

Original Article

Effects of operating-room detailed nursing on the postoperative recovery and adverse reactions of patients undergoing gastrectomy

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Abstract: Objective: To determine the effect of operating-room detailed nursing on the postoperative recovery and adverse reactions of patients undergoing gastrectomy. Methods: A total of 94 patients undergoing gastrectomy who were confirmed with gastric cancer and treated in our hospital from February 2018 to February 2019 were enrolled, of which 44 patients were given routine nursing against advanced gastric cancer as a routine nursing group, and the rest 50 patients were given operating-room detailed nursing based on the nursing for the routine nursing group as a detail group. Then the following items between the two groups after nursing were compared: The self-rating depression scale (SDS) score, self-rating anxiety scale (SAS) score, Hamilton anxiety scale (HAMA) score, Hamilton depression rating scale (HAMD) score, life quality, complications, and nursing satisfaction. Results: After nursing, the SDS, SAS, HAMA, and HAMD scores of both groups decreased significantly (all $P < 0.001$). The scores of nursing safety, disinfection and isolation, instrument and equipment management, surgical instrument preparation, nursing operation specification, and cooperation with the nursing staff of the detail group were significantly better than those of the routine nursing group (all $P < 0.001$). The quality of life scale (QOL-C30) scores of the detail group were significantly higher than those of the routine nursing group (all $P < 0.001$). Moreover, the incidence of complications in the detail group was significantly lower than that in the routine nursing group ($P < 0.05$). Conclusion: Operating-room detailed nursing is more effective in improving the emotional state and life quality of patients undergoing gastrectomy based on routine nursing, and it can reduce the occurrence rate of postoperative complications of patients undergoing gastrectomy to a certain extent.

Keywords: Gastric cancer, operating-room details, nursing intervention, mental health, life quality

Introduction

Gastric cancer accounts for 6.8% of new cancer cases and 8.8% of cancer-related deaths worldwide [1]. Although surgical resection is the cornerstone of cure of it, some aspects of surgical operation are still controversial or sub-optimal [2]. Surgical techniques and nursing methods are strongly linked to the prognosis of patients [3]. Surgical resection is the main treatment for patients with gastric cancer, but the accompanying pain and related adverse reactions also bring about great pain to the patients, so currently, it is important to take appropriate and effective nursing intervention for patients undergoing gastrectomy to improve their prognosis and life quality [4, 5].

With the continuous development of nursing concept, related medical environment requires increasingly higher psychology and life quality of patients [6]. Operating-room nursing is a wildly risky nursing work in clinical practice, and the nursing effect directly affects the operation quality and prognosis of patients. Therefore, more attention should be paid to nursing safety in the nursing work in the operating room. Moreover, researches have shown that rejection or non-cooperation with nursing of some patients in the clinical treatment progress seriously compromises the surgical efficacy and brings about high recurrence rate and metastasis rate in some patients after surgery [7, 8]. Effective nursing measures are of great significance to improve the life quality of patients [9].

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Operating-room detailed nursing is usually applied to patients with advanced cancer, and implementation of it can strengthen the safety management during nursing and improve the nursing quality, thus ensuring the treatment and nursing quality of patients [10]. This study was designed to determine the effect of operating-room detailed nursing on the postoperative recovery and adverse reactions of patients undergoing gastrectomy by comparing the routine nursing intervention and operating-room detailed nursing intervention

Materials and methods

A total of 94 patients undergoing gastrectomy who were confirmed with gastric cancer and treated in our hospital from February 2018 to February 2019 were enrolled, of which 44 patients were given routine nursing against advanced gastric cancer as a routine nursing group and the rest 50 patients were given operating-room detailed nursing based on the nursing for the routine nursing group as a detail group. The routine nursing group consisted of 23 males and 21 females, with an average age of 68.39 ± 5.48 years and an average course of disease of 2.13 ± 0.53 years, while the detail group consisted of 25 males and 25 females, with an average age of 69.15 ± 5.03 years and an average course of disease of 2.15 ± 0.60 years. Inclusion criteria: Patients diagnosed as gastric cancer based on clinical, imaging and pathological examination for the first time and patients with indications for radical resection of gastric cancer [11]. Exclusion criteria: Patients with other complications, mental disorder, cognitive disorder, or other mental disorders. The patients and their family members were informed of the study before carrying out of it, and the study was approved by the medical ethics committee.

Nursing methods

Patients in the routine nursing group were given routine preoperative, intraoperative, and postoperative nursing based on the operating-room nursing guidelines.

Patients in the detail group were given operating-room detailed nursing as follows: (1) Preoperative visit and psychological counseling: Before operation, relevant operating room nurses were required to confirm the clinical data of each patient, and inform him/her in

detail that he/she needed to fast for solid for half a day and fast for liquid for 6 hours before operation after confirming the data. In addition, the nurses were required to inform the patient of the operation plan and procedure. The nurses also arranged to explain the importance of this operation to diseases, inform the safety of the operation, actively introduce the basic information of the operation and related successful cases to the patient to relieve his/her anxiety and other negative emotions, and build a good doctor-patient relationship. (2) Preoperative preparation: After preoperative visit, the relevant medical staff arranged to carefully examine all kinds of articles needed for this operation to ensure that there were sufficient first aid drugs and plasma in the operating room. In addition, the staff arranged to clean the patient's body before operation, and asked the patient to wear a marking wrist belt to check the information and surgical site. (3) Intraoperative nursing: Relevant medical staff arranged to carefully check all kinds of articles required for this operation, strictly carried out aseptic operation, and appropriately adjusted the operating room temperature. The staff also arranged to monitor the patient's vital signs, timely established intravenous channels for fluid infusion and blood transfusion. If there was any abnormality during the operation, the staff would report the situation to the attending physician in time, and actively assist the attending physician to handle it according to the physician's advice. (4) Postoperative nursing: The medical staff arranged to closely monitor the vital signs of the patient after operation, provided better diet to the patient, and appropriately instructed the patients of off-bed activity. In addition, the nursing staff was required to urge relevant nursing families to observe whether the patient had any signs of vomiting.

Outcome measures

The following items of the routine nursing group and the detail group were compared: General clinical data, mental health and emotional state before nursing and at 1 month after nursing intervention. The mental health and emotional state of the two groups were scored using the self-rating depression scale (SDS) [12], self-rating anxiety scale (SAS) [13], Hamilton anxiety scale (HAMA) [14], and Hamilton depression rating scale (HAMD) [15]. The scores were directly proportional to the degree of anxiety

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Table 1. General data of the two groups

Group	The routine nursing group (n = 44)	The detail group (n = 50)	t/X ²	P-value
Age (Y)	68.39±5.48	69.15±5.03	0.701	0.485
Sex			0.048	0.826
Male	23 (52.27)	25 (50.00)		
Female	21 (47.73)	25 (50.00)		
Average course of disease (years)	2.13±0.53	2.15±0.60	0.170	0.865
BMI (kg/m ²)	19.18±2.24	19.20±2.31	0.043	0.966
Smoking history			0.182	0.669
Yes	30 (68.18)	32 (64.00)		
No	14 (31.82)	18 (36.00)		
Drinking history			0.061	0.805
Yes	20 (45.45)	24 (48.00)		
No	24 (54.55)	26 (52.00)		
Hypertension			1.875	0.171
Yes	39 (88.64)	39 (78.00)		
No	5 (11.36)	11 (22.00)		
Diabetes mellitus			0.247	0.620
Yes	18 (40.91)	23 (46.00)		
No	26 (59.09)	27 (54.00)		
Clinical staging			0.000	1.000
Stage I/stage II	0 (0.00)	0 (0.00)		
Stage III/IV	44 (100.00)	50 (100.00)		
Lymph node metastasis			0.136	0.713
Yes	10 (22.73)	13 (26.00)		
No	34 (77.27)	37 (74.00)		

Notes: Enumeration data of the two groups were analyzed using the χ^2 test. Measurement data were compared between the two groups using the independent-samples T test. $P < 0.05$ indicates a significant difference.

and depression. In addition, the life quality of the routine nursing group and the detail group was compared in four dimensions, physical health, mental health, material life, and social function, using the quality of life scale (QOL-C30) [16]. The scores were proportional to the quality of life. Moreover, complications of the two groups were compared, including intestinal adhesion, pulmonary infection, heart failure, respiratory circulating failure, and hypothermia, and the nursing satisfaction of the two groups was also compared.

Statistical analyses

The obtained data were analyzed statistically using SPSS19.0 (Asia Analytics Formerly SPSS China). Enumeration data were expressed as the [n (%)], and compared between groups using the χ^2 . Quantitative data were expressed as the mean \pm standard deviation ($\bar{x} \pm sd$), compared within groups before and after nursing

using the paired t test, and compared between groups using the independent-samples T test. $P < 0.05$ indicates a significant difference.

Results

General clinical data of the routine nursing group and the detail group

There was no significant difference between the two groups in baseline data such as age and sex (all $P > 0.05$, **Table 1**).

Mental health of the routine nursing group and the detail group before and after nursing

(1) Emotional state

SAS score changes of the routine nursing group and the detail group before and after nursing.

The SAS score of the routine nursing group before and after nursing intervention was

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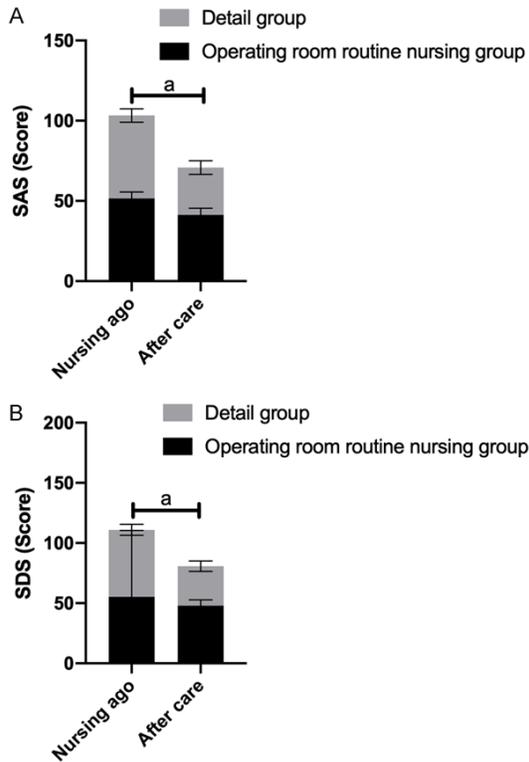


Figure 1. Mental health before and after nursing. Note: a indicates that the SAS and SDS levels after nursing in the two groups were significantly lower than those before nursing ($P < 0.001$); a indicates that the SAS and SDS levels after nursing in the detail group were significantly lower than those in the conventional nursing group ($P < 0.001$).

51.54±4.04 and 41.32±4.13, respectively, and the SAS score of the detail group before and after nursing intervention was 51.73±4.15 and 29.47±4.23, respectively, so after nursing, the SAS scores of both groups decreased significantly (both $P < 0.001$) and the SAS score of the detail group was significantly lower than that of the routine nursing group ($P < 0.001$) (Figure 1A).

SDS score changes of the routine nursing group and the detail group before and after nursing.

The SDS score of the routine nursing group before and after nursing intervention was 55.17±4.42 and 47.86±4.82, respectively, and the SDS score of the detail group before and after nursing intervention was 55.81±4.61 and 32.83±4.32, respectively, so after nursing, the SDS scores of both groups decreased significantly (both $P < 0.001$) and the SDS score of the detail group was significantly lower than that of the routine nursing group ($P < 0.001$) (Figure 1B).

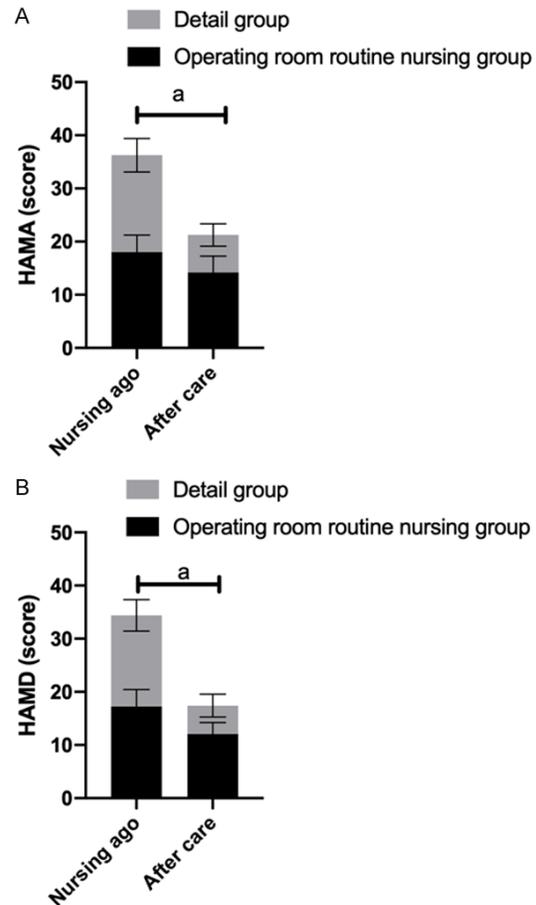


Figure 2. Psychological quality score. HAMA (A), HAMD (B); a means $P < 0.001$.

(2) Psychological quality score

After nursing, the HAMA and HAMD scores of both groups decreased significantly (all $P < 0.001$), and the HAMA and HAMD scores of the detail group were significantly lower than those of the routine nursing group (both $P < 0.001$) (Figure 2).

Nursing quality and nursing satisfaction of the routine nursing group and the detail group

Nursing quality: The scores of nursing safety, disinfection and isolation, instrument and equipment management, surgical instrument preparation, nursing operation specification, and cooperation with the nursing staff of the detail group were significantly better than those of the routine nursing group (all $P < 0.001$) (Table 2 and Figure 3).

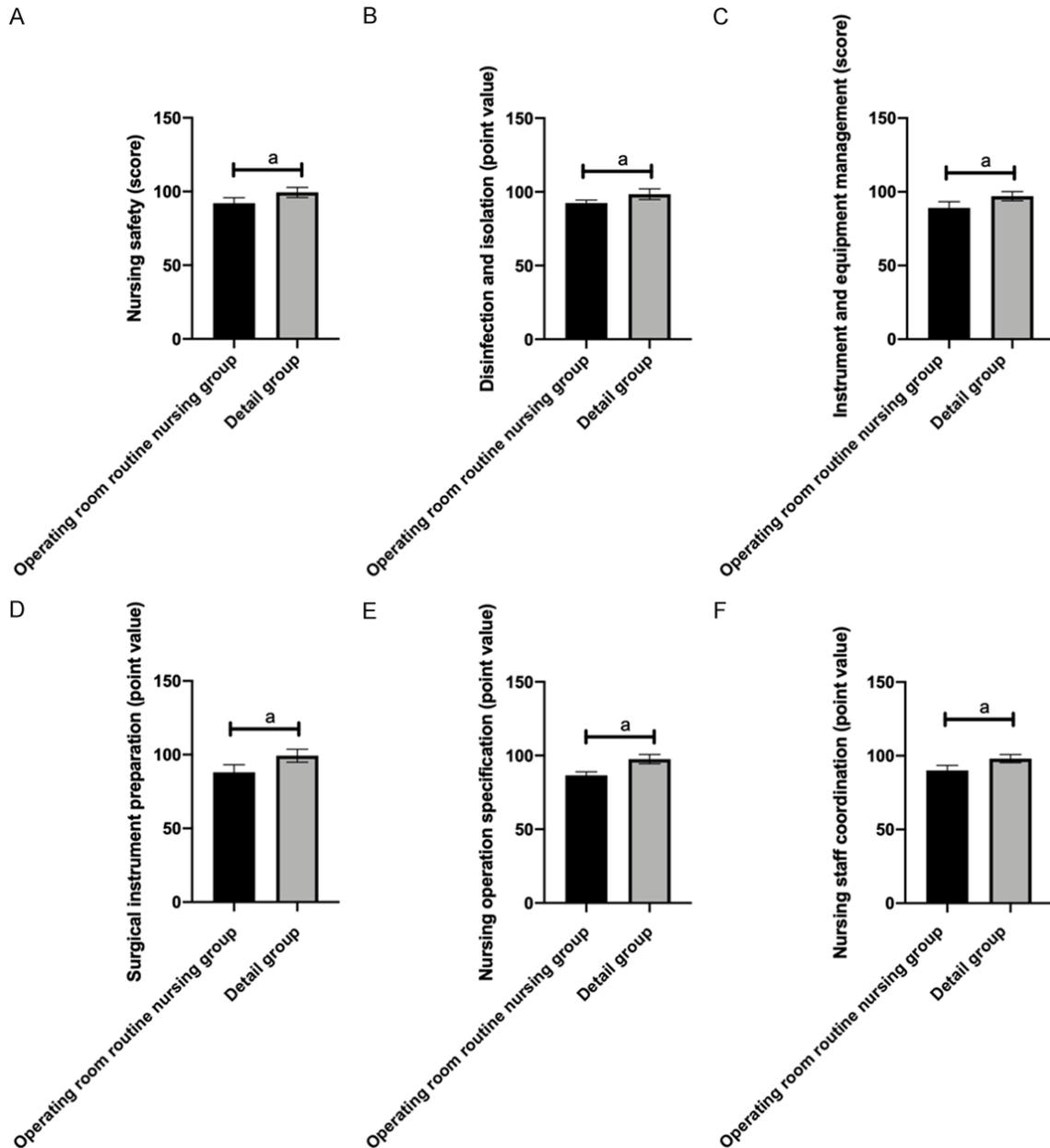
Nursing satisfaction: The overall nursing satisfaction of the detail group was significantly

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Table 2. Comparison of nursing quality between the routine nursing group and the detail group

Group	The routine nursing group (n = 44)	The details group (n = 50)	t	P-value
Nursing safety	92.10±3.77	99.38±3.47	9.747	< 0.001
Disinfection and isolation	92.33±1.98	98.40±3.62	9.892	< 0.001
Instrument and equipment management	89.10±4.20	97.08±3.15	10.500	< 0.001
Surgical instrument preparation	88.07±5.15	99.31±4.32	11.510	< 0.001
Nursing operation specification	86.53±2.41	97.54±3.14	18.870	< 0.001
Cooperation with the nursing staff	90.10±3.36	98.06±2.73	12.660	< 0.001

Notes: Measurement data were compared between the two groups using the independent-samples T test. P < 0.05 indicates a significant difference.



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Figure 3. Nursing quality. Nursing safety (A), disinfection and isolation (B), equipment management (C), surgical instrument preparation (D), nursing operation specifications (E), nursing staff coordination score (F); a means $P < 0.001$.

Table 3. Nursing satisfaction of the routine nursing group and the detail group

Group	The routine nursing group (n = 44)	The details group (n = 50)	χ^2	P-value
High satisfaction	20 (45.45)	35 (70.00)	-	-
Satisfaction	10 (22.73)	10 (20.00)	-	-
Moderate satisfaction	3 (6.82)	3 (6.00)	-	-
Dissatisfaction	11 (25.00)	2 (4.00)	-	-
Overall satisfaction	33 (75.00)	48 (96.00)	8.661	0.003

Note: Enumeration data were compared between the two groups using the χ^2 test. $P < 0.05$ indicates a significant difference.

Table 4. Comparison of life quality between the routine nursing group and the detail group after nursing intervention

Group	The routine nursing group (n = 44)	The details group (n = 50)	t	P
Physical health	44.27±4.02	52.34±4.34	9.310	< 0.001
Mental health	65.35±5.09	77.61±4.52	12.37	< 0.001
Material life	68.32±4.20	79.28±4.69	11.87	< 0.001
Social function	65.18±5.18	71.60±5.19	5.990	< 0.001

Notes: Measurement data were compared between the two groups using the independent-samples T test. $P < 0.05$ indicates a significant difference.

higher than that of the routine nursing group ($P < 0.05$) (Table 3).

Comparison of life quality between the routine nursing group and the detail group

Comparison of life quality between the two groups showed that QOL-C30 scores of the detail group were significantly higher than those of the routine nursing group in physical health, mental health, material life, and social function (all $P < 0.001$) (Table 4 and Figure 4).

Complications of the routine nursing group and the detail group

After nursing intervention, the incidence of complications in the detail group was significantly lower than that in the routine nursing group ($P < 0.05$) (Table 5).

Discussion

Gastric cancer has no obvious clinical symptoms in the early stage, so patients with gastric

cancer usually suffer from distant metastasis at the time of diagnosis [17], and many of them are already at the mid-term or advanced stage. For patients with mid-term or advanced gastric cancer, surgical treatment is the best choice. Epidemiological data and final results show that operating-room nursing is of great significance in reducing the risk of gastrectomy and is related to the prognosis of postoperative regional lymph node metastasis [18, 19].

In this study, we first scored the emotional state and psychological quality of the routine nursing group and the detail group before and after nursing, and obtained the following results: after

nursing, the SAS and SDS scores of both groups decreased, and the scores of the detail group were significantly lower than those of the routine nursing group. In addition, after nursing, the HAMA and HAMD scores of both groups also decreased significantly, and the scores of the detail group were also significantly lower than those of the routine nursing group. SAS and SDS scores and HAMA and HAMD scores are inversely proportional to emotional state and psychological quality, respectively [20, 21]. Therefore, we believe that operating-room detailed nursing based on routine nursing can effectively alleviate the anxiety symptoms of patients undergoing gastrectomy.

We compared the life quality between the routine nursing group and the detail group at one month after intervention based on the QOL-C30, finding that the life quality scores of the detail group were all significantly higher than those of the routine nursing group. Relevant studies have revealed that neurosis and other depression and anxiety symptoms of surgical

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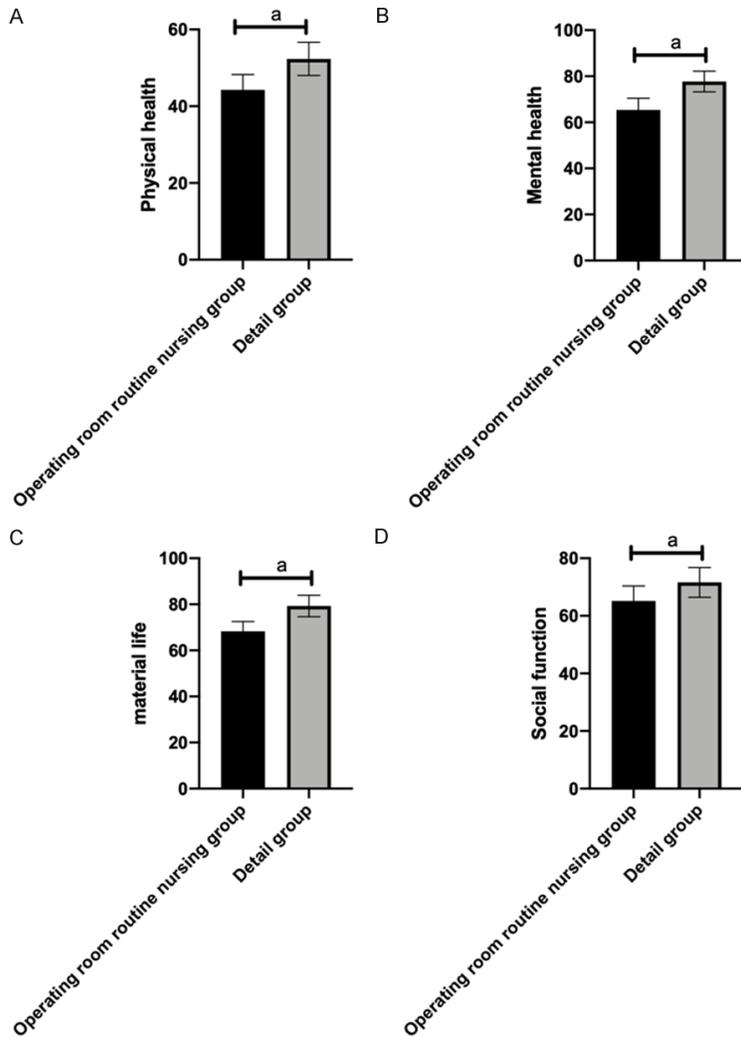


Figure 4. Comparison of life quality. Note: a indicates that the physical health, mental health, material life, and social function of the patients in the detail group are significantly higher than those in the routine care group in the operating room, and the differences are statistically significant ($P < 0.001$).

patients have a great impact on the recovery of postoperative incision [22, 23]. Reports on the psychological health of patients have indicated that operating-room detailed nursing can effectively relieve the abnormal psychological state of patients undergoing operation, but the requirement of operating-room detailed nursing during the whole operation process would greatly reduce the discomfort of patients during hospitalization [24, 25]. Therefore, we believe that operating-room detailed nursing is more valuable in improving the life quality of patients undergoing gastrectomy than routine nursing against gastric cancer.

Finally, we analyzed the nursing satisfaction and complications of patients in the routine nursing group and the detail group, finding that the incidence of complications such as intestinal adhesion, pulmonary infection, heart failure, respiratory circulating failure, as well as hypothermia of the detail group was significantly lower than that of the routine nursing group, and the nursing satisfaction of patients in the detail group was significantly higher than that of patients in the routine nursing group. Therefore, we infer that operating-room detailed nursing based on routine nursing can prevent patients undergoing gastrectomy from emergencies (pulmonary infection, heart failure, etc.) to a certain extent and enjoys a significantly higher acceptance and approval than the routine nursing against advanced gastric cancer. In recent years, clinical studies also show that operating-room detailed nursing can provide a certain guarantee for the surgical safety and prognosis of patients with advanced cancer undergoing surgical resection [26, 27].

There were some limitations in this study. For example, we did not analyze other biochemical indicators of patients, and the nursing plan formulated this time may not be suitable for other regions due to local medical level differences. In addition, the follow-up time was too short. In view of these limitations, we will continue to pay attention to the latest relevant research results in the later period and regularly revisit the patients enrolled in this study and record their prognosis, so as to continuously improve the study.

To sum up, operating-room detailed nursing is more effective in improving the emotional state and life quality of patients undergoing gastrectomy based on routine nursing, and it can

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Table 5. Complications of the routine nursing group and the detail group

Group	The routine nursing group (n = 44)	The details group (n = 50)	χ^2	P
Intestinal adhesions	2 (4.55)	1 (2.00)	-	-
lung infection	3 (6.82)	1 (2.00)	-	-
Heart failure	2 (4.55)	0 (0.00)	-	-
Respiratory and circulatory failure	2 (4.55)	0 (0.00)	-	-
Hypothermia	2 (4.55)	1 (2.00)	-	-
Total incidence	11 (25.00)	3 (6.00)	6.666	0.010

Notes: Enumeration data were compared between the two groups using the χ^2 test. P < 0.05 indicates a significant difference.

reduce the occurrence rate of postoperative complications of patients undergoing gastrectomy to a certain extent.

Disclosure of conflict of interest

None.

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