ORIGINAL RESEARCH

The Effect of Perioperative Comprehensive Nursing on Patients Undergoing Ovary Endometriosis Laparoscopic Surgery

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ABSTRACT

Objective • To assess the effectiveness of perioperative nursing interventions in improving outcomes and satisfaction for patients undergoing laparoscopic surgery for ovarian endometriosis.

Methods • From July 2021 to September 2022, 80 patients with endometriosis underwent laparoscopic surgery at Shijiazhuang Fourth Hospital and were randomly assigned to the conventional (n=40) and experimental (n=40) groups. During the perioperative period, patients in the conventional group received standard nursing interventions, while patients in the experimental group received comprehensive nursing interventions. The two groups were compared in terms of postoperative clinical indicators, self-rated anxiety scale (SAS) and self-rated depression scale (SDS) scores, nursing compliance, complications, and nursing satisfaction.

Results • comprehensive nursing resulted in better postoperative clinical indices (time to get out of bed, hospital stay) versus routine nursing (all $P < .001$). The comprehensive nursing led to significantly lower SAS and SDS scores versus routine nursing. The nursing compliance of the patients in the experimental group was significantly higher than that of the patients in the conventional group ($P < .001$). Comprehensive nursing was associated with a significantly lower incidence of complications versus routine nursing ($P < .001$). Comprehensive nursing contributed to significantly higher nursing satisfaction versus routine nursing ($P < .001$).

Conclusion • Comprehensive perioperative nursing interventions for patients with ovarian endometriosis undergoing laparoscopic surgery considerably accelerate patient recovery and enhance nursing compliance, as well as minimize patient negative emotions and improve patient satisfaction with nursing. The comprehensive approach addresses the specific needs of patients during the recovery period, minimizing postoperative complications, accelerating patient recovery, and improving overall quality of life. By integrating psychological support, tailored strategies for pain management, early mobilization, and prompt intervention for complications, this intervention sets a benchmark for holistic care in gynecological surgery. (*Altern Ther Health Med.* 2025;31(1):94-100).

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INTRODUCTION

The ovaries are essential organs in the female reproductive system, located in the pelvic cavity. They are oval-shaped and contain follicles, where female reproductive cells (oocytes) are produced. Each month, one follicle matures and releases an egg in a process called ovulation. Additionally, the ovaries produce female sex hormones (estrogen and progesterone), which play crucial roles in the menstrual cycle and reproductive function.[1] Endometriosis, a common gynecological condition associated with the ovaries, is defined as the presence of endometrial tissue outside the uterus.[1] This ectopic growth can cause symptoms such as pain, irregular menstruation, and infertility. Diagnosis of endometriosis typically involves surgical examination and tissue biopsy. Abnormal tissue growth is observed during surgery, and tissue samples are examined in the laboratory to confirm the presence of endometrial tissue outside the uterus.[2]

The etiology of patients with ovarian endometriosis is associated with blood reflux, blood walking, hormone dependence, immune mechanism, anatomical obstacles, and environmental toxicants.[3] Clinically, laparoscopic surgery is the mainstay for patients with ovarian endometriosis owing to its less trauma, quick recovery, and high safety.[4] Notwithstanding

the merits, it inevitably causes psychological fluctuations that are not conducive to recovery, thereby compromising the prognosis. Due to the potential complications of ovarian endometriosis and its impact on fertility, surgical interventions such as laparoscopic excision is often employed to alleviate symptoms and preserve ovarian function. As a crucial surgical intervention in gynecology, the surgical management of ovarian endometriosis offers significant benefits in alleviating symptoms and preserving fertility. However, surgical procedures for ovarian endometriosis may inadvertently cause damage to ovarian tissues and surrounding structures, necessitating meticulous nursing care to support postoperative recovery and minimize complications.[5]

Postoperative complications such as ovarian cyst recurrence, adhesion formation, pelvic pain, and infertility are common in patients with ovarian endometriosis. Comprehensive nursing intervention plays a vital role in mitigating these complications by providing tailored strategies to address patients' unique needs. Nurses offer education and support for effective pain management, promote early mobilization to reduce adhesion formation, and provide psychological support to address anxiety and depression. Close monitoring for signs of complications allows for prompt intervention and timely treatment. Overall, comprehensive nursing intervention aims to minimize postoperative complications, enhance patient recovery, and improve satisfaction following laparoscopic surgery for ovarian endometriosis.[5]

Currently, most postoperative care for women undergoing surgery for ovarian endometriosis consists of routine nursing interventions. While these measures establish a favorable postoperative environment, they may not fully address the specific needs of patients during the recovery period. Consequently, patient satisfaction with postoperative care is often suboptimal, which can impact the overall competitiveness of healthcare facilities. The integrated care model is to provide holistic care to patients from multiple domains such as psychology, diet, exercise, and complications. From the psychological dimension, patients' adverse emotions are eliminated and relieved, and psychological comfort is offered to patients in conjunction with their families to reduce the occurrence of adverse events and improve patients' mentality.[5] After that, according to the different conditions of the patients, the corresponding care was given, and the treatment effect was improved with the joint efforts of patients, families, and nurses. In the process of care, complications were prevented, and corresponding treatment measures were given for various complications to fundamentally reduce the incidence of complications and improve the quality of life of patients.

In this regard, the present study intended to investigate the efficacy of perioperative nursing in ovarian endometriosis after laparoscopic surgery.

MATERIALS AND METHODS

Patients

A total of 80 patients with ovarian endometriosis who underwent laparoscopic surgery in Shijiazhuang Fourth Hospital from July 2021 to September 2022 were recruited and randomized either to a conventional group (n=40) or an experimental group (n=40).

The randomization process was meticulously conducted using an online web-based randomization tool, which is freely accessible at http://www.randomizer.org/. This tool allowed for the allocation of participants to either the conventional or experimental group in a random and unbiased manner. To ensure transparency and minimize selection bias, the randomization procedure and assignment were overseen by an independent research assistant. Importantly, this research assistant was not involved in the screening or evaluation of the participants, thus reducing the risk of any potential bias in group assignment. By employing this rigorous randomization process, we aimed to achieve balanced and comparable groups, thereby enhancing the validity and reliability of our study results.

We estimated that with a sample size of 40 patients assigned to receive conventional nursing and 40 assigned to receive comprehensive care, the study would have more than 99% power to detect a between-group difference in the relevant indicators for this study. The trial was done in accordance with the standards of Good Clinical Practice and the Declaration of Helsinki. The trial protocol and all amendments were approved by the appropriate ethics. All patients provided written informed consent before enrolment. The trial protocol has been published online and is available with the full text of this article. This study has been approved by our hospital's Medical Ethics Committee, and all patients and their families signed informed consent.

Inclusion and exclusion criteria

Inclusion criteria: (1) patients were clinically diagnosed with ovarian endometriosis; (2) patients underwent laparoscopic surgery; (3) patients had no other systemic diseases; (4) The clinical data were true and complete; (5) patients aged ≥20 years old.

Exclusion criteria: (1) Patients with a history of poor compliance or inability to cooperate with medical interventions or research protocols. (2) Individuals diagnosed with psychiatric disorders or cognitive impairments that may impact their ability to adhere to study procedures or provide reliable data. (3) Patients who have previously withdrawn from medical studies or clinical trials prematurely. (4) Individuals diagnosed with severe infectious diseases, as their health condition may pose risks to themselves and others and could interfere with study participation or outcomes.

Methods

(1) Patients in the conventional group were given routine nursing intervention for laparoscopic surgery. It mainly includes health education, medication instruction, and notification of precautions.

(2) The patients in the experimental group were given comprehensive nursing intervention in the perioperative period, and the specifics were as follows.

Preoperative nursing: 1. The nursing staff was required to strengthen communication with patients, pay more attention to and encourage patients, and give patients psychological counseling in a targeted manner so that patients can maintain a good attitude to accept surgical treatment.[6] 2. Health education: The nursing staff was required to explain the relevant knowledge of ovarian endometriosis to patients in detail, and inform patients of the safety and efficacy of laparoscopic surgical treatment, thereby enhancing patients' self-confidence and compliance with treatment.[7] 3. Before surgery, routine inspections of mold and trichomonas vaginalis should be performed on patients, and patients should be monitored for mycoplasma and chlamydia, and surgery should be performed after confirming that the patient meets the indications for surgery when necessary. One day before the operation and on the day of the operation, the patient was instructed to wipe or rinse the vagina with an iodophor cotton ball every day, and a urinary catheter was placed in the patient before the operation.[8]

Intraoperative nursing: The nursing staff was required to help the patient adjust to a comfortable position, closely monitor the changes in the patient's vital signs during the operation, and give the patient assistance in a timely manner. Also, they were required to actively cooperate with the doctor during the operation, distribute the patient's medicine strictly according to the doctor's prescription, thoroughly clean the patient's abdominal cavity, and prevent postoperative infection. During operations such as indwelling catheters and trachea, the movements should be as gentle as possible, and aseptic operations should be strictly performed to reduce harm to patients.[9]

Postoperative care: 1. The staff was required to remove the foreign body in the oral cavity in time and prevent the vomit from being sucked by mistake and causing suffocation. 2. The urinary catheter should be unobstructed, the changes in the patient's urine volume, color, and nature should be regularly observed, and the patient urethral orifice care should be given to keep the perineum clean. The staff was required to help the patient turn over regularly to prevent the patient from developing pressure ulcers.[10] 3. The nursing staff was required to provide the patient with appropriate dietary health guidance and liquid food within 2 days after the operation. After the patient's condition was stabilized, the patient was instructed to eat more nutrient-rich food to ensure nutritional intake and to take more rest.[11] 4. The nursing staff was required to strengthen the respiratory care of patients and instruct patients to cough correctly so as to avoid aggravating pain due to coughing; it is important to instruct the patient to take a deep breath, divert the patient's attention, etc.

Blood sugar monitoring. The stress response of surgery and anesthesia will increase blood sugar and heart, thus increasing the risk of surgery. Therefore, it is very important to effectively monitor and control blood sugar levels and maintain a stable internal environment. Fasting and 2 h postprandial blood glucose were measured, with the preoperative fasting blood glucose dropped to 6.0 mmol/L indicating that surgery could be performed, with 3.9 mmol/L requiring intravenous drip of glucose liquid containing insulin (the ratio is 1 U of regular insulin for every 5 g of glucose) to maintain the blood glucose concentration at a normal or slightly higher level of normal. Due to preoperative fasting, patients with good blood sugar control are prone to hypoglycemia. The blood sugar was measured before the patient entered the operating room; for those with blood sugar ≤3.9 mm0l/L, an intravenous channel was established to slowly instill a 5% glucose injection.

Discharge guidance. The nursing staff was required to instruct patients to pay attention to matters after discharge, remind patients to follow up regularly, and visit a doctor for treatment once abnormal conditions occurred.[12]

Preoperative Counseling. Patients receive comprehensive preoperative counseling sessions conducted by trained healthcare professionals. These sessions aim to educate patients about the surgical procedure, potential risks, and expected outcomes. Addressing patients' concerns and providing accurate information helps alleviate anxiety and uncertainty about the surgery.

Relaxation Techniques. Patients are taught relaxation techniques such as deep breathing exercises, progressive muscle relaxation, and guided imagery. These techniques promote relaxation, reduce muscle tension, and induce a sense of calmness, thereby alleviating anxiety symptoms.

Emotional Support. Nurses provide empathetic and supportive care to address patients' emotional needs throughout the perioperative period. Building rapport, active listening, and validating patients' feelings create a therapeutic environment where patients feel understood and supported.

Observation indicators

(1) Postoperative clinical indicators. Postoperative clinical indicators were recorded by medical staff in our hospital, including the time of first getting out of bed and hospitalization time. (2) Self-rating anxiety scale (SAS) and self-rating depression scale (SDS).[13-14] The SAS was used to evaluate the degree of anxiety of patients, with a score ranging from 0 to 100 points and a cutoff value of 50 points, of which 50 to 59 was considered mild, 60-69 points was considered moderate anxiety, 69 points or more was considered severe anxiety. The SDS was used to evaluate the degree of depression of the patients, with a score of 0-100 and a cut-off value of 53 points, of which 53-62 was considered mild depression, 63-72 was considered moderate depression, and 73 points was considered severe depression. The Self-rating Anxiety Scale and Self-rating Depression Scale are commonly utilized assessment tools in psychological research, renowned for their reliability and validity across diverse patient populations. In the context of our study focusing on patients with ovarian endometriosis undergoing laparoscopic surgery, these scales offer a robust framework for evaluating anxiety and depression symptoms. Their comprehensive nature allows for a nuanced understanding of psychological distress, enabling healthcare providers to tailor interventions effectively. Moreover, previous research has established the sensitivity and specificity of SAS and SDS in capturing changes in anxiety and depression levels over time, further enhancing the credibility of our findings. Thus, the utilization of SAS and SDS in our study ensures the rigor and accuracy of psychological assessments,

facilitating a comprehensive evaluation of perioperative care outcomes. (3) Nursing compliance. Good: the patient cooperates with the treatment and daily care; modest: the patient partially cooperates with the treatment and daily care; poor: the patient does not cooperate with the treatment and daily care. (4) Complications. Postoperative complications may include wound infection, poor healing, bleeding, and ureteral injury. (5) Nursing satisfaction. The "Nursing Satisfaction Questionnaire" made by the hospital, including 20 questions in total, was used to assess satisfaction. The patients were scored according to their satisfaction with the nursing content of the hospital. Each question is worth 5 points; <70 points are dissatisfied, 70-89 points are satisfied, and ≥90 points are very satisfied.

Statistical analysis

Analyses were performed with IBM SPSS statistics v 24.0 and Stata v 16. The numerical variables are described as means, median, standard deviations, and ranges. Categorical variables are described as frequencies and between-group differences compared by chi-square tests. The normality of the continuous variables was checked with the Kolmogorov–Smirnov test. Between-group comparison of normally distributed variables was done by *t* tests; nonnormal distributed variables were compared by Mann–Whitney *U* test. Two-sided $P \leq .05$ were considered statistically significant. The GraphPad Prism v 8 was employed to plot graphics.

RESULTS

Baseline characteristics

The patients in the conventional group were 21-40 years old, with an average age of (29.72±4.36) years; the disease course was 2 months to 2 years, and the average disease course was (1.02±0.41) years; the patients in the experimental group were 22-39 years old, and the average age was (29.58±4.30) years old; the course of disease was 2 months to 2 years, with an average course of (1.06±0.42) years. In addition, we also reviewed the patient's medical and reproductive histories, and there was no significant difference between the two groups. The baseline data of the two groups of patients were balanced ($P > .05$), as shown in Table 1.

Table 1. Patient profile n(%)

	Conventional group (n=40)	Experimental group (n=40)	*t*	*P* value
Age (year)	$\bar{x} \pm s$	$\bar{x} \pm s$		
Mean age (year)	29.72±4.36	29.58±4.30	0.145	.885
Course of disease (year)	$\bar{x} \pm s$	$\bar{x} \pm s$		
Mean course (year)	1.02±0.41	1.06±0.42	-0.431	.668
Geographic distribution				.754
Urban	21	18		
Rural	19	22		
Education level				.614
Primary	6	2		
High school	16	19		
College	18	19		

Table 2. Comparison of postoperative clinical indicators ($\bar{x} \pm s$)

	n	First Time To Get Out Of Bed (h)	Hospital Stay (d)
Conventional Group	40	25.36±8.72	8.12±3.28
Experimental Group	40	18.61±6.20	6.35±2.97
t	-	3.99	3.959
P value	-	<.001	<.001

Table 3. SAS and SDS score ($\bar{x} \pm s$)

Groups	n	SAS(point)		SDS(point)	
		Before treatment	After treatment	Before treatment	After treatment
Conventional group	40	68.72±2.36	58.14±2.44	65.39±3.18	53.94±5.78
Experimental group	40	68.58±2.29	48.47±2.68	65.51±3.20	47.55±5.42
t	-	0.269	16.874	-0.168	5.1
P value	-	.789	<.001	.867	<.001

Table 4. Nursing compliance comparison n (%)

Groups	n	Good	Modest	Poor
Conventional group	40	11(27.5%)	17(42.5%)	12(30%)
Experimental group	40	33(82.5%)	6(15%)	1(2.5%)
t	-	24.444	7.384	11.114
P value	-	<.001	.007	.001

Table 5. Comparison of the incidence of complications n(%)

Groups	n	Poor Healing	Bleeding	Total Incidence
Conventional Group	40	2	5	12(30%)
Experimental Group	40	0	1	1(2.5%)
χ^2	-	-	-	11.114
P value	-	-	-	.001

Table 6. Comparison of nursing satisfaction (%)

Groups	n	Very satisfied	Satisfied	Dissatisfied	Total satisfaction
Conventional group	40	8	21	11	29(72.5%)
Experimental group	40	34	6	0	40(100%)
t	-	-	-	-	12.745
P value	-	-	-	-	<.001

Comparison of postoperative clinical indicators

Comprehensive nursing resulted in better postoperative clinical indicators (time to get out of bed, hospitalization time) versus routine nursing ($P < .05$), as shown in Table 2.

SAS and SDS scores

Comprehensive nursing led to significantly lower SAS and SDS scores versus routine nursing ($P < .05$, Table 3). Comprehensive care is distinguished from conventional care by focusing on the emotional aspects to boost confidence and facilitate the recovery of the organism.

Comparison of nursing compliance

Patients in the experimental group had considerably higher nurse compliance than patients in the control group ($P < .05$, Table 4).

Comparison of the incidence of complications

Comprehensive nursing was associated with a significantly lower incidence of complications versus routine nursing ($P < .05$, Table 5). Comprehensive care greatly shortened the time spent in bed and recovery time due to the multi-faceted approaches and therefore minimized the incidence of complications.

Comparison of nursing satisfaction

Comprehensive nursing contributed to significantly higher nursing satisfaction versus routine nursing ($P < .05$, Table 6).

DISCUSSION

In recent years, with the progress of material living standards, people's health requirements have increased, further

stimulating the understanding of health knowledge related to common clinical diseases. Ovarian endometriosis is a highly prevalent and harmful complication of pregnancy, which seriously affects maternal mood.[13] Related studies have pointed out that women with ovarian endometriosis and older women are significantly more likely to experience negative emotions than healthy women. The presence of negative emotions not only affects the mental health of women with ovarian endometriosis but also has a negative impact on their physical health.[14] Additionally, severe negative emotions not only cause psychological stress in women with ovarian endometriosis but also increase the incidence of postoperative complications.[15]

Ovarian endometriosis occurs in women of reproductive age, with the main clinical manifestations being dysmenorrhea, painful intercourse, and abnormal menstruation, and even infertility. The main causative factors of ovarian endometriosis include defective immune defense, endometrial implantation, genetic, and endocrine dysfunction.[16] In addition to causing a great impact on the normal life of the patient, it also leads to infertility due to the great psychological stress that the patient suffers.[17] Although laparoscopic surgery is effective and common in the treatment of ovarian endometriosis, it is associated with negative emotions such as tension, anxiety and fear. These negative emotions affect the outcome of treatment, so there is an urgent need for appropriate nursing interventions.[18] Comprehensive nursing interventions significantly impact patient compliance through a multifaceted approach addressing various factors such as patient education, psychological support, and personalized care planning. By offering detailed explanations about the treatment process, potential outcomes, and self-care strategies, nurses empower patients to actively participate in their recovery journey. Additionally, fostering a supportive and empathetic environment helps alleviate patient anxiety and encourages open communication, leading to enhanced cooperation and adherence to treatment regimens. Moreover, individualized care plans tailored to each patient's unique needs and preferences promote a sense of ownership and accountability, resulting in improved treatment adherence and overall patient satisfaction with the nursing care provided.[19,20]

Perioperative nursing intervention is mainly aimed at preoperative, intraoperative and postoperative nursing intervention methods, which can effectively improve psychological state, improve the treatment effect by implementing adequate preoperative preparation, psychological care, intraoperative cooperation, and postoperative guidance.[20] Li et al. stated that timely and effective psychological counseling for patients with ovarian endometriosis can help patients alleviate their internal negative emotions such as anxiety and depression, thus significantly improving their treatment motivation and compliance,[19] which is consistent with the findings in the present study. In this study, comprehensive care was associated with better postoperative clinical indicators (time to get out of bed, hospital stay), lower SAS and SDS scores, and higher patient compliance. These might be attributed to the fact that the comprehensive nursing intervention provides targeted psychological guidance to patients according to their psychological status; the medication guidance boosts patients' awareness of the hazards of increasing or decreasing the amount of medication and discontinuing without permission, and improves their self-awareness of medication use, thus improving their compliance with treatment. In addition, comprehensive care was associated with a significantly lower rate of complications compared with conventional care and contributed to a significant increase in nursing satisfaction versus conventional care. This suggests that comprehensive perioperative nursing interventions for patients with ovarian endometriosis undergoing laparoscopic surgery are effective in improving recovery, nursing compliance, and nursing satisfaction, and reducing patient anxiety, depression, and complications. Possible explanations are the following. (1) Comprehensive perioperative nursing interventions involve cooperation with the surgeon during surgery, which will be gentler to the patient, reduce physical harm to the patient, and improve the recovery rate of the patient.[20] (2) Comprehensive perioperative nursing interventions alleviate patients' negative emotions such as anxiety and depression by implementing a series of psychological interventions.[21] (3) Comprehensive perioperative nursing interventions integrate high-quality resources in the field of ectopic disorders to provide professional nursing services, including assessment, planning, implementation, evaluation, and feedback, to meet the complex psychological and physical needs of patients from the perspectives of direct care, health education, and psychological support, to directly address the problems and discomforts encountered by patients, and to provide assistance to patients from multiple domains and dimensions, thereby improving patient care compliance.[22] (4) Comprehensive perioperative nursing interventions enhance patients' therapeutic self-confidence, thus promoting the recovery of their physical functions, and also pay close attention to the patient's indicators related to complications, ensuring that possible problems are addressed in a timely manner, further reducing the incidence of postoperative complications.[23] (5) The comprehensive perioperative nursing intervention was unanimously approved by the patients and their families. In support of this interpretation, the higher nursing satisfaction in the experimental group of the study further solidified the feasibility of comprehensive perioperative nursing interventions.[24] To our knowledge, an effective nursing approach is essential for facilitating the recovery and treatment of patients with ovarian endometriosis. Routine care may not adequately address the individual characteristics of the patient's condition, leading to uncertainties regarding the quality of care.[25]

Endometriosis is a gynecologic disease that is prone to women and seriously affects the daily life and health of the patient. In order to improve the prognosis, ancillary care measures are required along with treatment. As the level of medical care continues to improve, the demand for clinical care for this disease is gradually increasing, and conventional care is no longer sufficient to meet the needs of patients.[24,25] In this study, we differentiated from the conventional routine nursing care and adopted comprehensive nursing care by

considering patients' difficulties from multiple aspects including preoperative, intraoperative and postoperative. Comprehensive nursing care improves patients' disease awareness, eliminates unfamiliarity with the disease, improves self-confidence and actively cooperates with clinical treatment through preoperative health education; intraoperative selection of appropriate positions, psychological guidance, and good warmth provide the basis for improving postoperative recovery; postoperative pain care reduces patients' pain, standardizes work and rest time, and designs diet plans to promote patients' recovery and improve nursing satisfaction. This study provides new ideas for the future care of women with endometriosis change.

In addition to short-term effects, it would be valuable to investigate any observed long-term effects of comprehensive nursing interventions on patient outcomes. Long-term effects may include sustained improvements in clinical indicators, continued adherence to treatment plans, and overall enhancement in quality of life. Tracking patients over an extended period following the intervention could provide insights into the durability of the intervention's benefits and its impact on long-term health outcomes. Additionally, assessing patient outcomes beyond the immediate postoperative period could reveal potential trends or patterns that may not be apparent in short-term assessments. By examining both short-term and long-term effects, researchers can gain a comprehensive understanding of the impact of comprehensive nursing interventions on patient care and recovery.

The study design should have addressed potential confounders such as concomitant medications or comorbidities to ensure the accuracy and reliability of the outcomes. One approach to account for these factors is through thorough patient screening and data collection processes. Prior to enrollment, patients' medical histories, including past and current medications and existing comorbidities, should have been meticulously documented. During the study period, any changes in medication regimens or newly diagnosed comorbid conditions should have been recorded and accounted for in the analysis. Additionally, statistical methods such as multivariate regression analysis or propensity score matching could have been employed to control for the influence of these confounding variables on the study outcomes. By accounting for potential confounders in the study design and analysis, the researchers could ensure that the observed effects of the nursing interventions were attributable to the interventions themselves rather than extraneous factors.

However, there are still some limitations. 1) The sample size collected in this experiment was small; 2) The indices assessed in present study were comparatively subjective, and there exists huge perception differences between individuals due to levels of education and the understanding of the questions in the scale. 3) The short follow-up period did not allow for an unbiased observation of long-term outcomes.

Comprehensive perioperative care is conducive to the smooth development of surgical treatment, reduce patients' inner anxiety, nervousness, fear and other adverse emotions, prevent and control patients' postoperative adverse reactions, and improve the prognosis. It merits clinical promotion and application.

The findings of our study underscore the crucial role of comprehensive nursing interventions in optimizing the care of patients undergoing laparoscopic surgery for ovarian endometriosis. Healthcare professionals can leverage these results to enhance clinical practice by adopting a holistic approach to patient care. This approach should encompass not only physical aspects but also psychological support, patient education, interdisciplinary collaboration, and continuous quality improvement initiatives. By integrating these strategies into practice, healthcare teams can effectively address the multifaceted needs of patients, thereby improving perioperative outcomes, enhancing patient satisfaction, and ultimately advancing the quality of care in the management of ovarian endometriosis.

In conclusion, our study demonstrated that comprehensive perioperative nursing interventions significantly improved postoperative outcomes for patients with ovarian endometriosis undergoing laparoscopic surgery. These interventions led to shorter recovery times, reduced anxiety and depression levels, higher nursing compliance, lower incidence of complications, and increased nursing satisfaction compared to routine nursing care.

These findings underscore the importance of implementing comprehensive nursing interventions in clinical practice to enhance patient recovery and satisfaction following laparoscopic surgery for ovarian endometriosis. Moving forward, future research could explore the long-term effects of these interventions and further refine their implementation to optimize patient outcomes.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interests, we do not have any possible conflicts of interest

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AUTHORS' CONTRIBUTIONS

Conceived and designed the analysis: Lifei Dong, Wei Liu. Collected the data: Li-yuan Shi, Jiaojiao Du, Wei Liu. Contributed data or analysis tools:Hua-ping He, Xiao-han Liu, Jiaojiao Du. Performed the analysis: Jiaojiao Du, Wei Liu., Wrote the paper: Lifei Dong, Wei Liu. All authors equally contributed to this manuscript.

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ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The trial was done in accordance with standards of Good Clinical Practice and the Declaration of Helsinki. The trial protocol and all amendments were approved by the appropriate ethics. All patients provided written informed consent before enrolment. The trial protocol has been published online and is available with the full text of this article. This study has been approved by the Medical Ethics Committee of our hospital, and all patients and their families signed informed consent.

AVAILABILITY OF DATA AND MATERIALS

The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

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