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Original Article

Effect of Self-Efficacy Intervention Combined with Humanistic Nursing on Self-Care Ability and Quality of Life in Patients Receiving Chemotherapy for Malignant Tumors

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Abstract

Background: We aimed to explore the effect of self-efficacy intervention combined with humanistic nursing on self-care ability and quality of life in patients receiving chemotherapy for malignant tumors.

Methods: A total of 410 patients were enrolled, who received chemotherapy for malignant tumors in Fuyang People's Hospital from June 2019 to June 2021. They were equally divided into the experimental group and the control group by a random number table. The former was given routine nursing, while self-efficacy intervention combined with humanistic nursing on the bases of routine care was introduced for the latter. Baseline information was collected from all patients. The psychological status of patients before and after intervention was assessed by self-rating anxiety scale (SAS), self-rating depression scale (SDS) and Visual analogue scale (VAS), while self-efficacy score and self-care ability scale for evaluating self-care ability of patients. Additionally, there was an evaluation of quality of life and nursing satisfaction in each group.

Results: Before intervention, no significant difference was identified in psychological status, self-care ability and quality of life between the two groups. After the intervention, the above three indexes in the experimental group were significantly better than those of the control group were. The experimental group had higher nursing satisfaction than the control group.

Conclusion: In patients with malignant tumor undergoing chemotherapy, self-efficacy intervention combined with humanistic nursing can significantly improve the self-care ability, quality of life and nursing satisfaction of patients, which is therefore worthy of promotion in clinical.

Keywords: Self-efficacy intervention; Humanistic nursing; Chemotherapy for malignant tumor

Introduction

The incidence of malignant tumors is increasing in recent years, especially in China where the number of new cases and deaths of malignant tumors has ranked first in the world (1). The high incidence poses a serious challenge to cancer care. Chemotherapy is currently one of the main treatments for malignant tumors, which can significantly prolong patients' survival but usually causes adverse reactions during treatment and consequently negatively affects patients' physical and mental conditions (2). Additionally, pain caused by cancer will markedly reduce patients' self-efficacy and desire for survival (2). About 20-50% of patients with malignant tumors clinically

suffer from emotional dysregulation, compared to 10% incidence of depression and anxiety in the general population (3, 4). It is generally accepted that fatigue and pain are one of the most common and debilitating symptoms in patients with malignant tumors (5). Without positive intervention and guidance, these symptoms will have a negative impact on patients' compliance with the doctor's advice, work activities, and quality of life. Therefore, it is of great significance to take reasonable and effective nursing methods for the patients during chemotherapy, aiming to improve the patient's mentality and promote the smooth progress of chemotherapy.

Self-efficacy is a new concept first introduced by an American psychologist Albert Bandura (6). This item refers to the expectation, perception, confidence, or belief in one's ability to organize and undertake actions required to achieve specific goals. Self-efficacy theory is widely used in cancer patients and is closely related to compliance in participating in disease screening, time to learn emotional disorders after cancer, postoperative pain and psychological level, rehabilitation compliance, and awareness of stress (7). Self-efficacy has a direct and indirect impact on the quality of life of patients with lung cancer; and cancer-related fatigue, as an intervening variable, can mediate the relationship between self-efficacy and quality of life; therefore, self-efficacy intervention is an essential means to improve the quality of life of patients undergoing lung cancer resection (8).

Humanistic nursing refers to the sincere nursing of the patient's life and health, power and needs, personality and dignity based on the humanitarian spirit (9). Humanistic nursing is a patient-centered model, which requires meeting the physical, psychological, social, and other aspects of needs. Personalized humanistic nursing refers to the nursing method in which each patient is treated as an independent individual based on holistic nursing, and targeted nursing measures are taken after combining the individual's unique personality characteristics, educational background, disease type, and family situation. Humanistic nursing based on the Carolina care model significantly improves the postoperative rehabilitation of ovarian cancer patients, reduces physical and psychological stress reactions, and effectively enhances nursing satisfaction and quality of life (10).

We investigated the effect of self-efficacy intervention combined with humanistic nursing on self-care ability and quality of life in patients receiving chemotherapy for malignant tumors, providing a theoretical basis for clinical nursing.

Materials and Methods

A total of 410 patients were enrolled, who received chemotherapy for malignant tumors in Fuyang People's Hospital from June 2019 to June 2021. Among them, 152 patients refused to participate in the study, and 58 patients among the remaining 258 participants withdrew before the start of the study. Therefore, 200 patients actually participated in the study. The screening process is shown in Fig. 1. The patients were equally divided into the experimental group and the control group by a random number table (100 patients/group).

This study was approved by the Ethics Committee of Fuyang People's Hospital (approval number: [2019]-52).

Inclusion criteria were as follows: 1) Patients were diagnosed as malignant tumor by imaging and pathological examination; 2) Patients met the requirements of chemotherapy; 3) Patients could communicate normally, aged between 18-80 yr; 4) Patients and their families were aware of the purpose and methods of the study, and signed the informed consent form.

Exclusion criteria were as follows: 1) Rapid deterioration of the condition, survival time less than 2 months; 2) Patients suffered from severe cardiovascular disease, history of embolic disease, severe active ulcer, bone marrow hematopoietic dysfunction and other serious complications, comorbidities; 3) Patients with severe mental illness, cognitive disorder or other problems could not actively cooperate with the study.

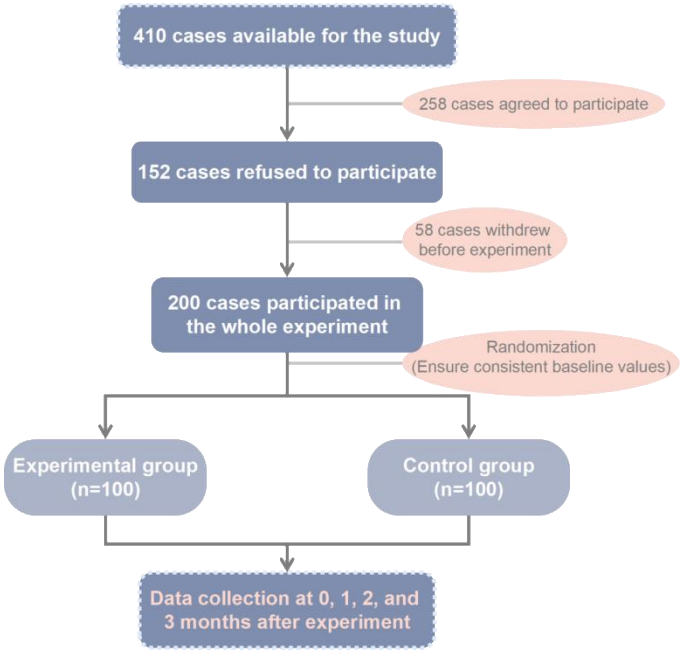

Fig. 1: A flowchart of patients screening process

Collection of baseline information

Baseline information was collected from all patients, including age, gender, education background, onset time, tumor type, tumor size, tumor stage, differentiation degree, chemotherapy method.

Interventions

The control group was given routine nursing procedures, including admission nursing, basic nursing, psychological nursing, medication guidance, diet and health education, discharge instructions.

By contrast, the experimental group was given self-efficacy intervention and humanistic nursing based on the measures of the control group, including:

1) Improvement in the patient's coping ability: first, patients' coping ability was assessed according to their baseline information. Then, they were introduced the effect of positive coping ability on the effect of chemotherapy, for enhancing their confidence and endurance in cancer treatment;

2) Basic intensive nursing: according to the actual situation of patients, a scientific dietary plan was assisted to develop, that is, a diet with reasonable meat and vegetable and easy to digest. Patients were encouraged to eat in time. Additionally, moderate ambulation or exercise (such as Tai Chi) were introduced and encouraged, allowing patients to maintain a better physical and mental status during chemotherapy;

3) Model education: cases of the same or similar diseases that had been improved after standardized treatment were publicized to the patients under treatment. Additionally, regular communication among patients was carried out to share the successful anti-cancer experience, and therefore to enhance the confidence of patients to actively fight the disease.

4) Catharsis: psychological counseling and nursing of patients was performed, aiming to encourage them to strengthen communication with the outside world, and timely guide them to discharge negative emotions:

5) External support: patients' families received health education on the precautions of chemo-

therapy and the possible adverse reactions and other relevant information. The education could improve the family members' cognitive level of chemotherapy, remind them to strengthen the care and escort for patients during chemotherapy, and consequently promote the patients' endurance to chemotherapy;

6) Pain nursing: the nursing staff were required to pay high attention to the patient's pain status during chemotherapy, timely and effectively assess the patient's pain level, and use analgesics or analgesia pump for pain relief when necessary.

Observation indexes

Assessment of psychological status: Self-rating anxiety scale (SAS) (11), self-rating depression scale (SDS) (11) and visual analogue scale (VAS) (12) were used to assess the psychological status of the study subjects.

Scores of quality of life: The quality of life of the study subjects was assessed from six items: motor ability, daily activities, health consciousness, external support, life view, and adverse reactions. Among them, the first five items were evaluated using QL-Index scale (13); each item was rated 0-10, and the higher the socre, the higher the quality of life. Adverse reaction was quantified as frequency of occurrence.

Patient satisfaction with nursing: Patient satisfaction was assessed according to a self-developed questionnaire in this study. The questionnaire included the following items: nursing service attitude, service quality, patient's living condition, and family satisfaction, with a score of 0-50 points. A score of 40 or more represented "very satisfied", 20-30 represented "satisfied" and 19 or less represented "dissatisfied".

Statistical analysis

SPSS ver. 20.0 (IBM Corp., Armonk, NY, USA) was utilized for statistical analysis in this study. If measurement data conformed to normal distribution, *t* test was adopted for analysis; otherwise, rank sum test, and non-parametric test, was used. Further, chi-square test was employed for comparison of gender, education background, tumor type, tumor size, tumor stage, differentiation degree, and chemotherapy method between the two groups. Statistically significant differences were suggested if $P<0.05$.

Results

Baseline characteristics

The baseline information of the two groups is shown in Table 1. No significant difference was found in age, gender, education background, onset time, tumor type, tumor size, tumor stage, degree of differentiation and chemotherapy method between the experimental group and the control group. This result indicated the comparability between the two groups.

Table 1: Comparison of baseline information

Item		*Experimental group (N=100)*	*Control group (N=100)*	*χ2/t*	*P*
Age		44.67±7.66	45.75±5.01	-1.180	0.240
Gender	Male	61	62	0.750	0.386
	Female	39	38		
Education background	less than high school education	41	39	1.435	0.488
	High school education	39	34		

	College degree or above	20	27		
Onset time		1.52±0.56	1.48±0.50	0.532	0.595
Tumor type	Serous carcinoma	41	42	0.287	0.991
	Mucinous carcinoma	38	36		
	Poorly differentiated carcinoma	10	9		
	Clear cell carcinoma	5	6		
	Adenocarcinoma	6	7		
Tumor size	≦5cm	69	61	1.407	0.236
	＞5cm	31	39		
Tumor stage	Ⅰ	40	39	0.190	0.663
	Ⅱ	30	31		
	Ⅲ	20	21		
	Ⅳ	10	9		
Degree of differentiation	Poorly differentiated	37	46	1.668	0.196
	Well-differentiated	63	54		
	TP	34	46	3.425	0.331
Chemotherapy method	PVB	27	19		
	Platinum compounds	33	30		
	CAP	6	5		

Values are mean ± SD.
TP, docetaxel plus cisplatin; PVB, cisplatin, vinblastine, bleomycin; CAP, cyclophosphamide-doxorubicin-cisplatin

Comparison of psychological status before and after intervention between the two groups

As shown in Fig. 2A-C, no significant difference was found in the baseline (before intervention) psychological status between the two groups. However, after intervention, the SAS, SDS and VAS scores of the two groups were decreased to different extents. After one month of intervention, compared with the control group, the SAS and SDS scores in the experimental group were markedly down-regulated ($P < 0.05$), but no significant difference in VAS scores. After 2 and 3 months of intervention, the SAS, SDS and VAS scores showed a significant reduction in the experimental group in comparison with the control group ($P<0.05$). Collectively, compared with the control group, the experimental group achieved a significant improvement in the psychological status.

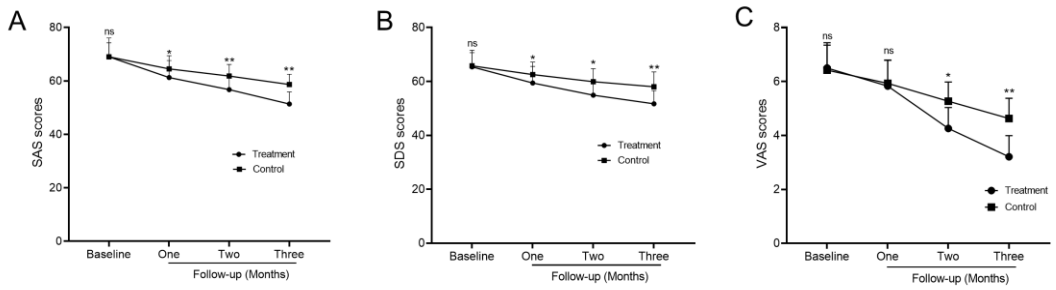

Fig. 2: Comparison of psychological status before and after intervention between the two groups
A. SAS scores; B. SDS scores; C. VAS scores. Ns $P > 0.05$, *$P<0.05$ and **$P<0.01$ vs. Control group
SAS, self-rating anxiety scale; SDS, self-rating depression scale; VAS, visual analogue scale

Comparison of self-care ability before and after intervention between the two groups

As shown in Fig. 3A-B, by using the self-efficacy scale and the self-care ability scale, no significant difference was identified in self-care ability before intervention between the two groups. After intervention, the self-care ability of the two groups was improved to different extents. At 1, 2 and 3 months after intervention, the self-efficacy score and self-care ability score of the experimental group were significantly increased compared with the control group ($P < 0.05$). The results therefore identified the improvement of self-care ability of the experiment group compared with the control group.

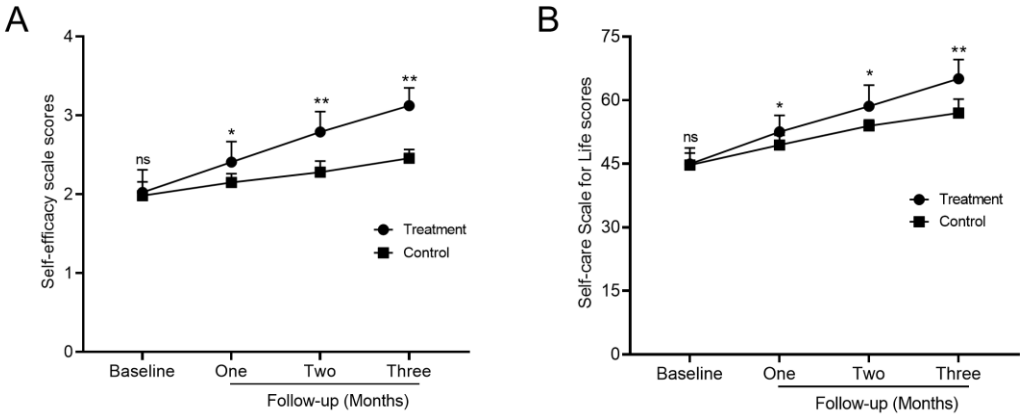

Fig. 3: Comparison of self-care ability before and after intervention between the two groups
A. Self-efficacy scores; B. Self-care ability scores. Ns $P > 0.05$, *$P<0.05$ and **$P<0.01$ vs. Control group

Comparison of quality of life before and after intervention between the two groups

Before intervention, there was no marked difference in the quality of life between the two groups. At 1 and 3 months after intervention, compared with the control group, the scores in motor ability, daily activities, health consciousness, external support, and life view scores were upregulated in the experimental group ($P < 0.05$), while the incidence of adverse reactions decreased ($P < 0.05$). Taken together, in comparison with the control group, the experimental group could achieve a marked promotion in the quality of life (Table 2).

Table 2: Comparison of quality of life before and after intervention between the two groups

Item	*Time*	*Group*		*F*	*P*
		Experimental	**Control**		
Motor ability	Baseline	0.63±0.05	0.64±0.05	162.364	0.159
	1 month after intervention	1.16±0.04	0.89±0.04	50.40	<0.001
	3 months after intervention	1.66±0.05	1.13±0.04	21.006	<0.001
Daily activities	Baseline	0.62±0.05	0.63±0.05	157.889	0.159
	1 month after intervention	1.12±0.04	0.88±0.04	55.688	<0.001
	3 months after intervention	1.69±0.05	1.20±0.04	18.893	<0.001
Health consciousness	Baseline	0.71±0.15	0.73±0.25	317.827	0.494
	1 month after intervention	1.22±0.04	0.88±0.03	53.106	<0.001
	3 months after intervention	1.86±0.04	1.28±0.05	30.906	<0.001
External support	Baseline	0.65±0.05	0.64±0.05	251.213	0.159
	1 month after intervention	1.15±0.04	0.84±0.04	40.746	<0.001
	3 months after intervention	1.77±0.04	1.26±0.05	19.640	<0.001
Life view	Baseline	0.66±0.05	0.66±0.05	219.839	0.000
	1 month after intervention	1.30±0.05	1.06±0.06	37.044	<0.001
	3 months after intervention	1.86±0.04	1.27±0.05	25.993	<0.001
Reverse reactions	Baseline	0.52±0.05	0.53±0.05	253.299	0.159
	1 month after intervention	1.20±0.04	0.94±0.04	19.009	<0.001
	3 months after intervention	1.62±0.05	1.25±0.04	11.788	<0.001

Comparison of nursing satisfaction between the two groups

As shown in Table 3, in comparison with the control group, the patients' satisfaction with nursing in the experimental group was significantly improved ($P < 0.05$).

Table 3: Comparison of nursing satisfaction between the two groups (n/%)

Group	*Very satisfied*	*Satisfied*	*Dissatisfied*	*Satisfaction*
Experimental	59(59.0)	37(37.0)	4(4.0)	96(96.0)
Control	33(33.0)	52(52.0)	15(15.0)	85(85.0)
χ^2				16.722
P				0.000

Discussion

As the deterioration of the environment and the acceleration of the pace of life, the incidence of malignant tumors in China continues to rise in recent years. Malignant tumor was a threat to the health and life of patients, furthermore bringing serious challenges to medical and health institutions (14). The survival time of patients has been effectively prolonged with the development of modern medical understanding and treatment of malignant tumors. However, pain and adverse reactions caused by chemo radiotherapy severely affect the normal work and life of patients and reduce the quality of life; and the latter will further affect the efficacy of chemo radiotherapy, causing a vicious cycle (15). Most patients are able to adapt well to their lives after suffering from cancer, but some experience persistent negative emotions, such as cancer-related fear, post-traumatic stress, anxiety, or depression (16). These negatively emotions may not meet clinical diagnostic criteria, but subclinical symptoms may interfere with quality of life (16).

SAS and SDS scales, were used to assess the anxiety and depression of the study subjects, respectively (11). The two groups of patients had different degrees of anxiety and depression before the intervention, but the difference was not statistically significant. After the intervention, in comparison with the control group, the SAS and SDS scores of the experimental group were significantly reduced, suggesting the relief of the anxiety and depression states. Cancer-caused pain is one of the most common clinical symptoms in patients with malignant tumors. In China, about 80-90% of patients with cancer pain can be effectively relieved after treatment (17); however, the pain in some patients still cannot be treated and relieved in a standardized manner. The latter may be due to the insufficient patient awareness of painkillers and diseases. Some patients worry about adverse reactions and drug dependence, so they will conceal the pain to medical staff. Cancer-caused pain itself will result in serious adverse effects on the patient's body and mind, negatively affecting quality of life and clinical treatment. VAS scale was adopted for assessing the degree of pain in this study (12). After intervention, VAS scores of the experimental group was significantly lower than that of the control group. Collectively, these results indicated that self-efficacy intervention combined with humanistic nursing could significantly improve the psychological status of patients receiving chemotherapy for malignant tumors, which is consistent with the previously reported studies.

The improvement of self-care ability can also reduce negative emotions such as anxiety and restlessness in patients with malignant tumors to some extent (18). By evaluating the coping ability of patients, we encouraged and urged patients to actively cooperate with and participate in the treatment and rehabilitation, aiming to improve their confidence to overcome the disease, and their self-efficacy level. Compared with the control group, the self-efficacy and self-care ability of the experimental group were markedly improved.

Health-related quality of life is of a positive relationship with satisfaction with nursing (19), and satisfaction with nursing reflects patients' confidence and trust in medical staff. In this study, the experimental group had higher satisfaction with nursing than that in the control group.

Conclusion

For patients receiving chemotherapy for malignant tumors, self-efficacy intervention combined with humanistic nursing can improve the psychological status of patients and improve their self-care ability, causing a virtuous cycle to improve further the quality of life of patients. Additionally, the promotion in quality of life effectively improves the trust of patients in nursing staff and consequently their satisfaction with nursing. Therefore, self-efficacy intervention combined with humanistic nursing is worthy of clinical promotion.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors declare that there is no conflict of interest.

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