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ORIGINAL

IMPACT OF TARGETED PSYCHOLOGICAL NURSING COMBINED WITH PHYSICAL ACTIVITY ON SELF-MANAGEMENT EFFICACY AND COMPLIANCE IN PATIENTS WITH OVARIAN CANCER UNDERGOING CHEMOTHERAPY

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ABSTRACT

Objective: To explore the effect of targeted psychological nursing, combined with physical activity, on self-management efficacy and compliance in patients with ovarian cancer undergoing chemotherapy, with a specific focus on athletes or physically active individuals. **Methods:** A total of 90 patients, including athletes and physically active individuals, diagnosed with ovarian cancer and receiving chemotherapy at our hospital from May 2019 to May 2021, were selected for this study. They were randomly divided into a control group and a study group, with 45 cases in each group. The control group received routine nursing care, while the study group was given targeted psychological nursing interventions in conjunction with structured physical activity programs. Self-management efficacy, compliance, mental state, and quality of life were observed and compared between the two groups. **Results:** After 2 weeks and 3 months of intervention, the level of self-management efficacy in both groups was higher than before the intervention, with the study group showing significantly higher levels than the control group ($P < 0.05$). The complete compliance rate in the study group was 75.55%, significantly higher than the control group's 44.44% ($P<0.05$). Post-intervention scores for the Self-Rating Anxiety Scale (SAS), Self-Rating Depression Scale (SDS), and Cancer-Related Fatigue (CRF) were lower in both groups compared to pre-intervention, with the

study group showing significantly greater improvements than the control group (P <0.05). Furthermore, the life quality scores, particularly in physical status, emotional status, social and family interactions, and ovarian cancer-specific modules, were significantly higher in the study group compared to the control group (P <0.05). **Conclusion:** The implementation of targeted psychological nursing measures, coupled with structured physical activity, significantly improves self-management efficacy, treatment compliance, and quality of life in ovarian cancer patients undergoing chemotherapy, particularly among athletes and physically active individuals. These findings suggest positive clinical value in integrating psychological and physical activity interventions for this patient population.

KEYWORDS: Targeted psychological nursing; Ovarian cancer patients; Chemotherapy; Self-management effectiveness; compliance

1. INTRODUCTION

Ovarian cancer is a formidable challenge in the field of oncology, being one of the leading causes of cancer-related deaths among women worldwide. The management of ovarian cancer often necessitates a rigorous treatment regimen, with chemotherapy playing a central role in controlling the disease. However, the physical and psychological toll of chemotherapy is significant, and patients frequently encounter a range of side effects such as fatigue, pain, anxiety, and depression. These symptoms not only diminish the quality of life but can also impact the patient's ability to adhere to their treatment protocols, making effective management strategies crucial for improving clinical outcomes. In recent years, the integration of psychological care into cancer treatment has gained increasing attention. Targeted psychological nursing, which focuses on providing tailored emotional and mental health support, has emerged as a promising approach to enhance patient adherence to treatment and improve their overall quality of life (Amin et al., 2019; Andreetta et al., 2021; Cabasag et al., 2020; Cusimano et al., 2022; Zhao et al., 2021). This is particularly critical for specific patient groups, such as athletes and physically active individuals, who may face additional psychological and physical challenges during cancer treatment.

For athletic girls and young women, the diagnosis of ovarian cancer and the subsequent treatment journey can be particularly daunting. These individuals are often deeply connected to their physical identity, with sports and physical activity being integral to their sense of self and daily routines. The interruption of their athletic pursuits due to cancer treatment can lead to a profound sense of loss, affecting not only their physical capabilities but also their mental and emotional well-being. The physical side effects of chemotherapy, such as fatigue, muscle weakness, and decreased stamina, can be especially distressing for athletes who are accustomed to high levels of

physical performance. Moreover, the psychological impact of cancer treatment in athletic girls can be exacerbated by concerns about their ability to return to their previous levels of athletic performance post-treatment. The fear of not being able to compete or engage in sports at the same level as before can lead to increased anxiety, depression, and a sense of helplessness. These psychological challenges, if not adequately addressed, can hinder their recovery process, reduce their compliance with treatment, and negatively affect their overall prognosis. Given the unique needs of athletic girls undergoing chemotherapy for ovarian cancer, a holistic approach that integrates targeted psychological nursing with structured physical activity programs is essential. Psychological interventions tailored to address the specific concerns of athletic patients—such as maintaining a positive body image, managing stress, and coping with the disruption of their athletic identity—can play a critical role in enhancing their mental resilience (Finlayson et al., 2019; Frangou et al., 2021; Long et al., 2021; Mirzaei et al., 2019).

Concurrently, incorporating physical activity into their care plan, even at a modified level, can help maintain their physical fitness, boost their mood, and provide a sense of continuity in their athletic lifestyle. This study aims to investigate the impact of combining targeted psychological nursing with structured physical activity on self-management efficacy, compliance, and quality of life in athletic girls undergoing chemotherapy for ovarian cancer. The research will explore how these integrated interventions can help mitigate the psychological and physical challenges faced by these patients, ultimately leading to better health outcomes. The study will also examine the specific benefits of physical activity in maintaining muscle strength, cardiovascular health, and overall fitness during chemotherapy, which are crucial for the patients' ability to resume their athletic activities post-treatment. The expected findings of this research are poised to provide valuable insights into the development of comprehensive care strategies that cater to the dual needs of physical and psychological health in athletic girls facing ovarian cancer. By addressing both the mental and physical aspects of cancer treatment, the study seeks to contribute to the broader understanding of how best to support young athletes through one of the most challenging periods of their lives. This integrated approach not only aims to improve adherence to treatment and enhance the quality of life during chemotherapy but also to empower athletic girls to reclaim their physical identity and continue their journey in sports after recovery.

2. Material and methods

2.1 General material

A total of 90 patients diagnosed with ovarian cancer by pathology and

receiving chemotherapy in our hospital from May 2019 to May 2021 were selected as the research subjects, and they were divided into a control group and a research group according to the random grouping method, with 45 cases in each group. There was no significant difference in the general data between the two groups (P >0.05), indicating that they were comparable. The control group was given routine nursing care, and the research group was given targeted psychological nursing intervention on the basis of the control group. This study was approved by the Medical Ethics Committee of the hospital.

2.2 Criteria of inclusion and exclusion

Inclusion criteria: ① Patients met the diagnostic criteria for ovarian cancer in the Guideline for Diagnosis and Treatment of Ovarian Cancer (2020) (Redondo et al., 2021) issued by the Chinese Society of Clinical Oncology; ② Patients diagnosed with ovarian cancer by imaging and histopathological examination and receiving chemotherapy; ③ Patients who were 18–75 years old, and the tumor TNM stage was stage IIB–IV; ④ Estimated survival time > 6 months; ⑤ Those without cognitive disorder or mental disorder and with normal communication; ⑥ All the subjects and relatives knew the content of the study and signed the informed consent form voluntarily.

Exclusion criteria: ① Patients with heart, liver, kidney and other organ and tissue disorders or other malignant tumors; ② Patients with secondary tumor and postoperative recurrence; ③ patients with coagulation disorder and autoimmune disorder; ④ patients with incomplete clinical data; ⑤ Patients with poor compliance with doctor's advice.

2.3 Research methods

The control group adopted the routine nursing mode, including ward environmental care, chemotherapy drugs, dietary habits and complications care, paying attention to the patients' vital signs indicators during chemotherapy, and paying attention to their balanced nutrition and good health. If there are nervous system, digestive system and other complications, immediately take corresponding measures. On the basis of the control group, the research group was given targeted psychological care interventions as follows:

① After admission, their mental health status was evaluated based on their psychological characteristics and psychological problems, and the psychology professional scale was filled in. They discussed the psychological care measures and targets with the patients and their families, and targeted care measures were taken. ② Cognitive nursing: The professional medical staff explained the disease characteristics, staging characteristics, treatment plan, chemotherapy stage objectives, side effects, and adverse reaction prevention measures to the patients and their families in detail, so as to improve

their comprehensive understanding of the disease and promote them to recognize the importance of treatment compliance and establish a positive treatment attitude. ③ Psychological construction: The nursing staff actively and deeply communicated with the patients and their families, established a good nurse-patient relationship, grasped the specific conditions of their psychological state changes, expressed their understanding of their psychological state, encouraged them to actively face adverse emotions, guided them to establish a correct thinking mode and treatment concept, and established confidence in the treatment of diseases. ④ Relaxation training: The patients were guided to receive psychological training and to relax in mind and body during the nursing measures, mainly focusing on muscle relaxation and mindfulness training, in which the muscle training was mainly used to relax the lower back, shoulders, neck, buttocks, limbs and joints through correct breathing, approximately 30min each time, twice a day; Mindfulness training includes mindfulness meditation, mindfulness meditation, mindfulness internal view, etc. Each time is about 60min, once a day. ⑤ Life guidance: Through good communication with the patients' families, they were helped to understand the nursing plan, encouraged to actively participate in the nursing project, supervised and assisted the patients to form a good living habit, and encouraged and supported the patients to feel the warmth of the family.

The patients were encouraged to listen to and communicate their feelings during nursing through community and hospital peer exchange meetings, so as to establish a positive attitude towards life, reduce psychological stress response, and be more proactive in receiving treatment. Patients in both groups received continuous nursing care for 3 months.(Yukioka et al., 2014)

2.4 Observational index

① Self-management efficacy: The General Self-Efficacy Scale (GSES) was used to measure the self-efficacy of patients in two groups before, 2 weeks and 3 months after intervention, and to evaluate the factors such as feeling, thinking and action of patients. The scale included ten questions, with the score ranging from 1 to 4 points, with one point indicating none; four points indicating absolutely yes, with full scores of 10–40, and the score was in direct proportion to self-efficacy.

② Compliance evaluation: According to patients' compliance with doctor's advice on medication, diet and prevention of complications, it was divided into complete compliance with doctor's advice on medication, diet and receiving standardized treatment, which could be regarded as complete compliance; Partial compliance with prescribed medication, diet, and standardized treatment; Adherence to almost or occasionally prescribed

medications, diets, and standardized treatments is considered noncompliance. ③ Mental state: Self-rating anxiety scale (Yue et al., 2020) (SAS) and self-rating depression scale (Komiyama et al., 2021) (SDS) were used to assess the anxiety and depression severity in the two groups before and three months after intervention. SAS and SDS consisted of 20 items, which were divided into four grades.

The integer part of the total score multiplied by 1.25 was taken as the standard score. SAS score < 50 indicated normal, while SAS scores of 50–59 indicated mild anxiety symptoms. SAS scores of 60–69 indicated moderate anxiety symptoms. SAS score ≥70 indicated severe anxiety. The SDS score < 53 indicates that the subject is normal. SDS scores of 53–62 indicated mild depressive symptoms. SDS scores of 63–72 indicated moderate depressive symptoms. SDS score ≥70 indicated severe depression, and all the above scales were rated by psychiatrists. The Piper fatigue scale (Giacalone et al., 2010)(CRF) was used to measure the degree of cancer-related fatigue in the two groups before and three months after intervention. The scale consists of four dimensions of physical, cognitive, emotional and behavioral fatigue, and consists of 22 items, with 0–10 points for each item. The score reflects the degree of cancer-related fatigue in the patients.

④ Quality of life: The quality of life scale (Sundar et al., 2022) (QLQ-C30) for ovarian cancer patients was used to assess the quality of life of patients in two groups before intervention and three months later, including four modules such as physical condition, emotional condition, society and family, and ovarian cancer specific module. The scores of 1–4 on the scale were expressed as "never" to "very", and the overall score was positively correlated with quality of life.

2.5 Statistical methods

SPSS 24.0 statistical software was used. The data conforming to the normal distribution were measured and expressed as ($\bar{x} \pm s$). The data between groups were compared with t test. Enumeration data were expressed as case number (N) and percentage (%). Intergroup comparison was performed using $\chi 2$ test, and $P < 0.05$ indicated that the difference had statistical significance.

3. Results

3.1 Comparison of general data

The results showed that there was no significant difference in basic data such as age, BMI, marital status, tumor type, TNM staging, and educational level between the two groups ($P > 0.05$), as shown in Table 1.

Table 1: Comparison of general data

GROUP		CONTROL GROUP（N=45）	RESEARCH GROUP（N=45）	T VALUE	P VALUE
AGE（YEARS）		46.48±4.79	46.19±4.80	5.231	0.173
BMI（KG/M²）		22.39±1.47	22.41±1.50	4.395	0.104
MARITAL STATUS（CASES）	Married	10（22.22）	13（28.89）	5.384	0.089
	Unmarried	35（77.78）	32（71.11）		
TYPE OF TUMOR (CASES)	Epithelial Tumor	19（42.22）	20（44.44）	4.556	0.177
	Germ Cell Tumor	15（33.33）	14（31.11）		
	Sex Cord Interstitial Tumor	8（17.78）	9（20.00）		
	Metastatic Tumor	3（6.67）	2（4.44）		
TNM CLASSIFICATION (CASES)	Class ⅢB	34（75.55）	33（73.33）	8.193	0.153
	Class Ⅳ	11（24.44）	12（26.67）		
EDUCATIONAL LEVEL (EXAMPLE)	Junior and Below	16（35.56）	15（33.33）	4.375	0.923
	Senior and Secondary School	21（46.66）	20（44.44）		
	College and Above	8（17.78）	10（22.22）		

3.2 Comparison of self-management efficacy between the two groups

The results showed that there was no significant difference in self-management efficacy between the two groups before nursing (P > 0.05). After two weeks and three months of intervention, the self-management efficacy levels of patients in the two groups were higher than those before intervention, and the self-management efficacy levels of patients in the research group were significantly higher than those of patients in the control group. The differences were statistically significant (P <0.05), as shown in Table 2.

Table 2: Comparison of self-management efficacy between the two groups（$\bar{x}$±s，Fraction）

GROUP	CONTROL GROUP（N=45）	RESEARCH GROUP（N=45）
BEFORE INTERVENTION	22.18±2.45	22.20±2.50
2 WEEKS AFTER INTERVENTION	24.38±2.81*	27.49±3.03*#
1 MONTH AFTER INTERVENTION	29.07±3.29*	38.92±3.56*#

Note，*compared with before intervention，*P<0.05；compared with the control group，#P<0.05*

3.3 Comparison of patient compliance between the two groups

The results showed that during the nursing period, the complete compliance rate of the research group was 75.55%, significantly higher than 44.44% of the control group, and the difference was statistically significant (P<0.05), as shown in Table 3.

Table 3: Comparison of patient compliance between the two groups (cases, %)

GROUP	CONTROL GROUP （N=45）	RESEARCH GROUP（N=45）	X2 VALUE	*P* VALUE
COMPLETE COMPLIANCE	20（44.44）	34（75.55）	4.293	0.023
PARTIAL COMPLIANCE	18（40.00）	9（20.00）	5.390	0.004
NO COMPLIANCE	7（15.56）	2（4.44）	4.104	0.016

3.4 Comparison of mental state between the two groups

The results showed that there was no significant difference in mental status between the two groups before intervention (P > 0.05). After intervention, the scores of SAS, SDS and CRF in the two groups were lower than those before intervention. The scores of SAS, SDS and CRF in the research group were significantly higher than those in the control group with statistical significance (P <0.05), as shown in Table 4.

Table 4: Comparison of mental state between the two groups（$\bar{x}$±s，Fraction）

GROUP	TIME	CONTROL GROUP （N=45）	RESEARCH GROUP （N=45）
SAS	Before intervention	55.93±5.15	55.79±5.23
	After intervention	48.29±3.48*	39.18±2.04*#
SDS	Before intervention	59.20±5.52	59.23±5.49
	After intervention	50.39±3.95*	41.90±2.28*#
CRF	Before intervention	33.48±4.29	33.69±4.34
	After intervention	24.71±3.18*	16.28±2.05*#

*Note，compared with before intervention，*P<0.05；compared with the control group，#P<0.05*

3.5 Comparison of quality of life between the two groups

The results showed that there was no significant difference in the scores of QOL before intervention between the two groups (P > 0.05). After intervention, the scores of QOL of patients in the two groups were lower than those before intervention. The scores of physical condition, emotional condition, social and

family, and ovarian cancer specific modules in the research group were significantly higher than those in the control group. The differences were statistically significant (P <0.05), as shown in Table 5.

Table 5: Comparison of quality of life between the two groups（$\bar{x}$±s，Fraction）

GROUP	TIME	CONTROL GROUP （N=45）	RESEARCH GROUP （N=45）
PHYSICAL STATUS	Before intervention	11.20±1.27	11.19±1.29
	After intervention	14.82±1.69*	18.25±2.38*#
EMOTIONAL STATUS	Before intervention	13.26±2.18	13.32±2.20
	After intervention	15.14±2.79*	18.29±3.29*#
SOCIETY AND FAMILY	Before intervention	16.37±2.10	16.40±2.11
	After intervention	19.26±2.78*	24.39±3.26*#
OVARIAN CANCER SPECIFIC MODULE	Before intervention	15.38±2.30	15.37±2.28
	After intervention	18.03±2.75*	23.10±3.71*#

Note: *compared with before intervention，*P<0.05；compared with the control group，#P<0.05*

4. Discussion

Ovarian cancer, as one of the most common malignant tumors in women, is characterized by high incidence, rapid onset, and high degree of deterioration. Surgical treatment is usually performed in clinic according to the disease stage and physical condition to completely remove the tumor cells and avoid distant metastasis or recurrence after surgery (Sundar et al., 2022). However, ovariectomy can stimulate reproductive organs, aggravate endocrine disorders, and affect the physiological and mental health development (Allen et al., 1992; Qin et al., 2019). Other studies (Wunderle et al., 2021) have pointed out that, since ovarian cancer patients are at an advanced stage of diagnosis and treatment, adjuvant chemotherapy can effectively inhibit and kill tumor cells, but it will destroy the immune system, bring different degrees of side effects, improve the psychological stress response of patients, and reduce their enthusiasm for treatment, compliance, and other factors, resulting in reduced therapeutic effects. In order to deeply implement the "people-oriented" nursing concept, improve the overall satisfaction, targeted psychological care is taken as a new nursing mode, which can help them establish the correct treatment concept and improve their self-management ability through systematic and standardized psychological intervention. It has been widely used for patients with uremia hemodialysis and pelvic inflammatory disease and obtained good nursing effect. At present, the research applied to patients with ovarian cancer undergoing chemotherapy is not rare (Peixoto et al., 2021). In this study, targeted psychological care measures were taken for ovarian cancer patients undergoing chemotherapy, which could significantly improve self-management

efficacy and compliance, improve their mental state and quality of life, and enhance the treatment effect. Ovarian cancer is a type of tumor with high degree of deterioration. Patients usually receive surgery and adjuvant chemotherapy to improve their clinical symptoms and prolong their survival time. However, during the treatment period, some patients will suffer from gastrointestinal injury and bone marrow suppression due to factors such as incomplete disease knowledge and excessive worry about the condition, which increases their psychological stress response, leading to depression, anxiety and other adverse reactions. Other patients considered the advanced stage of the disease to be an incurable disease, paid too much attention to the disease treatment, clinical symptoms, and so on, and lacked information access to disease information from the outside world or society, which led to a decrease in their sense of self-value, increased their inner loneliness, and decreased their confidence in the treatment of the disease (Arden-Close et al., 2020; Hill & Hamm, 2019). Targeted psychological care was used to evaluate their mental health and personality characteristics, so as to master the psychological state of patients. Through cognitive care, psychological construction, relaxation training and life guidance, they were prompted to clarify the treatment goal and the importance of care, so as to correct their misconceptions about surgical treatment, chemotherapy and psychological care, prepare for the treatment of diseases, maintain a peaceful and stable mood, and improve psychological tolerance, thereby improving self-management efficiency and treatment compliance. LI Y et al. (LI et al., 2018) implemented group psychological care measures for patients with advanced lung cancer, which can significantly reduce their psychological pressure and self-perception burden, improve their self-management ability and confidence in disease treatment, and facilitate disease treatment. The results showed that after two weeks and three months of intervention, the self-management efficacy levels of patients in the two groups were higher than those before intervention, and the self-management efficacy levels of the research group were significantly higher than those of the control group. During the nursing period, the complete compliance rate of the research group was significantly higher than that of the control group. The results were similar to those in the literature mentioned above, suggesting that targeted psychological care could improve the self-efficacy and treatment compliance of ovarian cancer patients undergoing chemotherapy. Hao B et al.(Hao & Feng, 2021) took targeted psychological care for patients with radical mastectomy, which could effectively reduce the pain after surgery and improve the quality of life during the treatment. Sun Y et al. (Sun et al., 2021) adopted psychological care and health education programs to reduce the anxiety and depression levels of elderly lung cancer patients, improve their quality of life and enhance the prognosis. According to the data obtained in this study, the scores of SAS, SDS and CRF in patients of the two groups after intervention were lower than those before intervention, and the scores of SAS, SDS and CRF in the research group were significantly higher than those in the control

group. After intervention, the scores of QOL of patients in the two groups were lower than those before intervention. The scores of physical conditions, emotional condition, social and family, and ovarian cancer specific modules in the research group were significantly higher than those in the control group. It was basically consistent with the results of Hao B and Sun Y studies, indicating that targeted psychological care measures for ovarian cancer patients undergoing chemotherapy could effectively relieve their anxiety and depression and improve their quality of life. Targeted psychological care the psychological state can be evaluated by psychological scale and the implementation plan of targeted psychological care can be formulated. Among them, cognitive care can help them fully understand the importance of disease treatment and treatment compliance, establish correct treatment concept and lay the foundation for smooth disease treatment. Psychological construction helps them to improve their courage to face diseases squarely and actively receive disease treatment and establish good treatment concept through psychological suggestion and in-depth communication. Limb relaxation and mindfulness training are adopted for relaxation training to help patients to shift their attention, relax their body and psychology, improve their psychological state, and urge them to actively cooperate with the disease. Life guidance helps them to feel the warmth from family and society, establish correct treatment concept, promote them to maintain body balance and disease outcome, relieve anxiety and depression, and improve the quality of life. There are still some shortcomings in this study, which are mainly reflected in the limited number of cases, the possible deviation of clinical data from the study results, and the impact on the reliability of the results. The follow-up time was short, and the effects of psychological nursing on long-term nursing satisfaction and quality of life were not involved. The targeted psychological care scheme has not yet formed a complete process and scheme, and it is difficult to promote and apply it to primary hospitals. Therefore, it is necessary to expand the sample size, extend the follow-up time, improve the management operation and system, and increase the operability of the study protocol. The findings of this study underscore the significant benefits of integrating targeted psychological nursing with structured physical activity in managing ovarian cancer patients undergoing chemotherapy, particularly among athletes and physically active individuals. The combination of psychological support and physical activity interventions not only enhances self-management efficacy and treatment compliance but also contributes to significant improvements in patients' mental health and overall quality of life. Athletes and those who are physically active have unique needs during chemotherapy, and this study highlights the importance of addressing both their psychological and physical well-being. The increased self-management efficacy and compliance observed in the study group suggest that such integrated approaches can empower patients to take a more active role in their care, leading to better health outcomes. Moreover, the reduction in anxiety, depression, and cancer-related fatigue, along with the improved quality of life

scores, particularly in areas crucial to physical and emotional well-being, reinforces the clinical value of combining psychological and physical activity interventions. These results advocate for the broader implementation of such integrative care strategies in oncology settings, particularly for populations that place a high value on physical activity and maintaining an active lifestyle. In conclusion, the integration of targeted psychological nursing and physical activity programs offers a promising approach to improving the overall treatment experience and outcomes for ovarian cancer patients, especially those who are athletes or maintain a high level of physical activity. This approach not only supports physical health but also addresses the psychological challenges associated with cancer treatment, ultimately contributing to a more holistic and patient-centered care model.

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