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Original Article

Predictive nursing combined with Qi-Jiao moxibustion improves rehabilitation outcome in cancer patients after radiotherapy and chemotherapy

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Abstract: Objective: To investigate the effect of predictive nursing combined with Qi-Jiao moxibustion on the rehabilitation of cancer patients after radiotherapy and chemotherapy. Methods: A retrospective analysis was conducted on 120 tumor patients who had undergone radiotherapy and chemotherapy in Foshan Fosun Chancheng Hospital from January 1, 2024, to December 31, 2024. They were randomly divided into a control group and a research group, with 60 cases in each group. The control group received routine nursing combined with Qi-Jiao moxibustion, while the research group received predictive nursing combined with Qi-Jiao moxibustion. Both groups received the intervention for 8 weeks, and were evaluated before, and 8 weeks after nursing intervention using the Self-Rating Anxiety Scale (SAS), Self-Rating Depression Scale (SDS), World Health Organization Quality of Life Scale (WHOQOL-100), Pittsburgh Sleep Quality Index (PSQI), and digestive function assessment. The incidence of adverse reactions was recorded, and patient satisfaction and survival rate after radiotherapy and chemotherapy were evaluated to assess the effectiveness of the two intervention models. Results: After the intervention, the research group showed significantly higher WHOQOL-100 scores, nursing satisfaction, digestive function, and survival rate than the control group (all $P<0.05$). The SAS and SDS scores of the research group were lower than those of the control group, which indicated a better psychologic state than the control group (both $P<0.05$). Additionally, the incidence of adverse reactions in the research group was lower than that of the control group. Conclusion: Predictive nursing combined with Qi-Jiao moxibustion effectively improves the survival rate of patients, alleviates their negative emotions, reduces or eliminates adverse reactions, enhances sleep quality, and achieves higher patient satisfaction in cancer patients following radiotherapy and chemotherapy.

Keywords: Predictive nursing, Qi-Jiao moxibustion, tumor, rehabilitation

Introduction

According to statistical data, approximately 50,000 new cases of malignant tumors are diagnosed annually in China, with an incidence rate of about 375 per 100,000 [1-3]. This not only imposes a heavy burden on patients and their families but also presents a severe challenge to the national healthcare system. The mortality rate remains high, reaching approximately 238 per 100,000, worsening health and life safety of the general population.

In the clinical treatment of tumors, radiotherapy and chemotherapy remain essential [4, 5]. It is well-known that although radiotherapy and chemotherapy are effective, they often cause varying degrees of damage to the body and induce adverse reactions in patients, which may worsen the therapeutic effects. On the other hand, due to the prolonged course of illness, tumor patients often experience changes in their psychological state, frequently accompanied by negative emotions such as anxiety and irritability, as well as symptoms like poor sleep quality. In severe cases, these problems can affect treatment adherence and ultimately lead to a reduction in therapeutic outcome [6, 7]. Therefore, for tumor patients receiving radiotherapy or chemotherapy, the implementation of systematic and scientific nursing interventions based on routine treatment is particularly critical. Such interventions aim to alleviate treatment-related adverse reactions, improve

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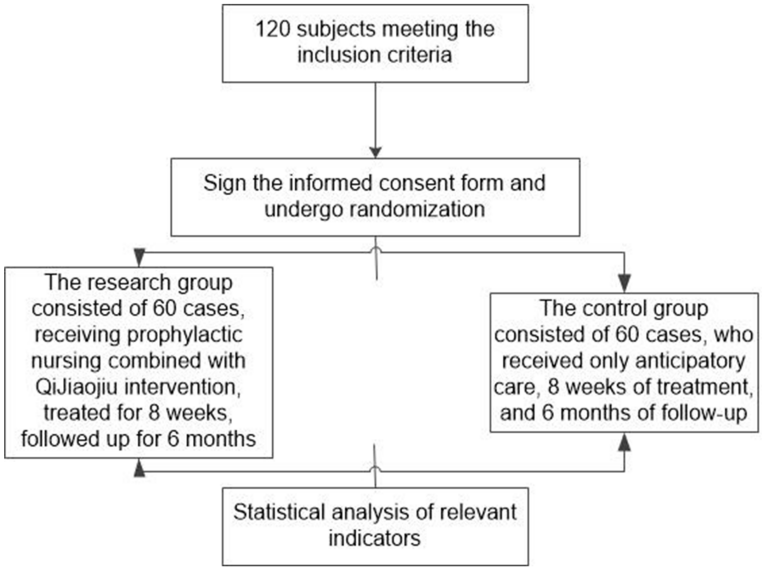

Figure 1. Research flow chart.

patients' physiologic comfort and overall quality of life, and relieve negative psychological states such as anxiety and depression, thereby aiding rehabilitation.

Predictive nursing, based on a forward-looking concept, demonstrates significant advantages. This model is based on the professional knowledge, clinical skills, and practical experience of nursing staff, and is closely integrated with the pathologic mechanisms and development of specific diseases. It proactively identifies and assesses potential health problems in patients, implements predictive nursing measures to prevent the occurrence of problems and address existing ones, and serves as a novel intervention method to achieve early prevention and effective management of clinical risk [8, 9].

Predictive nursing is a care model based on patients' clinical condition, which requires nurses to identify current or future nursing risks in patients in advance and take targeted intervention measures accordingly, thereby reducing adverse events and facilitating recovery. Clinical results have shown that predictive nursing can reduce patient complications and improve therapeutic efficacy [10]. However, there are relatively few studies on the application of predictive nursing combined with Qi-Jiao moxibustion in tumor patients after radiotherapy and chemotherapy. Therefore, this study aimed to investigate the effect of predictive nursing combined with Qi-Jiao moxibustion on the rehabilitation of tumor patients after radiotherapy and chemotherapy.

Materials and methods

General information

A total of 120 cancer patients who had undergone radiotherapy and chemotherapy in our hospital between January 1, 2024, to December 31, 2024, were retrospectively enrolled in this study. The patients were randomly divided into a control group and a research group, with 60 cases in each group. The control group received routine nursing combined with Qi-Jiao moxibustion, while the research group received predictive nursing combined with Qi-Jiao moxibustion. Both groups received the intervention for 8 weeks. The study protocol was reviewed and approved by the Ethics Committee of Foshan Fosun Chancheng Hospital.

Inclusion criteria: ① Patients with pathologically confirmed malignant tumors who had completed radiotherapy and chemotherapy; ② Patients with no communication impairments, who voluntarily participated in the study and signed the informed consent form; ③ Patients aged between 18 and 60 years; ④ Patients capable of using WeChat on a mobile phone to send and receive relevant information.

Exclusion criteria: ① Patients with a past history of mental illness; ② Patients with immunodeficiency; ③ Patients with organic brain diseases or other unstable physical conditions; ④ Pregnant patients; ⑤ Patients who were unwilling to cooperate. The flow chart is shown in **Figure 1**.

Methods

A nursing project team was established, consisting of oncologists, hematologists, nurses, and psychological counselors. Each member's responsibilities and division of work in nursing care were clearly defined. The team members received training on Qi-Jiao moxibustion, rou-

tine nursing, the core techniques of predictive nursing, and assessment and application of relevant questionnaires and scales.

A WeChat group was set up for team members to implement predictive nursing interventions for patients, provide Q&A guidance and communication, share information in a timely manner, and revise predictive nursing plans. The implementation plan for Qi-Jiao moxibustion was as follows: The patient was placed in the supine position, with the operation site fixed at the Shenque (CV8) acupoint. Taking the umbilicus as the center, raw tung oil was evenly applied to an area with a diameter of approximately 6 cm. A ceramic bowl was then placed upside down and gradually moved from the lateral abdomen to the umbilical area, creating negative pressure inside the bowl to ensure it adhered firmly to the skin surface. An anti-scald gauze was placed at the bottom of the bowl, followed by a bowl holder (for supporting the bowl). Finally, an Ai cone (approximately 2.5 cm in diameter and 3 cm in height) was placed in the groove at the bottom of the bowl, ignited for warm moxibustion-5 cones per session, with each session lasting about 30 minutes. After moxibustion, the ceramic bowl was only removed when its temperature cooled to near body temperature. Residual moisture around the umbilicus was gently absorbed with a cotton swab, and the Shenque (CV8) acupoint area was softly patted with the palm for about one minute. Warmth was maintained to complete the "acupoint sealing" procedure. Qi-Jiao moxibustion was performed once a day, for 5 consecutive days followed by 2 days of rest, for a total of 4 weeks. Patients were instructed not to consume cold or raw foods during treatment and could drink an appropriate amount of warm water 15 minutes after each session.

The control group received routine nursing care [11-13]: ① Before enrollment, the research team communicated fully with patients and their families, and established standardized nursing files for each patient. ② After enrollment, nursing staff of the project team implemented routine nursing measures and distributed health education materials to patients. The materials covered content such as medication compliance, timely re-examinations, maintaining emotional stability, and precautions for daily life and medication. Meanwhile, patients were followed up by regular phone calls to answer health-related inquiries, with no emphasis on special guidance during communication.

The research group received predictive nursing care [14-16]: Before enrollment, patients and their families signed the informed consent form for scientific research. Medical records for predictive nursing were established for patients, and detailed information was collected regarding patients' medication regularity, frequency of regular re-examinations, disease awareness, daily living routines, and family protection measures. Based on each patient's specific condition, a predictive nursing plan was developed and implemented through face-to-face interviews, group discussions, emails, or WeChat. ① Predictive health education: Patients were systematically informed about the pathogenesis of tumors, prevention and treatment methods, and key points of daily care to help them fully understand the disease and improve health literacy. Emphasis was placed on the importance of early cancer intervention and standardized treatment, and it was explained that active medical consultation could significantly reduce the risk of malignant transformation, thereby enhancing patients' willingness for self-management and treatment compliance. ② Predictive psychological care: Nursing staff proactively established a trusting relationship with patients, encouraged them to express emotions and needs through effective communication, accurately assessed their psychological status, and identified needs for psychological counseling. They listened patiently to patients' subjective feelings and provided emotional support and psychological adjustment suggestions based on individual conditions. By sharing successful treatment cases, patients were helped to build confidence and recognize the positive impact of active cooperation on disease control, thereby alleviating anxiety and strengthening their belief in fighting the disease. ③ Predictive condition intervention: Patients were educated to report abnormal symptoms to the medical team immediately and return to the hospital for re-examination in a timely manner to avoid complications. Detailed medication guidance was provided, clarifying the usage and precautions of each drug, emphasizing the importance of complying with medical advice, and strictly prohibiting self-adjustment of dosage or drug withdrawal

to ensure medication safety and reduce drug-related adverse events. ④ Predictive lifestyle guidance: Patients were assisted in establishing a healthy lifestyle and dietary structure to improve their self-care ability and long-term health management capabilities. The significance and schedule of regular follow-up were clearly explained, and patients were encouraged to actively participate in health management to promote the continuity of treatment and rehabilitation.

Observation indicators and evaluation criteria

Both groups received continuous intervention for 8 weeks. Corresponding scale assessments were conducted on patients before the intervention and at the end of the 8th week after the intervention.

Main observation indicators: ① Quality of life was evaluated by the score of the World Health Organization Quality of Life Scale (WHOQOL-100). This is a multidimensional comprehensive evaluation tool covering four core domains: physical function, psychological function, living status, and social function. A higher score indicates a better quality of life for the patient [17]. ② Psychological status evaluation: was assessed using the Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS). For both scales, a higher total score indicates more severe negative emotions. Through pre- and post-intervention assessments with these two standardized scales, the intervention effect of nursing measures on the patient's emotional state can be scientifically reflected [18]. ③ Sleep quality was evaluated using the Pittsburgh Sleep Quality Index (PSQI), which involves assessments across 7 dimensions with a total score of 21 points. The score is inversely proportional to sleep quality (i.e., a higher score indicates poorer sleep quality). ④ Digestive function was compared by detecting the levels of motilin and gastrin. ⑤ A multifactorial analysis was conducted to identify factors affecting the rehabilitation outcomes of tumor patients undergoing radiotherapy and chemotherapy. Variables with significant differences in univariate analysis were included in a multivariate linear regression model to screen out factors affecting the rehabilitation of tumor patients undergoing radiotherapy and chemotherapy. Among them, effective rehabilitation effect was defined as = 1, and ineffective as = 0. The quality of life of patients in both groups was analyzed.

Secondary observation indicators: ① The occurrence of adverse reactions in patients during the intervention period was recorded, including gastrointestinal reactions (nausea, vomiting, abdominal distension, constipation), skin reactions, pain, insomnia, liver function impairment, headache, and other adverse reactions. ② A 100-point self-developed scale from our hospital was used to assess patient satisfaction. The scale covers five aspects: service attitude, dietary and daily care, medication management, complication care, and clinical efficacy, with scores of 10 points, 30 points, 20 points, 20 points, and 20 points for each aspect respectively. The satisfaction levels were classified as follows: satisfied (≥85 points), basically satisfied (60-85 points), and dissatisfied (<60 points).

Statistical analysis

SPSS 28.0 software was used for data statistics. Categorical data were expressed as n/%, and the χ^2 test was used for comparison. Continuous data were expressed as mean ± standard deviation ($\bar{x}\pm sd$) and the t-test was used for comparison. Multivariate linear regression analysis was applied to screen out factors affecting the rehabilitation effect of tumor patients undergoing radiotherapy and chemotherapy. A *P*-value <0.05 was considered significant.

Results

General information

Baseline characteristics of the two groups were compared using professional statistical software, and no significant differences were observed (all P>0.05). Details are shown in **Table 1**.

Quality of life

Comparison of physical function: Before the intervention, there were no differences in the WHOQOL-100 scores in physical function, psychological function, living status, or social function (all P>0.05). After the intervention, all the scores in both groups were higher than those

Table 1. General information of the two groups of patients (n, $\bar{x}\pm s$)

Indicator	Research group (n=60)	Control group (n=60)	χ^2/t	*P*
Gender (n)			0.134	0.714
Male	27	33		
Female	29	31		
Age (years)	50.19±6.05	50.24±6.08	0.045	0.964
Course of the disease (years)	5.58±1.02	5.24±1.03	1.817	0.072
Height (cm)	168.6±6.9	167.6±5.4	0.884	0.378
Disease type (n)			1.52	0.678
Gastric cancer	11	15		
Lung cancer	15	13		
Rectal cancer	14	10		
Pancreatic cancer	20	22		
Educational attainment (n)			0.140	0.707
Bachelor's degree and below	36	38		
Bachelor's degree or above	24	22		

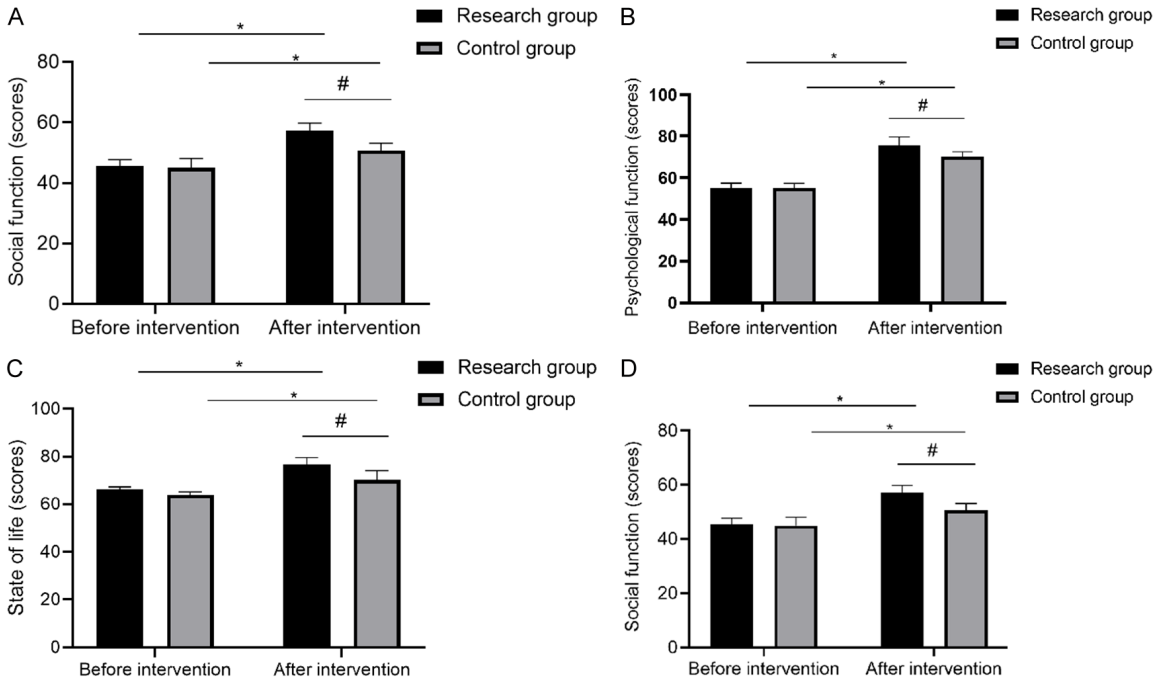

Figure 2. Comparison of psychological states. Comparison of SAS scores; Comparison of SDS scores. A. Physical function; B. Psychological function; C. Living status; D. Social function. Compared to before intervention, *P<0.05; Compared to the control group, #P<0.05.

before the intervention, and the increase was significantly more in the research group (all P<0.05). See **Figure 2**.

Psychological status

Before the intervention, the SAS scores were (63.10±3.98) points in the research group and (63.44±3.81) points in the control group (t= 0.478, P=0.634); the SDS scores were (70.26±3.34) points in the research group and (70.08±3.57) points in the control group (t= 0.285, P=0.776). After the intervention, the SAS scores were (50.11±3.07) points in the research group and (55.20±4.29) points in the control group (t=7.474, P=0.001); the SDS scores were (60.63±3.25) points in the research group and (64.10±2.41) points in the

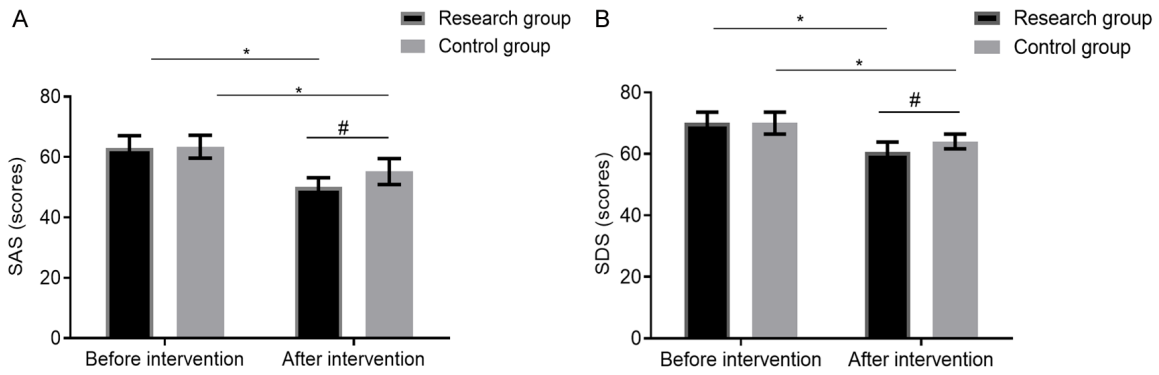

Figure 3. Comparison of psychological states. A. Comparison of SAS scores; B. Comparison of SDS scores. Compared with before intervention, *P<0.05; Compared to the control group, #P<0.05. SAS, Self-Rating Anxiety Scale; SDS, Self-Rating Depression Scale.

Table 2. Comparison of nursing satisfaction between the two groups of patients

Group	Satisfied (n)	Basically satisfied (n)	Dissatisfied (n)	Satisfaction rate [n (%)]
Research group (n=60)	23	27	10	50 (83.33)
Control group (n=60)	15	23	22	38 (63.33)
χ^2	/	/	/	6.136
P	/	/	/	0.013

Table 3. Comparison of the incidence of adverse reactions

Group	Gastrointestinal reactions	Skin reactions	Pain	Insomnia	Liver impairment	Headache	Incidence rate [n (%)]
Research group (n=60)	5	0	4	2	1	0	12 (20.00)
Control group (n=60)	9	2	5	2	3	2	23 (28.33)
χ^2	/		/	/			4.881
P	/		/	/			0.027

control group (t=6.643, P=0.001). It indicates that the SAS and SDS scores of both groups were lower than those before the intervention (both P<0.05), and the reduction was significantly more in the research group (both P<0.05). See **Figure 3**.

Adverse reactions

In the research group, 5 cases had gastrointestinal reactions, 4 cases had pain, 2 cases had insomnia, and 1 case had liver function impairment, with an incidence rate of 20.00%. In the control group, 9 cases had gastrointestinal reactions, 2 cases had skin reactions, 5 cases had pain, 2 cases had insomnia, and 3 cases had liver function impairment, with an incidence rate of 28.33%. It suggests that the incidence of adverse reactions in the research group was significantly less than that in the control group (χ^2=4.881, P=0.027). See **Table 2**.

Nursing satisfaction

It can be directly observed from the data that in the research group, 23 patients were satisfied, 27 were basically satisfied, and 10 were dissatisfied, with a satisfaction rate of 83.33%. In the control group, 15 patients were satisfied, 23 were basically satisfied, and 22 were dissatisfied, with a satisfaction rate of 63.33%. The nursing satisfaction of the research group was significantly higher than that of the control group (χ^2=6.136, P=0.013). See **Table 3**.

Sleep quality

Before the intervention, the PSQI score was (15.31±2.10) points in the control group and (15.29±2.13) points in the research group (t=0.052, P=0.959). After the intervention, the PSQI scores were (12.69±1.24) points in the control group and (10.55±1.18) points in the

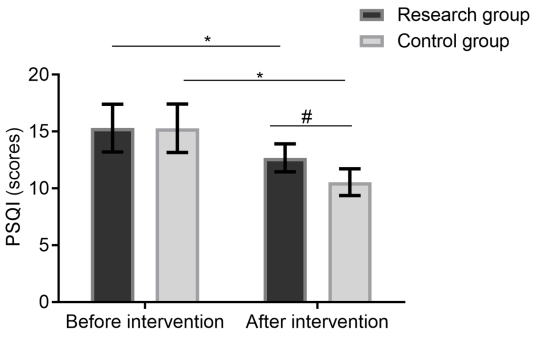

Figure 4. Comparison of sleep quality between the two groups of patients. Compared to before the intervention, *P<0.05; Compared with the control group, #P<0.05.

research group. The scores of both groups were lower than those before the intervention, and the reduction was significantly more in the research group (t=9.684, P=0.001). See **Figure 4**.

Digestive function

After the intervention, it was found that the levels of motilin and gastrin in both groups were higher than those before the intervention (P<0.05), and the increase was significantly more in the research group (P<0.05). See **Table 4**.

Univariate analysis of factors affecting rehabilitation effect in tumor patients undergoing radiotherapy and chemotherapy

Comparisons showed that there were significant differences in disease course, psychological status, sleep quality, and digestive function among patients (all P<0.05). See **Table 5**.

Multivariate linear regression analysis of factors affecting rehabilitation effect in tumor patients undergoing radiotherapy and chemotherapy

Indicators with significant differences in the univariate analysis were taken as independent variables, and the rehabilitation effect of tumor patients undergoing radiotherapy and chemotherapy was taken as the dependent variable for multivariate linear regression analysis. The results showed that psychological status, sleep quality, and digestive function were all independent risk factors affecting the rehabilitation effect of cancer patients undergoing radiotherapy and chemotherapy (all P<0.05). See **Table 6**.

Survival analysis

After a 6-month follow-up period, 55 patients survived in the research group (survival rate: 91.7%), and 41 patients survived in the control group (survival rate: 68.3%). Statistical software analysis and comparison of the overall survival rates between the two groups showed a significant difference (χ^2=10.210, P=0.001). See **Figure 5**.

Discussion

Malignant tumors severely affect patients' quality of life, while also imposing varying degrees of burden on families and society [19]. At present, with the continuous improvement in medical standards and the constant advancement of tumor diagnostic technologies in China, modern treatment techniques can significantly prolong patients' survival; however, the occurrence of adverse reactions or complications still severely affects patients' psychological state, thereby reducing their quality of life. Under the background of the current new medical model, the treatment goals of radiotherapy and chemotherapy for cancer patients are no longer limited to extending life and restoring organ function. Reducing complications or drug-related adverse reactions and improving patients' quality of life have become important directions for modern tumor treatment and nursing practice. Numerous studies have shown [20, 21] that supplementing with a scientific and effective nursing model during radiotherapy and chemotherapy is particularly important for promoting rehabilitation.

Conventional nursing methods mostly focus on disease monitoring and medication guidance, but insufficiently emphasize disease-related health education, psychological intervention, and standardized lifestyle management. This leads to reduced medication adherence, increased adverse reactions, and higher incidence of anxiety and depression among patients; meanwhile, insufficient nurse-patient communication also affects the effect of nursing interventions [22]. A study found that predictive nursing is an advanced, scientific, and targeted nursing model that takes patients as the starting point and centers on patients, pro-

Table 4. Comparison of digestive function ($\bar{x} \pm s$)

Indicator	Group	Before intervention	After intervention	*t*	*P*
Motilin (ng/L)	Research group (n=60)	209.10±23.41	350.08±34.07	26.417	<0.001
	Control group (n=60)	210.44±23.63	298.16±34.08	16.384	<0.001
	t	0.312	8.346		
	P	0.756	<0.001		
Gastrin (ng/L)	Research group (n=60)	30.26±7.20	70.63±5.69	34.123	<0.001
	Control group (n=60)	31.08±6.97	65.22±4.83	31.185	<0.001
	t	0.634	5.627		
	P	0.527	<0.001		

Table 5. Single factors affecting the rehabilitation effect of cancer patients undergoing radiotherapy and chemotherapy

Indicator	Effective (n=68)	Ineffective (n=52)	χ^2	*P*
Gender			0.720	0.396
Male	30	27		
Female	38	25		
Course of the disease			13.670	0.000
12 to 36 months	40	13		
36 to 65 months	28	39		
Mental state			13.950	0.000
Abnormal	25	37		
Normal	43	15		
Sleep quality			6.810	0.001
≥7 points	23	30		
<7 points	45	22		
Tumor type			0.190	0.666
Solid tumor	30	25		
Hematological malignancies	38	27		
Digestive function			10.140	0.001
Normal	46	20		
Abnormal	22	32		
Educational attainment			0.040	0.849
Bachelor's degree and below	43	32		
Bachelor's degree or above	25	20		

Table 6. Multiple linear regression analysis of the rehabilitation effect of cancer patients undergoing radiotherapy and chemotherapy

Indicator	Partial regression coefficient	Standard error	Standardized regression coefficient	*P*	95% CI
Mental state	2.049	0.486	2.688	0.029	1.096-3.008
Sleep quality	1.878	0.396	4.325	0.001	1.209-2.813
Digestive function	2.153	0.621	2.731	0.017	1.491-3.152

actively identifying potential risks that may cause problems [23]. Based on these potential risks, this model formulates predictive intervention measures to minimize risk factors from multiple aspects, keeping patients in a relatively positive state in terms of psychological state, physiologic conditions, mental state, and other aspects.

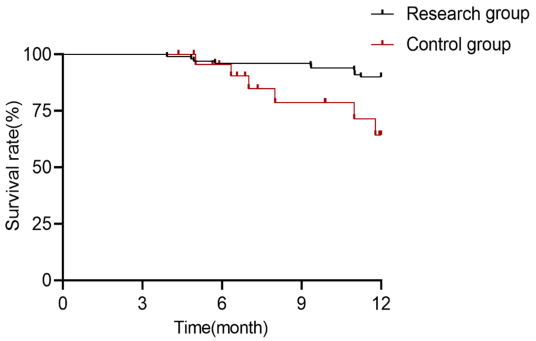

Figure 5. Comparison of survival rate between the two groups of patients.

Qi-Jiao moxibustion is a traditional moxibustion method centered on the Shenque acupoint (navel), which can regulate qi and blood, calm the mind, and promote local blood circulation. A study demonstrated that applying predictive nursing to gastric cancer patients during treatment can significantly improve their rehabilitation effect [24]. In this study, after implementing different nursing interventions on the basis of Qi-Jiao moxibustion treatment, it was found that the WHOQOL-100 score of the research group was significantly higher than that of the control group, and other observation indicators of the research group were also better than those of the control group, with statistically significant differences; meanwhile, the incidence of adverse reactions in the research group was lower than that in the control group, and the survival rate of the research group was significantly higher than that of the control group, with statistically significant differences. These results indicate that applying predictive nursing on the basis of conventional treatment can significantly improve patients' quality of life, reduce the occurrence of adverse reactions, alleviate their anxiety and depression, and enhance their digestive function.

The possible mechanisms are as follows. On one hand, Qi-Jiao moxibustion exerts multiple regulatory effects through its unique method. During moxibustion, a slight negative pressure environment is formed at the bottom of the bowl, which helps promote the normal operation and distribution of nutrient qi and defensive qi on the body surface; in the process of alternately replacing Ai cones, the temperature inside the bowl shows regular fluctuating changes, which can stimulate the dynamic operation of qi around the Shenque acupoint [25]. According to TCM (Traditional Chinese Medicine) theory, "qi is the commander of blood"; unobstructed qi movement promotes blood circulation. In addition, the Shenque acupoint is internally connected to the uterus and adjacent to the lower energizer (xiajiao); moxibustion applied here allows heat and medicinal effects to directly reach the uterine area, thereby exerting the effects of warming and tonifying qi and blood, regulating deficiency and damage, warming the meridians and dispelling cold, and activating blood circulation to dissipate stasis for syndromes of qi and blood consumption. Ultimately, through systemic circulation, it improves immunity, relieves anxiety and depression, and promotes the recovery of gastrointestinal function.

On the other hand, during the implementation of predictive nursing, medical and nursing staff attach great importance to health education and psychological state assessment, and formulate predictive measures based on patients' own conditions and potential risk factors during treatment. This also promotes patients to shift from passive understanding to active understanding of the disease, thereby improving their compliance with medical advice, alleviating their anxiety and depression, reducing the incidence of adverse reactions, and effectively improving rehabilitation effects. This is consistent with the research results of Chan *et al*. [26].

The results of this study also showed that the nursing satisfaction of patients in the research group was significantly higher than that in the control group. The sleep quality of patients in the research group after intervention was higher than that of the control group. Additionally, the results of multivariate linear regression analysis indicated that psychological status, sleep quality, and digestive function were all significant independent risk factors affecting the rehabilitation effect of cancer patients undergoing radiotherapy and chemotherapy.

It may be that predictive nursing interventions, by conducting anticipatory risk assessments of patients' daily living and providing corresponding guidance, help guide patients to promptly adjust unhealthy dietary habits, behavioral habits, and psychological states. This thereby improves their social adaptability, reduces the occurrence of adverse events, and ultimately

optimizes the overall treatment effect. Furthermore, the applied Qi-Jiao moxibustion exerts a sedative and tranquilizing effect by regulating qi and blood. The reason may be that the slight negative pressure environment formed inside the ceramic bowl not only helps promote the circulation of protective qi but also enhances local blood circulation. The temperature fluctuations generated during the burning and replacement of Ai cones further strengthen the dynamic temperature regulation effect: on one hand, it enhances the propagation effect of moxibustion; on the other hand, it effectively stimulates the periumbilical blood circulation, regulates intestinal flora, and activates the brain-gut axis interaction mechanism. This affects the levels of neurotransmitters such as serotonin and sleep-related factors, thereby achieving the effects of shortening sleep onset latency, reducing light sleep duration, and suppressing awakenings - ultimately improving sleep quality, optimizing patients' psychological status, and enhancing rehabilitation outcomes.

The limitations of this study include a relatively small sample size, incomplete coverage of evaluation indicators, and reliance on single-center data. In the future, further research on predictive nursing with larger sample sizes and multicenter designs is still needed, especially studies on the rehabilitation status of tumor patients after radiotherapy and chemotherapy.

In summary, predictive nursing combined with Qi-Jiao moxibustion effectively alleviates the negative emotions of tumor patients after radiotherapy and chemotherapy, reduces the adverse reactions, facilitates their rapid rehabilitation, and improves their quality of life.

Disclosure of conflict of interest

None.

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