

# Exploring the Psychological Impact of Narrative Nursing Combined with Positive Reinforcement in Gynecological Chemotherapy Patients

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**Abstract:** *Objective:* To explore the effect of narrative nursing combined with positive reinforcement nursing intervention on the psychological state of patients with gynecological cancer chemotherapy. *Methods:* From January 2022 to December 2023, 99 cancer patients with postoperative chemotherapy admitted to the Department of Gynecology in the author's Class iii Grade A hospital were selected as the research objects, and they were divided into the control group (49 cases) and the observation group (50 cases) by random number method. The control group was intervened by the nursing model based on positive reinforcement theory, while the observation group received narrative nursing intervention measures on this basis. The self-rating Anxiety scale (SAS), self-rating depression scale (SDS), distress thermometer (DT), Pittsburgh sleep quality index (PSQI), and General Self-Efficacy Scale (GSES) were used to evaluate and compare the changes of various indicators between the two groups after intervention. *Results:* There were no significant differences in the scores of SAS, SDS, DT, PSQI, and GSES between the two groups at the time of intervention ( $P > 0.05$ ). After chemotherapy, the SAS, SDS, and DT scores of the observation group were significantly lower than those of the control group ( $P < 0.05$ ), and the PSQI and GSES scores were significantly better than those of the control group ( $P < 0.01$ ). *Conclusion:* Compared with the simple positive reinforcement nursing model, narrative nursing combined with positive reinforcement nursing intervention has more advantages in improving the mental health status of patients with gynecological cancer chemotherapy. It can significantly relieve the negative emotions, such as anxiety and depression of patients, effectively improve their self-efficacy level, optimize their sleep quality, and provide more comprehensive support for the physical and mental rehabilitation of patients.

**Keywords:** Gynecologic cancer; Chemotherapy; Narrative nursing; Positive reinforcement

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## 1. Introduction

According to the current epidemiological survey and research, the incidence of gynecological tumor is increasing

year by year. It is one of the common malignant tumors in women, and gynecological tumor ranks fourth in the incidence of tumors in the world <sup>[1]</sup>. Adjuvant chemotherapy after gynecological surgery is an important part of the comprehensive treatment of cancer, but the toxic side effects of chemotherapy drugs themselves will not only kill tumor cells, but also continue to affect the physical and mental status of cancer patients. Cancer patients themselves have different degrees of concern about the treatment and prognosis of the disease. When facing the adverse reactions of chemotherapy, they are more likely to have negative psychological states such as depression, anxiety, and depression. Long-term anxiety and depression will not only reduce the self-efficacy and quality of life of patients, but also have adverse effects on the postoperative rehabilitation process. Therefore, exploring effective interventions to alleviate the negative emotions and improve the quality of life of patients with gynecological tumors has become the research focus in the field of women's health.

Narrative nursing is a personalized psychological nursing model based on the concept of humanistic care <sup>[2]</sup>. By listening to patients' own experiences, nurses use professional communication skills to accurately analyze their physical and mental needs, formulate personalized nursing plans, guide patients to reflect on the disease process from a new perspective, stimulate internal positive strength, and help patients reconstruct their cognition of disease and life, and rebuild their confidence in treatment and life. A number of studies have confirmed that narrative nursing can provide psychological support for patients, reduce stigma, improve negative emotions, and thus improve treatment effect and quality of life <sup>[3-5]</sup>. Based on the positive reinforcement theory of American psychologist Skinner, the positive reinforcement nursing model takes the reward mechanism as the core, and provides positive stimulation for beneficial behavior through nursing intervention, encourages the repetition frequency of the behavior, and improves the rehabilitation process of patients <sup>[6]</sup>. In nursing practice, positive reinforcement nursing model has shown positive effects in improving self-efficacy, quality of life, and promoting tumor prognosis by affirming and rewarding patients' positive behaviors in the rehabilitation process <sup>[7-10]</sup>.

In view of this, this study combined narrative nursing with positive reinforcement nursing intervention and applied it to gynecological cancer patients receiving chemotherapy. The purpose of this study is to help patients improve their emotional state, stimulate their potential, enhance their self-efficacy and quality of life through the synergistic effect of the two nursing models, so as to provide a practical basis for the optimization and application of clinical nursing models.

## **2. Research and methods**

### **2.1. General information**

#### **2.1.1. Subjects**

A total of 99 patients who received chemotherapy after tumor surgery in Department of gynecology from January 2022 to December 2023 are selected as the research objects. The diseases are mainly cervical cancer, endometrial cancer, and ovarian cancer, and the three groups of patients are randomly divided into control group and observation group by random number table method. There are 49 patients in the control group, aged ( $57.14 \pm 10.70$ ) years old; There are 17 cases of cervical cancer, 14 cases of endometrial cancer, and 18 cases of ovarian cancer. There are 50 cases in the observation group, aged ( $55.04 \pm 9.00$ ) years old; There are 17 cases of cervical cancer, 14 cases of endometrial cancer, and 19 cases of ovarian cancer. There is no significant difference in general demographic data between the two groups ( $P > 0.05$ ). This study is approved by the Science and Technology Ethics Committee of the First Affiliated Hospital of Medical College of Shihezi University (KJ2022-110-01).

## **2.2. Research methods**

### **2.2.1. Control group intervention methods**

During the patient's hospitalization, the nursing team built the ward into a warm, comfortable, clean, and quiet healing space. Through a comprehensive assessment of the patient's condition, systematic disease knowledge popularization and positive reinforcement nursing model education are carried out, the coping strategies for common discomfort of chemotherapy are explained in detail, and the family members are guided to improve the quality of company. According to the specific conditions of each patient, personalized rehabilitation goals for chemotherapy and guided patients are formulated to develop healthy living habits, such as daily mindfulness meditation, listening to relaxation music, carrying out moderate exercise, and providing scientific dietary guidance during chemotherapy. Patients' family background, education level, and other information are collected before admission, and in-depth analysis is carried out based on individual characteristics. Positive and encouraging communication methods are used to confirm patients' positive behavior and optimistic attitude. By giving small gifts full of heart, such as bouquet and blessing bag hanging ornaments, good wishes and strengthened positive behaviors are also passed. Provide patients with portable pocket notebooks to record questions at any time, as well as physical and mental improvements brought by positive behaviors. Once the patient's negative emotions are found, the nursing team intervened in time. At the same time, family members and nursing staff are encouraged to work closely together to participate in the rehabilitation program, and comprehensive psychological and behavioral support is provided for patients.

After the patients are discharged from the hospital, they are instructed to assist, supervise, and encourage their family members to complete rehabilitation activities every day. Primary nurses conducted weekly telephone interviews to understand the physical and mental status of patients, guide rehabilitation behavior to reduce the discomfort of chemotherapy, encourage them to return to normal social life, and improve their emotional stability. The "punch card code" is sent through WeChat every week, and the patients who insisted on punching the card are given flowers for admission, blessing cards for discharge, and cotton wool nursing caps. In addition, through the Wechat platform, rehabilitation science knowledge, positive energy pictures, text, audio and video materials every week are encouraged, along with, actively interacting with patients and their families, answering questions during the interval of chemotherapy, guiding medication, interpreting the review report, and assist in making appointments for follow-up chemotherapy and other services.

### **2.2.2. Intervention methods of the observation group**

Narrative nursing team structure and working mechanism are as follow: The team is led by a head nurse, equipped with a doctor, 5 specialist nurses, and a psychological consultant. Among them, the head nurse planned the nursing work, coordinated the team resources, and supervised the implementation of the narrative nursing plan. Specialists are responsible for accurately assessing the patient's condition and formulating personalized nursing plans in collaboration with responsible nurses. Psychological counselors combined with nurses carried out psychological intervention based on the concept of narrative nursing. In order to improve professional ability, the team organized theoretical learning once a month to deepen the cognition of narrative nursing theory by reading professional books, analyzing typical cases, watching teaching videos, and so on. Every week, 20–30 minutes of case simulation exercises are carried out, focusing on training narrative communication skills, humanistic care methods, standardizing nursing operation procedures, and consolidating team practical ability. In addition, develop an independent space narrative intervention, a bright and warm, quiet and comfortable environment. The room is

equipped with interview tables and chairs, writing paper and pens, drinking water, and other facilities to provide patients with a private and relaxed communication environment and ensure the effective development of narrative nursing work.

Narrative nursing intervention in specific implementation process is as follows: In patients admitted to hospital two weeks later, on the day of discharge and discharge (in line) to carry out the intervention. On the day of admission, after the patient had completed the placement and had a short rest, the responsible nurses guided the patient and his family members to the special narrative space. Through friendly and natural communication methods, the current situation of patients is deeply understood. Focused listening and sincere attention are the core of the intervention process, and empathy is given when appropriate. With gentle language and comfortable communication atmosphere, mutual trust is gradually established. On this basis, patients are guided to tell their cognition of the disease, treatment experience, inner concerns and other contents in the form of a story, and nurses gave positive feedback in time and provided personalized nursing support according to their needs. At the same time, the positive behaviors of patients are given verbal affirmation or small gifts in time, and the duration of a single interview is controlled within 15–30 minutes. In the follow-up intervention stage, it is chosen to communicate with patients or their family members flexibly according to the actual situation, fully protect personal privacy, and create a safe environment for them to express emotions.

On the day of discharge, an equal dialogue is used to understand the discomfort of patients during the treatment. Through patient guidance, patients are encouraged to fully talk about their anxiety and troubles, and emotional support and positive comfort were given in time. Nurses guided patients to explain the key issues in the process of treatment in a natural oral way. During this process, they closely observed the body language and eye changes of patients, and expressed understanding and concern with attentive listening and empathic response. The nursing team assisted patients to sort out the context of their problems, guide them to examine their dilemmas from a new perspective, separate the problems from themselves psychologically, and then explore the focus of their true concerns. By integrating the concept of positive reinforcement nursing, patients are stimulated to actively analyze problems, their positive coping behaviors are affirmed and encouraged, and patients are assisted to broaden their horizons of thinking and replan their life direction after rehabilitation.

Two weeks after patients are discharged from the hospital, an online narrative intervention was carried out through WeChat or telephone. Nurses would choose a convenient and relaxed time to communicate with patients and guide them to share their recent living conditions and problems. Patients' questions are classified and dealt with by the nursing team. For disease-related questions or physical discomfort, the nursing team provided timely professional answers and coordinated medical resources to intervene according to the situation. If the patient over-relates the problem to himself, the narrative team will first sort out and summarize the main points of the problem and choose the right time to communicate again. By guiding the patient to examine the problem from different perspectives, tap their own potential, or strengthen their beliefs with the help of positive cases of others, the patient will help to remove self-imposed negative cognition and gradually improve the sense of self-identity.

## **2.3. Inclusion and exclusion criteria**

### **2.3.1. Inclusion criteria**

- (1) Patients with cervical cancer, endometrial cancer, and ovarian cancer requiring postoperative chemotherapy
- (2) Patients aged between 18 and 65 years old



- (3) Be conscious and have no mental illness
- (4) Voluntarily participate in the study and sign the informed consent

### 2.3.2. Exclusion criteria

- (1) Multiple organ or system dysfunction
- (2) Mental illness or inability to act independently
- (3) Unable to contact during the follow-up period

## 2.4. Observation indicators

- (1) Psychological distress assessment: The psychological distress thermometer (DT) was used to evaluate the degree of psychological distress of patients. The score of the scale ranged from 0 to 10 points, and the higher the score, the more significant the degree of psychological distress. When the score of DT  $\geq 4$  points, further in-depth psychological assessment and intervention measures should be carried out. The test-retest validity of the scale is 0.812, and Cronbach's  $\alpha$  coefficient is 0.825, which had good reliability and validity <sup>[11]</sup>.
- (2) Psychological state assessment: The scores of self-rating depression scale (SDS) and self-rating anxiety scale (SAS) are used for quantitative analysis of psychological state. The scores of SDS and SAS are positively correlated with the degree of anxiety and depression, and the higher the score, the more significant the negative emotions.
- (3) Assessment of sleep quality: The Pittsburgh Sleep Quality Index (PSQI) is used to evaluate the sleep status of patients <sup>[12]</sup>. The PSQI total score is calculated by summing the scores of 7 domains, ranging from 0 to 21, with higher scores reflecting worse sleep quality
- (4) Self-efficacy assessment: The General Self-efficacy Scale (GSES) is used to measure the self-efficacy level of patients. The total score of the scale is 40, and the higher the score is, the stronger the self-efficacy is. The Cronbach's  $\alpha$  coefficient of the scale is 0.87, the test-retest reliability coefficient is 0.83, and the split-half reliability coefficient is 0.82. The reliability performance is good.

The management nurses distributed and guided the patients to fill in the above questionnaires at the two key time nodes before enrollment and the end of chemotherapy, and then collected the questionnaires for data analysis.

## 2.5. Statistical methods

SPSS22.0 statistical software is used for statistical description and analysis. The count data are described by the number of cases, the measurement data in line with normal distribution are expressed as mean  $\pm$  standard deviation ( $\bar{x} \pm s$ ), and the independent sample t-test is used. The measurement data in line with normal distribution are expressed as median (quartile) [M(P25,P75)], and the non-parametric Mann-Whitney U rank sum test is used.  $P < 0.05$  is considered statistically significant.

## 3. Results

### 3.1. Comparison of anxiety and depression between groups

Before the study, there was no statistically significant difference in SAS and SDS scores between the two groups ( $P > 0.05$ ). After the intervention, the anxiety and depression scores of the observation group were lower

than those of the control group, and the differences were statistically significant ( $P < 0.001$ ), as shown **Table 1**.

**Table 1.** Comparison of anxiety and depression between groups (score, [M(P25,P75)])

Groups	SAS		SDS	
	Before intervention	After intervention	Before intervention	After intervention
Control group (n=49)	54 (52,62)	49 (47,54)	56 (53,58)	49 (46,52)
Observation group (n=50)	56 (51,62)	45 (41,50)	56 (53,60)	47 (43,50)
Z	-0.764	-3.841	-0.435	-2.016
P	0.445	< 0.001	0.663	0.044

Note:  $P < 0.05$ , the difference was statistically significant.

### 3.2. Comparison of psychological pain scores

Before the study, there was no statistically significant difference in DT score between the two groups ( $P > 0.05$ ). DT score lower than the control group after the intervention, group, difference, compared with before and after the intervention DT score is better than that of control group ( $P < 0.001$ ), as shown in **Table 2**.

**Table 2.** Comparison of psychological pain scores, ( $\bar{x} \pm s$ )

Items	Before intervention	After intervention	Difference
Control group (n=49)	4.24 $\pm$ 0.86	3.47 $\pm$ 0.71	0.76 $\pm$ 0.42
Observation group (n=50)	4.40 $\pm$ 0.93	3.12 $\pm$ 0.72	1.28 $\pm$ 0.76
t values	-0.866	2.433	-4.085
P-value	0.389	0.017	< 0.001

### 3.3. Comparison of sleep quality

Before the study, there was no statistically significant difference in PSQI scores between the two groups ( $P > 0.05$ ). After the intervention, the PSQI scores of the two groups were lower than those before the intervention, and the PSQI score of the control group was significantly better than that of the observation group, and the difference between the two groups was statistically significant ( $P < 0.001$ ), as shown in **Table 3**.

**Table 3.** Comparison of sleep quality scores, ( $\bar{x} \pm s$ )

Items	Before intervention	After intervention
Control group (n=49)	12.35 $\pm$ 3.84	9.71 $\pm$ 2.87
Observation group (n=50)	12.36 $\pm$ 4.38	7.84 $\pm$ 2.53
t values	-0.16	3.454
P-value	0.987	< 0.001

Note:  $P < 0.05$ , the difference was statistically significant.

### 3.4. Comparison of self-efficacy

Before the study, there was no significant difference in GSES scores between the two groups ( $P > 0.05$ ).

After intervention, the GSES score of the observation group was better than that of the control group, and the difference between the two groups was statistically significant ( $P < 0.001$ ), as shown in **Table 4**.

**Table 4.** Comparison of self-efficacy scores, ( $\bar{x} \pm s$ )

Items	Before intervention	After intervention
Control group (n=49)	20.00 $\pm$ 3.72	23.49 $\pm$ 3.59
Observation group (n=50)	20.40 $\pm$ 4.08	26.14 $\pm$ 3.43
<i>t</i> values	-0.509	-3.756
<i>P</i> -value	0.612	< 0.001

Note:  $P < 0.05$ , the difference was statistically significant.

## 4. Discussion

Gynecologic tumors can affect multiple parts of the female reproductive system and account for about 15% of all systemic tumors in women. At present, surgery, radiotherapy and chemotherapy are still the main treatment methods. However, in the stage of postoperative adjuvant therapy, patients are often affected physiologically, psychologically, and quality of life to varying degrees due to the side effects of radiotherapy and chemotherapy. Therefore, exploring effective psychological and behavioral intervention methods to help patients relieve negative emotions, enhance self-efficacy, cultivate healthy lifestyles, improve quality of life and promote rehabilitation has become an important topic in nursing research. Narrative nursing is based on the narrative therapy theory of psychology and integrates psychological nursing into clinical practice. Through individualized narrative intervention, patients can be guided to tell their own stories, release their emotions and adjust their psychological state in the process of talking. In the process of communication, nursing staff can deeply understand the physical and mental needs of patients, and respond with empathy to help patients externalize their problems, deconstruct and reconstruct their life narrative, so as to get out of their psychological difficulties. This kind of nursing model full of humanistic care is helpful for patients to rebuild their happiness. A number of clinical studies have confirmed that narrative nursing has significant effectiveness and feasibility.

This study innovatively integrated narrative intervention and positive reinforcement nursing model. On the one hand, with the help of story narration to build a bridge of psychological intervention, guide patients to release their inner emotions, and deeply analyze their psychological crux. On the other hand, positive reinforcement nursing is used to reward patients' positive mental state and behavioral performance in time, so as to stimulate individuals to actively change their behavior pattern, improve the frequency of beneficial behavior, and realize the two-way positive guidance of patients' psychology and behavior. In the field of psychology, anxiety, depression, and psychological distress are the key indicators to evaluate negative psychological states. In this study, the SAS, SDS and DT scores of the observation group were significantly lower than those of the control group, and the negative emotions of the patients were improved, which was similar to the research results of Wang *et al.* <sup>[13]</sup>. On the other hand, narrative nursing helps patients to adjust their own state of consciousness and rebuild confidence, so that they can face life and disease with a more positive and brave attitude.

In addition, the intervention of positive reinforcement nursing can adjust the subjective behavior pattern

of patients, and also play a regulatory effect on negative emotions. The PSQI score of the observation group was significantly better than that of the control group, indicating that in the process of narrative intervention, through the extraction of past positive events, the current psychosomatic state was affected, the degree of self-recognition was increased, and the positive reinforcement nursing mode was assisted, the sense of achievement and value of patients were improved, and the sleep quality was improved by improving the negative emotions of patients, which was similar to the research results conducted by Pan <sup>[14]</sup>. After nursing intervention, the self-efficacy GSES score of the observation group was significantly higher than that of the control group ( $P < 0.05$ ), which indicated that narrative nursing intervention through personalized psychological intervention, counseling and deconstruction of patients' inner problems, enhance patients' awareness of disease and rehabilitation treatment, combined with multi-dimensional goal positive reinforcement program, face up to all kinds of negative states, stimulate patients' subjective initiative.

Positive face to rehabilitation treatment, which is the same as the narrative nursing intervention study by Dai *et al.* <sup>[15]</sup>. It shows that on the basis of effectively relieving the psychological stress reaction of patients, the narrative nursing model combined with personalized positive reinforcement intervention measures can help patients to explore their own potential, significantly improve their self-efficacy, and enhance their confidence and ability to cope with diseases and daily life. At the same time, from the physiological, psychological, social, and other dimensions, it can comprehensively improve the living state of patients, effectively improve their quality of life, and promote the comprehensive rehabilitation of patients physically and mentally.

## 5. Conclusion

In summary, the application of narrative nursing intervention combined with positive reinforcement nursing model in patients with gynecological cancer chemotherapy in this study effectively improves the negative psychological state and sleep quality of patients, and enhances the autonomous efficacy. However, the sample size of this study is small, the research period is short, and the patients' life outside the hospital is not continuously followed up. Moreover, there is no detailed grouping study for patients with different gynecological tumors, which still needs to be further explored in clinical practice.

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## Disclosure statement

The authors declare no conflict of interest.

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