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Original Article

Effects of high-quality nursing intervention on negative emotions, postoperative complications and gastrointestinal function in patients with gastric cancer surgery

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Abstract: Objective: To evaluate the effects of high-quality nursing intervention on negative emotions, postoperative complications and gastrointestinal function of patients underwent gastric cancer (GC) surgery. Methods: From November 2017 to February 2019, a total of 164 GC patients who underwent operative treatment in our hospital were selected as the research subjects. Thereinto, 86 patients were given high-quality nursing intervention (research group, RG), and the other 78 received routine nursing intervention (control group, CG). The hospitalization time, expenses and the incidence of postoperative complications were compared between the two groups. After operation, the gastrointestinal function, negative emotions, postoperative pain, quality of life, nursing satisfaction, and ESCA and PSQI scores were compared between the two groups. Results: The hospitalization time was significantly shorter and expenses were obviously lower in patients of the RG than those in the CG. The incidence of postoperative complications in the RG was obviously lower than that in the CG. The gastrointestinal function indexes (time to anal exhaust, time to defecation, time to start eating, recovery time of bowel sounds, indwelling time of gastric tube, time of getting out of bed) of patients in the RG were obviously better. The SAS, SDS, PSQI scores and VAS scores at 24 h after operation of patients in the RG were obviously lower than those in the CG. The score of quality of life, scores of ESCA and nursing satisfaction of patients in the RG were obviously higher than those in the CG. Conclusion: High-quality nursing intervention can dramatically improve negative emotions, reduce postoperative complications, ameliorate sleep quality, enhance self-care ability, relieve postoperative pain and improve quality of life and nursing satisfaction for patients undergoing GC surgery.

Keywords: High-quality nursing, gastric cancer surgery, negative emotions, postoperative complications, postoperative pain, gastrointestinal function

Introduction

Gastric cancer (GC) is one of the most common malignancies worldwide, and is also a leading cause of cancer-related death [1]. The development of GC is caused by many factors, with the most common one of helicobacter pylori infection, as well genetics, environmental, and dietary factors, etc. [2]. Epidemiological investigation shows that there are obvious regional differences in the incidence of GC, most GC patients are over 50 years old, and more common in males than in females. Moreover, low- and middle-income countries have higher morbidity and mortality from GC [3]. The diagnosis of GC is mainly through imaging examination, laboratory examination and gastric biopsy, among which gastric biopsy is the golden standard of diagnosis [4, 5]. As there are no obvious symptoms in the early stage, most GC patients are already in the middle and advanced stages at the time of diagnosis, and some even have metastasis or invasion [6]. GC is characterized by a short course of disease, rapid development, early metastasis and generally poor prognosis, and it has become a major public health problem endangering human life and health globally [7]. At present, the treatment methods for GC include surgery, radiotherapy, chemotherapy and basic support treatment, among which surgery is the most crucial and main treatment method [8, 9]. Although GC surgery

has achieved better clinical efficacy, the postoperative recovery and later prognosis of GC patients mostly depend on the disease itself, such as surgical trauma, postoperative complications and lack of awareness of the disease [10, 11]. Therefore, a reasonable and effective nursing intervention may help to recover, improve prognosis and reduce mortality of GC patients.

With the continuous improvement of people's quality of life, requirements for high-quality medical treatment and nursing are increasing, and routine nursing can no longer meet their nursing needs in modern society [12]. At the same time, with the transformation from the traditional single biomedical model to the modern bio-psycho-social model, the nursing intervention model is also constantly developing into a patient-centered comprehensive nursing model [13]. High-quality nursing is a new nursing mode, which mainly carries out nursing practice with patient-centered nursing concepts [14]. High-quality nursing can improve the overall quality of nursing service by training nurses professionally and improving their comprehensive and professional skills [15]. The ultimate goal is to improve patients' awareness of the disease, adjust their emotions, increase their confidence in treatment, ensure patients' life, health and safety, and accelerate their rehabilitation [16]. Previous studies have revealed that high-quality nursing plays a vital role in attenuatingthe unhealthy emotions and improving the quality of life of patients with liver carcinoma after operation [17]. However, there are few studies available that focus on the effects of high-quality nursing on postoperative negative emotions, complications and gastrointestinal function of patients undergoing GC surgery.

In this study, high-quality nursing mode was implemented for patients undergoing GC surgery to explore the effects of this nursing mode on their postoperative negative emotions, complications and gastrointestinal function, hoping to provide a feasible intervention scheme for postoperative nursing mode.

Materials and methods

Baseline data

In this retrospective study, a total of 164 GC patients who underwent operative treatment from November 2017 to February 2019 in the First Affiliated Hospital of Zhengzhou University were enrolled and separated into two groups according to different nursing intervention modes. In the CG, 78 cases were given routine nursing. In the RG, 86 were given high-quality nursing. There were 55 males and 23 females in the CG, aged from 29 to 68 years old, with an average age of (58.14±3.62) years old; while there were 60 males and 26 females in the RG, with a mean age of (58.03±3.88) years old, ranging from 30 to 70 years old. The study was in accordance with the approval of the Medical Ethics Committee of our hospital. Ethics batch No.: (2019) Ethical Review (107th for preparation).

Inclusion and exclusion criteria

Inclusion criteria: (1) Patients conformed to the diagnostic criteria of GC [18]. (2) Patients classified as grade I-II according to the American society of anesthesiologists (ASA) [19]. (3) Patients treated for the first time. (4) Patients with an expected survival of fasmonths.

Exclusion criteria: (1) Patients comorbid with other malignancies or other stomach diseases; (2) Patients with serious heart, lung and kidney dysfunction; (3) Patients with a history of serious gastrointestinal diseases; (4) Patients with cognitive impairment, language and hearing impairment; (5) Patients comorbid with mental disease or family history of mental disease; (6) Patients with incomplete clinical data and those who quit halfway.

This study had been approved by the Ethics Committee of our hospital, and both the subjects and their dependents had been informed and signed the fully informed consent form.

Nursing methods

In the CG, patients were given routine nursing mode. The main methods included keeping the ward clean and tidy, performing routine examination before operation, monitoring vital signs, informing necessary precautions, closely observing the changes of illness after operation, giving guidance on diet and medication and other routine nursing measures.

In the RG, patients were given high-quality nursing intervention model on the basis of the CG. The specific methods were as follows:

(1) Preoperative health knowledge education: Before surgery, the medical staff assessed the patient's vital signs, understood the past medical history, grasped the specific condition and formulated personalized nursing plan according to the patient's actual situation. According to the patient's education level, the medical staff explained the knowledge related to GC and GC surgery to the patient and his/her family, informed them about the matters requiring attention in the hospital, introduced the management doctors and nurses to the patient, helped the patient familiar with the environment and understand the diagnosis and treatment plan as soon as possible, and improved the patient's awareness of GC and treatment compliance.

(2) Psychological nursing: After admission, medical staff actively communicated with patients, grasped their psychological activities in real time and told patients about GC-related knowledge and surgical plans by playing videos and conducting psychological lectures, so as to relieve and eliminate any anxiety and tension caused by their ignorance of GC and surgical treatment. Medical staff actively carried out health guidance to the family members of patients to enhance the awareness of prevention of complications and reduce the incidence of complications as much as possible. Meanwhile, the nursing staff patrolled the ward once an hour, actively communicated with patients and listened patiently to their complaints during hospitalization. Nurses motivated patients with positive language and optimistic attitudes, and regularly organized the successfully treated patients to communicate with current patients, so as to convey positive and optimistic treatment ideas, improve treatment confidence, eliminate negative emotions and relieve psychological pressure.

(3) Preoperative nursing: Before the operation, the medical staff led the patients to visit the operating room to help them get familiar with the operating environment and observed the sleep of the patients. Appropriate sedatives could be given to the insomnious patients to ensure sufficient sleep. Meanwhile, the medical staff instructed the patients on the methods of postoperative respiration and sputum production and guided them to practice the methods of urination in bed.

(4) Dietary nursing: By consulting the patients of their eating habits, the medical staff made a proper diet plan for the patients based on the principle of low fat, high protein and high calories. The patients were instructed to eat liquid food on the day before operation and asked to have fasting for 12 h before operation. After operation, the diet gradually shifted from liquid to normal. The patients were also told to avoid spicy and stimulating food, quit smoking and alcohol, and to follow the principle of eat less but more times.

(5) Postoperative functional exercise: The medical staff observed the patient's condition closely after operation, and observed the patient's vital signs once every 20 minutes. After operation within 2 h, the patient was told to start turning over. One day after that, the patient was assisted to sit up. Two days after operation, the patient was encouraged to get out of bed. Three days after operation, the patient was assisted to walk indoors, and the active activity was gradually increased.

(6) Nursing of drainage tube: The drainage tube was effectively fixed to ensure the patency of drainage and avoid the development of compression, blockage, shedding, self-extubation and other accidents. During catheterization, medical staff took good care of the oral cavity, closely observed the color, shape and amount of drainage fluid, and timely reported any abnormalities to physician.

(7) Postoperative pain care: The medical staff instructed the patient to breathe deeply and relieve the postoperative pain through massage, local hot compress, music therapy and so on. If necessary, the patient was given analgesic drugs as prescribed by the doctor.

(8) Nursing of postoperative complications: After operation, the medical staff carefully observed whether the dressing of the incision was complete and whether there was bleeding in the incision, and changed the dressing in time to prevent infection of the incision. Medical staff took good care of the oral cavity and assisted patients to discharge sputum and prevent lung infection by means of manual tremor, atomization inhalation and tapping on the chest and back. The postoperative bleeding usually developed within 24 h after operation. Thus, the color and nature of gastrointestinal decom-

pression extract were closely observed during this period, and the inspection was strengthened to observe and inquire about patients' self-perception, so as to prevent the complications such as obstruction and anastomotic leakage.

Outcome measures

(1) The time of hospitalization, expenses and the incidence of complications were recorded and compared between the two groups.

(2) The postoperative gastrointestinal function indexes were analyzed in the two groups: time to anal exhaust, time to defecation, time to start eating, time to the recovery of bowel sounds, indwelling time of gastric tube and time to getting out of bed.

(3) Self-rating Anxiety Scale (SAS) and Self-rating Depression Scale (SDS) [20] were applied to evaluate the anxiety and depression of patients in both groups before and after nursing intervention. The total score of SAS scale is 100 points: 50-70 indicate mild anxiety, 71-90 indicates moderate anxiety, >90 indicates severe anxiety. A higher score denotes more serious anxiety. The total score of SDS scale is 100 points: 50-70 indicates slight depression, 71-90 indicates medium depression, >90 indicates serious depression. A higher score indicates more severe depression.

(4) Pain degree: Visual analogue scale (VAS) [21] was applied to assess the pain degree of patients after nursing intervention for 24 h. A score of 0 indicates painless, 1-3 indicates slight pain, 4-6 indicates medium pain, and 7-10 indicates serious pain. A higher score means stronger pain.

(5) The SF-36 quality of life scale was applied to assess the quality of life of patients in the two groups after nursing intervention. The quality of life of patients was evaluated by referring to the SF-36 scale [22] developed by American Medical Research Institute, including eight domains: general health, physiological function, physiological role, physical pain, vitality, social function, emotional function and mental health. Each domain is scored from 0-100 points. A higher score means better the life quality.

(6) A self-made Nursing Satisfaction Questionnaire was used for nursing satisfaction assessment in our hospital, with a total of 20 questions with a total 5 points for each. The total score <70 indicates dissatisfaction, 70-89 indicates satisfaction, and ≥90 indicates great satisfaction. Satisfaction = (great satisfaction + satisfactory)/total cases ×100%.

(7) Self-care ability score: The exercise of self-care agency scale (ESCA) [23] was used to evaluate the self-care ability of patients before and after nursing intervention. The scale includes four dimensions: self-care skills, self-care responsibility, self-concept and health knowledge level, with a total of 43 items. A 5-point scoring method was used. The higher the score, the better the patient's self-care ability.

(8) PSQI score: Pittsburgh Sleep Quality Index (PSQI) scale [24] was used to evaluate patients' sleep quality. There are 7 components and 18 items in the scale. Each part is scored from 0-3, and the cumulative score is the total score of PSQI, with the total score range of 0-21. The criteria for evaluating sleep quality are as follows: excellent (0-5 points), good (6-10 points), fair (11-15 points), poor (16-21 points).

Statistical methods

SPSS 20.0 (IBM Corp, Armonk, NY, USA) was used for statistical analysis. GraphPad Prism 7 was used to figure rendering. The counting data were represented by [n (%)]. The Chi-square test was applied to compare the counting data between groups. When the theoretical frequency in Chi-square test was less than 5, the continuity correction Chi-square test was applied. The measurement data were represented by mean number ± standard deviation ($\bar{x}\pm$sd). The measurement data between groups were compared by independent sample t-test. The paired-t test was applied for comparison within groups before and after nursing. The difference was statistically significant with $P<0.05$.

Results

Baseline data

There was no obvious difference in general clinical baseline data such as gender, age, body mass index (BMI), marriage, TNM stage, tumor location, and history of smoking, drinking, dia-

Table 1. Comparison of baseline data between two groups [n (%)] ($\bar{x}$±sd)

Classification	RG (n=86)	CG (n=78)	t/χ^2 value	*P* value
Gender			0.010	0.917
Male	60 (69.77)	55 (70.51)		
Female	26 (30.23)	23 (29.49)		
Age (years old)	58.03±3.88	58.14±3.62	0.187	0.851
BMI (kg/m^2)	23.67±2.68	24.02±2.94	0.797	0.426
Marital status			0.002	0.963
Unmarried	19 (22.09)	17 (21.79)		
Married	67 (77.91)	61 (78.21)		
TNM staging			0.364	0.947
I	30 (34.88)	29 (37.18)		
II	32 (37.21)	30 (38.46)		
III	18 (20.93)	15 (19.23)		
IV	6 (6.98)	4 (5.13)		
Tumor location			0.135	0.934
Gastric fundus and cardia	14 (16.28)	13 (16.67)		
Gastric body	31 (36.05)	26 (33.33)		
Gastric antrum and pylorus	41 (47.67)	39 (50.00)		
Smoking history			0.077	0.780
Yes	28 (32.56)	27 (34.62)		
No	58 (67.44)	51 (65.38)		
Drinking history			0.005	0.940
Yes	26 (30.23)	24 (30.77)		
No	60 (69.77)	54 (69.23)		
Diabetes history			0.535	0.464
Yes	21 (24.42)	23 (29.49)		
No	65 (75.58)	55 (70.51)		
Hypertension history			0.085	0.770
Yes	29 (33.72)	28 (35.90)		
No	57 (66.28)	50 (64.10)		

Table 2. Comparison of hospitalization time and expenses between the two groups ($\bar{x}$±sd)

Grouping	Hospitalization time (d)	Hospitalization expenses (ten thousand yuan)
RG (n=86)	9.85±3.83	1.24±0.34
CG (n=78)	12.92±4.08	2.46±0.54
T	4.970	17.480
P	<0.001	<0.001

betes and hypertension between the two groups (P>0.05) (**Table 1**).

Comparison of hospitalization time and expenses between the two groups

The hospitalization time was obviously shorter and expenses were significantly lower in the patients of RG than those in CG (P<0.05) (**Table 2**).

Comparison of postoperative complication rates between two groups

The incidence of postoperative complications was 5.81% in the RG and 24.35% in the CG. The rate in the RG was obviously lower than the CG (P<0.05) (**Table 3**).

Comparison of postoperative gastrointestinal function indexes between two groups

The gastrointestinal function indexes (time to anal exhaust, time to defecation, time to start eating, time to recovery of bowel sounds, indwelling time of gastric tube and time to get out of bed) of patients in the RG were obviously

Table 3. Comparison of complication rate between the two groups [n (%)]

Grouping	Pulmonary infection	Wound infection	Anastomotic leakage	Pressure sore	Gastrointestinal dysfunction	Overall incidence
CG (n=78)	4 (5.12)	5 (6.41)	3 (3.85)	3 (3.85)	4 (5.12)	19 (24.35)
RG (n=86)	1 (1.16)	1 (1.16)	1 (1.16)	0 (0.00)	2 (2.33)	5 (5.81)
χ^2	-	-	-	-	-	11.260
P	-	-	-	-	-	<0.001

Table 4. Comparison of postoperative gastrointestinal function indexes between the two groups ($\bar{x}$±sd, d)

Grouping	Time to anus exhaust	Time to defecation	Time to start eating	Recovery time of bowel sounds	Indwelling time of gastric tube	Time to get out of bed
CG (n=78)	2.97±0.65	5.68±1.21	3.65±0.68	1.96±0.35	5.68±1.04	7.94±1.86
RG (n=86)	1.68±0.54	3.31±1.15	2.02±0.42	1.21±0.30	3.21±0.54	5.12±1.12
t	13.870	12.860	18.650	14.770	19.340	11.890
P	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

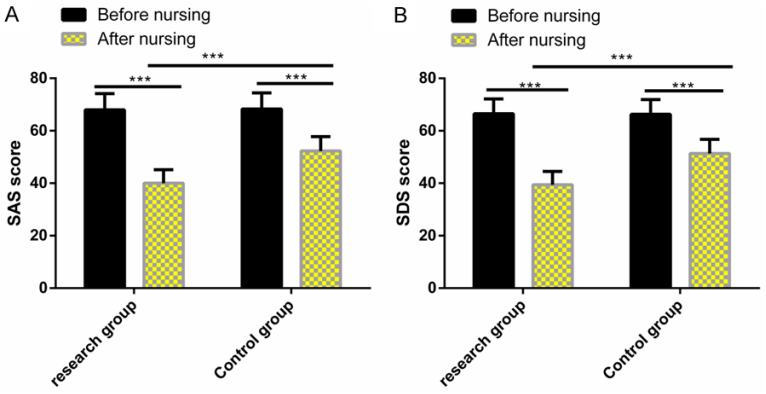

Figure 1. Comparison of SAS and SDS scores between the two groups. A. After nursing intervention, the SAS scores of patients decreased in the two groups, and patients in the RG had significantly lower scores than those in the CG. B. After nursing intervention, the SDS scores of patients decreased in the two groups, and scores in the RG were significantly lower than those in the CG. Note: ***P<0.001.

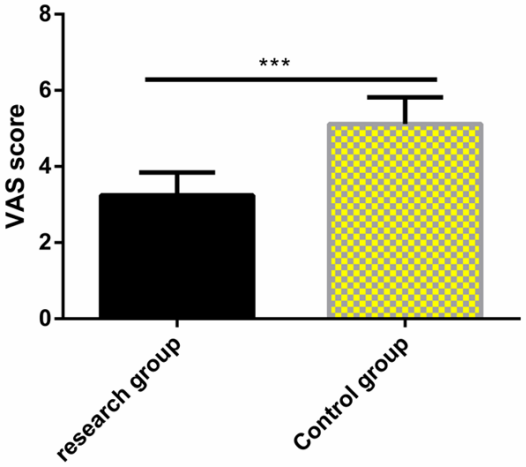

Figure 2. Comparison of VAS scores between the two groups after operation. The VAS scores of patients in the RG were significantly lower than those in the CG 24 hours after operation. Note: ***P<0.001.

better than those in the CG (P<0.05) (**Table 4**).

Comparison of SAS and SDS scores between two groups

Before nursing intervention, there was no obvious difference in SAS and SDS scores between two groups (P>0.05). After that, the scores of SAS and SDS decreased in the two groups, and the patients in the RG had obviously lower scores than those in the CG (P<0.001) (**Figure 1**).

Comparison of VAS scores between two groups after operation

The VAS scores of patients in the RG were obviously lower than those in the CG at 24 hours after operation (P<0.001) (**Figure 2**).

Comparison of quality of life (QoL) between two groups

The scores (general health, physiological function, physiological role, physical pain, vitality,

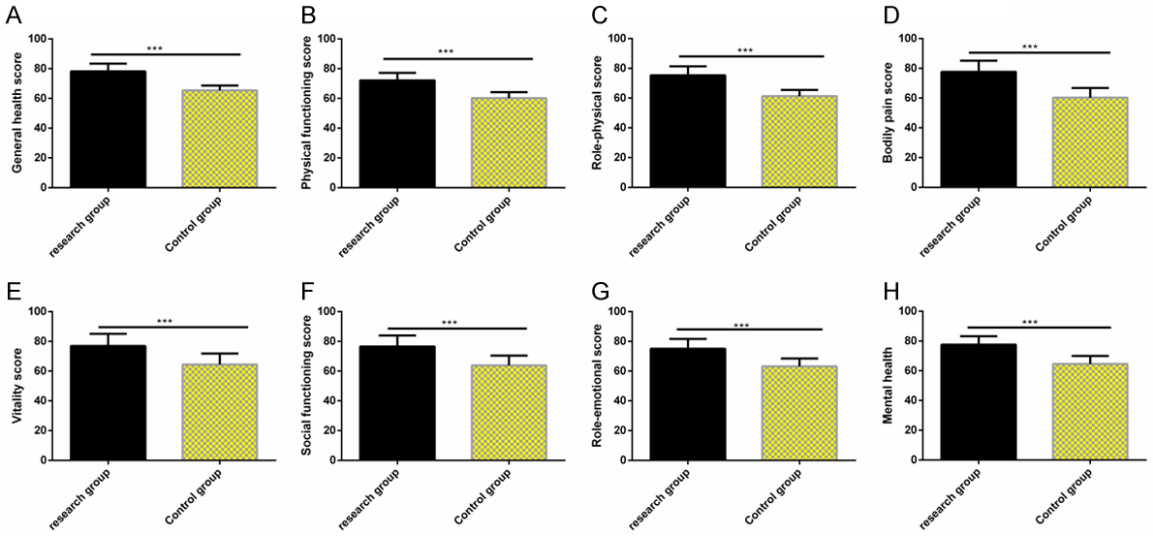

Figure 3. Comparison of quality of life between the two groups. A. The scores of general health in the RG were significantly higher than those in the CG. B. The scores of physiological function in the RG were significantly higher than those in the CG. C. The scores of physiological role in the RG were significantly higher than those in the CG. D. The scores of physical pain in the RG were significantly higher than those in the CG. E. The scores of vitality in the RG were significantly higher than those in the CG. F. The scores of social function in the RG were significantly higher than those in the CG. G. The scores of emotional function in the RG were significantly higher than those in the CG. H. The scores of mental health in the RG were significantly higher than those in the CG. Note: ***P<0.001.

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

Items	RG (n=86)	CG (n=78)	χ^2 value	*P* value
Great satisfaction	62 (72.09)	35 (44.87)	-	-
Satisfactory	20 (23.26)	28 (35.90)	-	-
Dissatisfied	4 (4.65)	15 (19.23)	-	-
Nursing satisfaction	82 (95.35)	63 (80.77)	8.488	0.003

social function, emotional function and mental health) of QoL in the RG were significantly higher than those in the CG (P<0.001) (**Figure 3**).

Comparison of nursing satisfaction between the two groups after nursing intervention

After nursing intervention, the nursing satisfaction in the RG was 95.35%, while that in the CG was 80.77%. The nursing satisfaction of patients in the RG was dramatically higher than that in the CG (P<0.05) (**Table 5**).

Comparison of ESCA score between the two groups

Before nursing intervention, there was no significant difference in the scores of self-care skills, self-care responsibility, self-concept and health knowledge level and the total scores of self-care ability between the two groups. After that, the scores of four dimensions and total scores of self-care ability were dramatically higher than those before intervention, and the scores of RG were obviously higher than those of CG (**Figure 4**).

Comparison of sleep quality scores between the two groups

Before nursing intervention, there was no obvious difference in PSQI scores between the two groups (P>0.05). After that, the scores decreased in the two groups, and the patients in RG were significantly lower than those in CG (P<0.001) (**Figure 5**).

Discussion

GC is a common malignancy of digestive system. With the changes of living environment and people's lifestyle, the incidence of GC is increasing annually; it tends to affect a younger population, which seriously affects patients' physical and mental health and creates an economic burden [25, 26]. Surgical resection is the first choice to treat GC. However, patients are easily affected by many factors during the perioperative period, and they are prone to severe complications such as pain and gastrointestinal dysfunction after operation. Hence, the

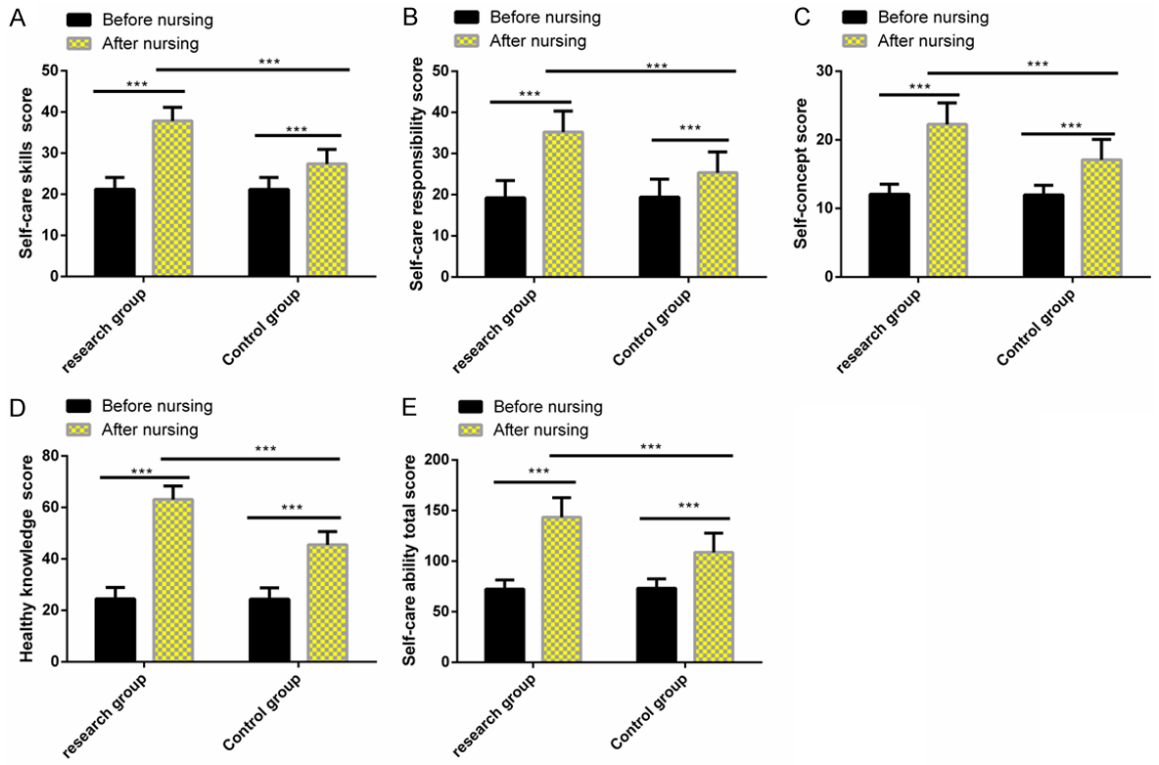

Figure 4. Comparison of ESCA score between the two groups. A. Before nursing intervention, there was no significant difference in the scores of self-care skill between the two groups. After nursing intervention, the scores in both groups increased significantly, and the RG was significantly higher than the CG. B. Before nursing intervention, there was no significant difference in the scores of self-care responsibility between the two groups. After nursing intervention, the scores in both groups increased significantly, and the RG was significantly higher than the CG. C. Before nursing intervention, there was no significant difference in the scores of self-concept between the two groups. After nursing intervention, the scores in both groups increased significantly, and the RG was significantly higher than the CG. D. Before nursing intervention, there was no significant difference in the scores of health knowledge level between the two groups. After nursing intervention, the scores in both groups increased significantly, and the RG was significantly higher than the CG. E. Before nursing intervention, there was no significant difference in the total scores of self-care ability between the two groups. After nursing intervention, the scores in both groups increased significantly, and the RG was significantly higher than the CG. Note: ***P<0.001.

postoperative nursing of patients with GC has been a hot spot in clinical research [27, 28].

Cao XL et al. [29] has reported that high-level nursing intervention for patients with GC after operation can improve patients' negative psychological emotions and their QoL. Xie FL et al. [30] have also explained that the combination of nutrition and education intervention has a beneficial impact on the nutritional status and compliance of patients with GC undergoing chemotherapy after surgery. The nursing intervention mode after GC surgery has been continuously developed and improved. In this study, we conducted high-quality nursing intervention for patients undergoing GC surgery, and explored its influence on patients' psychological emotions, postoperative complications and gastrointestinal functions. The findings of this research showed that the hospitalization time, expenses and the incidence of postoperative complications of patients in the RG were lower than those in the CG, indicating that high-quality nursing can improve the treatment effect, reduce the economic burden of patients in the hospital and relieve the development of postoperative adverse events. Wang LH et al. [31] have proved that the enhanced postoperative nursing intervention could obviously shorten the hospitalization time and expenses, accelerate the recovery of gastrointestinal function, and improve the postoperative nutritional status and QoL for patients undergoing GC surgery, which is similar to the results of this research. In this research, we observed the gastrointestinal function of patients in both

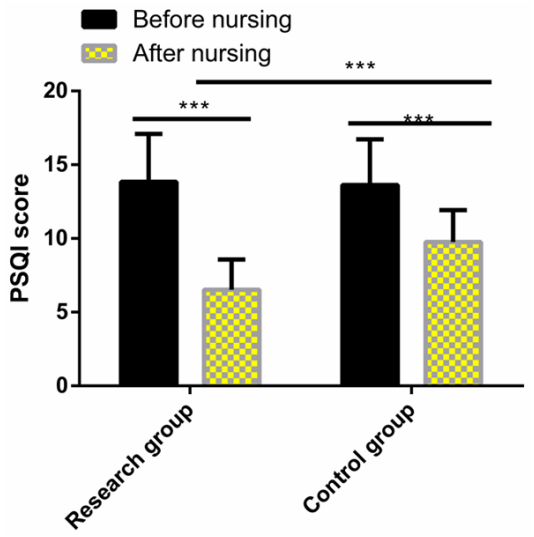

Figure 5. Comparison of PSQI scores between the two groups. After nursing intervention, the PSQI scores of patients decreased in the two groups, and patients in RG were significantly lower than those in CG. Note: ***P<0.001.

groups, and found that the time to anal exhaust and defecation, time to start eating, recovery time of bowel sounds, indwelling time of gastric tube and time to getting out of bed in the RG were all shorter than those in the CG, indicating that high-quality nursing can facilitate the recovery of gastrointestinal function and illness after operation, which was similar to the research results of Wang LH [31]. The SAS, SDS and PSQI scores were used to evaluate patients' negative emotions (anxiety, depression) and sleep quality, respectively. In this study, we evaluated patients in the two groups before and after operation. The results revealed that the SAS, SDS and PSQI scores of patients in the RG were lower than those in the CG after operation, indicating that high-quality nursing can improve the negative psychological emotions and ameliorate sleep disorder and sleep quality of patients in GC after operation, which was similar to the research results of Cao XL [29]. Clel and JFG et al. [32] have told that the intervention of high-quality nursing for patients with heart failure can reduce cardiovascular mortality, lessen the development of cardiovascular adverse events and ameliorate the quality of life. Gaffney CJ et al. [33] have discussed that high-quality nursing intervention for patients undergoing lower limb joint replacement can reduce postoperative pain, help patients to adjust their emotions and recover their functions, and improve their negative emotions of anxiety and depression, which is similar to the results of our research. In this study, we also evaluated the VAS scores of patients in the two groups after operation for 24 h. The results revealed that the VAS scores of patients in the RG were obviously lower than those in the CG, indicating that high-quality nursing can reduce the pain caused by surgery, which is similar to the research results of Gaffney CJ [33]. Finally, we evaluated the life quality, self-care ability and nursing satisfaction of patients in both groups. The results revealed that the quality of life score, ESCA score and nursing satisfaction of patients in the RG were obviously higher than those in the CG, indicating that high-quality nursing can ameliorate the quality of life, self-care ability and nursing satisfaction of patients, which also showed that high-quality nursing was more easily accepted by patients from another aspect. The quality of life is the best index to reflect the living conditions of cancer patients. Cheng QM et al. [34] have reported that the life quality and survival rate of patients with lung carcinoma can be significantly improved by psychological intervention and other high-quality nursing measures. In this study, the high-quality nursing was used to popularize health knowledge, psychological intervention and postoperative complications care measures for patients, so as to carry out the best nursing intervention and postoperative rehabilitation for patients from various aspects. Compared with conventional nursing, it improved the QoL and nursing satisfaction of patients, which was similar to the research results of Cheng QM [34]. According to our research results, high-quality nursing intervention can reduce the negative emotion, postoperative complications and help the recovery of gastrointestinal function of patients undergoing gastric cancer surgery. We inferred that the reasons were as follows: The comfortable and intimate environment lowered the stress of patients, and effective psychological intervention reduced the negative emotions and helped patients have exercise as soon as possible, which reduced the occurrence of adverse reactions.

Although this study has revealed that high-quality nursing can bring more benefits to patients undergoing GC surgery, there is still room for improvement in this study. For example, we can

further evaluate the treatment compliance of patients undergoing GC surgery, and analyze the risk factors affecting their poor prognosis, so as to improve the efficacy of patients. In the future, we will gradually supplement and study from the above perspective.

To sum up, high-quality nursing intervention can shorten the hospitalization time, reduce the expenses and postoperative complications, promote the recovery of gastrointestinal function, improve the negative emotions of anxiety and depression, enhance self-care ability, reduce postoperative pain, and ameliorate quality of life, sleep quality and nursing satisfaction for patients undergoing GC surgery.

Disclosure of conflict of interest

None.

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