

Study on the Impact of Cognitive Nursing Model on Postoperative Quality of Life in Patients Undergoing Chronic Sinusitis Surgery

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Abstract: *Objective:* To explore effective nursing programs for surgical patients with chronic sinusitis (CS). *Methods:* 62 CS surgery patients were randomly divided into a research group and a control group with 31 cases in each group. The patients in the research group received cognitive nursing care, while the patients in the control group received routine nursing care. The nursing effects of the two groups were compared. *Results:* The postoperative quality-of-life scores, health behavior scores, complication rates, and nursing satisfaction scores of the patients in the research group were all better than those of the control group ($P < 0.05$). *Conclusion:* The cognitive nursing model significantly improves the condition of CS surgery patients, thus it should be popularized.

Keywords: Cognitive nursing; Chronic sinusitis; Surgery; Quality of life

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1. Introduction

Chronic sinusitis (CS) refers to the persistent inflammation of the sinuses and nasal passages. This condition is primarily induced by sinus infections resulting from fungi, bacteria, or viruses. Purulent nasal discharge can cause swelling, pain, and tenderness in the eyes, forehead, and nasal area. Some patients are accompanied by loss of sense of smell and taste, and systemic symptoms such as lack of energy^[1,2]. CS is mainly treated through surgery. In order to ensure the effect and safety of surgery, appropriate nursing measures should be taken^[3]. 62 patients who were undergoing CS surgery were included in this study to explore and analyze the clinical effect of the cognitive nursing model.

2. Materials and methods

2.1. General information

Sixty-two samples of patients who were undergoing CS surgery were randomly divided into a research group (31 cases) and a control group (31 cases). The enrollment period was from June 2022 to June 2023. The inclusion criteria required meeting the diagnostic criteria for CS, meeting the surgical indications, and signing

the research consent document. Exclusion criteria included the presence of other significant diseases, abnormal cognitive function, and an inability to cooperate with this study. General patient data for both groups is presented in **Table 1**.

Table 1. General information

Group	Male-to-female ratio	Age range (years)	Average age (years)	Course of disease (years)	Average duration of disease (years)
Research group (<i>n</i> = 31)	18:13	28–59	43.52 ± 4.57	1–4	2.75 ± 0.63
Control group (<i>n</i> = 31)	17:14	30–57	43.59 ± 4.62	2–4	2.81 ± 0.66
<i>P</i>	<i>P</i> > 0.05	<i>P</i> > 0.05	<i>P</i> > 0.05	<i>P</i> > 0.05	<i>P</i> > 0.05

2.2. Methods

The patients in the control group received routine nursing care. Preoperative nurses assisted patients in conducting nasal cavity and physical examinations, administered antibiotics and vitamin K as per the doctor’s recommendations, aided patients in nasal cavity rinsing, provided explanations about surgical precautions, and ensured proper completion of preoperative preparations. Venous access was established for the patients, and their vital signs were continuously monitored. The patients were questioned about any discomfort, such as eye pain, and their nasal passages were observed for bleeding. Appropriate measures were taken to ensure proper hemostasis during surgery.

After the surgical procedure, the postoperative care involved guiding patients to assume a semi-recumbent position, removing nasal gauze, and allowing patients to change their positions as necessary. Following the surgery, nurses performed nasal cold compresses, nasal irrigation, and other postoperative procedures as directed by the doctor. Continuous monitoring was carried out to identify any postoperative complications. The physician was notified immediately if any abnormalities were detected.

The patients in the control group received routine nursing care. A nursing intervention group was set up in the hospital. The group members studied CS-related knowledge together and determined the appropriate nursing plan based on the individual characteristics of the patients. (1) The nurses compiled materials related to CS surgery and distributed them to the patients. The patients were guided on the materials to read and they were assisted if they had any questions about CS. (2) Centralized seminars were carried out so that the patients could be educated on the subject. Q & A sessions were held after the seminars. (3) The nurses explained the surgery and the disease to the patients in detail so that they would have a better understanding of their condition. (4) Patients who had good outcomes were invited to share their experiences with other patients. (5) After the patients were discharged from the hospital, they were followed up via WeChat, where nurses will provide more knowledge about the procedure.

The patients received cognitive nursing care on the basis of routine nursing. (1) This care involved providing detailed explanations of the disease and the surgical procedure. Nurses explained the etiology and symptoms of CS, with a particular emphasis on endoscopic sinus surgery. Patients were informed that the surgery was minimally invasive with a short operation time, leading to a quick postoperative recovery. The discussion also included the absence of severe surgical complications and the positive prognosis of the surgery. Furthermore, patients were educated on how to cooperate during the surgery, and the precautions they needed to take during the postoperative recovery period, and were introduced to successful cases of the same surgery. Additionally, they were guided in relaxation techniques, such as deep breathing exercises, to alleviate any anxiety. To address patient misconceptions, nursing staff provided clear and straightforward explanations

regarding the cause of pain after surgery. (2) Patients were informed that pain is a normal reaction following CS surgery, and they need not endure it silently. Nurses assessed the patient's pain level and applied relaxation therapy for those with mild pain. This included guiding patients to divert their attention, practice deep breathing, maintain a semi-recumbent position, and apply cold compresses to the nasal cavity. For patients experiencing severe pain, nurses administered analgesic drugs as directed by the doctor. The nursing staff informed the patients that bleeding was a normal reaction after CS, and educated them on the difference between normal and abnormal bleeding and the treatment of bleeding. The nurses also monitored the patients' nasal and oral secretions and cleared their bloody secretions. (3) The nursing staff provided patients with essential self-care knowledge to enhance their self-care skills. During health education sessions, nurses gave instructions on self-monitoring for mouth and nose pain and bleeding. They introduced emergency procedures for epistaxis (nosebleeds) and guided patients on self-observation for symptoms such as nausea, vomiting, headaches, eye discomfort, and a runny nose. Patients were informed to promptly notify the nursing staff if these symptoms occurred.

Additionally, the nursing staff demonstrated nasal irrigation, nasal spraying, and nasal drip techniques to patients. They encouraged patients to independently perform these procedures as part of their daily self-care routines. (4) When the patients regained consciousness, the nursing staff provided instructions. They guided the patients to rinse their mouths with water and advised them to eat a small amount of food once there were no symptoms of coughing. Six hours post-surgery, the patients were directed to consume liquid or semi-liquid foods, and a regular diet could be resumed two days after the operation. The nurses also educated patients about increasing their intake of vitamins, proteins, and calories while avoiding highly irritating foods. Patients were encouraged to drink more water and to maintain good oral hygiene by cleaning their mouths after meals. (5) The nursing staff provided patients with detailed instructions regarding postoperative recovery precautions. Patients were advised not to remove the nasal cavity stuffing on their own. The stuffing could be removed two days after the operation, at which point the patient could be assisted in removing scabs and accumulated blood from the nasal cavity. Upon discharge from the hospital, patients were counseled to maintain a regular daily routine, engage in outdoor activities appropriately, avoid forceful coughing, take measures to prevent colds, and schedule regular follow-up check-ups at the hospital.

2.3. Evaluation criteria

The quality-of-life score, health behavior scores, complication rate, and nursing satisfaction of the two groups were compared.

2.4. Statistical analysis

The research data were analyzed using SPSS23.0 software. The *t*-test was used for measurement data (mean ± standard deviation), and the χ^2 test for count data (%). $P < 0.05$ indicated statistical significance.

3. Result

3.1. Quality-of-life scores

Table 2 shows that one month after the operation, the quality-of-life score of the patients in the research group was significantly higher than those in the control group ($P < 0.05$).

3.2. Health behavior scores

Table 3 shows that one month after surgery, the health behavior scores of the patients in the research group were significantly higher than those in the control group ($P < 0.05$).

3.3. Complication rate

As shown in **Table 4**, the incidence of complications in the study group was lower than that in the control group ($P < 0.05$).

3.4. Nursing satisfaction

As shown in **Table 5**, the nursing satisfaction of patients in the research group was higher than that in the control group ($P < 0.05$).

Table 2. Comparison of quality-of-life scores between the two groups (mean \pm standard deviation)

Group	Physiological functions		Emotional function		Physical function		Overall health	
	Before surgery	1 month after surgery	Before surgery	1 month after operation	Before surgery	1 month after operation	Before surgery	1 month after surgery
Research group (n = 31)	59.62 \pm 2.58	84.59 \pm 6.75	64.21 \pm 3.66	86.94 \pm 5.42	60.15 \pm 3.68	85.84 \pm 4.98	61.28 \pm 4.92	84.25 \pm 5.92
Control group (n = 31)	59.57 \pm 2.64	71.38 \pm 3.49	64.17 \pm 3.75	72.25 \pm 2.96	60.27 \pm 3.62	74.48 \pm 2.96	61.33 \pm 4.87	73.02 \pm 3.48
<i>t</i>	0.075	9.679	0.043	13.244	0.129	10.918	0.040	9.105
<i>P</i>	0.940	0.000	0.966	0.000	0.897	0.000	0.968	0.000

Table 3. Comparison of health behavior scores between the two groups (mean \pm standard deviation)

Group	Take medication as directed	Quit smoking alcohol	Moderate exercise	Reasonable diet	Regular review
Research group (n = 31)	8.77 \pm 1.05	8.45 \pm 1.24	8.42 \pm 1.08	8.72 \pm 0.98	8.77 \pm 1.02
Control group (n = 31)	6.49 \pm 0.58	6.38 \pm 0.75	6.71 \pm 0.59	7.15 \pm 0.64	7.04 \pm 0.66
<i>t</i>	10.583	7.953	7.736	7.468	7.928
<i>P</i>	0.000	0.000	0.000	0.000	0.000

Table 4. Comparison of complication rates between the two groups (n [%])

Group	Bleeding	Infection	Adhesion	Complication rate
Research group (n = 31)	1	1	0	2 (6.5)
Control group (n = 31)	3	3	2	8 (25.8)
χ^2				4.292
<i>P</i>				0.038

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

Group	Nursing operations	Nurse-patient communication	Service attitude	Health education
Research group (n = 31)	29 (93.5)	29 (93.5)	30 (96.8)	30 (96.8)
Control group (n = 31)	23 (74.2)	22 (71.0)	24 (77.4)	25 (80.6)
χ^2	4.292	5.415	5.166	4.026
<i>P</i>	0.038	0.019	0.023	0.044

4. Discussion

Recent epidemiological survey data indicates that the prevalence of CS in China is approximately 8%. The age range of those affected is quite diverse, and the duration of the illness can vary^[4]. CS is a sinus infection caused by pathogenic bacteria invading the nasal cavity, which can lead to symptoms such as nasal congestion and purulent nasal discharge^[5]. The clinical treatment of CS includes drug therapy and surgical treatment. Surgical resection is required to improve nasal ventilation if there are irreversible lesions in the nasal cavity and sinuses of CS patients^[6].

After undergoing CS surgery, patients need to implement effective self-care strategies to enhance their prognosis. However, many patients lack the necessary knowledge for this. Hence, it is crucial for nurses to provide comprehensive health guidance. While primary nursing procedures ensure the standardized management of perioperative care, nurses often limit their explanations to basic health information. This approach leads to a limited understanding of CS surgery-related knowledge among patients, resulting in misconceptions and an inability to correct their behaviors effectively. This, in turn, impacts the patients' postoperative recovery^[7,8]. Within the cognitive nursing model, nurses focus on enhancing patients' understanding of their illnesses. They prioritize health education as a central component of their nursing intervention. Through various forms of health education, nurses communicate CS surgery-related knowledge, self-care techniques, daily care guidelines, and lifestyle precautions to patients. This approach significantly enhances patients' comprehension of their medical conditions, promotes increased adherence to recommended behaviors, and empowers them to adopt healthier lifestyles. Consequently, it contributes to improved outcomes following CS surgery^[9,10].

The patients' quality of life scores in the research group were higher than those in the control group after the intervention. This is because the patients' quality of life is related to their physical and mental state, the duration of recovery, and the recovery effect. There needs to be more attention to the patient's understanding of their condition and psychology, and the patient needs to be given targeted health guidance after the surgery. When a patient is not compliant, it is difficult to ensure a good prognosis^[11]. In our study, during the cognitive care period, nursing staff provided health education through various forms and continued in-hospital health guidance through WeChat follow-up, comprehensively and carefully explaining CS surgery knowledge and self-care knowledge to patients. Patients were also informed of dietary and exercise considerations, along with psychological intervention to guide them toward maintaining an optimistic mental health state. These measures collectively aimed to enhance the patients' physical and mental well-being, thus gradually improving their quality of life^[12,13]. The results of this study showed that the health behavior scores of patients in the study group were higher than those in the control group. This is because the patients' behavior is related to their knowledge about the disease. Therefore, health education-related content is essential in primary care. Some patients believe they do not need to take care of their health after getting discharged, leading to poor health behavior scores^[14]. In the cognitive care model, nursing staff persisted in providing health education in simple terms, conveying disease and health knowledge, and emphasizing the significance of self-care practices. They guided patients in correctly executing post-discharge self-care, adhering to medical recommendations, and maintaining a healthy lifestyle. These efforts prompted patients to attend follow-up appointments as scheduled, leading to a notable improvement in their health behavior scores. The incidence of complications in the research group was also lower than that in the control group. Common complications in CS surgery patients include infection, adhesion, and bleeding. The causes of complications are related to the patient's self-care behavior, and the patient's self-care behavior is related to disease awareness. When the patients are not aware of their disease, complications would occur. Under the cognitive nursing model, nursing staff provide cognitive nursing intervention to patients to help them establish healthy behaviors, which can significantly improve their awareness of the disease,

resulting in better self-care behaviors and thus reducing the incidence of complications. In this study, nursing satisfaction in the research group was higher than in the control group. This is because the patients' needs were met, thereby improving their mental well-being^[15]. This study highlights the significant benefits of cognitive nursing for patients undergoing CS surgery. Therefore, healthcare providers should thoroughly explain and organize knowledge related to CS, offer comprehensive and easy-to-understand health education to patients, and continuously refine their nursing methods based on practical experience to achieve the best possible results.

5. Conclusion

In summary, it is evident that the cognitive nursing model for CS surgery patients yields substantial benefits and is worthy of wider adoption. However, it is essential to acknowledge that this study had a limited sample size of CS surgery patients, did not engage in a comparative analysis using similar data types, and was conducted over a relatively brief timeframe. Consequently, further examination and investigation are needed to explore the specific mechanisms of the cognitive care model for CS surgery patients.

Disclosure statement

The author declares no conflict of interest.

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