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Original Article

Evidence-based nursing in the operating room of obstetrics and gynecology departments alleviates patients' adverse moods and improves their quality of life

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Abstract: Objective: Operating room nursing is conducive to the smooth operation and the improvement of surgical outcomes. Clinically, evidence-based nursing (EBN) has gradually replaced routine nursing as it is tailored to meet the nursing needs of patients. This study mainly explored the effects of EBN in the operating room of the Obstetrics and Gynecology (O&G) Department on the relief of patients' adverse moods and improvement of their quality of life (QoL). Methods: This study enrolled 174 patients, including 88 patients who received routine nursing (control group) and 86 patients treated with EBN (observation group) in the operating room of the O&G Department of our hospital. Patients were assessed for psychological status, pain, nursing satisfaction, and QoL. Results: Compared with the control group, patients in the observation group showed significantly improved blood pressure and heart rate after care, as well as obviously decreased Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS) scores. In addition, the postoperative pain in the observation group was significantly reduced compared with the control group. The nursing satisfaction was significantly higher in the observation group, as indicated by the nursing satisfaction survey. Also of note, the QoL of patients was significantly better in the observation group than that in the control group. Conclusions: While relieving patients' adverse emotions and pain, the application of EBN in the operation room of the O&G Department can improve the satisfaction of patients towards nursing and bolster their QoL.

Keywords: Evidence-based nursing, obstetrics and gynecology, adverse mood, pain degree, quality of life

Introduction

Obstetrics and Gynecology (O&G) is one of the ten major disciplines of clinical medicine and an important department in medical institutions. Surgery plays a very important role in the clinical treatment of obstetrical and gynecological diseases [1]. O&G surgery, literally, is divided into gynecological surgery and obstetric surgery, mainly serving female patients [2]. As a vital means to treat patients and save lives, surgery plays a significant or even decisive role in determining the treatment effect, but it will also cause some harm to patients [3]. Due to the traumatic procedures, most patients will experience fear and anxiety, resulting in physical and psychological pressure in patients before and after surgery, which increases the surgical risk and the chance of postoperative complications to a great extent [4, 5]. Therefore, effectively alleviating patients' adverse moods, reducing their physical pain and psychological burden, and improving the quality of nursing services are important issues to be solved by medical staff.

Routine nursing focuses on basic work while paying insufficient attention to the psychological needs of patients. Physical pain can be relieved by drug intervention, while psychological stress needs to be addresssed by humanistic care of medical staff [6]. With the continuous improvement of medical service level and people's increasing awareness of health, the

nursing service model has been continuously innovated [7]. Compared with routine nursing, evidence-based nursing (EBN) provides practical and effective nursing programs for surgical nursing process by following evidence to help patients relieve pain and build up confidence, so as to facilitate the early recovery of patients [8]. EBN is a nursing concept influenced by evidence-based medicine. Its core idea is to apply the current best evidence clearly, prudently and wisely, and to make individualized decisions a patients' medical care combined with the patient's willingness [9]. Previous studies have analyzed the composition of biofilm and its role in catheter-related infection determinism from the perspective of EBN, and found that it can minimize the risk of infection in patients [10]. In addition, as reported by Wang X et al. [11], EBN can positively mitigate the negative emotions of breast cancer patients after radiotherapy, and help to reduce the degree of lymph node edema on the affected side of the upper limb, thus improving shoulder joint function and facilitating the recovery of upper limb function. However, there are currently few studies on its application in the operating room of the O&G Department.

Accordingly, EBN was used in the care of patients undergoing surgical treatment in the O&G Department, aiming to determine the effect of this nursing model in such a patient population.

Materials and methods

General data

The Ethical Committee of the West China Second University Hospital, Sichuan University approved this study without reserves, and all the enrolled patients provided informed consent. A retrospective analysis was performed on 174 patients who received surgical treatment in the O&G Department of the West China Second University Hospital from March 2018 to June 2019. The included patients were divided into a control group (n=88) and an observation group (n=86). Inclusion criteria: Patients who were clinically diagnosed with ectopic pregnancy, uterine fibroids, cesarean section, or ovarian cyst; Patients who were mentally normal and willing to cooperate with the treatment; Patients with normal electrocardiogram (ECG), body temperature, urine tests, and coagulation function as indicated by routine gynecological examination at admission. Exclusion criteria: Patients with respiratory diseases, urinary system diseases or endocrine system diseases were excluded.

Nursing methods

Patients in the control group received routine nursing measures. Specifically, the medical staff became familiar with the patient's basic information such as name, gender, age, bed number, name of operation, operation site, operation method, as well as the results of infectious disease examination and skin test. On the day of surgery, the medical staff accompanied the patient into the operating room, and the doctor in charge and the surgeon checked the patient's information to ensure that the operation was carried out correctly. After surgery, the medical staff returned the patient to the ward, and closely monitored the patient's postoperative symptoms in accordance with the previously formulated nursing plan to facilitate the recovery of the patient.

Patients in the observation group received EBN intervention on the basis of routine nursing. Relevant nursing staff were trained in EBN knowledge and skills. Besides, the nursing staff was organized to discuss the patient's previous symptoms and evaluated the patient's basic condition to find potential nursing problems and seek the best nursing plan. The nursing staff communicated with all the patients and their families before surgery. By reviewing the previous medical records, it was found that negative emotions and postoperative complications, with some certain connection between the two, were the main problems affecting patients in the operating room. Therefore, the medical staff became familiar with the patient's personal background and traits of character preoperatively, and drew closer to the patient through natural and easygoing conversation instead of reproachful words during ward rounds, so as to help the patient relieve their psychological burden. Through patient and friendly communication, the trust between nursing staff and patients was established to eliminate the preoperative anxiety of patients, so that patients can receive surgical treatment in the best condition. After entering the operating room, the nurse briefly introduced the surgical procedure and various instruments and equipment that would be used in the surgery. When communicating with the patient, nurses took

Table 1. General information

Clinical data	Control group (n=88)	Observation group (n=86)	t/χ^2 value	*P*-value
Age (years)	43.56±3.70	43.90±4.41	0.549	0.584
Type of disease			0.228	0.973
Ectopic pregnancy	7 (7.95)	6 (6.98)		
Uterine fibroids	26 (29.55)	25 (29.07)		
Cesarean section	22 (25.00)	20 (23.26)		
Ovarian cyst	33 (37.50)	35 (40.70)		
History of drinking			0.263	0.608
Yes	8 (9.09)	6 (6.98)		
No	80 (90.91)	80 (93.02)		
Education level			1.505	0.681
Primary school	21 (23.86)	18 (20.93)		
Junior high school	28 (31.82)	22 (25.58)		
High school	23 (26.14)	27 (31.40)		
University/College	16 (18.18)	19 (22.09)		

the initiative to choose a relaxed and pleasant topic to help relieve tension. Soothing music was also played to distract the attention of patient, and excessive collision of instruments was avoided during the operation so as not to aggravate the patient's anxiety. Patients were also assisted in positioning before anesthesia. During the operation, the stress of patients was observed, and the anesthetic dose was increased appropriately for those with intense reaction. Postoperatively, the nursing staff guided the patient how to maintain a comfortable position through visits, such as changing from a lying position to a sitting position, and raising the head of the bed. In addition, patients were told to move slowly when getting out of bed to keep the wound relaxed, and press the wound with their hands if necessary to avoid tearing due to excessive force. Given that most patients might experience severe pain postoperatively and after recovery from anesthesia, the nursing staff gave patients analgesic drugs as prescribed by the doctor to relieve pain. Furthermore, pain relief was realized through distracting patients' attention such as communicating with them and instructing them to perform deep breathing and looking at the sky for relaxation. Moreover, the medical staff informed patients and their families of the matters needing attention after discharge, guided them to use drugs rationally and eat scientifically to effectively prevent the occurrence of complications, and formulated appropriate exercise plans according to their physical conditions.

Outcome measures and therapeutic effect evaluation

The Self-rating Anxiety Scale (SAS) and Self-rating Depression Scale (SDS) [12] were used to evaluate the anxiety and depression of patients, with a SAS score >50 indicating the presence of anxiety and a SDS score >53 indicating the presence of depression. Higher scores indicate increased severity.

The Visual Analogue Scale (VAS) [13], with a score ranging from 0 (painless) to 10 points (most severe pain), was used to evaluate the pain of patients ; the higher the score, the more intense the pain. Before discharge, the nursing satisfaction questionnaire was used to assess patients' satisfaction with the nursing service. The satisfaction was classified as very satisfied, satisfied and dissatisfied, and the total satisfaction rate was recorded as (very satisfied + satisfied) cases/total number of cases ×100%.

Postoperative complications, including digestive tract infection, urinary tract infection and pulmonary infection, were recorded in both groups. The quality of life (QoL) of patients was also recorded.

Statistical analysis

Data analysis and image rendering were performed by SPSS 18.0 and Graphpad prism 6.0 respectively. Counting data were expressed as percentages (%) and analyzed using the χ^2 test. Measurement data were represented by (mean ± SD); T-test was used for inter-group comparisons and paired t-test was adopted for intra-group comparisons. Repeated-measures ANOVA was used to analyze data at multiple time points, and LSD-t test was performed for pairwise comparison between groups. Differences with $P<0.05$ were considered statistically significant.

Results

Patient clinical data

The comparison of patient clinical data revealed no significant difference between the two groups in terms of age, disease type, drinking history, and education level ($P>0.05$) **Table 1**.

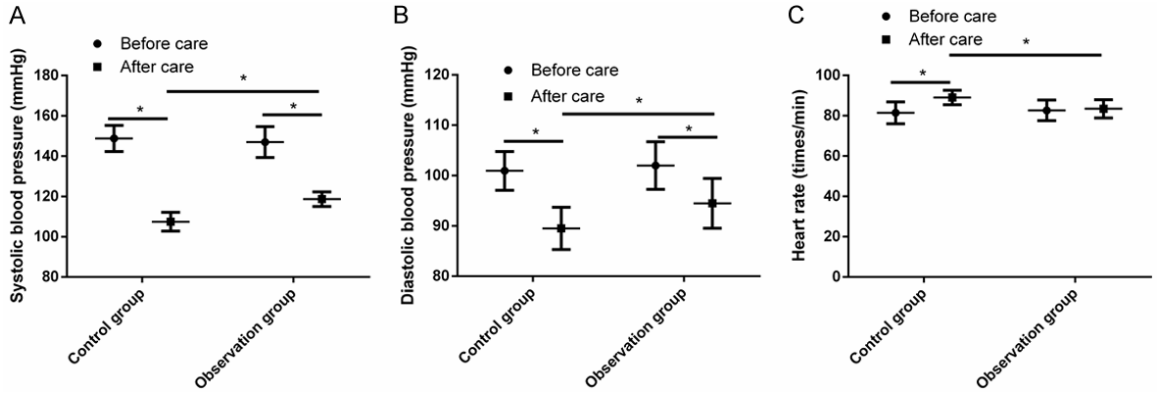

Figure 1. Changes of blood pressure and heart rate of patients in control group and observation group before and after care. After care, the systolic blood pressure (A) diastolic blood pressure (B), and heart rate (C) decreased significantly in both groups. In addition, the improvement of these indexes in the observation group was more significant than that in the control group. Note: *Paired t-test statistics compared with the level before care, *P<0.05; t-test statistics compared with the control group after care, *P<0.05.

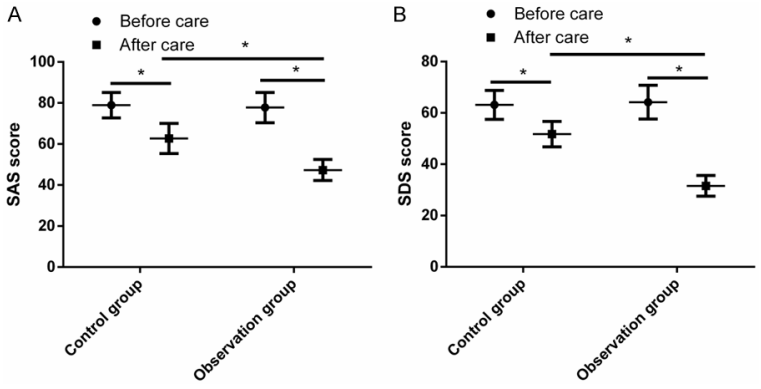

Figure 2. SAS and SDS scores of patients in the control group and observation group. After care, the SAS score (A) and SAS score (B) of patients in the observation group were significantly lower than those in the control group. Note: *Paired t-test statistics compared with the level before care, *P<0.05; t-test statistics compared with the control group after care, *P<0.05. SAS, Self-Rating Anxiety Scale; SDS, Self-Rating Depression Scale.

Changes of blood pressure and heart rate in the two groups before and after care

The blood pressure and heart rate were evaluated in the two groups before and after care. Before care, there was no significant difference in systolic blood pressure (mmHg), diastolic blood pressure (mmHg) and heart rate (times/min) between the two groups. After care, the systolic and diastolic blood pressure as well as the heart rate of the two groups decreased significantly (P<0.05). In addition, the improvement of these indexes in the observation group was more significant than that in the control group (P<0.05) **Figure 1**.

SAS and SDS scores before and after care

The anxiety and depression of patients were observed before and after care. Before care, there was no significant difference in SAS and SDS scores between the two groups (P> 0.05). After care, the SAS and SDS scores decreased significantly in both groups (P<0.05), and the scores in the observation group were significantly lower than those in the control group (P<0.05) **Figure 2**.

Comparison of pain indexes

The VAS was used to assess the pain degree of patients in the two groups. It was found that the VAS score was not significantly different between the two groups before care (P>0.05). The changes of VAS scores within one week of nursing (i.e. within one week after surgery) revealed that the pain intensity increased on the 1st day after surgery and then decreased over time, with more significant pain relief in the observation group compared with the control group (P<0.05) **Table 2**.

Incidence of complications during nursing in the two groups

The complications that occurred in both groups were observed. In the control group, there were

Table 2. VAS score changes of two groups

	n	Before care	1 day after care	3 days after care	5 days after care	7 days after care
Control group	88	1.69±0.51	7.31±1.24	6.84±1.13	5.28±0.98	4.64±0.91
Observation group	86	1.79±0.44	6.86±1.10	5.71±1.04	4.45±0.98	3.17±0.62
t value	-	1.351	2.518	6.861	5.589	12.350
P-value	-	0.178	0.013	<0.001	<0.001	<0.001

Table 3. Incidence of complications in the two groups

Group	n	Digestive tract infection	Urinary tract infection	Pulmonary infection	Total incidence
Control group	88	3 (3.41)	4 (4.55)	3 (3.41)	10 (11.36)
Observation group	86	1 (1.16)	1 (1.16)	1 (1.16)	3 (3.49)
t value	-	0.977	1.783	0.977	3.902
P-value	-	0.323	0.182	0.323	0.048

Table 4. Comparison of nursing satisfaction between the two groups

Group	N	Very satisfied	Satisfied	Dissatisfied	Total satisfaction rate
Control group	88	25 (28.41)	35 (39.77)	28 (31.82)	60 (68.18)
Observation group	86	53 (61.63)	29 (33.72)	4 (4.65)	82 (95.35)
t value	-	-	-	-	21.391
P-value	-	-	-	-	<0.001

3 cases of digestive tract infection, 4 cases of urinary tract infection and 3 cases of pulmonary infection, with a total incidence rate of 11.36%. In the observation group, digestive tract infection was observed in 1 case, urinary tract infection in 1 case and pulmonary infection in 1 case, with a total incidence rate of 3.49%. The results showed that the incidence of postoperative complications in the observation group was significantly lower than that in the control group (P<0.05) **Table 3**.

Nursing satisfaction of patients after care

Patients in both groups were investigated for their degree of satisfaction with the care. In the control group, 25 cases were very satisfied, 35 cases were satisfied, and 28 cases were dissatisfied. In the observation group, 53 cases were very satisfied, 29 cases were satisfied, and 4 cases were dissatisfied. The nursing satisfaction in the observation group was significantly higher than that in the control group (P<0.05) **Table 4**.

Comparison of QoL indicators between the two groups after care

The comparison of QoL revealed that the scores of mental, physiological, environmental and social function of patients in the observation group were significantly higher than those in the control group after care (P<0.05) **Figure 3**.

Discussion

Operating room of O&G is an important department of the hospital, which plays a major role in treating diseases of female patients and helping parturients to give birth. However, there are many uncertain factors intraoperatively, so it is necessary to implement appropriate nursing intervention measures during the operation.

General care mostly follows the routine nursing process while ignoring the actual psychological status and individual differences of patients, which leads to the failure of nursing care to achieve the ideal treatment efficacy [14]. With the improvement of people's living standards and medical level, people have higher requirements for clinical nursing [15]. Recent years have witnessed the increasing application of EBN in clinical nursing. As an important part of evidence-based medicine, EBN is a scientific, holistic and systematic nursing intervention model that combines nursing interventions based on patients' personal background, traits of character, and conditions [16]. Studies have

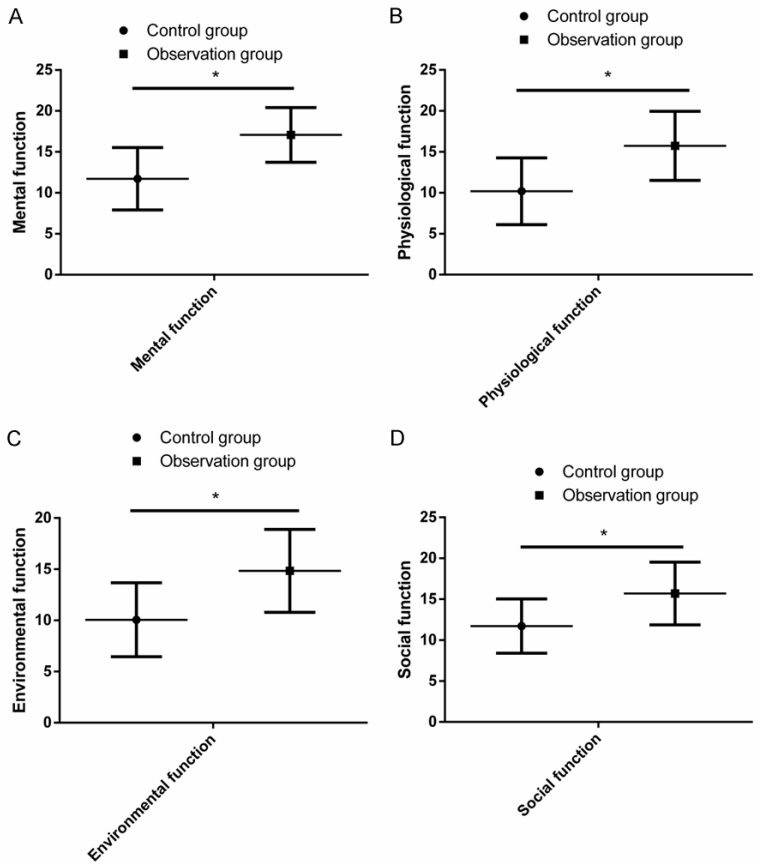

Figure 3. Changes of patients' quality of life in the control group and observation group. After care, the scores of mental function (A), physiological function (B), environmental function (C) and social function (D) of patients in the observation group were significantly higher than those in the control group. Note: *Paired t-test statistics compared with the level before care, *P<0.05; t-test statistics compared with the control group after care, *P<0.05.

shown that in the early stage of EBN, the training of related nursing staff should be emphasized, and attention should be paid to improving the qualification of nursing staff so that they can better and more comprehensively master the essentials of EBN skills [17, 18]. Compared with other wards, operating rooms have higher requirements for nursing staff. Therefore, it has become a top priority for related nursing staff to understand the psychological and physiological needs of patients in the short term, establish a sense of trust, and develop reasonable nursing plans and effective practices [19]. Due to the traumatic nature of surgery, most patients will develop anxiety and fear [20], resulting in preoperative insomnia and nightmares, as well as intraoperative stress reactions such as accelerated respiration, cardiac acceleration, elevated blood pressure and high stress level [21]. In this study, the nursing staff communicated with patients and their families before operation, which not only helped the medical staff to gain a more comprehensive understanding of patients' information and personal characteristics, but also timely and effectively alleviated the preoperative fear of patients and reduced the occurrence of the stress response. Unsurprisingly, the results showed that patients' blood pressure, heart rate and adverse mood were significantly ameliorated after care. Similarly, studies have shown that the combination of EBN and clinical experience can solve patients' practical problems, relieve their psychological pressure and improve their QoL [22, 23]. Surgical pain, which is mainly caused by acute trauma or drainage stimulation, is acute and intense and reaches the peak within 24-48 hours after operation. In view of this, we gave corresponding nursing interventions to patients, and the results showed that EBN greatly alleviated the postoperative pain of patients. Naqib et al. [24] showed that nursing can mitigate pain, shorten hospitalization time and improve the overall satisfaction of patients, which was consistent with the findings of this study. The reason may be that EBN starts from patients' actual conditions, integrates with modern nursing concepts, and pays attention to both physiological and psychological needs, so as to bring more comprehensive nursing services to patients [25]. The investigation of nursing satisfaction identified that EBN was highly recognized by patients. Finally, the QoL survey indicated that patients' overall QoL was significantly improved through EBN measures. This may be due to the reasonable guidance to patients after discharge and accurate and meticulous nursing care throughout the whole process, which can improve patients' QoL.

In conclusion, while alleviating patients' adverse moods and pain, the application of EBN in the operating room of O&G can improve the nursing satisfaction and QoL of patients. However, there are still deficiencies in this study. First, it is not clear whether EBN is applicable to other diseases in the O&G Department. Second, as EBN requires high skill levels of nursing staff, how to carry out relevant training and clinical promotion needs to be further studied in the future.

Disclosure of conflict of interest

None.

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