotions of breast cancer patients and improve the quality of life of breast cancer patients, this study aims to analyze the influencing factors and nursing effects of demoralization syndrome.

4.1 Influencing factors of demoralization syndrome in breast cancer patients

The incidence of demoralization syndrome in this study was 45.16%. Logistic regression showed that: education level, occupation, Family per capita monthly income, residence, breast cancer stage, cancer metastasis, type of surgery used, physical discomfort, SSRS score and SAQ score were the important influencing factors of demoralization syndrome. ROC analysis showed that the AUC of the combined prediction of the above factors was 0.926. The 95%CI was 0.900-0.953, the sensitivity was 0.857, and the specificity was 0.892, which had a good predictive value.The reasons are as follows: patients with lower education level may have some obstacles in disease cognition and treatment understanding, and the psychological pressure caused by the thought that cancer is difficult to cure is greater. This information asymmetry may make it more difficult for them to adapt to the changes brought by the disease, while patients with higher education level have more information channels, which is helpful to establish a comprehensive and objective understanding of the disease[4].In addition, occupational background is also a factor that cannot be ignored. Different work pressure and environmental stability have a direct impact on the psychological adaptability of patients. A stable

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work environment helps patients to maintain a positive attitude, while patients with high work pressure may have more difficulty in adapting to the changes brought by the disease. Family per capita monthly income is a direct reflection of the patient's economic status, which is not only related to whether the patient can obtain necessary medical resources, but also those with low per capita monthly income may think that their illness is a burden to the family, and then affect their mood and self-worth [5]. Differences in place of residence are associated with accessibility to medical resources and quality of life.The above influencing factors have a certain degree of logical correlation, and some patients are likely to have several independent risk factors at the same time, such as low education level, occupational instability, low income, and living in remote places.

In addition to the differences in general data, the differences in clinical data in the diagnosis and treatment of patients also have an important impact on demoralization syndrome. Breast cancer stage, as a key indicator to judge the severity of the disease, has a profound impact on the psychological state of patients. The complexity and uncertainty of treatment faced by patients with stage iii-iv cancer may cause them to feel more helpless and hopeless. The presence of cancer metastasis brings great psychological pressure to patients. Patients' worries about the prognosis of the disease and their fear of disease deterioration can lead to negative emotions such as depression, anxiety and panic, which seriously hinder their positive evaluation of self-image.In terms of surgical treatment, different surgical methods have different physical and psychological effects on patients, which is particularly obvious in postoperative recovery and self-image reconstruction. Some patients have difficulty in objectively viewing the deformity of their body after mastectomy, and their self-image and self-value evaluation are greatly negatively affected [6]. Physical discomfort is a direct reflection of the quality of life of patients. Pain, numbness, nausea and other discomfort feelings existing in the process of diagnosis and treatment continue to exist, resulting in patients feeling depressed and helpless, which is easy to increase the mental stress of patients. This emotional state is a component of demoralization syndrome [7].

SSRS score can evaluate the degree of social support from another perspective, including emotional, material, information and other forms of support. When patients feel love and support from family, friends or other social groups, they are more likely to take a positive attitude to face the disease. Conversely, patients with a lack of social support may feel lonely and helpless, exacerbating psychological stress. SAQ score is affected by many factors. Patients with lower education level, lower income, more severe illness, breast deformity, more serious physical discomfort, and lack of social support are more difficult to establish a correct cognition of the disease and self, it is difficult to accept the objective existence of the disease and its negative effects, and lack of positive self-attitude. Patients with low SAQ score have difficulty in self-acceptance, which reflects the decrease of self-worth and is a warning signal of demoralization syndrome.

4.2 ACT nursing for breast cancer patients with demoralization syndrome

ACT belongs to a new type of cognitive intervention therapy, and its core is to teach patients to accept the inevitable pain and uncertainty, allow the existence of negative emotions, and then re-establish and strive to realize new life values [8]. Rather than passive submission, this acceptance is an active psychological adjustment that enables the patient to reduce internal conflict and thus gain a clearer understanding of his or her needs and goals.ACT intervention methods were divided into six parts [9] : ① Acceptance: nurses guided patients to accept the facts of mastectomy or other diseases, reduce avoidance, establish positive attitudes, gradually improve social participation, and accept their own image. ② Cognitive dissociation: nurses guide patients not to adhere to negative thoughts such as "others are talking about my chest", guide patients to separate themselves from memory and thoughts, and observe their own thoughts objectively from an external perspective. ③ Experience the present: guide patients to free themselves from negative emotions, focus on the present life experience, fully accept it without evaluation, and deepen the connection between patients and the surrounding world. ④ Self-centered awareness: including self-centered content and self-centered process, guiding patients to clarify themselves, actively accept reality and seek remedies.⑤ Clarifying values: nurses inform patients that the level of breast cancer treatment is improved and the breast defect can be repaired by reconstruction surgery or breast prosthesis, so as to improve patients' confidence in rehabilitation, help them establish correct values, and adapt and return to society as soon as possible. ⑥ Committed actions: nursing staff assisted patients to correctly understand their own value, guided patients to choose life direction and attitude, made feasible plans with patients together, and implemented actions, followed up patients after discharge, and continued to answer questions for them. ACT nursing can help patients reduce inner conflicts, cultivate healthy thinking patterns and living habits, clarify their own values,

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improve their quality of life, and help to achieve self-growth and enhance their psychological resilience[10].

5. Conclusion

To sum up, education level, occupation, Family per capita monthly income, residence, breast cancer stage, cancer metastasis, type of surgery used, physical discomfort, self-acceptance and social support are important influencing factors of demoralization syndrome in breast cancer patients. ACT nursing can be taken according to the above risk factors, so as to improve the mentality of patients.

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