

# Application effect of high-quality nursing model based on hope theory in endometrial cancer patients

Rong Lei<sup>1</sup>, Hongmin Cao<sup>2</sup>, Anju Rao<sup>3</sup>, Hongjing Zhang<sup>4,\*</sup>

<sup>1</sup>Department of Nursing, Affiliated Hospital of North Sichuan Medical College, 637000 Nanchong City, Sichuan Province, China

<sup>2</sup>Department of Gynaecology, Affiliated Hospital of North Sichuan Medical College, 637000 Nanchong City, Sichuan Province, China

<sup>3</sup>Department of Preventive Medicine, North Sichuan Medical College, 637000 Nanchong City, Sichuan Province, China

<sup>4</sup>Department of Nursing, Bishan Maternity & Child Hospital of Chongqing, 402760 Chongqing City, Chongqing, China

\*Correspondence: [hjzhang9565@163.com](mailto:hjzhang9565@163.com) (Hongjing Zhang)

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**Background:** To explore the effect of high-quality nursing model based on hope theory in endometrial cancer patients. **Methods:** The patients (n = 120) with endometrial cancer who underwent surgical treatment in hospital from October 2017 to October 2019 were divided into the study group and control group using the random number table method. The patients received usual care in the control group, and received high-quality nursing based on hope theory in the study group. Then, the degree of pain, fatigue, anxiety and depression were evaluated using visual analogue scale (VAS), chronic pain self-efficacy scale (CPSS), cancer fatigue scale (RPFS), self-rating anxiety scale (SAS) and self-rating depression scale (SDS). The hope level and coping style were assessed using Herth hope scale (HHI) and summary coping style questionnaire (SCSQ). The quality of life was assessed using Medical Outcomes Study item short form health survey (SF-36). Moreover, nursing satisfaction was compared using homemade questionnaire. **Results:** The results showed that VAS score, RPFS score, SDS score and passive coping score of SCSQ questionnaire in the study group were lower than those in the control group ( $p < 0.05$ ). CPSS score, HHI score, positive coping score of SCSQ questionnaire, nursing satisfaction and SF-36 scores in all dimensions in the study group were higher than those in the control group ( $p < 0.05$ ). **Discussion:** The high-quality nursing model based on hope theory could ameliorate patients' pain and fatigue, enhance their self-efficacy, guide patients to face problems positively, improve their life quality and hope level. **Conclusion:** It has higher nursing satisfaction in endometrial cancer.

## Keywords

Hope theory; High-quality care; Endometrial cancer; Visual analogue scale (VAS); Herth hope index (HHI); Simplified coping style questionnaire (SCSQ); Quality of life index; Nursing satisfaction

## 1. Introduction

Endometrial cancer is a malignant tumor that originates in the endometrial epithelium, accounting for about 20–30% of female reproductive tract malignancies [1]. The incidence of endometrial cancer has increased in recent years, which seriously threatens the health of women and has a trend of younger development [2–4]. At present, surgical treat-

ment, systematic radiotherapy, chemotherapy and combination therapy are still the fundamental treatment measures for endometrial cancer [5]. In addition, scientific and reasonable nursing intervention will also affect the final treatment effect of endometrial cancer [6, 7]. Due to the lack of basic understanding of endometrial cancer, some patients are prone to negative emotions such as anxiety and depression, which can cause their pain intolerance and increase the incidence of surgical complications. Hope is the positive state of the human body based on the inner sense of success, and it is also one of the most important psychological characteristics of human beings [8]. People will stimulate the body's hope level by stimulating its subjective initiative when encountering setbacks, thereby promoting the body's physical and mental recovery [9, 10]. The high-quality nursing model based on hope theory can effectively improve the psychological activity and personality characteristics of patients, and promote their development to a positive state, which is conducive to the recovery of the disease. In view of the positive effect of hope theory on patients, this study selected patients with endometrial cancer admitted to our hospital and gave them hope nursing interventions, so as to minimize the physical and mental pain of patients and improve their quality of life.

## 2. Materials and methods

### 2.1 The general information

The patients (n = 120) with endometrial cancer who underwent surgical treatment in hospital from October 2017 to October 2019 were divided into the study group and the control group (60 cases in each group) using the random number table method. In the control group, the patients were 40–65 years old with an average age of  $55.8 \pm 6.1$ , and the tumor stage were 46 cases in stage I, 9 cases in stage II, and 5 cases in stage III. In the study group, the patients were 40–68 years old with an average age of  $56.2 \pm 6.4$ , and the tumor stage were 48 cases in stage I, 7 cases in stage II, and 5 cases in stage III. There was no significant difference between the study and

**Table 1. Comparison of pain and fatigue between the control and study group before and after intervention (score) in patients with endometrial cancer.**

Group	Time	VAS score	CPSS score	RPFS score
Control group ( <i>n</i> = 60)	before intervention	7.78 ± 0.99	57.47 ± 10.10	6.62 ± 0.64
	after intervention	4.25 ± 1.22	61.05 ± 8.05	5.70 ± 0.56
<i>t</i>		17.432	2.150	8.338
<i>p</i>		0.000	0.034	0.000
Study group ( <i>n</i> = 60)	before intervention	7.05 ± 1.16	57.95 ± 9.84	6.58 ± 0.72
	after intervention	3.18 ± 0.57	82.25 ± 9.81	3.65 ± 0.61
<i>t</i>		24.742	13.546	24.148
<i>p</i>		0.000	0.000	0.000
<i>t</i> *		6.157	12.940	19.225
<i>p</i> *		0.000	0.000	0.000

\*denotes the comparison of the control group and the study group after intervention.

control groups in age and tumor stage ( $t_{age} = 0.380$ ,  $p = 0.705$ ;  $\chi^2_{\text{tumor stage}} = 0.293$ ,  $p = 0.945$ ). This study was approved by the Ethics Committee of Affiliated Hospital of North Sichuan Medical College, and obtained informed consent from all patients.

## 2.2 Inclusion and exclusion criteria

The inclusion criteria: All patients are older than 18 years old, and are diagnosed with endometrial cancer by pathological biopsy, accompanied by persistent or intermittent pain. In addition, the patients have no contraindications to surgery or history of pelvic surgery and are expected to survive for more than one year.

The exclusion criteria: Patients with severe liver and kidney dysfunction and coagulopathy, severe endocrine system diseases like cardiovascular system diseases and diabetes, mental illness and cognitive dysfunction, with a large amount of fluid in the abdomen and pelvis, cancer metastasis or malignant tumors in other parts of body are excluded. In addition, patients had taken anti-anxiety and depression drugs recently or were unwilling to participate in the investigation are excluded.

## 2.3 Nursing method

Patients in the control group are given usual care by the responsible nurses, such as keeping the ward clean and warm, preparing patients for surgery, distributing medicines as directed by doctors, managing the infusions, guiding patients on proper diet, and giving health education for patients and their families.

Patients in the study group receive high-quality nursing based on the hope theory on the basis of the usual care. The main nursing method are as follows:

(1) Assess the patient's hope index. The nurses conduct a comprehensive evaluation of the patient's physical and mental condition after admission through communicating the patients and their families, in order to assess patient's hope index. Then, nurses formulate individualized nursing interventions based on the patient's awareness of endometrial cancer, education level and economic status.

(2) Correct the patient's wrong perception of endometrial

cancer. Because some patients with endometrial cancer have lost hope in life, nurses should introduce the cancer knowledge and therapies to patients, and communicate with patients in a friendly language. Moreover, nurses not only use lectures, brochures, multimedia to subject health education for patients in order to teach them to face the reality, but also list some good recovery cases to enhance patients' hope for the future, thereby guiding patients to correctly evaluate the disease, changing their poor cognition, inspiring the patient's confidence, and improving their treatment compliance.

(3) Clear life goals. Combining the patient's actual situation and hope index, the nurses assist patients to formulate realistic life goals, such as instructing patients to listen to music, practicing calligraphy and exercising to ease their negative emotion. The nurses supervise patients to complete the daily goals and give high evaluation after the patients completes the goals. For patients who have not completed their goals, the nurses should help them to analyze the failure reasons and encourage them to continue to adhere to their life goals. Through the nurses guiding patients to carry out some daily activities, the patients' emotions and physical fitness can be well adjusted, thereby reducing the effects of negative emotions.

(4) Establish a good family social support system. The nurses strengthen the health education of the patients' families to make them aware of the importance of companionship, and then encourage the families to accompany patients throughout the journey to meet the psychological needs of the patients' love and enhance their confidence in defeating cancer. Furthermore, the nurses should invite the patients' friends to participate in the treatment. After discharge from the hospital, nurses should also maintain active communication with the patients through video, telephone, visits and other ways to give patients confidence to return to social life, thereby improving their treatment compliance.

The patients in the control and study group were intervened until six months after discharge from hospital. Specifically, all patients were discharged from the hospital with nursing interventions such as living environment, on-time

medication administration, and dietary guidance via video, telephone, and visitation twice a month for about 30 min each.

#### 2.4 Observation index

(1) The degree of pain and fatigue before and after intervention were evaluated using visual analogue scale (VAS), chronic pain self-efficacy scale (CPSS) and cancer fatigue scale (RPFS).

VAS score ranges from 0 to 10 points [11]. The 0 point is recorded as painless, and 10 point is unbearable pain. The 0–10 points indicates that the pain level increases in sequence, that is, the higher the patient's score, the more severe the pain level.

CPSS score consists of 22 items in three dimensions and the score is 22–110 points [12]. For example, the physical self-efficacy score (9–45 points), pain self-management efficiency score (5–25 points), symptom response self-efficacy score (8–40 points). Each item is scored using 5-point Likert scale method, that is, the higher the patient's score, the stronger the self-efficacy of cancer pain.

RPFS score consists of 22 items and uses the modified Piper fatigue scale, which is mainly used to evaluate the subjective fatigue status of patients [13]. The score of each item is 0–10 points and the total score is 0–220 points. RPFS score needs to divide the total score by 22 to get the average score. The average score is 1–3 points for mild fatigue, 3–6 points for moderate fatigue, and 6 points or more for severe fatigue, that is, the higher the patient's score, the more severe the fatigue.

(2) The degree of anxiety and depression before and after intervention were evaluated using self-rating anxiety scale (SAS) and self-rating depression scale (SDS).

SAS score consists of 22 items and uses a four-level scoring method [14]. A total score of 50–59 is mild anxiety, 60–69 points count is moderate anxiety, and 69 points or more is severe anxiety, that is, the higher the patient's score, the more severe the anxiety.

SDS score consists of 22 items and uses forward and reverse four-level scoring method [15]. Its critical value is 50 points, so when the score is greater than 50 points, it means that the patient has depression. The higher the patient score, the more serious the depression state.

(3) The hope-level and coping style before and after intervention were assessed using Herth hope index (HHI) and simplified coping style questionnaire (SCSQ).

HHI score consists of 12 items in three dimensions and uses a four-level scoring method [16]. The total score is 12–48 points, and the higher the score, the higher the patient's hope-level.

SCSQ score is a self-assessment scale, consisting of 20 items in two dimensions of positive and negative response [17]. Each item is scored using a four-level scoring method with a score of 0–3. Each dimension score ranges from 0–30. The higher the score in which dimension, the more coping style the individual prefers to adopt.

(4) The life quality of patients before and after intervention was assessed using the Medical Outcomes Study item short form health survey (SF-36). SF-36 score includes five dimensions of mental health, emotional function, physical pain, physiological function, and overall health [18]. The score of each dimension is 100 points. The higher the score, the better the patient's quality of life.

(5) Nursing satisfaction was investigated and compared using homemade questionnaire. It Includes five dimensions of endometrial cancer awareness, patient psychological comfort, hospital environmental facilities satisfaction, nursing staff service satisfaction, and physical comfort. The questionnaire uses a four-level scoring method with a total score of 100 points. The 90–100 points are very satisfied, 60–89 points are satisfied, 40–59 points are average, and less than 40 points are not satisfied. Nursing satisfaction = (very satisfied cases + satisfied cases)/total cases × 100%.

#### 2.5 Statistical analysis

The data was analyzed using SPSS 22.0 software (IBM Corp., Armonk, NY, USA) and compared with *t*-test or Chi-square test. The measurement data were expressed as mean ± standard deviation (SD), and the count data were expressed in  $p < 0.05$  was considered statistically significant.

### 3. Results

#### 3.1 Comparison of pain and fatigue degree before and after intervention

As shown in Table 1, there was no statistically significant difference in VAS score, CPSS score and RPFS score between the control and study group ( $p > 0.05$ ) before intervention. Conversely, the VAS and RPFS scores in the study group were lower than those in the control group ( $p < 0.05$ ), and CPSS score in the study group was higher than that in the control group after intervention ( $p < 0.05$ ).

**Table 2. Comparison of anxiety and depression between the control and study group before and after intervention (score) in patients with endometrial cancer.**

Group	Time	SAS score	SDS score
Control group (n = 60)	before intervention	64.62 ± 8.14	59.92 ± 8.73
	after intervention	58.17 ± 8.38	52.63 ± 9.48
<i>t</i>		4.275	4.377
<i>p</i>		0.000	0.000
Study group (n = 60)	before intervention	64.52 ± 8.40	58.00 ± 8.76
	after intervention	51.07 ± 9.24	45.78 ± 6.78
<i>t</i>		8.344	8.545
<i>p</i>		0.000	0.000
<i>t</i> *		4.408	4.553
<i>p</i> *		0.000	0.000

\*denotes the comparison of the control group and the study group after intervention.

**Table 3. Comparison of hope level and coping style between the control and study group before and after intervention (score) in patients with endometrial cancer.**

Group	Time	HHI score	SCSQ score	
			positive response	negative response
Control group (n = 60)	before intervention	29.98 ± 7.18	19.95 ± 4.70	26.22 ± 2.30
	after intervention	33.38 ± 4.09	21.63 ± 4.54	23.92 ± 2.09
<i>t</i>		3.187	1.997	5.738
<i>p</i>		0.002	0.048	0.000
Study group (n = 60)	before intervention	28.88 ± 4.55	19.50 ± 5.37	25.77 ± 2.37
	after intervention	40.53 ± 4.21	28.05 ± 1.53	14.97 ± 3.22
<i>t</i>		14.551	11.860	20.929
<i>p</i>		0.000	0.000	0.000
<i>t</i> *		9.430	10.380	18.090
<i>p</i> *		0.000	0.000	0.000

\*denotes the comparison of the control group and the study group after intervention.

**Table 4. Comparison of SF-36 score between the control and study group before and after intervention (score) in patients with endometrial cancer.**

Group	Time	Mental health	Emotional function	Physical pain	Physiological function	Overall health
Control group (n = 60)	before intervention	53.08 ± 6.17	62.18 ± 7.15	48.65 ± 7.29	57.17 ± 6.20	56.17 ± 5.88
	after intervention	62.00 ± 8.95	68.33 ± 7.13	57.53 ± 5.85	63.12 ± 5.15	63.53 ± 5.51
<i>t</i>		6.353	4.720	7.329	5.718	7.709
<i>p</i>		0.000	0.000	0.000	0.000	0.000
Study group (n = 60)	before intervention	53.87 ± 4.69	61.68 ± 6.18	48.68 ± 6.69	56.28 ± 6.62	55.87 ± 5.73
	after intervention	74.08 ± 7.85	75.65 ± 6.53	65.15 ± 6.51	69.88 ± 5.35	71.78 ± 5.30
<i>t</i>		17.129	12.029	13.657	12.380	15.794
<i>p</i>		0.000	0.000	0.000	0.000	0.000
<i>t</i> *		7.861	5.863	6.739	7.062	8.356
<i>p</i> *		0.000	0.000	0.000	0.000	0.000

\*denotes the comparison of the control group and the study group after intervention.

### 3.2 Comparison of anxiety and depression degree before and after intervention

As shown in Table 2, there was no statistically significant difference in SAS score and SDS score between the control and study group ( $p > 0.05$ ) before intervention. But after intervention, the SAS score and SDS score in the study group were lower than those in the control group ( $p < 0.05$ ).

### 3.3 Comparison of hope-level and coping style before and after intervention

The results in Table 3 showed that there was no statistically significant difference in HHI score and positive response/negative response in SCSQ scores between the control and study group ( $p > 0.05$ ) before intervention. After intervention, HHI score and positive response in SCSQ scores of the study group were higher than those of the control group ( $p < 0.05$ ), and then negative response in SCSQ scores of the study group was lower than that of the control group ( $p < 0.05$ ).

### 3.4 Comparison of life quality before and after intervention

In Table 4, the results showed that there was no statistically significant difference in each dimension of SF-36 score between the control and study group ( $p > 0.05$ ) before intervention. Then, SF-36 score in the study group was significantly

higher than that in the control group after intervention ( $p < 0.05$ ).

### 3.5 Comparison of nursing satisfaction

As shown in Table 5, the nursing satisfaction of the study group was significantly higher than that of the control group, and the difference was statistically significant ( $\chi^2 = 6.316$ ,  $p < 0.027$ ).

## 4. Discussion

### 4.1 High-quality nursing based on hope theory can improve the degree of pain and fatigue in endometrial cancer patients

Cancer pain makes the patients suffer from both psychological and physical torture, and also affect their rest, thus reducing the life quality of patients with endometrial cancer. A study has shown that the incidence of cancer-related fatigue in patients with gynecological malignant tumors is about 93% [12]. Endometrial cancer patients often suffer from cancer-related fatigue after undergoing surgery or other treatments [12]. Cancer-related fatigue has the characteristics of rapid development, heavy degree, and long duration, which causes patients to consume too much energy. However, cancer-related fatigue keeps the patient in a chronic state of consumption due to the energy cannot be relieved



**Table 5. Comparison of nursing satisfaction between the control and study group before and after intervention (score) in patients with endometrial cancer.**

Group	n	Very satisfied	Satisfied	Average	Not satisfied	Nursing satisfaction
Control group	60	27	27	4	2	90.00%
Study group	60	35	25	0	0	100.00%

by rest, which is not conducive to the recovery of the patients' health [19, 20]. The high-quality nursing based on hope is to find out the relevant factors that affect patients' emotions from the patients themselves. Meanwhile, nurses and patients' families co-stimulate patients' positive mentality to create a good recovery environment for the patients, thereby relieving their pain and fatigue level. The results of this study showed that the VAS score and RPFS score of the study group were lower than the control group, and the CPSS score was higher than the control group, indicating that the high-quality nursing model based on hope theory could significantly reduce the degree of pain and fatigue in endometrial cancer patients.

#### *4.2 High-quality nursing based on hope theory can improve endometrial cancer patients' negative emotions*

O'Mara *et al.* [21] reported that patients with endometrial cancer will face a series of emotional problems after surgery. Due to the patients' worry about the condition and pain, the fear of life being changed or death, it will cause the patients to have different levels of psychological problems, such as anxiety and depression. These negative emotions affect the regulation of the hypothalamus to the body's nerves, which in turn leads to tumor growth and the deterioration of endometrial cancer [22]. In addition, negative emotions also reduce the immune function through regulating the central nervous system, thereby weakening patients' anti-tumor ability, which in turn affects the patients' postoperative recovery and quality of life [2]. High-quality nursing based on hope theory is achieved by combining the patients' own situation, with nurses assisting the patients to jointly formulate realistic life goals, which are then patients gain recognition by completing these life goals. Moreover, nurses, patients' family members and friends strengthen the psychological support to patients, so that they feel loved, thereby slowing their negative emotions. This study found that the SAS score and SDS score of the study group were lower than the control group, demonstrating that high-quality nursing model based on hope theory could boost the negative emotions of patients with endometrial cancer.

#### *4.3 High-quality nursing based on hope theory can enhance endometrial cancer patients' hope level and quality of life*

Hope theory is an important branch of positive psychology, a good expectation for the future, and a series of positive expectations for achieving one's own ideal goals. Hope is a power that dominates the spirit and life for every cancer patient, and is also a very important part of cancer treatment process. It is reported that the level of patients' hope is closely related to their quality of life, and patients' hope level

can be increased through hope nursing [23]. The higher the patients' level of hope, the easier it is to take positive coping style when facing with illness, thereby prompting patients to overcome difficulties, relieving stress and pain. The results of this study showed that the HHI score, positive response in the SCSQ score and each dimension of SF-36 score of the study group were higher than the control group, while negative response in the SCSQ score was lower than the control group, indicating that high-quality nursing model based on hope theory could enhance endometrial cancer patients' hope level and quality of life. Furthermore, the nursing satisfaction of the study group was significantly higher than that of the control group, illustrating that high-quality nursing model based on hope theory in endometrial cancer patients has a good effect, and could significantly improve patients' satisfaction with nursing services.

## **5. Conclusions**

The high-quality nursing model based on hope theory has good application effect in patients with endometrial cancer. It not only significantly relieves the pain and fatigue of patients and fosters their self-efficacy, but also guides patients to actively face the problems, improve their quality of life and hope level, and enhances patients' nursing satisfaction.

## **Author contributions**

RL and HMC designed the study, supervised the data collection. AJR analyzed the data, interpreted the data. HJZ prepare the manuscript for publication and reviewed the draft of the manuscript. All authors have read and approved the manuscript.

## **Ethics approval and consent to participate**

Ethical approval was obtained from the Ethics Committee of Affiliated Hospital of North Sichuan Medical College (Approval No.2016-043). Written informed consent was obtained from a legally authorized representative(s) for anonymized patients information to be published in this article.

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# Conflict of interest

The authors declare no conflict of interest.

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