

# Application analysis of cognitive nursing in thyroid surgery patients

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**Abstract. – OBJECTIVE:** The aim of the study was to explore the effect of cognitive nursing service on stress response in patients undergoing thyroid tumor surgery.

**PATIENTS AND METHODS:** From January 2018 to June 2019, 60 patients with thyroid tumor were selected. The patients were divided into control group and experimental group with 30 cases each. Cognitive nursing was used in the observation group and routine nursing was used in the control group.

**RESULTS:** The scores of SDS and SAS in the observation group were significantly lower than those in the control group ( $p < 0.05$ ). The nursing satisfaction of the observation group was significantly higher than that of the control group ( $p < 0.05$ ). The levels of systolic blood pressure, diastolic blood pressure, angiotensin II and cortisol in cognitive nursing group were better than those in conventional group ( $p < 0.05$ ). The incidence of pain and other complications in the cognitive nursing group was lower than that in the conventional group ( $p < 0.05$ ). After nursing, the anxiety and depression in the study group was ( $34.1 \pm 4.9$ ) and ( $18.1 \pm 5.1$ ) respectively; the anxiety and depression of the control group were ( $42.8 \pm 7.3$ ) and ( $25.4 \pm 5.9$ ) respectively; the anxiety and depression in the study group were significantly lower than those in the control group ( $p < 0.05$ ). The improvement of diastolic pressure, systolic pressure and heart rate in the study group was better than that in the control group ( $p < 0.05$ ).

**CONCLUSIONS:** The application of cognitive nursing can effectively improve the patients' cognition of disease and treatment, reduce the patients' bad mood, improve the treatment compliance, reduce the occurrence of stress reaction, and improve the safety of anesthesia and operation. Cognitive nursing intervention provides guarantee for patients' prognosis recovery, helps patients recover and discharge as soon as possible, and also has high application value, which is worth promoting and applying in major hospitals.

*Key Words:*

Cognitive nursing, Thyroid gland, Intervention, Bad mood.

## Introduction

Thyroid surgery is a common surgical procedure, but the patient's negative emotions and bad psychology will seriously affect the effect of the operation and will have certain effects on the endocrine and nervous systems. When surgical treatment of patients with thyroid tumors, if there is damage, it will stimulate the patient's psychological and physiological stress response, and then the stress response will affect the patient's various systems, and eventually have an adverse effect on anesthesia and surgical treatment<sup>1</sup>. Surgery and anesthesia are stress events, which can cause patients' physical and psychological stress reactions. Strong stress response will affect the patient's circulation and endocrine system, and severe patients will interfere with surgery and anesthesia<sup>2</sup>. Early surgical treatment is the key to reducing the risk of malignant transformation and improving clinical prognosis. However, as a strong emergency source of surgery, patients' physical and psychological reactions will have different degrees of stress, which will not only affect the endocrine system and the circulatory system, but also affect the implementation of anesthesia and surgery, increasing the risk of anesthesia and surgery. The clinical nursing path has the characteristics of planning, standardization and pertinence. Giving the clinical nursing path to patients with thyroid surgery is conducive to improving patient satisfaction, strengthening the cognitive ability of surgical knowledge, and promoting the relationship between patients and nurses<sup>3</sup>. Therefore, it is very important to take effective nursing measures to reduce the stress response of patients with thyroid tumor surgery. At present, with the continuous reform of nursing methods, the application of cognitive nursing has achieved great results. The application of cognitive nursing can greatly improve the quality of nursing, make the effect of nursing better, and the treatment and recovery of patients' conditions are more obvious<sup>4</sup>.

At present, surgical methods are mainly used to treat patients with thyroid tumors. However, the operation is a strong stressor, which will hinder the implementation of anesthesia and surgery, and will also affect the effect of surgical treatment<sup>5</sup>. Due to the gradual reform of the clinical nursing model, the use of cognitive nursing for surgical patients has been promoted to a certain extent, and it can significantly improve the patient's nursing effect and significantly improve the quality of care, so that the patient's condition recovers faster<sup>6</sup>. Cognitive nursing service is to educate patients on disease knowledge and surgical knowledge to correct patients' misperceptions, to reduce patients' tension and anxiety, reduce physical and mental stress and improve treatment compliance. The use of nursing measures is particularly important because surgical procedures can cause patients with a strong stress response and affect the progress of treatment<sup>7</sup>. Surgery is a source of intense stress, which can cause certain adverse effects on patients' physical and mental health, cause abnormalities in the circulatory system and neuroendocrine system, and affect the surgical outcome and patient prognosis<sup>8</sup>. In order to further explore the impact of cognitive care on the stress response of patients with thyroid tumor surgery, this study adopts the method of cognitive care in the nursing stage of thyroid tumor patients, and the effect of cognitive care on thyroid tumor patients.

## Patients and Methods

### Patients

From June 2018 to June 2019, 60 patients with thyroid tumor surgery were selected and divided into two groups. The patients in the control group were 30, the ratio of male and female patients was 12:18, the maximum age was 72, the minimum age was 23, and the median age was  $(42.75 \pm 4.82)$ . The patients in the observation group were 30, and the ratio of male and female patients was  $(42.75 \pm 4.82)$  13: 17, the maximum age was 74, the minimum age was 23, and the median age was  $(43.46 \pm 4.21)$ . There was no significant difference between the two groups ( $p > 0.05$ ). There was no statistical significance between the two groups.

### Methods

The control group received routine perioperative care for thyroid tumor surgery, including preoperative visit, preoperative preparation, health

education, psychological intervention, introduction of anesthesia and operation methods, coordination methods and guidance of relevant matters needing attention, postoperative condition monitoring, etc. Routine nursing was given to the control group: before the operation, the nursing staff combined with the specific operation notice to conduct routine preoperative visits to the patients. During the visit, the patient's condition was inquired, the patient was informed about operation method and treatment physician, and anesthesia and operation treatment cooperation method, matters needing attention, preoperative fasting water, etc. were explained. The vital signs of the patients were closely monitored during the operation. The observation group applied cognitive nursing, and the specific nursing methods were as follows:

- (1) Overall evaluation: nurses need to evaluate patients' psychological and physiological conditions, strengthen communication and communication with patients, and fully understand patients' emotions, bodies, interpersonal relationships and social roles. Actively communicate with patients before, during and after the operation, comprehensively and dynamically evaluate patients' physical symptoms, emotional state, interpersonal relationship, adaptability and cognitive function, establish a harmonious nurse patient relationship through active communication with patients, so that patients can have a sense of trust and dependence on medical staff, and look for patients' emotional distress and physical discomfort Cause and performance.
- (2) Cognitive assessment: after the patient was admitted to hospital, the nurses immediately combined with their clinical data to conduct a comprehensive assessment of their psychological state. And use easy to understand language to inform patients of the possible adverse effects caused by wrong ideas in detail, so as to promote patients' psychological state to achieve the best. Fully familiar with the general situation of patients, including age, gender, medical history, condition, examination and diagnosis, education, etc., and preliminarily evaluate the false cognition of patients. In the process of communication with patients, carefully observe the specific manifestations of patients' behavior discomfort and emotional distress and find out the causes of bad psychology and behavior. At the same time, we should explain the relevant precautions during the

perioperative period in detail, and carry out personalized psychological care, so that patients can face the disease correctly, and cooperate with the treatment with the best physical and mental state and correct their wrong ideas.

- (3) Cognitive education: after the patient is admitted to the hospital, the nursing staff immediately combined with the clinical data to conduct a comprehensive evaluation of their psychological state, and actively communicate with the patient in the nursing process to understand the patient's physiological, psychological state, interpersonal relationship, social adaptability, etc. To promote patients to establish a rational concept, reasonably guide patients' swallowing action and operation position, and strengthen health education for them. Through the way of illustration and text, the disease related knowledge is publicized and taught, so that they have a deeper understanding of the disease, so as to achieve a higher nursing compliance. In the process of contacting patients, nurses need to inform patients of disease related knowledge in detail, and inform patients of treatment methods, prognosis effects and causes, so that they are well prepared for treatment. In order to make sure the patients are familiar with the knowledge of disease, surgical treatment and postoperative rehabilitation. Nursing staff guide patients to complete cognitive work, guide them to implement swallowing exercise training and operation posture placement training before operation, so that patients can make more sufficient psychological preparation before operation, enhance their courage to face the operation, and improve their operation tolerance. In the process of communication with patients, flexible use of communication language or body language to explain the causes, manifestations, hazards, treatment methods, surgical treatment necessity, safety, effectiveness and possible complications of the disease to patients, in order to establish correct cognition of patients and eliminate their negative emotions such as tension, fear and worry. According to the patient's personalized characteristics and nursing needs, health education contents are formulated for the patient. Effective communication and picture display are used to give the patient health education and publicity guidance on disease knowledge, so as to improve the patient's cooperation degree during operation and significantly enhance the patient's confidence in curing diseases.

### **Observation Index**

Self-rating Depression Scale (SDS) and Self-rating Anxiety Scale (SAS) were used to evaluate the depression degree and anxiety degree of the two groups. From the three aspects of nurses' work enthusiasm, skill level and service attitude, the patient's nursing satisfaction was assessed and divided into three levels: satisfaction, general satisfaction and dissatisfaction. The overall satisfaction degree, systolic blood pressure, diastolic blood pressure, angiotensin II, cortisol level, pain and other complications after nursing were compared between the two groups. The anxiety, depression, blood pressure, heart rate changes and hormone levels of the two groups were compared.

### **Statistical Analysis**

SPSS 22.0 statistical software (IBM Corp., Armonk, NY, USA) was used to process the data obtained from the study. Count data was expressed as mean  $\pm$  standard deviation. Measurement data were tested by *p*-value. *p* < 0.05 was considered statistically significant.

## **Results**

Compare the SDS and SAS scores of the two groups. The SDS score and SAS score of the observation group were significantly lower than those of the control group, and the differences were statistically significant (*p* < 0.05; Table I).

The nursing satisfaction of the two groups was compared. The nursing satisfaction of the observation group was significantly higher than that of the control group (*p* < 0.05; Table II).

Comparison of the levels of systolic blood pressure, diastolic blood pressure, angiotensin II and cortisol after nursing: the levels of systolic blood pressure, diastolic blood pressure, angiotensin II and cortisol in cognitive nursing group were better than those in conventional group (*p* < 0.05; Table III).

Comparison of the changes of hormone level indexes between the two groups: the cortisol level of the study group was  $212.3 \pm 58.1$  nmol/L, the level of angiotensin II was  $21.4 \pm 6.9$  pg/ml; the cortisol level of the control group was  $235.7 \pm 60.4$  nmol/L, the level of angiotensin II was  $28.1 \pm 8.9$  pg/ml; the cortisol level and angiotensin II level of the study group were significantly higher than those of the control group (*t* = 11.417, *p* < 0.05).

**Table I.** Comparison of SDS and SAS scores between the two groups.

Group	Number of cases	SDS	SAS
Observation group	30	20.4±3.3	35.7±4.3
Control group	30	25.1±3.8	41.2±5.1

**Table II.** Proportion of nursing satisfaction in two groups (%).

Group	Number of cases	Satisfied	General satisfaction	Dissatisfied	Satisfaction rate
Observation group	30	19 (63.33)	9 (30)	2 (6.67)	28 (93.33)
Control group	30	15 (50)	9 (30)	6 (20)	24 (80)

**Table III.** Comparison of systolic blood pressure, diastolic blood pressure, angiotensin II and cortisol levels after nursing.

Group	Systolic blood pressure (mm Hg)	Diastolic pressure (mm Hg)	Cortisol (mmol/L)	Angiotensin II (pg/mL)
Observation group	15.21±3.29	11.98±1.51	199.54±67.59	22.21±8.47
Control group	16.59±3.87	14.57±1.27	228.73±74.38	27.49±9.59

The comparison of anxiety value and depression value between the two groups: after nursing, the anxiety value of the study group was  $34.1 \pm 4.9$ , the depression value was  $18.1 \pm 5.1$ ; the anxiety value of the control group was  $42.8 \pm 7.3$ , the depression value was  $25.4 \pm 5.9$ ; the anxiety value and depression value of the study group were significantly lower than that of the control group ( $p < 0.05$ ).

Comparison of the changes of blood pressure and heart rate in the two groups: the improvement of diastolic pressure, systolic pressure and heart rate in the study group is better than that in the control group ( $p < 0.05$ ), as shown in Table IV.

### Discussion

Thyroid tumor is very common in clinical thyroid diseases. According to survey data, more than all patients with thyroid diseases belong to thyroid tumor. As the most important endocrine organ of

the human body, thyroid gland has a direct impact on mood. However, surgical treatment for thyroid tumor patients will lead to psychological and physiological stress reactions to a certain extent, thus affecting the surgical treatment effect. Surgery is a source of emotional stress, which can lead to psychological and physiological stress reactions in patients, and lead to negative emotions such as anxiety, tension, depression, etc. in patients, thus adversely affecting anesthesia effect and surgical treatment effect. Serious cases lead to complications such as myocardial infarction, myocardial ischemia, hypertension, etc., which have a serious impact on patients' physical health<sup>9</sup>.

Thyroid tumor is a benign tumor. In recent years, its incidence rate has increased year by year. Thyroid gland is one of the most important endocrine organs in human body and is closely related to emotion<sup>10</sup>. Surgical trauma can give patients mood, even affect the smooth progress of anesthesia and surgery, lead to endocrine function

**Table IV.** Comparison of blood pressure and heart rate between the two groups.

Group	Number of cases	Diastolic pressure (mm Hg)	Systolic pressure (mm Hg)	Heart rate (times/minute)
Observation group	30	13±3	14±2	76±16
Control group	30	21±4	20±5	88±19

and nervous system disorders, can also lead to delayed wound healing after surgery, causing other serious complications. The occurrence of stress reaction is a neuroendocrine reaction, which can lead to functional and metabolic changes in the body. Intense stress can bring adverse effects to the body, increase the body's decomposition of hormones and reduce the synthesis of hormones, resulting in increased blood sugar and blood pressure, increased heart rate and adverse outcomes after surgery<sup>11</sup>. After cognitive nursing intervention, the scores of psychological stress (SAS, SDS) in the observation group were significantly lower than those in the control group, suggesting that cognitive intervention can effectively improve the psychological state of patients and reduce psychological stress response. However, psychological state is closely related to endocrine and nervous system functions. With the improvement of psychological state, relevant physiological stress indexes will also be improved<sup>12</sup>.

Cognitive nursing intervention is a new nursing measure proposed clinically, which is based on the cognitive process, and through the effective adjustment of the patient's bad behavior and bad mood to achieve the purpose of reducing surgical stress response. Cognitive nursing follows the influence of human cognitive development process on emotions and behaviors, and uses behavioral and cognitive interventions to eliminate or change the patient's wrong cognition and form the correct cognitive behavior model. The thyroid is an organ of the endocrine system. Therefore, the presence of adverse emotions in patients will seriously affect the clinical efficacy. The aggravation of adverse emotions will accelerate the speed of stress response, and then lead to the occurrence of tension, anxiety, depression and other adverse emotions, forming a vicious circle, which has a serious impact on the health of patients<sup>13</sup>. During the perioperative period of thyroid tumor surgery, actively taking reasonable and effective interventions to reduce the patient's stress response is of great significance for improving the safety of anesthesia surgery and improving clinical outcomes. Cognitive nursing has been promoted and applied in clinical nursing mode. It mainly uses psychological adjustment interventions to help patients establish the correct concept of treatment and nursing. At the same time, it takes certain measures to deal with its negative psychology by understanding the patient's cognitive situation in detail. Relieve, so as to eliminate the depression and anxiety of patients<sup>14,15</sup>. Through the imple-

mentation of cognitive nursing methods, it not only plays a good role in nursing thyroid tumor patients, but also plays a positive role in promoting recovery of the body and mind.

At present, most thyroid tumors are treated surgically, but surgery as a strong stressor may lead to neuroendocrine system, circulatory system and other disorders, affecting anesthesia and operation. At present, surgical methods are mainly used to treat the disease in clinical treatment methods. However, due to thyroid gland being an endocrine organ, it has a great impact on the patient's mood. In addition, surgery is a kind of emotional stressor, which often causes psychological and physiological stress reactions of the patient, resulting in psychological problems such as impatience, fear and anxiety. Cognitive nursing intervention is mainly to adjust the behavior and emotion of patients appropriately according to cognitive process, thus achieving the effect of reducing surgical stress response<sup>16</sup>. Cognitive nursing mainly refers to the countermeasures for medical staff to carry out cognitive education for patients according to the theory and operation of cognitive therapy. The formation of most stress reactions is mainly due to patients' one-sided cognition of diseases. Severe stress reactions can cause patients to decompose hormones and reduce synthetic hormones, thus causing the blood pressure and blood sugar of patients to show an upward trend.

Cognitive nursing intervention for patients undergoing thyroid tumor surgery can help patients establish correct treatment concepts and relieve negative emotions such as anxiety and tension by understanding patients' cognition and taking reasonable psychological adjustment measures, thus laying a foundation for the smooth operation and reducing the impact on patients' physical and mental stress<sup>17</sup>. Cognitive nursing is a new type of nursing model produced in modern times. Through cognitive and behavioral assessment, correction, reconstruction and consolidation, it intervenes individual's bad cognition and bad psychological state to effectively improve the stress response of patients. Thus, the clinical treatment and nursing work can be more smoothly and effectively implemented, and the treatment and nursing effect can be improved. The implementation of cognitive nursing intervention can fundamentally change the bondage of traditional concepts to patients, make them open their minds and construct new cognition to diseases, instead of the traditional concept that cancer is equal to

death. It can make patients clear that the progress of medical technology can improve the possibility of curing diseases, and trust hospitals and doctors to face diseases with a good and positive attitude and receive treatment and care.

After receiving cognitive care, the patient satisfaction in the observation group was significantly higher than that in the control group, indicating that the use of this mode of care can significantly improve the quality of care and make patients more satisfied with the nursing work. The total incidence of stress events in the cognitive group was significantly lower than that in the conventional group, indicating that after cognitive nursing intervention, patients attach importance to surgical cooperation and postoperative rehabilitation cooperation in terms of thought and behavior, which can effectively reduce the occurrence of adverse events and accelerate patient recovery. Improve the patient's condition<sup>18</sup>. The cognitive score and nursing compliance of the cognitive group were higher than those of the conventional group, and the anxiety and depression were lower than those of the conventional group. It is suggested that cognitive nursing intervention can improve patients' cognition of disease, relieve their bad mood, make them better cooperate with clinical treatment and nursing, and improve their compliance behavior. The patient's bad mood may have an adverse effect on the condition and keep the patient's mindset<sup>19</sup>. Cognitive reconstruction is used to help patients establish correct cognitive concepts, and cognitive tasks are used to guide patients in the training of swallowing functions and surgical positions. According to the actual situation of patients, nursing staff develop personalized and targeted health education methods, such as the use of image display, communication and other ways to carry out health education for patients. This is conducive to improving the compliance and initiative of patients, so as to better receive treatment. Nursing staff actively help patients re-establish correct and rational cognitive concepts through the use of cognitive reconstruction methods. Nursing staff guides patients to complete cognitive tasks, and instructs them to perform swallowing training and surgical position placement training before surgery, so that patients can be more fully prepared before surgery, enhance their courage to face surgery, and improve their surgical resistance subject to<sup>20</sup>. In the process of contact with patients, explain the disease knowledge, understand the etiology,

treatment methods, prognosis, etc., especially inform the intraoperative cooperation methods and postoperative complications, so that patients are well prepared, reduce fear, anxiety and other emotions, and timely find out the bad cognition.

After the nurses know the basic situation of the patients, they should analyze their bad cognition and apply appropriate methods to make the patients realize their own mistakes<sup>21</sup>. Explain thyroid tumor diseases and surgical treatment methods to patients with easy-to-understand language, correct the wrong cognition of patients, and keep them in good psychological state. At the same time, introduce postoperative complications and intraoperative cooperation methods, so as to prepare patients psychologically and reduce adverse emotions. Assess the patient's physiology and psychology, strengthen communication, fully understand the patient's body, emotions, social roles, interpersonal relationships, etc., establish a harmonious doctor-patient relationship with the patient, enhance trust and self-confidence, and be able to cooperate with various medical operations. According to the discomfort phenomenon, actively seek the causes, formulate preventive measures, and reduce the influence of adverse factors<sup>22</sup>. Patient and meticulous explanation of relevant knowledge of thyroid tumor disease, such as pathogenesis, causes, clinical symptoms, harm to human body, treatment methods, precautions and complications, etc., will enable patients to correctly understand the disease. On the basis of mastering the general information of patients, nurses should analyze the wrong ideas scientifically, introduce the influence of wrong ideas to patients in popular language, and maintain the best psychological state. Cognitive nursing can have a good effect on patients' emotions and behaviors, and plays an important role in improving patients' disease cognition and relieving stress psychology<sup>23,24</sup>. The implementation of cognitive nursing service can effectively correct the wrong cognition of thyroid tumor surgery patients to diseases and operations, enable them to face diseases and operations with a correct attitude, improve treatment confidence, actively cooperate with clinical medical care work, and avoid adverse psychological effects on the operation results. Cognitive nursing can significantly reduce the stress response of patients and has an obvious effect on eliminating or improving depression and negative emotions in the treatment process of patients, making the treatment effect of patients more significant. The clinical nursing path takes patients as the center, develops targeted nursing methods based on patients' conditions, and

strengthens the observation of patients' conditions, so as to further promote communication between doctors and patients and fully mobilize patients' enthusiasm for participating in nursing<sup>25,26</sup>.

### Conclusions

The application of cognitive nursing in the surgical treatment of thyroid tumor patients can effectively improve the patients' cognition of diseases and treatment, reduce the patients' adverse emotions, improve the treatment compliance, reduce the occurrence of stress reaction, and improve the anesthesia and operation safety. The implementation of cognitive nursing can promote the stress response of patients undergoing thyroid tumor surgery to be significantly slowed down, which has a very positive impact on the surgical treatment of thyroid tumor patients, is conducive to the resolution of the condition, and significantly improves the satisfaction of patients. Cognitive nursing intervention provides a guarantee for the recovery of patients' prognosis, helps patients recover and leave hospital as soon as possible, and also has high application value, which is worthy of promotion and application in major hospitals.

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#### Conflict of Interest

The Authors declare that they have no conflict of interests.

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#### Ethics Approval

The research procedure conforms to the Helsinki Declaration and the research has been approved by the Medical Ethics Committee of Beijing Chaoyang Hospital.

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#### Informed Consent

All patients involved in the experiment gave their consent.

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#### Availability of Data and Materials

The data used or analyzed during the current study are available from the corresponding author upon request.

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#### Authors' Contributions

Z.-Q. Zhang conceptualized the idea. L.-X. Zhang, H.-R. Zhao and M.-Y. Liu contributed to the manuscript preparation. All the authors reviewed and approved the final manuscript.

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