DOI: 10.53469/jcmp.2024.06(10).24

The Effects of Health Education Model Based on Goal-setting Theory on lifestyle, Diet and Nutrition, and Psychological Regulation of Thyroid Cancer Patients after Surgery

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Abstract: ***Objective:*** ***The effects of a health education model based on goal-setting theory on lifestyle, diet and nutrition, and psychological regulation of thyroid cancer patients after surgery.*** ***Methods:*** ***A total of 60 thyroid cancer patients from the First Affiliated Hospital of Guizhou University of Traditional Chinese Medicine from January 1, 2020 ~ December 31, 2023 were selected and grouped.They were divided into 30 observation groups and 30 control groups based on the principle that baseline data between groups could be compared. Patients in both groups were given routine postoperative care for thyroid cancer, and on this basis, the control group was given routine health education intervention, and the observation group was given health education intervention based on goal-setting theory. Both groups were intervened until discharge, and both groups were followed up for 1 month after discharge. Before the intervention and one week after the intervention, the self-made disease knowledge questionnaire and the self-management assessment scale of cancer patients were used to evaluate the disease knowledge, self-management ability and quality of life of the two groups. The compliance of patients with rehabilitation exercises, hoarseness, tetany and quality of life before intervention and at the end of follow-up were observed.*** ***Results:*** ***After 1 month of intervention, there were significant differences between the observation group and the normal control group in terms of disease knowledge knowledge score, self-efficacy, control of daily living habits, treatment of disease symptoms, and management of psychological adjustment (P<0.05). In the process of intervention, the compliance of the observation group was significantly higher than that of the control group, and there was a significant difference, (P<0.05). At the end of the follow-up, the symptoms of hoarseness, tetany and dyspnea in the observation group were significantly lower than those in the control group, and the difference was statistically significant (P<0.05). Finally, the two groups were significantly better than the control group in terms of physiological, psychological, functional exercise and special scores (P<0.05).*** ***Conclusion:*** ***Health education based on goal-setting theory has high application value in thyroid cancer surgery patients, which can improve patients' awareness of the disease, improve patients' rehabilitation compliance and self-management ability, and promote the recovery and improvement of postoperative living standards.***

Keywords: Goal-setting theory, Health education, Thyroid cancer surgery, Lifestyle, Diet & Nutrition, Psychological adjustment**.**

1. Introduction

Thyroid carcinoma (thyroid carcinoma) is one of the most common malignant tumors in China, accounting for about 1% of all malignant tumors. It is mainly divided into 4 types: mastoid carcinoma, follicular carcinoma, undifferentiated carcinoma, and medullary carcinoma. Papilloid carcinoma is the most prevalent type, with low malignancy and a good prognosis, with the exception of medullary carcinoma, the vast majority of tumors originating from the follicular epithelium known as "precancerous lesions." Its incidence is related to geographical location, ethnicity, gender. Studies have shown that the incidence ratio of the disease in women to men is 2~4:1. Thyroid cancer can occur at all ages and is more common in young adults.

Thyroidectomy is an effective treatment for patients with thyroid cancer, but due to the need to dissect lymph nodes during surgery, patients are prone to symptoms such as dyspnea, hoarseness, and tetany after surgery, resulting in pain, numbness, weakness in the upper limbs, and in severe cases, dyspnea and suffocation. Studies have shown that domestic thyroid cancer patients have low awareness of this aspect, which will make patients unable to have an accurate cognition and understanding of the disease, resulting in psychological and physical damage, and the enthusiasm for treatment after surgery will also decrease. Therefore, it is of great significance to carry out scientific and systematic health education for thyroid cancer surgery patients to improve the psychological quality of patients, enhance their compliance with medication and rehabilitation exercises, and improve their quality of life [1]. In traditional health education, medical staff often carry out propaganda in the form of oral and written words, although to a certain extent, it can enhance patients' awareness and attention to the disease, but due to the single way and the repetition of content, patients are prone to rebellious psychology when receiving knowledge, and cannot be well understood and accepted.

Goal-setting theory holds that human beings have an intrinsic motivation for "self-actualization", that is, they have a desire to pursue their own behavior in line with their goals. And when this internal drive is satisfied, the person will have a pleasant emotional experience, which will make the behavior efficient. At present, this principle has been applied to the health education of some common clinical diseases and frequent diseases, and has a certain effect on improving patients' treatment compliance. Based on this, we proposed a "health education" model based on "goal setting" to carry out postoperative nursing intervention for thyroid cancer based on "goal setting", and achieved good results [1].

2. Research Objects and Methods

2.1 Research Subjects

A total of 60 patients with thyroid tumors from the First Affiliated Hospital of Guizhou University of Traditional Chinese Medicine from January 1, 2020 to December 31, 2023 were selected as the research subjects.

Inclusion Criteria: (1) Patients with pathologically confirmed thyroid cancer; (2) Patients who have undergone radical resection for the first time or have indications for surgery; (3) Patients with TNM tumor stage; (4) Patients under the age of 65. Exclusion Criteria: (1) Patients with other malignant diseases; (2) Patients who have developed symptoms such as dyspnea, hoarseness, and tetany before surgery; (3) Patients with auditory and visual impairments, unable to communicate and communicate normally; (4) Patients with serious complications after surgery. In order to make the data comparable between the two groups, the patients were divided into two groups of 30 in each group, i.e., 30 in the control group and 30 in the observation group. Case data of the control group: age 30~65 years, average age 36.85±6.59 years; The duration of the disease was 5~8 months, with an average of 7.81±0.72 months [4]. Education level: 8 have a bachelor's degree or above, 10 have a technical secondary school or college degree, and 12 have a primary, junior high or high school degree [3]; Marital status: 2 unmarried, 24 married, 4 divorced/widowed; Postoperative pathological staging (using the current international and domestic common TMN staging criteria): 8 cases were primary tumors (stage T), 12 cases were regional lymph nodes (stage N), and 10 cases were distant metastases (stage M) [3]. Case data of the observation group: the age of the patients was 25~65 years old, and the average age was 40.13±7.65 years; The duration of the disease was 3~6 months, with an average of 3.31±1.15 months. Education level: 10 cases have a bachelor's degree or above, 10 cases have a technical secondary school or college degree, and 10 cases have a primary, junior high school or high school degree; Marital status: 4 unmarried, 20 married, 6 divorced/widowed; Postoperative pathological stage: 12 cases were T stage, 10 cases were N stage, and 8 cases were M stage [5]. There was no significant difference in data between the two groups of patients, and all patients were informed and aware of the study, and all enrolled patients voluntarily participated in the clinical trial without any coercion or threats.

2.2 Health Education Methods

We observed the vital signs of the patients in both groups after the operation, changed the dressings regularly, kept the drainage tube fixed and patency, observed and prevented the postoperative complications of the patients, guided the patients in diet, medication, and psychological counseling.

2.2.1 The control group was intervened using the traditional health education model

After the patient is admitted to the hospital, a special person is responsible for giving him a targeted knowledge explanation, covering the general situation of the patient, pathophysiology, clinical manifestations, preoperative preparation, possible postoperative complications and preventive measures. In addition, they will also give each patient a book about the disease for daily reading and learning.

On the day after surgery, the patient must be allowed to lie flat on the pillow for 6 hours, and the patient should be given ECG monitoring, oxygen inhalation and other treatments. Secondly, the patient's neck incision drainage tube must be properly fixed, and the change of the color and amount of drainage fluid should be observed, and attention should be paid to observe whether the patient's voice is hoarse, whether there are complications such as choking cough and dyspnea when drinking water, so as to judge whether there is recurrent laryngeal nerve or superior laryngeal nerve injury. On the first day after thyroid cancer surgery, patients are encouraged to get out of bed early to promote the recovery of the patient's body function, and in general, it is recommended that patients get out of bed within 24 hours after surgery. In addition, patients are instructed to adhere to postoperative functional exercises, such as doing left and right neck activities 2-5 days after surgery, which should not exceed 60° to the maximum extent; Move the neck up and down at an angle of no more than 30 degrees for 5-10 minutes at a time, three times a day; Alternately. After the operation, the upper limb arm function exercises, including elbow flexion, lifting, wall climbing, arm stroke, etc., 5-10 minutes at a time, 3 times a day. 5-10 days after surgery, the functional exercises of the shoulder and neck were performed, including posterior extension and adduction, forward and lateral lift, internal rotation and abduction. The neck includes forward bending, leaning back, rotating left and right, and bending sideways. After the patient is discharged from the hospital, the general condition of the patient is understood through a weekly telephone follow-up, including diet, sleep, urine, weight, etc., and the patient is instructed to do more exercise, and the patient is discharged for 1 month [1].

2.2.2 On the basis of traditional nursing, the observation group adopted a health education model based on goal-setting theory to intervene, and the specific measures are as follows:

(1) The overall goal of health education: after admission, the responsible nurse should communicate in detail the basic information of the patient's family situation, social support, economic status and other aspects [1], explain the patient's knowledge about the disease, inform the importance of learning, guide the patient to determine their own learning goals, and tell the patient the purpose of this health education, improve their self-management ability, and take the initiative to participate in the rehabilitation exercise after the operation.

(2) Phased objectives of health education: Researchers will sort out the relevant content by arranging the content in a way from shallow to deep, and produce it through text, pictures, videos, and small lectures [1]. The content of the mission is arranged in chapters and divided into different time slots, and the lectures are held on Mondays and three minutes. After the daily rounds, random sampling or questionnaire survey is used to understand the patient's understanding and mastery of the condition, and in the process, correct their misunderstandings in a timely manner, and at the end of each stage, send a learning plan card to the patient, so that he can record his learning status, conduct targeted research and study for weak points, and achieve the learning goals of each stage on time.

(3) Postoperative rehabilitation training: set the goal of postoperative rehabilitation exercise for patients, and carry out gentle and small rehabilitation exercises 1~2 days after surgery, such as upper limb arm function exercises, including elbow flexion, lifting, wall climbing, arm stroke, etc., 5-10 minutes at a time, 3 times a day. 5-10 days after surgery, the functional exercises of the shoulder and neck were performed, including posterior extension and adduction, forward and lateral lift, internal rotation and abduction. The neck includes forward bending, leaning back, rotating left and right, and bending sideways. Advise the patient to stop exercising immediately if there is strong pain or discomfort and report to the doctor in time.

(4) Strengthen communication and learning between patients: Establish a communication group between patients so that patients can better communicate and learn from each other. In addition, weekly meetings are held, and patients with good prognosis are invited to share their rehabilitation journeys and serve as role models to make them more diligent and proactive in their rehabilitation.

(5) Out-of-hospital follow-up: After the patient is discharged, a WeChat group is established to allow the patient to record his training status in the WeChat group every day. Through online video and telephone follow-up visits, we regularly grasp the patient's recovery and training status, and encourage him to persevere. All patients were followed up for 1 month.

2.3 Observation Index

(1) Disease awareness: Before and after the intervention, the patients were evaluated through a self-made knowledge questionnaire, covering the overview of thyroid cancer, common postoperative complications, postoperative diet, nutrition and rehabilitation training, etc., and the score of each item was 2 points, and the score was proportional to the patient's disease-related knowledge level.

(2) Patients' self-care ability: Before the intervention and one month after the intervention, the patient's self-care ability was evaluated, mainly including: self-efficacy assessment (10 items), daily life (10 items), information (5 items), symptoms (5 items), psychology (5 items), psychology (5 items), 5 management aspects, each of which has 2 points, and the final score is proportional to the proportion of patients' self-care.

(3) Compliance with rehabilitation training: In the process of treatment, all rehabilitation exercises can be successfully completed without any prompts from medical staff or family members, which is level 4; Under the prompting of medical staff or family members, the rehabilitation training after completing the operation is level 3; Rehabilitation training has not been completed after surgery, but 80% or more of the total number of days completed is Level 2; At the prompting of medical staff or family members, the number of days to complete rehabilitation training is less than 80% of the total number of days is level 1.

(4) Cervical spine function: before and after treatment, the patient is evaluated by using the cervical spine insufficiency index scale, which has a total of 11 items, each item has a score of 1~5 points, and converts it into the corresponding score through a certain formula, the total score is between 0-100 points, and the score is inversely proportional to the patient's neck function.

(5) Quality of life: Before and after treatment, through the evaluation of the quality of life measurement scale of thyroid cancer patients, in these five dimensions, physiological indicators (7), psychological adjustment (6), limb function (7), diet and nutrition (7), and social/family intimacy (9), each dimension is between 0-4 points, which is directly proportional to the quality of life of patients.

2.4 Data Analysis Methods

(The experimental data were entered in a double-blind manner and processed by SPSS21.0 statistical software.) Count data were expressed by mean ± standard deviation (x±s) after normal test, and count data were expressed by [n(%)] with chi-square test, $P<0.05$.

3. Endings

3.1 Comparative Study of the Cognition and Mastery of the Disease between the Two Groups

Before intervention, there was no significant difference in the scores of the two groups in their understanding and mastery of thyroid cancer related knowledge ($P>0.05$).After one month of intervention, the results showed that the patients in the observation group scored significantly higher than the control group in terms of knowledge of thyroid cancer-related diseases [2], ($P<0.05$), as shown in Table 1.

Table 1: Comparison of disease knowledge scores between the two groups before and after intervention (scores)

Constituencies	Numberofexamples	Overview of thyroid cancer		Commoncomplicationsafter surgery	
Observation group	30	10.56±1.23	12.59±1.76	9.57±1.24	12.05±1.53
Control group	30	10.04±1.66	12.57±2.13	9.36±1.31	11.07±2.04
P-value		0.550	0.039	0.442	0.013

3.2 Comparative Study of Self-management Ability and Rehabilitation Exercise Compliance between the Two Groups.

Before intervention, there was no significant difference in self-management ability and rehabilitation exercise compliance between the two groups [2], and there was no statistical significance ($P>0.05$).

After the intervention, the self-management ability and compliance with rehabilitation exercise in the observation group were significantly improved [2], which was statistically significant ($P<0.05$), as shown in Table 2.

Table 2: Comparison of self-management ability and rehabilitation exercise compliance between the two groups

Constituencies	Numberofexamples	Level 4	Level 3	Level 2	Level 1
Observation group	30	20	6	4	1
Control group	30	11	11	6	2

3.3 Comparison of Postoperative Recurrence Rates and Complications between the Two Groups

Before intervention, there was no significant difference between the two groups in terms of complications such as hoarseness and tetany and neck dysfunction index scores [1], and there was no statistical significance (P>0.05).

After intervention, complications such as hoarseness, tetany and neck dysfunction index were significantly reduced in the observation group (P<0.05), as shown in Table 3.

Table 3: Comparison of postoperative recurrence rate and complication scores before and after intervention (points)

Constituencie	Numberofexamples	Postoperative recurrence rate		Postoperative complications	
		Pre-intervention	After1 month of intervention	Pre-intervention	After1 month of intervention
Observation group	30	12.05±1.53	9.57±1.24	13.49±2.04	11.57±2.34
Control group	30	11.07±2.04	9.36±1.31	12.75±1.57	11.24±1.95
P-value		0.013	0.442	0.31	0.474

3.4 Comparative Study of the Quality of Life of the Two Groups

Before the implementation of health education, there was no significant difference in the scores of quality of life and psychological adjustment between the two groups (P>0.05).After one month of follow-up, the quality of life and psychological adjustment scores of the two groups were higher than those before the intervention of the same group, and the scores of physiological function, role function, self-emotion regulation, psychological cognition, social function, dietary nutrition, and quality of life in the observation group were significantly higher than those in the control group (P<0.05), as shown in Table 4.

Table 4: Comparison of quality of life scores between the two groups (scores)

Constituencie	Numberofexamples	physiology		psychology		society	
		Pre-intervention	Post-intervention	Pre-intervention	Post-intervention	Pre-intervention	Post-intervention
Observation group	30	15.57±3.22	21.06±3.27	12.14±2.57	15.11±2.31	15.58±3.44	19.05±3.22
Control group	30	15.01±3.11	17.45±2.53	12.54±2.02	14.57±2.53	15.72±3.13	17.42±2.45
P-value		0.549	0.013	0.466	0.019	0.545	0.013

4. Discussion

Thyroid cancer always exists in our lives, and people have a common characteristic that they are always most concerned about whether it can be cured after learning about the disease. Thyroid cancer has a low degree of malignancy, slow progression, good prognosis, and most of them can survive for a long time after surgical treatment, and surgical treatment is the most fundamental treatment for thyroid cancer. In our clinical work, we have found that patients need an adaptation process after surgery, from the recumbent position to the semi-sitting position to the sitting position, from the bed to the bed activity, there is a process of adaptation, and it is a good opportunity to educate the patient about health. Complications can be avoided or mitigated by allowing patients to actively participate in exercise training through health education. At present, most of our daily nursing work focuses on the medical quality of nursing itself, but ignores the impact of strengthening health guidance on the efficacy and condition of patients, so it is very necessary to carry out health education intervention for patients to enhance their compliance with treatment and rehabilitation training, as well as the cure rate and quality of life of patients' conditions [1].

4.1 The Health Education Model Based on Goal-setting Theory is of Great Significance to Improve the Disease Awareness Level of Thyroid Cancer Patients.

The study showed that after one month of health education instruction, the level of disease-related cognition improved in both groups, but the control group was lower than the observation group [1]. This is largely due to the fact that most thyroid cancer patients have never been affected by relevant knowledge before the disease, and the traditional health education time is short and the amount of knowledge is large, and when the patient suddenly encounters a large amount of specialized knowledge, he often feels powerless and at a loss, which greatly hinders the patient's learning and mastery of the disease knowledge. In this paper, the relevant knowledge related to thyroid cancer is summarized and organized, and its chapters are divided, and specific phased learning goals are set for the patients in the observation group, which not only makes the complex and tedious theoretical knowledge simple and interesting, but also reduces the boring learning of patients, greatly reduces the learning difficulty of patients, makes the learning plan more reasonable, and enhances the patients' self-confidence in learning and their courage to overcome the disease [1].

4.2 The Health Education Model Based on Goal-setting Theory is of Great Significance for Improving the Self-control Ability and Exercise Compliance of Thyroid Cancer Patients after Surgery.

Thyroid cancer patients often have complications such as dyspnea, hoarseness, and tetany of the hands and feet after surgery, resulting in upper limb pain, numbness and weakness, so regular functional rehabilitation training for the neck and upper limbs is required in addition to general treatment [1]. Therefore, it is important to improve patients' self-control and rehabilitation compliance. The study showed that after one month of intervention, the observation group had higher scores of disease knowledge understanding, daily life management ability, disease symptom control ability, self-efficacy, psychological adjustment management level and rehabilitation exercise compliance than the control group. This is because, before the health guidance to the patients, the medical staff conducted in-depth communication with the patients, guided the patients to find their own learning motivation, and made them realize the important role of disease knowledge learning and rehabilitation training. Through the continuous improvement of the level of awareness of thyroid cancer disease, patients can better control their lives and improve their quality of life. In addition, my research also set up a WeChat communication group for patients, where patients with good prognosis testimonials, and patients believe that patients are people who have the same

experiences and experiences as themselves, so patients will be more likely to empathize with the stories of patients and gain more trust. Rather than relying solely on persuasion from healthcare workers or family members, setting a goal for patients through high-quality patients can give patients greater motivation, improve their compliance with rehabilitation training, and enable patients to better manage their physical, psychological, and social well-being.

5. Conclusion

The health education model based on goal-setting theory can improve the "learning effectiveness" of patients, thereby improving the "self-control" ability of patients. The intervention effect of the health education model based on goal-setting theory is ideal for patients undergoing thyroid cancer surgery, which can reduce the incidence of postoperative complications, improve patients' lifestyle, diet and nutrition, and psychological regulation, and thus improve the quality of life of patients.

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