

Effects of whole-course standardized nursing and humanistic care on the sleep condition and quality of life of elderly patients undergoing hysterectomy for cervical cancer

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Objective: To explore the effects of whole-course standardized nursing and humanistic care on the sleep condition, psychological status and quality of life of elderly patients undergoing total hysterectomy for cervical cancer. **Methods:** 104 elderly patients admitted to our hospital from September 2017 to September 2019 were evenly divided into observation and control groups according to the random number table method. The observation group was given standardized whole-course nursing and humanistic care, while the control group was given routine nursing care. The sleep quality, negative emotions, quality of life, incidence of complications and nursing satisfaction of the two groups were observed. **Results:** After intervention, the time used to fall asleep in the observation group was shorter than that in the control group ($P < 0.05$), while the duration of continuous sleep and total sleep were both longer in the observation group ($P < 0.05$). The results for the scores of the scales for evaluating the sleep quality, negative emotions, quality of life, and level of hope also showed that, in the perioperative period, the nursing effect of the whole-course standardized nursing and humanistic care was significantly improved. **Conclusion:** The patients' sleep condition, negative emotions, quality of life and level of hope were significantly improved. In addition, the incidence of postoperative complications was low, and the nursing satisfaction of the patients was high, so this nursing strategy is worthy of clinical application.

Keywords

Whole-course standardized nursing; Humanistic care; Old age; Cervical cancer; Sleep quality; Quality of life; Nursing satisfaction

1. Introduction

Cervical cancer is one of the common malignant tumors in women, and its incidence ranks only second to breast cancer. According to the statistics of the World Health Organization (WHO) in 2018, the incidence rate of global cervical cancer is about 13 out of every 100,000 people, and the mortality rate is about 7 cases per 100,000 people. 84% of the cases occurred in underdeveloped countries. Nevertheless, compared with other cancer patients, cervical cancer patients have the characteristics of high survival rate and long survival period [1, 2].

At present, the treatment methods for cervical cancer include surgical treatment, radiotherapy, chemotherapy, targeted therapy, and immunotherapy, among which radical hysterectomy is the most effective surgical method to cure cervical cancer clinically [3]. However, due to the sensitivity of the operative site, cervical cancer patients are always fearful of surgery, which will cause the patients to have different extent of psychological disorders during the perioperative period, and its impact on the elderly cervical cancer patients is more obvious [4, 5] mainly manifested as sleep dysfunction, such as longer time for falling asleep and the short duration of sleep, increased negative emotions, decreased level of hope etc., which severely affect the surgical effects and postoperative quality of life [6]. Therefore, it has become the focus of clinical cervical cancer care to minimize the negative emotions of patients and improve their quality of life through scientific and effective nursing methods.

To this end, this study applies whole-course standardized nursing and humanistic care to elderly patients undergoing total hysterectomy for cervical cancer, in order to observe the impact of this nursing strategy on patients' sleep condition and quality of life. Therefore, the results from this study will determine whether nursing strategy of whole-course standardized nursing combined with humanistic care is worthy of clinical application.

2. Materials and methods

2.1 General information

According to the random number table method, 104 elderly patients who were admitted to our hospital for total hysterectomy for cervical cancer from September 2017 to September 2019 were assigned to the observation group ($n = 52$) or the control group ($n = 52$). This study was approved by the ethics committee of Affiliated Foshan Maternity & Child Healthcare Hospital, Southern Medical University, and all patients and their families gave informed consent to participate in this study.

Inclusion criteria: All patients included were diagnosed

in our hospital with biopsy proven cervical cancer. They had received no prior treatment for the cancer (i.e., surgery, chemotherapy, radiation), and could tolerate anesthesia and surgery. The expected survival interval was more than 3 years. Exclusion criteria: patients with severe liver and kidney dysfunction; patients with mental illness and cognitive dysfunction; patients with severe organ disease and coagulation dysfunction; patients with an enlarged uterus; patients unwilling to participate in the investigation.

2.2 Nursing method

The patients in the control group were given routine nursing care, and the study group was given whole-course standardized nursing and humanistic care.

Preoperative nursing: 1) Health education and humanistic care: all the patients were given routine examinations including color Doppler ultrasound to examine liver, abdomen and abdominal lymph nodes. Routine health education was given to the patients in the control group, such as information about the surgical indications, surgical technique, approximate operative time, advantages and effects of surgical treatment, etc. In the control group, the nursing staff presented successful cases of surgery informed the patients about the high professional level of the surgeons, and provided the patients with psychological support and encouragement to eliminate unnecessary worries and preoperative fear [7]. 2) Preoperative preparations: i) Vagina preparation. Both groups underwent routine leucorrhea examination, and patients with vaginal inflammation were treated before surgery. Three days before surgery, 250 mg/L iodophor was used twice a day for routine vaginal lavage to remove secretions and necrotic tissue. ii) Skin preparation before surgery. Attention was given to the care of the umbilicus. The umbilicus was soaked with turpentine before skin preparation, and cotton swabs soaked with 75% alcohol were used to remove dirt from the umbilicus, followed by dry cotton swabs.

Intraoperative nursing: During the operation, all patients were given routine nursing care, such as disinfection and sterilization of the operating room, monitoring of vital signs, facial expressions and body movement, first aid and protection preparations. Patients in the study group received whole-course standardized nursing and humanistic care. The patients in the study group were accompanied into the operating room by a nurse they already knew. The operation process and precautions were patiently explained to the patients, and the patients were instructed to be familiar with the operating room environment as soon as possible. Moreover, the patients in the study group were given psychological comfort and support to eliminate their fear and strangeness, and improve their psychological comfort [8]. During the surgery, heat preservation was emphasized for all patients. The operating room temperature was maintained at about 25 °C. The patients had heating blankets and bed mats with temperature controller to keep their body temperature stable and their oral temperature at around 37 °C. Intravenously ad-

ministered fluids were warmed. Postoperative nursing: 1) Environment care. During hospitalization, all patient rooms were kept clean and tidy with appropriate temperature. A warm and comfortable ward environment was created for all the patients, not only to meet the patients' nursing service needs, but also to help the patients relax and entertained by providing reading material (e.g., magazines) and televisions. Various reasonable requests from the patients were fulfilled. 2) Postoperative observation. i) All the patients' vital signs and condition changes were monitored for 24 hours post-operatively, the wounds were observed for exudation and errhysis, and analgesics were given as prescribed by the physician. ii) The amount of vaginal bleeding, and the color and traits of the blood were observed. Once excessive bleeding, brightly colored blood, blood clots or other abnormalities were found, the situation was promptly reported to the physician. 3) Diet instruction and care. i) Diet instructions given to the control group included: liquid diet after 6-hour of postoperative fasting, and high-protein, high-calorie, easily digestible semi-liquid food (e.g., chicken soup, fish soup) but not gas-producing food (e.g., soy products, dairy products, desserts) after 24 hours post-operatively. ii) The study group were provided with a personalized diet. The nursing staff fully understood the patients' food preferences, and develop personalized diet plan considering the calories needed by the cervical cancer patients and their dietary habits. Their daily caloric needs is approximately 104.6 to 150 KJ/Kg, of which carbohydrates account for about 50%, proteins for about 15% to 20%, and fat for about 30% to 35%. The three daily meals are allocated at a ratio of 1 : 2 : 2. Six kinds of food were provided including fruit, vegetable, fat, milk, meat and cereals, and the calories of various foods were calculated. According to the concept that foods of the same type with equal or similar amount of calories can be substituted for each other, the patients' diet plan was adjusted to improve their appetites. The patients should get out of bed as soon as possible to promote flatus and reduce postoperative abdominal distension. After passing flatus, the patients were recommended to eat regular food, and more fruits and vegetables to promote gastrointestinal motility. 4) Urinary catheter care. The color, quantity and traits of the patient's urine were closely monitored. The urine bags were changed every 3 days, and the urethral opening and perineum were disinfected with 5000 mg/L iodophor twice a day in the morning and evening. The patients were encouraged to drink more water to keep the flow of urine. The urinary catheter was regularly clamped and opened one day before removal to train the patients' bladder function. After catheter removal, the patient was instructed to empty the bladder regularly to promote early recovery of bladder function. 5) Observation and nursing management of complications: i) Postoperative vomiting. Routine nursing care was given to patients in the control group, such as cleaning and treatment of vomit. Once the patient vomited, her head should be immediately tilted to one side to prevent accidental aspiration, and the vomit

should be cleaned up promptly. Patients in the study group received preventive care, for example, the reasons for the postoperative vomiting, mostly narcotic drugs or intraoperative CO₂ pneumoperitoneum, were explained to the patients. Fresh lemon could be prepared to freshen the air in the ward. Antiemetics were used preventively. ii) If the patients had no discomfort due to subcutaneous emphysema after surgery, no special treatment is needed, and the emphysema would resolve on its own. iii) Abdominal distension is mostly caused by intraoperative CO₂ retention in the abdominal cavity and gastrointestinal gas. iv) All patients were informed that subcostal pain was caused by the irritation of the diaphragm after the CO₂ used during the operation was converted to carbonic acid, and it would resolve on its own usually within 1-3 days. v) Deep vein thrombosis of lower extremities should be prevented. Patients were instructed to do postoperative exercises actively, and to take anticoagulants preventively. 6) Rehabilitation function training. The patients in the study group were taught to train the pelvic floor muscles in standing, sitting, and lying positions, with relaxation, contraction of the buttocks, abdominal muscles, and increased abdominal pressure as the main exercise content to increase the pressure of the bladder and pelvic floor muscles, and to promote urine elimination until the urinary catheter was removed. Each exercise course should last for 20 minutes, and repeated three times a day. No rehabilitation function training was given to the control group.

Discharge guidance: Health education was emphasized by the nursing staff to the patients' family members of both groups, who were also encouraged to participate in the patients' daily life care. The care from the family will give the patients strong spiritual support, which is conducive to recovery. The patients were advised to pay attention to rest and avoid overwork, to balance their diets by eating more vegetables and fruits to prevent constipation. The patients were advised to use warm water to clean their vulva 1-2 times a day. Bathing was prohibited for 3 months after surgery, and sexual activity should be avoided. The patients were advised to do keep their follow-up appointments.

2.3 Observation index

2.3.1 Sleep condition

The time to falling asleep, the duration of sleep, and the total time of sleep were recorded before and after the surgery for both groups, as described by the patients and their families. The scores of the Chalder Fatigue Scale [9] and the Pittsburgh Sleep Quality Index (PSQI) before and after surgery were recorded [10]. The Chalder Fatigue Scale Score: This scale is composed of 14 items related to fatigue. The subjects answered "yes" or "no" according to their own situation. The total score is 14 points. The higher the score, the more severe the fatigue. PSQI score: The scale consists of 19 self-assessment items and 5 other-evaluation items, which are used to evaluate the sleep quality of the subjects. The self-assessment items are composed of 7 factors including time to fall asleep, sleep time duration, sleep efficiency, sleep quality,

sleep disorders, hypnotic drugs and daytime function. Each factor is graded on a scale of 0-3, with a total score of 21 points, and the scores higher than or equal to 8 will be classified as poor sleep quality.

2.3.2 Negative emotions

The Beck Depression Index (BDI) Scale [11] and the Beck Anxiety Index (BAI) Scale [12] scores of the two groups before and after intervention were recorded. BDI score: This scale is a self-assessment scale, used to assess the degree of depression of subjects. The score that is greater than or equal to 15 is regarded as the standard of being depression-positive. BAI score: This scale is a self-assessment scale, used to assess the degree of anxiety of the subjects. The standard scores were obtained by multiplying the total score by 1.19 to take an integer. The score that is greater than or equal to 45 is regarded as the standard of being anxiety-positive.

2.3.4 Quality of life

The scores of the cancer patients' quality of life measurement scale [EORTC-C30 (V3.0)] [13] before and after intervention were recorded. The scale consists of 15 fields with a total of 30 items, including 5 functional areas (role, cognition, physical, emotional, and social functions), 3 symptom areas (pain, fatigue, nausea and vomit) and 1 overall health area, each of which has a total score of 100 points. The higher the score in the functional and the overall health areas, the better the quality of life of the patient; while the higher the score in the symptom area, the worse the quality of life of the patient. The Hope Herth Index (HHI) [14] scores of both groups before and after the surgery were recorded. The scale is composed of 12 items in 3 dimensions, using a 4-level scoring method, with a total score of 12-48 points. The higher the score, the higher the patient's hope level.

2.3.5 Complication rate and nursing satisfaction

The occurrence of postoperative complications and nursing satisfaction after surgery in both groups were recorded. Complications include pain, gastrointestinal discomfort, subcutaneous emphysema, abdominal distension, pressure ulcers, venous thrombosis. The prevalence of complications was defined as the number of complications/total number of cases \times 100%. Satisfaction survey was carried out using a nursing satisfaction questionnaire designed by the department itself, including the psychological comfort of the patients, satisfaction with the services of nursing staff, and physical comfort. It is divided into three levels: satisfactory, relatively satisfactory, and unsatisfactory. Satisfaction with nursing care was defined as number of satisfactory cases + number of relatively satisfactory cases/total number of cases \times 100%.

2.4 Statistical analysis

SPSS 22.0 was used for data analysis, and the continuous data were expressed as mean \pm standard deviation ($\bar{x} \pm s$) using *t*-test for comparisons. Numerical data were expressed as

Table 1. Comparison of general information between the two groups before intervention

Group	n	Age	FIGO stage ($\bar{x} \pm s$)				Pathological type		
			Ia	Ib	IIa	IIB	Squamous cell carcinoma	Adeno-carcinoma	Adenos-quamous carcinoma
Control	52	65.7 \pm 4.1	20	14	11	7	27	16	9
Observation	52	66.7 \pm 4.5	19	15	10	8	29	13	10
t/x^2		1.185			0.174			0.434	
P		0.239			1.000			0.864	

Table 2. Comparison of sleep condition between the two groups before and after intervention ($\bar{x} \pm s$)

Group	Intervention time	Time to fall asleep (h)	Continuous sleep time (h)	Total sleep time (h)	Chalder fatigue score (point)	PSQI score (point)
Control (n = 52)	Before	1.04 \pm 0.34	1.89 \pm 0.35	6.33 \pm 1.03	10.38 \pm 2.12	11.96 \pm 3.35
	After	0.83 \pm 0.21*	2.53 \pm 0.31*	6.52 \pm 1.21	8.81 \pm 2.47*	10.06 \pm 1.95*
Observation (n = 52)	Before	1.17 \pm 0.37	1.86 \pm 0.50	6.48 \pm 0.75	9.98 \pm 2.03	13.00 \pm 4.32
	After	0.44 \pm 0.10**	3.36 \pm 0.44**	7.30 \pm 1.17**	7.08 \pm 2.57**	6.31 \pm 1.15**

Notes: * indicates comparison with the same group before intervention, * $P < 0.05$;

indicates comparison with the control group, # $P < 0.05$.

percentage, using χ^2 -test and Fisher's exact test for comparisons. A $P < 0.05$ is considered statistically significant.

3. Results

3.1 Comparison of general information between the two groups

The age range of the observation group was from 60 to 73 years, with an average age of 65.7 (\pm 4.1) years. The International Federation of Gynecology and Obstetrics (FIGO) stage for all the cases were listed as follows: 19 cases in stage IA, 15 cases in stage IB, 10 cases in stage IIA, and 8 cases in stage IIB; pathological classification: 29 cases of squamous cell carcinoma, 13 cases of adenocarcinoma, and 10 cases of adenosquamous carcinoma. The age of the control group was from 60 to 75 years, with an average age of 66.7 (\pm 4.5) years. The FIGO stage in this group were listed as follows: 20 cases in stage IA, 14 cases in stage IB, 11 cases in stage IIA, and 7 cases in stage IIB; pathological classification: 27 cases of squamous cell carcinoma, 16 cases of adenocarcinoma, and 9 cases of adenosquamous carcinoma. Basic information of the two groups of patients, such as age, were comparable with no statistically significant difference ($P > 0.05$, Table 1).

3.2 Comparison of sleep condition between the two groups before and after intervention

Before intervention, there was no statistically significant difference between the two groups in time to fall asleep, duration of continuous sleep, total sleep time, Chalder fatigue score, or PSQI score ($t = 1.866, 0.354, 0.849, 0.961, 1.372$, respectively, $P > 0.05$). After intervention, the time to fall asleep of the study group was shorter than that of the control group ($t = 12.091, P < 0.05$), the duration of continuous sleep and total sleep time were longer than that of the control group ($t = 11.120, 3.342, P < 0.05$), Chalder fatigue score and PSQI score were lower than control group ($t = 3.500, 11.945, P < 0.05$). The results are shown in Table 2.

Table 3. Comparison of the negative emotions between the two groups before and after intervention ($\bar{x} \pm s$)

Group	Intervention time	BDI score (point)	BAI score (point)
Control (n = 52)	Before	14.73 \pm 2.16	44.38 \pm 8.53
	After	14.29 \pm 2.15	44.00 \pm 6.96
Observation (n = 52)	Before	15.52 \pm 2.93	42.25 \pm 10.56
	After	9.73 \pm 2.35**	37.77 \pm 7.72**

Notes: * indicates comparison with the same group before intervention, * $P < 0.05$;

indicates comparison with the control group, # $P < 0.05$.

3.3 Comparison of negative emotions between the two groups before and after intervention

Before the intervention, there was no statistically significant difference in BDI or BAI score between the two groups ($t = 1.565, 1.131, P > 0.05$). After intervention, the BDI and BAI scores of the observation group were both lower than those of the control group ($t = 10.566, 4.322, P < 0.05$). The results were shown in Table 3.

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

Before the intervention, there was no statistically significant difference in the scores of functional area, symptom area, overall health area in the EORTC-C30 (V3.0) scale and the HHI scale between the two groups ($t = 0.476, 1.621, 0.844, 0.021, P > 0.05$). After the intervention, the EORTC-C30 (V3.0) score in the functional area and overall health area and the HHI score of the study group were higher than the control group ($t = 14.648, 9.657, 7.486, P < 0.05$), while the EORTC-C30 (V3.0) score in the symptom area was lower than the control group. The results were shown in Table 4.

3.5 Comparison of the incidence of postoperative complications between the two groups

The incidence of postoperative complications in the study group was significantly lower than that in the control group, ($\chi^2 = 4.833, P < 0.05$). The results were shown in Table 5.

Table 4. Comparison of the quality of life between the two groups before and after intervention ($\bar{x} \pm s$)

Group	Intervention time	EORTC-C30 (V3.0) score (point)			HHI score (point)
		Functional area	Symptom area	Overall health area	
Control (n = 52)	Before	45.52 ± 4.70	77.96 ± 6.52	49.13 ± 6.65	20.69 ± 4.34
	After	50.35 ± 10.04*	67.63 ± 8.96*	56.23 ± 9.46*	27.04 ± 4.99*
Observation (n = 52)	Before	45.02 ± 5.94	75.48 ± 8.90	50.17 ± 5.89	20.67 ± 5.47
	After	77.02 ± 8.46**	43.02 ± 7.72**	73.27 ± 8.51**	34.62 ± 5.33**

Notes: * indicates comparison with the same group before intervention, * $P < 0.05$;

indicates comparison with the control group, # $P < 0.05$.

Table 5. Comparison of the incidence of postoperative complications between the two groups [n (%)]

Group	n	Pain	nausea and vomit	Venous thrombosis	Pressure ulcers	Others	Total
Control	52	3	5	3	2	2	15 (28.85%)
Intervention	52	2	2	1	0	1	6 (11.54%)*

Note: *indicates comparison with the control group, * $P < 0.05$.

3.6 Comparison of nursing satisfaction between the two groups

The nursing satisfaction of the two groups was recorded. The results showed that in the control group there were 24 cases with satisfaction, 20 cases with relative satisfaction, 8 cases with dissatisfaction, and the nursing satisfaction rate was 84.61%; while, in the study group, there were 30 cases with satisfaction, 21 cases with relative satisfaction, 1 case with dissatisfaction, and the nursing satisfaction rate was 98.08%. The nursing satisfaction of the observation group was significantly higher than that of the control group ($P < 0.05$).

4. Discussion

Cervical cancer is one of the malignant tumors with a high incidence in Chinese women. According to the survey, from 1990 to 2017, the incidence of cervical cancer in Chinese adults kept rising among women aged 35 to 69 and those aged 95 and over, with an average annual increase rate of 0.4% to 1.5%. According to the sixth census data released by the Population Census Office of the State Council and the Population and Employment Division of the National Bureau of Statistics, China's population reached 1.333 billion in 2010, of which 104 million were in Guangdong province, accounting for 7.83% of the total population. According to the Statistics Bureau of Guangdong Province, by the end of 2013, there were 106.44 million people in the province, including 50,952,800 women. According to the related statistical analysis, in 2014, the cervical cancer detection rate was 21.60/100,000 in Guangdong province, and the female population of 60 to 79 years old in this province was about 5 million.

Total hysterectomy has been widely used in patients with cervical cancer and is an effective method for clinical cure of cervical cancer [15–17]. Elderly patients with cervical cancer have decreased tolerance, therefore perioperative care of these patients needs to be strengthened. With the change of the modern medical modes, individual's consciousness about health care has been continuously enhanced, and people have

higher expectations about the quality of nursing services [18, 19]. The whole-course standardized nursing is patient-oriented, and the nursing staff makes comprehensive judgments on the specific conditions of the patients, use their medical knowledge to find existing or potential nursing issues, and then take corresponding nursing measures to intervene, so as to effectively avoid nursing risks. Humanistic care is the sincere and humane care of patients that preserved their dignity and addresses their needs. Humanistic care not only requires the provision of basic care to the patients, but also needs to incorporate the spiritual and cultural characteristics of the patients in order to meet their physical and mental health requirements, fully reflecting the care for human life quality, physical and mental health.

Due to the large population, large number of patients and limited resources in China, nursing methods with uncertain effects have not been promoted and standardized in order to avoid waste of medical resources. Routine nursing methods in this study are in line with the care standards for cervical cancer. The standardized nursing and humanistic care use in this research will greatly increase the workload of the nursing staff, and utilize more resources. The effect of the intervention strategy on the sleep quality, quality of life and the influence of the complications for the elderly cervical cancer patients undergoing hysterectomy was not known. In this study, the elderly patients with cervical cancer admitted to our hospital were given whole-course standardized nursing intervention combined with humanistic care during the perioperative period, and good results were achieved. Whole-course standardized nursing strategy throughout the whole perioperative period focused on the observation and care of the patients' psychological status. On the basis of routine health education before surgery, the technique and advantages of surgical treatment were further introduced in detail, which strengthened the patients' understanding of the treatment plan. Due to the lack of necessary knowledge about the disease, cervical cancer patients often regard themselves as being sentenced to death. Therefore, it is difficult to avoid

negative psychological status, such as tension and fear. In addition to routine health education, patients were provided with the knowledge about supplementary indications, advantages and effects of surgical treatment, so as to improve patients' cognition of the disease and treatment methods and to some extent eliminate the negative psychological effect generated by patients' biased understanding of the disease. At the same time, the nursing staff introduced to the patients cases of treatment success and affirmed the professional level of the surgeons, which can provide patients with some psychological comfort. Accompanied by the nursing staff that is well-known to the patient, helps them get familiar with the operating room environment, can provide psychological support and comfort to the patients, and help them reduce their strangeness and discomfort. Cancer and surgery patients with surgical trauma will have poor appetite. Insufficient food intake and in the catabolic state for a long time is not good for their rehabilitation. In this study, the calories required after surgery was correctly calculated according to the patients' needs, and the personalized dietary plan was made by considering each individual's dietary habits. This can improve patients' appetite by providing their favorite foods. The proactively addressing possible postoperative complications can reduce the incidence of complications to a certain extent. All of the above in combination with humanistic care alleviated the patients' psychological stresses and improved their sleep quality. This study found that the intervention group fell asleep faster than the control group ($P < 0.05$), its continuous sleep time and total sleep time were longer than the control group ($P < 0.05$), and its PSQI and Chalder scores were lower than those of the control group ($P < 0.05$), which indicates that whole-course standardized nursing and humanistic care can significantly reduce the fatigue of the patients and improve their sleep quality. In addition, the Beck Depression/Anxiety Scales were used to evaluate the patients' negative emotions. The results showed that Beck Depression/Anxiety Scale scores of the intervention group were higher than those of the control group ($P < 0.05$), indicating that the whole-course standardized nursing and humanistic care can reduce the depression and anxiety levels of the patients. This is closely related to the role of humanistic care, which provides patients with necessary care and encouragement during the perioperative period. The humanistic care helps the patients understand the surgical procedure and precautions, and familiarize themselves with the operating room environment as soon as possible, and it also gives the patients psychological comfort and support, eliminates the patient's fear and strangeness, thereby reducing the patients' negative emotions.

The quality of life is a comprehensive measurement of the well-adapted status of mind, body, and socialization of an individual, and it is a positive, subjective, and multidimensional concept [20]. The quality of life and the level of hope are the keys to assess the patients' outcomes. The higher level of hope, the better the quality of life. The EORTC-C30 (V3.0)

Scale is a scale for measuring the quality of life of cancer patients by European research and treatment organizations [21]. The internal consistency reliability α value of each area and the correlation coefficients between each item and area are all above 0.5, and it can be used to assess the quality of life of Chinese cancer patients. The Hope Herth Index can well evaluate the hope level of cancer patients. The results from this study showed that the EORTC-C30 (V3.0) scores in the functional area and overall health area and HHI score of the observation group were higher than those of the control group ($P < 0.05$), while the EORTC-C30 (V3.0) score in the symptom area was lower than the control group ($P < 0.05$), indicating that the whole-course standardized nursing and humanistic care can improve the patients' level of hope and quality of life. At the same time, whole-course nursing will prevent patients' postoperative complications in advance, and provide standardized care to the complications that have occurred, to minimize the impact of complications on the patients to the largest extent. Our results showed that the incidence of complications in the study group was lower than that in the control group ($P < 0.05$), and the nursing satisfaction was higher than that in the control group ($P < 0.05$), suggesting that whole-course standardized nursing and humanistic care can reduce the incidence of complications, and the patients expressed higher satisfaction with the nursing service.

5. Conclusions

Overall, the effect of providing whole-course standardized nursing and humanistic care to elderly patients undergoing hysterectomy for cervical cancer during the perioperative period was significant, which could obviously improve the patients' sleep condition, negative emotions, their quality of life and level of hope. Moreover, the incidence of postoperative complications was low, and the patients had higher satisfaction with nursing service. These results indicate that the whole-course standardized nursing combined with humanistic care is worthy of clinical application.

Author contributions

YO and SL designed the study, supervised the data collection, analyzed the data, JZ interpreted the data and prepare the manuscript for publication, HY and YZ supervised the data collection, analyzed the data and reviewed the draft of the manuscript. All authors have read and approved the manuscript.

Ethics approval and consent to participate

This study has been approved by the ethics committee of Affiliated Foshan Maternity & Child Healthcare Hospital, Southern Medical University. Written informed consent was obtained from a legally authorized representative(s) for anonymized patient information to be published in this article.

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Conflict of interest

The authors state that there are no conflicts of interest to disclose.

Availability of data and materials

All data generated or analyzed during this study are included in this published article.

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