The effect of nursing intervention guided by rehabilitation needs on the quality of postoperative self-care agency and social relationships in esophageal cancer patients

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Abstract
To explore the effect of rehabilitation-oriented nursing intervention on self-care ability and social relationship quality of patients with esophageal cancer after operation. 124 esophageal cancer patients from February 2019 to January 2020 were selected and divided into study group and control group. The control group was given routine nursing, and the study group was given rehabilitation-oriented nursing intervention on the basis of the control group. The self-care ability score (ESCA), social relationship quality score (SQRS), mood state score, hope level score (HHI), and nursing job satisfaction were statistically analyzed. Before intervention, there was no significant difference between two groups. After intervention, the scores of health knowledge, self-concept, self-responsibility, and self-care skills were higher in the study group. The scores of friend relationship, family commitment, and family intimacy were significantly higher in the study group, also the SAS (Self-Rating Anxiety Scale) and SDS (Self-Rating Depression Scale) scores in the study group were lower than those in the control group, and the scores of attitudes to maintain close relationship with others, attitude to take positive action and attitude towards reality and future in the study group were higher than those in the control group. In addition, the satisfaction of nursing work in the study group was higher than that in the control group. The rehabilitation needs oriented nursing intervention for esophageal cancer patients can effectively regulate patients’ depression and anxiety, improve their self-care ability and hope level, improve the quality of social relations, and patients have high recognition of nursing work.

KEYWORDS
esophageal cancer, nursing intervention, rehabilitation needs

1 | INTRODUCTION

Esophageal cancer is a malignant tumor of the digestive tract. In recent years, it has been noted that its incidence rate has been on the rise, mainly affected by factors such as lifestyle and dietary changes. Esophageal cancer poses a great threat to the physical and mental health and quality of life of affected patients.1–2 Surgery is an important measure for the clinical treatment of esophageal cancer. Surgery effectively removes the tumor focus. However, it remains an invasive procedure, which can have intraoperative and postoperative
complications, which in turn have an adverse impact on patients’ rehabilitation. Therefore, timely and effective nursing intervention is of great significance. The traditional nursing mode mainly focused on the physical level of related intervention and failed to combine the specific pathophysiological needs of patients to give targeted care. As being part of the care providers group, nursing staffs should carry out intervention, taking into consideration the psychological, physiological needs of patients, in order to meet their relevant needs to the greatest extent. The rehabilitation care-oriented nursing intervention is mainly based on the subjective needs of patients and the existing and potential problems. Therefore, it is important to develop targeted nursing programs, in order to provide patients with high-quality nursing services, and promote a good prognosis of the disease. In view of this, our study screened 124 patients with esophageal cancer in our hospital to explore the application value of rehabilitation needs-oriented nursing intervention, and has been elaborated hereunder.

2 | DATA AND METHODOLOGY

2.1 | General information

Methodology: 124 patients with esophageal cancer in our hospital from February 2019 to January 2020 were selected and divided into: Study group (n = 62) and Control group (n = 62), according to the filing order. There were 36 males and 26 females in the study group; the average age was (56.04 ± 6.90) years (range, 43–69 years). Clinical stage of disease: 21 cases of stage I, 30 cases of stage II, and 11 cases of stage III. Educational level of patients: 21 cases of junior high school and below, 32 cases of senior high school, nine cases of junior college and above. As for the control group, there were 38 males and 24 females. The mean age was (55.91 ± 7.03) years (range, 41–70 years). Clinical stage of disease: 19 cases of stage I, 32 cases of stage II, and 11 cases of stage III. Educational level: 18 cases of junior high school and below, 33 cases of senior high school, 11 cases of junior college and above. The clinical data of gender, age, educational level, and disease stage were balanced and comparable (p > .05). This study has been approved by the ethics committee of our hospital, and the patient selection flowchart is shown in Figure 1.

2.2 | Selection criteria

2.2.1 | Inclusion criteria

1. According to the diagnostic criteria of esophageal cancer in “China early esophageal cancer screening and endoscopic diagnosis and treatment expert consensus simplified version (2014, Beijing).”
2. Patients with disease stage I-III.
3. Age ≤ 70 years old.
4. Know about the study and sign the consent.
2.2.2 | Exclusion criteria

1. Presence of other benign and malignant tumors.
2. Presence of speech communication disorder, hearing disorder, and nervous system diseases.
3. Presence of metastasis.
4. Presence pleural effusion, ascites, and edema.
5. Poor compliance and unable to cooperate with the completion of the investigation.

2.3 | Methodology

The control group was given routine nursing, including close monitoring of vital parameters, explanation of relevant precautions, observation of postoperation incisional site, etc. The research group was given rehabilitation-oriented nursing intervention on the basis of the control group. First, the members of nutrition sub specialist group were selected to establish an intervention group, and training regarding the basic knowledge of esophageal cancer, postoperative and basic nursing of esophageal cancer patients were delivered to them. After passing the training, the patients were evaluated to understand their rehabilitation needs and agreed on the nursing plan:

(1) In order to increase awareness for patients with esophageal cancer undergoing postoperative rehabilitation and their relatives, health education manual was prepared and health education given to them for a duration of 30 min per session. The main contents were knowledge of esophageal cancer disease and surgical treatment, how to carry out early activities, how to prevent pulmonary infection, how to improve nutrition and how to deal with pain, etc. The main aim of educating patients and their relatives was to ensure that patients can fully realize that self-care is the best way to maintain health and comfort, guide family members to supervise patients’ self-care and to assist them in their activities.

(2) For the patients with behavioral nursing needs, first of all, the basic conditions of patients were assessed in detail, such as smoking and drinking habits. The patients were encouraged to quit smoking and drinking, and their self-care awareness was improved. Oral and skin care and other related measures were provided. Nutritional support was given in the first day after operation. Patients were instructed to carry out activities on or out of bed as soon as possible within the tolerance range, and they were also introduced to chest physiotherapy in order to expel sputum (close the glottis with deep inspiration, open the glottis with abdominal muscle contraction, and cough up sputum).

(3) For patients with anxiety, depression, fear and other negative emotions about the disease and rehabilitation, the initiative to communicate with them was undertaken in order to establish a harmonious relationship between nurses and patients and to gain the trust of patients and their families. Patients were encouraged to tell their subjective feelings and were given targeted counseling. Those that have achieved good results through standardized rehabilitation treatment in the past were listed. Regular communication meeting with patients was organized to relieve patients’ negative emotions and make them face rehabilitation intervention with a good attitude.

(4) Pain intervention played an important role in increasing the postoperative comfort of patients through intravenous analgesia pump. Nevertheless, patients were explained in full detail about the mechanism of analgesic drugs and related precautions to be taken, before their use.

(5) The patients were not allowed to take food by mouth for a long time after the operation. The reasons were explained in detail to the patients, and the patients were informed of the diet transition time and diet requirements.

(6) Social relationship quality intervention, organize patients’ friends, colleagues and family members to visit patients, inform them of their importance in the process of rehabilitation, and encourage them to give more comfort and support to patients.

2.4 | Observation indexes

(1) The scores of self-care ability before and after the intervention in the two groups were counted and evaluated according to the self-care ability scale (ESCA), including self-care responsibility, health knowledge level, self-care skills, and self-concept, with a total of 172 points. The higher the score, the better is considered.8

(2) The scores of social relationship quality before and after the intervention in the two groups were statistically evaluated according to the social relationship quality scale (SQRS), including friend relationship (five items), family commitment (five items), and family intimacy (seven items). Each item was divided into 1–4 points according to very disagree to very agree, and the higher the score, the better the result.9

(3) According to SDS and SAS, mild depression: SDS score 53–62, moderate depression: 63–72, severe depression: ≥73; Mild anxiety: SAS score 50–59, moderate anxiety: 60–69, severe anxiety: ≥69.10

(4) The hope levels of the two groups before and after the intervention were statistically analyzed, and evaluated according to the Herth Hope Index (HHI), including the attitude of maintaining close relationship with others, the attitude of taking positive action, and the attitude towards reality and future. The score of each dimension ranged from 4 to 16, and the higher the score, the better11

(5) Statistics of nursing job satisfaction, self-made nursing job satisfaction questionnaire, evaluation of intervention attitude, and quality of care were assessed. A total of 100 points, 90–100 points for very satisfied, 70–89 points for satisfied, <70 points for dissatisfaction, nursing job satisfaction = (very satisfied + satisfied)/total number of cases × 100%.

2.5 | Statistical methods

SPSS software package (version 20.0, SPSS Inc.) was used to analyze the data. Descriptive statistics were expressed as mean ± SD if data were normally distributed and as median (interquartile range) if data
were nonnormally distributed. Between-group comparisons were carried out using Mann–Whitney U tests, two-sample unpaired t tests or chi-square tests.

### RESULTS

#### 3.1 ESCA score

Before the intervention, there was no significant difference in the scores of health knowledge, self-concept, self-responsibility, and self-care skills between the two groups ($p > .05$). After the intervention, the scores of health knowledge, self-concept, self-responsibility, and self-care skills in the study group were higher than those in the control group ($p < .05$; see Table 1).

#### 3.2 SQRS score

Before the intervention, there was no significant difference in the scores of friend relationship, family commitment and family intimacy between the two groups ($p > .05$). After the intervention, the scores of friend relationship, family commitment and family intimacy in the study group were higher than those in the control group ($p < .05$; see Table 2).

#### 3.3 SAS and SDS scores

Before the intervention, there was no significant difference in SAS and SDS scores between the two groups ($p > .05$). After the intervention, SAS and SDS scores of the study group were lower than those of the control group ($p < .05$; see Table 3).

#### 3.4 HHI score

Before the intervention, there was no significant difference in the scores of maintaining close relationship attitude, taking positive action attitude, and attitude towards reality and future between the two groups ($p > .05$). After the intervention, the scores of maintaining close relationship attitude, taking positive action attitude, and attitude towards reality and future in the study group were higher than those in the control group ($p < .05$; see Table 4).
Comparison of HHI scores between the two groups

| Time                  | Group          | N   | Maintain a close relationship with others | Take a positive attitude | Attitude towards reality and future |
|-----------------------|----------------|-----|------------------------------------------|--------------------------|-------------------------------------|
| Before intervention   | Research group | 62  | 8.59 ± 1.17                              | 8.96 ± 1.12              | 9.04 ± 1.03                         |
|                       | Control group  | 62  | 8.89 ± 1.21                              | 9.02 ± 1.01              | 9.9 ± 1.14                          |
| After intervention    | Research group | 62  | 13.76 ± 1.29\(^a\)                       | 12.95 ± 1.26\(^a\)       | 13.06 ± 1.13\(^a\)                  |
|                       | Control group  | 62  | 11.01 ± 1.02                              | 10.11 ± 1.10             | 10.18 ± 1.06                        |

Note: Compared with the control group after the intervention.

\(^{a}p < .05\).

Abbreviation: HHI, hope level score.

TABLE 5 | Comparison of nursing satisfaction between two groups

| Group         | N   | Very satisfied | Satisfied | Dissatisfied | Total satisfaction |
|---------------|-----|----------------|-----------|--------------|--------------------|
| Research group| 62  | 43 (69.35)     | 16 (25.81)| 3 (4.84)     | 59 (95.16)         |
| Control group | 62  | 32 (51.61)     | 19 (30.65)| 11 (17.74)   | 51 (82.26)         |

3.5 | Nursing job satisfaction

The nursing satisfaction of the study group (95.16%) was higher than that of the control group (82.26%) \((p < .05\); see Table 5).

4 | DISCUSSION

Esophageal cancer has a high incidence rate. Nowadays, surgery plays an important role in the management and is the first choice for treatment of diseases. However, the operation is an invasive and traumatizing treatment. It can cause different degrees of inflammatory stress reaction during the operation, and increase the risk of postoperative complications. Therefore, how to take effective nursing measures to implement treatment on patients after esophageal cancer surgery and to ensure the overall treatment effect and prognosis of the disease, has become a research hotspot.

In the routine nursing care for patients postesophageal cancer surgery, most of the nursing staffs are based on the common diseases and follow the doctor’s advice. However, the nursing care provided remained passive with lack of subjectivity, initiative, systemic and pertinence, resulting in poor benefits for patients. The rehabilitation process needs oriented nursing intervention. This is a new type of nursing modality, which is to first communicate with patients before providing nursing care, to master each patient’s specific characteristics, to make clear the individual pathological and physiological needs of patients are met, and formulate nursing plans accordingly, so as to ensure that the nursing content can meet the specific rehabilitation needs of patients and provide high-quality nursing services. In so doing, it can promote early recovery of patients. Jing et al. pointed out that problem-based nursing intervention can be combined with the problems raised by patients to provide corresponding nursing and effective health education, which can significantly improve the nursing compliance of patients after laparoscopic radical gastrectomy, and promote them to actively cooperate with the relevant work of nursing staff, so as to promote the early recovery of body function. At the same time, the intervention combined with the existing problems and rehabilitation needs of patients before nursing care can ensure that the latter is targeted, which in turn facilitates the smooth development of related work and alleviates the depression and anxiety of patients. Because patients are afraid of the disease, the rehabilitation nursing care is oriented to reassure patients, and the corresponding nursing scheme is formulated according to the evaluation of patients and the establishment of problems. In this study, the rehabilitation needs oriented nursing measures were adopted and provided to patients with esophageal cancer in our hospital. It was found that the SDS and SAS scores of the patients were lower than those of the control group, the scores of social relationship quality were improved more significantly than those of the control group, and the score of hope level was higher than that of the control group. Therefore, it can be concluded that this approach can more effectively regulate the depression and anxiety of patients with esophageal cancer, improve their hope level, and improve the quality of social relations.

In addition, from the results of this study, the self-care ability score of the study group was higher than that of the control group after the intervention, suggesting that the rehabilitation needs oriented nursing intervention can also improve the self-care ability of patients with esophageal cancer. Good self-care ability can ensure that patients maintain a good psychological state while facing the disease, have a stronger sense of responsibility for their own health, and have a better ability to obtain disease information. This approach gives full credit to self-care ability in disease and shortens the process of postoperative rehabilitation. Therefore, in the implementation of nursing intervention, we should pay attention to improving the self-care ability of patients. In this study, through health education, we taught the basic knowledge of esophageal cancer, surgical treatment, and postoperative rehabilitation, and encourage the patients’ family members and friends to participate in nursing, which can
strengthen their self-care awareness and ability. At the same time, the improvement of patients' self-ability can fully mobilize the potential of patients with esophageal cancer, assist them to complete the role transformation, and establish the disease rehabilitation information system, so that patients and nursing staff can jointly promote, and build a nursing mode combining active nursing and active participation. In addition, through the investigation and analysis of patients' subjective satisfaction with nursing work, it was found that the satisfaction of nursing work in the study group was higher than that in the control group, which indicated that the rehabilitation needs oriented nursing intervention was conducive to deepening patients' satisfaction with nursing work, establishing a harmonious relationship between nurses and patients, reducing nurse patient disputes, and establishing a high-quality service image of the hospital.

To sum up, nursing intervention based on rehabilitation needs can effectively regulate patients' depression and anxiety, improve their self-care ability and hope level, improve the quality of social relations, and patients have high recognition of nursing work.

CONFLICT OF INTEREST
The authors declare no conflict of interest.

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REFERENCES
1. Zhang L, Zhou X. Study on the effect of clinical psychological nursing program on improving the quality of life of patients with esophageal cancer. J Pract Clin Med. 2016;20(18):67-69.
2. Graham L, Wikman A. Toward improved survivorship: supportive care needs of esophageal cancer patients, a literature review. Dis Esophagus. 2016;29(8):1081-1089.
3. Wang S, Xu Y, Li F, et al. Effect of psychological nursing intervention on anxiety, depression and quality of life of patients undergoing radical esophagectomy. Cancer Clin Rehab China. 2016;23(9):1108-1111.
4. Sun J, Li C, Zhou Y, et al. Application effect of fast track surgery concept in perioperative nursing of esophageal cancer. Int J Nurs. 2019;38(12):1821-1823.
5. Opstelten JL, De WLR, Max L, et al. Variation in palliative care of esophageal cancer in clinical practice: factors associated with treatment decisions. Dis Esophagus. 2017;30(2):1-7.
6. Wang L, Zhu C, Ma X, et al. Impact of enhanced recovery program on patients with esophageal cancer in comparison with traditional care. Support Care Cancer. 2016;25(2):381-389.
7. Digestive Endoscopy Branch of Chinese Medical Association, Cancer Endoscopy Professional Committee of Chinese Anti Cancer Association. Simplified version of expert consensus on early esophageal cancer screening and endoscopic diagnosis and treatment in China (2014, Beijing). Chinese Journal of Gastroenterology. 2015;35(5):294-299.
8. Chen J. Effect of comprehensive nursing intervention on self-care ability and quality of life of patients with esophageal cancer undergoing radiotherapy. Int J Nurs. 2019;38(2):265-267.
9. Qin Z, Wang C. Correlation between social relationship quality and hope level of patients with permanent colostomy. Guizhou Med Univ. 2018;42(5):94-96.
10. Shi J. Effect of positive psychological suggestion combined with relaxation training on stress response and coping style of patients with esophageal cancer undergoing radiotherapy and chemotherapy. Med Clin Res. 2018;35(10):2008-2010.
11. Cao B, Na J, Gong L, et al. Correlation between hope level and quality of life in elderly patients with esophageal cancer. Chin J Gerontol. 2018;38(10):232-234.
12. Wang Y, Zhu L, Yuan F, et al. The relationship between social support and quality of life: evidence from a prospective study in Chinese patients with esophageal carcinoma. Iran J Public Health. 2016;44(12):1603-1612.
13. Li Q, Huang P. Effect observation of whole course high quality nursing on patients with esophageal cancer. J Guangz Med Coll. 2018;46(3):134-136.
14. Takeo F, Naoya O, Takji S, et al. Translation, validation of the EORTC esophageal cancer quality-of-life questionnaire for Japanese with esophageal squamous cell carcinoma: analysis in thoraco-laparoscopic esophagectomy versus open esophagectomy. Jpn J Clin Oncol. 2016;46(7):615-621.
15. Yang L. Exploration of problem-based postoperative pipeline nursing for patients with esophageal cancer. Chin J Pract Nurs. 2016;32(26):2033-2035.
16. Li J, Yan Y, Liu X, et al. Effect of problem-based nursing intervention on rehabilitation and quality of life of patients after laparoscopic radical gastrectomy. Chin J Cancer Prev Treat. 2018;25(51):249-250.
17. Lin L, Lin X, Chen Y. Effect of self-care intervention on self-care ability and quality of life of patients with esophageal cancer undergoing radiotherapy. Int Med Health Guide. 2018;24(21):3347-3350.
18. Chen C, Zhou Y, Wei X. Effect of nursing intervention on self-care ability and complications after esophageal cancer surgery. Lab Med Clin Med. 2019;16(8):1131-1134.

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