

Effect of Targeted High-Quality Operating Room Nursing on Psychological Status and Pain in Patients Undergoing Laparoscopic Cholecystectomy

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Abstract: *Objective:* To investigate the effect of targeted high-quality operating room nursing intervention on psychological status and pain in patients undergoing laparoscopic cholecystectomy. *Methods:* A total of 86 patients undergoing laparoscopic cholecystectomy were enrolled from March 2024 to March 2025. They were divided into two groups by a double-blind method: the observation group received targeted high-quality operating room nursing, while the reference group received routine nursing. The overall intervention effects were analyzed. *Results:* There were statistically significant differences between the two groups in anxiety and depression scores ($P < 0.05$); in restlessness and VAS scores ($P < 0.05$); in surgical and rehabilitation indicators ($P < 0.05$); and in complications and satisfaction rate ($P < 0.05$). *Conclusion:* In the nursing care of patients undergoing laparoscopic cholecystectomy, the nursing method used in this study has practical application value. It can effectively improve psychological status, relieve postoperative pain, reduce complications, and enhance overall patient satisfaction.

Keywords: Targeted nursing; Operating room nursing; Laparoscopy; Cholecystectomy; Pain degree

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1. Introduction

The incidence of gallstones remains high, with biliary colic as the main symptom, often manifesting as acute or chronic cholecystitis, which affects patients' physical and mental health. Scholars have found that the incidence of gallstones accounts for more than 10% of gallbladder diseases. In recent years, the onset age has tended to be younger, while the incidence remains elevated, and surgical treatment is commonly adopted clinically. The pathogenesis of this disease is complex, and disease progression can lead to adhesion and atrophy of tissues surrounding the gallbladder, making treatment rather challenging^[1]. Laparoscopic cholecystectomy is widely applicable for gallstones, chronic cholecystitis and other related conditions, and also possesses diagnostic value. It achieves therapeutic effects by resecting part of the gallbladder. With the advancement of laparoscopic technology in recent years, this procedure has gained increasing clinical attention. However, patients inevitably experience physiological and psychological responses during surgery, which may interfere with the surgical process and affect prognosis. The success of surgery depends not only on surgeons' professional skills and experience but also on perioperative cooperation from nursing staff, which is one of the key influencing factors^[2]. In traditional nursing

care, interventions lack specificity and purposefulness, resulting in unsatisfactory comprehensive outcomes. Targeted high-quality operating room nursing advocates formulating nursing plans based on disease diagnosis and surgical conditions, providing patients with whole-course care, delaying disease progression, and achieving favorable prognosis [3]. Operating room nursing aims to design individualized schemes according to patients' conditions, enabling nurses to cooperate closely with surgeons, give play to their initiative, shorten operation time, reduce blood loss, and improve surgical safety. This nursing model adheres to the people-oriented principle, requiring nurses to integrate past experience and diagnostic findings, so as to reflect the scientificity, systematicness and integrity of nursing practice.

2. Materials and methods

2.1. General data

A total of 86 patients undergoing laparoscopic cholecystectomy were enrolled from March 2024 to March 2025. They were divided into two groups by double-blind method, with 43 cases in each group. **Inclusion criteria:** (1) Meeting the diagnostic criteria for gallstones; no surgical contraindications; good compliance. **Exclusion criteria:** (1) Pregnant and lactating women; (2) Patients with impaired organ function; (3) Patients with mental disorders; (4) Patients with immune system diseases. There was no statistically significant difference in the above data between the two groups ($P > 0.05$). See **Table 1** for details.

Table 1. Comparison of general data between the two groups [n, mean \pm SD]

Group	Total patients	Patients		Age (years old)	Average age (years old)	Average diameter of stones (cm)
		Male	Female			
Reference group	43	23	20	25–68	46.28 \pm 2.30	(2.31 \pm 0.42)cm
Observation group	43	24	19	24–71	46.55 \pm 2.81	(2.08 \pm 0.33)cm

2.2. Methods

The reference group received routine nursing care. Vital signs were monitored, patients were assisted with preoperative examinations, psychological counseling and health education were provided, and postoperative precautions as well as possible complications were explained.

The observation group received targeted high-quality operating room nursing.

- (1) Preoperative visit: Visit patients preoperatively to clarify disease progression and guide them in position training; assist patients with preoperative examinations and prepare medications, instruments and other supplies required for surgery in advance. Communicate and interact with patients proactively, understand their actual needs, listen to their statements, answer questions in a timely manner, and provide encouragement and support to alleviate negative emotions. Meanwhile, help patients fully understand the importance and necessity of the operation. In addition, nurses should be proficient in surgical procedures, emergency response methods, and precautions to boost patients' confidence. On the night before surgery, patients should be instructed to follow a light and easily digestible diet, avoiding strong irritants and greasy foods [4]. Enemas should be administered before sleep to keep the intestines clean for postoperative flatus.
- (2) Intraoperative nursing: Adjust the temperature and humidity of the operating room in advance. Explain the operating room environment patiently, based on the patient's actual condition. Fix the patient's limbs before anesthesia, explain possible sensations during the procedure, help the patient assume an appropriate position to improve comfort, and fix the lower extremities. Monitor vital signs during the operation; nurses should deliver surgical instruments and supplies promptly, inform doctors of any abnormalities immediately and assist in management to ensure orderly progress of the surgery. Offer encouragement to patients intraoperatively to enhance their confidence and stabilize their emotions.

- (3) Postoperative nursing: Gently call the patient when they are still unconscious after anesthesia to accelerate recovery of consciousness. Clean residual blood stains with warm saline and provide warming care. If no complications occur, transfer the patient to the ward, hand over all procedures and matters with other nursing staff, inform family members of the surgical situation, and explain possible postoperative adverse reactions and precautions. Provide a liquid diet to promote the recovery of gastrointestinal function. For symptoms such as subcutaneous emphysema and back pain, inform patients that these conditions will resolve gradually without special intervention to relieve their worries and anxiety. Use encouragement and comfort to improve patient compliance, enabling them to cooperate with nursing work, alleviate pain and shorten the recovery period^[5]. Conduct timely follow-up visits, inquire about the patient's feelings, check their mental state and whether the incision is infected, and provide hygiene guidance to reduce accidents. In addition, early functional rehabilitation training can be carried out to enhance physical fitness and accelerate recovery.

2.3. Observation indicators

- (1) The Self-Rating Anxiety Scale (SAS) was used to assess the degree of anxiety, and the Self-Rating Depression Scale (SDS) was used to assess the degree of depression, with scores ranging from 0 to 100.
- (2) Agitation: Postoperative agitation was evaluated using the Riker Sedation-Agitation Scale, with scores ranging from 1 to 7; a higher score indicated more severe agitation.
- (3) Pain intensity was assessed using the Visual Analogue Scale (VAS), with scores ranging from 0 to 10.
- (4) Surgical and rehabilitation indicators of the two groups were observed, including operation time, intraoperative blood loss, time to first flatus, and length of hospital stay; the incidence of complications was recorded.
- (5) A self-designed satisfaction questionnaire was used to evaluate and record patient satisfaction.

2.4. Statistical analysis

Data analysis was performed using SPSS 25.0 software. Enumeration data were expressed as n(%) and measurement data as mean \pm standard deviation (SD). Intergroup comparisons were conducted using the χ^2 test and t-test. A value of $P < 0.05$ was considered statistically significant.

3. Results

3.1. Comparison of psychological status between the two groups

After intervention, the anxiety and depression scores in the observation group were lower than those in the reference group, with statistically significant differences ($P < 0.05$). See **Table 2** for details.

Table 2. Comparison of psychological status between the two groups [n (mean \pm SD)]

Group	Number of cases	Anxiety		Depression	
		Before nursing	After nursing	Before nursing	After nursing
Reference group	43	65.34 \pm 8.42	55.77 \pm 7.69	63.25 \pm 5.48	53.56 \pm 7.28
Observation group	43	66.38 \pm 8.07	36.12 \pm 6.87	63.67 \pm 8.55	33.64 \pm 6.19
<i>t</i>		0.584	12.495	0.271	13.669
<i>P</i>		0.560	0.000	0.786	0.000

2.2. Comparison of agitation and pain between the two groups

The Riker Sedation-Agitation Scale score and VAS score in the reference group were higher than those in the observation group ($P < 0.05$). See **Table 3** for details.

Table 3. Comparison of agitation and pain between the two groups [n (mean ± SD)]

Group	Number of cases	Riker Sedation-Agitation Scale	VAS score
Reference group	43	3.89 ± 2.30	5.25 ± 1.43
Observation group	43	2.45 ± 2.01	3.62 ± 1.25
<i>t</i>		3.091	5.627
<i>P</i>		0.002	0.000

2.3. Analysis of surgical and rehabilitation indicators between the two groups

The results showed that the surgical indicators in the observation group were lower and the length of hospital stay was shorter than those in the reference group, with statistically significant differences ($P < 0.05$). See **Table 4** for details.

Table 4. Analysis of surgical and rehabilitation indicators between the two groups [n (mean ± SD)]

Group	Number of cases	Surgery time (min)	Intraoperative blood loss (mL)	The first exhaust time (h)	Hospitalization time (d)
Reference group	43	55.27 ± 11.70	43.30 ± 7.18	19.03 ± 3.33	7.51 ± 1.72
Observation group	43	46.45 ± 12.61	34.40 ± 8.55	15.81 ± 3.84	5.30 ± 1.40
<i>t</i>		3.362	5.227	4.154	6.534
<i>P</i>		0.001	0.000	0.000	0.000

2.4. Comparison of complications between the two groups

The incidence of complications was 25.58% in the reference group and 6.98% in the observation group ($P < 0.05$). See **Table 5** for details.

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

Group	Number of cases	Incision infection	Biliary fistula	Intra-abdominal hemorrhage	Obstructive jaundice
Reference group	43	4	3	4	25.58
Observation group	43	1	1	1	6.98
χ^2					5.460
<i>P</i>					0.019

2.5. Comparison of nursing satisfaction between the two groups

The overall satisfaction rate in the reference group was significantly lower than that in the observation group ($P < 0.05$). See **Table 6** for details.

Table 6. Comparison of satisfaction between the two groups [n(%)]

Group	Number of cases	Very satisfied	Fairly satisfied	Not satisfied	Satisfaction rate
Reference group	43	15	16	12	72.09
Observation group	43	23	17	3	93.02
χ^2					6.540
<i>P</i>					0.000

3. Discussion

Gallbladder diseases are common clinical disorders characterized by complex pathogenesis and rapid disease progression, which can affect patients' physical and mental health. Although open cholecystectomy can achieve obvious therapeutic effects, it is associated with numerous complications and slow recovery, leading to negative emotions and psychological disorders, prolonged rehabilitation time and poor prognosis^[6]. In recent years, minimally invasive techniques have attracted increasing attention, especially laparoscopy, which has been widely applied in clinical practice. Laparoscopic cholecystectomy offers advantages such as rapid recovery of visceral function, minimal trauma and a broad surgical view. Medical staff have gradually emphasized the application of this technique, making it one of the preferred methods for the treatment of gallbladder diseases^[7]. Some patients have a limited educational background and insufficient cognition, and may develop negative emotions in unfamiliar environments, which increases the difficulty of surgery^[8]. Although traditional nursing has certain advantages and obvious effects, it lacks systematicness and scientificity, limiting its clinical application. Therefore, it is necessary to explore other nursing strategies on this basis^[9]. Some surgical experts have pointed out that providing nursing intervention throughout the perioperative period can achieve remarkable outcomes, promote postoperative recovery and improve prognosis^[10].

Targeted high-quality operating room nursing advocates formulating nursing plans according to patients' conditions, actual needs and surgical situations, to reduce intraoperative stress, promote orderly implementation of various procedures, and minimize postoperative complications as much as possible^[11]. This study found that the surgical and rehabilitation indicators in the observation group were superior to those in the reference group, confirming that operating room nursing can shorten operation time, accelerate recovery, minimize the risk of complications, and thereby achieve improved prognosis. Under the background of the rapid development of medical technology, the safety of operating room nursing has attracted increasing attention, and how to ensure the safety of nursing work and improve therapeutic efficiency has gradually gained wide focus^[12]. In operating room nursing, developing care plans based on pathological conditions and surgical approaches enhances targeting. Interventions are carried out with patients as the core; patients are encouraged to express their feelings according to their physical and mental status, and proactive care is provided to improve comfort and satisfaction. Preoperative emotional counseling relieves tension and promotes cooperation with procedures; intraoperative position guidance and coordination with surgical operations help shorten operation time and alleviate patients' pain to the greatest extent. Postoperative monitoring of vital signs reduces complications, relieves pain, and improves surgical safety, thus lowering the incidence of complications, adverse reactions and accidents^[13]. The results of this study showed that there were significant differences in anxiety and depression scores between the two groups ($P < 0.05$); the Riker Sedation-Agitation Scale score and VAS score in the reference group were higher than those in the observation group ($P < 0.05$); differences in surgical and rehabilitation indicators between the two groups were statistically significant ($P < 0.05$); and comparisons of complications and satisfaction between the two groups also showed statistical significance ($P < 0.05$). This indicates that the nursing approach adopted in this study is valuable in the care of patients undergoing laparoscopic cholecystectomy. It can improve psychological status, relieve pain, reduce complications, and enhance overall patient satisfaction.

4. Conclusion

To sum up, compared with conventional nursing, targeted high-quality operating room nursing demonstrates greater value. It can achieve the goals of relieving pain, improving clinical indicators, shortening hospital stay, reducing complications and achieving a favorable prognosis, as well as enhancing nursing satisfaction. As a scientific and efficient nursing model, it is worthy of promotion and application in clinical operating room nursing.

Disclosure statement

The author declares no conflict of interest.

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