ORIGINAL RESEARCH

Effects of Psychological Nursing Combined with Comprehensive Nursing on Gastrointestinal Bleeding and Nutritional Status in Cirrhosis

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ABSTRACT

Objective • Cirrhosis of the upper GIB is a surgical emergency, PN and CN can reduce the risk of gastrointestinal bleeding, but there is a lack of analysis on PN combined with CN in Cirrhotic patients. This work explored the effects of psychological nursing (PN) combined with comprehensive nursing (CN) on gastrointestinal bleeding (GIB) and nutritional status of patients with cirrhosis.

Methods • Total 80 patients with GIB and cirrhosis who received emergency treatment in the Affiliated Hospital of Shaoxing University from October 2019 to October 2022 were randomly rolled into two groups. Patients in the control group (Ctrl group) received CN (n = 40 cases), and those in the experimental group (Exp group) received PN combined CN (n = 40 cases). The Model for end-stage liver disease (MELD) score, self-rating anxiety scale (SAS), self-rating depression scale (SDS), SCL-90, complication rate, and nursing satisfaction of patients from different groups were analyzed and compared. MELD score effectively predicts short - and medium-term mortality in end-stage liver disease. SAS consisted of 20 questions related to anxiety symptoms, four-level scoring

method was adopted. The SCL-90 scale included four aspects: somatic symptoms, interpersonal relationships, psychological emotions, and psychological needs.

Results • The results disclosed that after nursing intervention, SAS, SDS, and MELD scores in the Exp group were remarkably lower than those in the Ctrl group (*P* < .05). The scores of SCL-90 somatic symptoms, interpersonal relationships, psychological emotion, and psychological needs of participants in the Exp group were much lower than those in the Ctrl group (*P* < .05). The complication rate was significantly lower in the Exp (30.0%) than in the Ctrl groups (72.5%) (*P* < .05). The total nursing satisfaction was increased, and it is significan higher in the Exp group (97.5%) than control group (87.5%) (*P* < .05).

Conclusions • In conclusion, PN combined with CN could effectively reduce the incidence of complications in patients with GIB and cirrhosis and improve nursing satisfaction. Therefore, such a method was worth promoting, which provides a reference for the clinical diagnosis and treatment of patients with GIB and cirrhosis. (*Altern Ther Health Med.* 2024;30(1):318-325).

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INTRODUCTION

Cirrhosis is the end stage of the development of various chronic liver diseases and is characterized by diffuse fibrosis of the liver tissue, the formation of false lobules, and regenerating nodules.[1] In the early stage of cirrhosis is the "liver function compensatory stage" that the normal liver tissue replaces the liver tissue that compensates for the lesion of function or structure, the liver's function is compensable despite pathological changes, and the gastrointestinal function can be normal[2,3] However, if the disease continues to develop to the "stage of liver function decompensation" that the normal liver tissue replaces the liver tissue that compensates for the lesion of function or structure, the liver function will enter the stage of uncompensable liver function, and a series of complications will occur (ascites, idiopathic peritonitis, hepatorenal syndrome, GIB, hepatic encephalopathy, etc.), with a series of obvious symptoms, including lower limb edema, consciousness disturbance, epistaxis, hematemesis, and hematostocia, etc, influence the health and quality of life of patients.[4,5] The impact and severity of these complications vary, and is also affected by

treatment and care. A series of complications, such as massive gastrointestinal hemorrhage, portal vein thrombosis, and abdominal portal vein thrombosis also cause cirrhosis.[6]

Cirrhosis of the upper GIB is a surgical emergency and can lead to hemorrhagic shock and liver function impairment, even life threatening if not properly treated.[7] It is currently believed that a patient is primarily affected by portal hypertension, portal hypertensive gastropathy, causing gastrointestinal congestion, the patient is relatively prone to peptic ulcer and other causes, such as cardiac mucosa tearing and acute gastric mucosal lesions.[8,9] It is related to the broken varices of the esophagus and gastric fundus, heavy bleeding, hemodynamic changes in the gastric mucosa, gastric mucosal circulation, and nutritional impairment.[10,11,12] Finding and treating the existing and potential problems of a patient with ascites, jaundice, and GIB, and providing him with appropriate physiological, psychological, and social care is of great significance to treating and improving a cirrhotic prognosis.[13] Nursing staff should strengthen communication with patients and their families and explain to patients the relevant knowledge of cirrhosis to comfort and encourage them, relieve their psychological burden, and enable them to be more active in the treatment.[14]

Psychological nursing (PN) is guided by psychological theories and based on a good interpersonal relationship to meet patients' reasonable needs, eliminate adverse emotional reactions, and improve patients' adaptive ability.[15] It applies psychological methods and verbal and non-verbal communication to change the poor mental state and behavior of nursing objects, actively affect the psychological state of patients, help patients in their own conditions to obtain the most appropriate state of mind and body, and promote rehabilitation or maintain healthy nursing process.[16] conventional nursing (CN) is widely used in clinical disease nursing. In terms of nursing philosophy, duties and evaluation of nurses, standardized nursing plan, patient education plan, discharge plan, filling in various nursing forms, control of nursing quality, and other aspects, the nursing procedure is taken as the framework to ensure the level and quality of nursing services.[17] The CN could improve patient's degree of satisfaction with nursing, sense of responsibility, knowledge, and accomplishment of nurses, communication with patients, family members, and other medical personnel, quality of nursing service, work interest, and satisfaction increase of nurses.[18] PN and CN can reduce the risk of gastrointestinal bleeding by reducing anxiety and depression, improving patients' compliance with treatment and diet, preventing gastrointestinal bleeding, helping patients cope with the disease's troubles, improving the quality of life, and helping nutrition absorption and rehabilitation of gastrointestinal bleeding. There are currently some relevant studies on the efficacy of cirrhosis of CN or PN, but there is a lack of analysis on the efficacy of PN combined with CN in the clinical treatment of Cirrhotic patients. Meanwhile, studies on symptoms and nutritional status of patients with GIB complications are also lacking.

Therefore, this work aims to investigate the effects of PN combined with CN on GIB and nutritional status in cirrhosis patients, hoping to provide a certain reference value for the treatment and nursing of cirrhosis GIB.

MATERIAL AND METHODS
Research objects

This work enrolled 80 patients with GIB and cirrhosis who received emergency treatment in the Affiliated Hospital of Shaoxing University from October 2019 to October 2022 as research objects. Patients ranged in age from 30 to 80 years; and the mean age was (53±18) years. Among them, 55 were boys and 25 were girls. Inclusion criteria: (1) The patient had a previous history of liver disease and was diagnosed by clinical biochemistry and imaging. (2) The patient tested positive for 3 consecutive times by fecal occult blood test or had a history of blood in stool and hematemesis symptoms before admission. (3) The patient was conscious within one day after admission. Exclusion criteria: (1) Patients with serious injury of other important organs; (2) The patient had severe renal, lung, and brain tissue dysfunction. (3) Patients with mental abnormalities, malignant tumors, or systemic diseases. (4) The patient's medical records were incomplete, or the informed consent was not signed. The ethics committee of Affiliated Hospital of Shaoxing University approved this study. Signed written informed consent were obtained from all participants before the study.

Grouping of patients

In this work, 80 patients with GIB and cirrhosis were randomly rolled into two groups. One group used CN (Ctrl group, n = 40 cases), and the other group received PN combined with CN (Exp group, n = 40 cases). The age, gender, occupation, and other basic information of the two groups of patients were collected. The comparison revealed no differences in the average age, sex ratio, and other basic data ($P > .05$).

Different nursing modes of patients in various groups

CN was employed in Ctrl group patients with GIB and cirrhosis in this work. Prior to CN, it was necessary to establish an evidence-based nursing group, consult the data related to cirrhosis and cirrhosis of GIB patients, and then formulate the final CN intervention measures for patients with GIB and cirrhosis through discussion and analysis within the group. The measures of CN mainly include monitoring vital signs, bleeding assessment, fluid management, medication, nutritional support, infection prevention, agitation and anxiety management. CN interventions included CN assessment of patients by the responsible nurse based on general patient data collected, the development of individualized care models, and the development of patient-appropriate health education plans. The form of education should be diversified: bedside personalized education, lectures, public holiday forums, and other collective education, so that patients have mutual

exchange experience and experience. In addition, the understanding of the knowledge of patients and their families should be evaluated, and cognitive or behavioral errors should be corrected in time.

Exp group patients with GIB and cirrhosis were treated with PN combined with CN. On the basis of CN intervention, related content of PN is added. PN-related intervention methods include developing personalized PN intervention measures according to patients' specific conditions, actively communicating with patients and their families after admission, and establishing a good doctor-patient nursing environment. It should include a timely assessment of each patient's disease and the development of a comprehensive personal care plan, help patients establish the confidence to overcome the disease, and actively cooperate with medical staff treatment. In addition, as far as possible, patients and their families should be organized to participate in the collective communication activities held for patients in the ward of the hospital so as to encourage patients to share and communicate with each other and enhance their confidence. Healthcare workers mainly use colloquial and visual language to popularize the relevant knowledge of cirrhosis GIB to patients. The healthcare workers should timely correct patients' wrong cognition about the disease, relieve patients' anxiety, fear, and other bad emotions caused by the disease, master the correct cognition of the disease, improve patients' compliance, and create a good relationship of mutual trust between doctors and patients.

Observation indicators

The observational indicators in this work included patients' age, gender, occupation, and other basic information. At the same time, basic data of alanine aminotransferase (ALT), aspartate aminotransferase (AST), total bilirubin (TB), albumin level (ALB), alkaline phosphatase (ALP), prothrombin time activity (PTA), international normalized ratio (INR), and creatinine (CR) were also included at admission and after nursing intervention. Model for end stage liver disease (MELD) score, Self-rating anxiety scale, Model for end-stage liver disease (MELD) score, self-rating Anxiety scale, SAS, Self-rating depression scale (SDS), and SCL-90 of patients were compared. In addition, we also compared the scores of inpatients' satisfaction with nursing quality and work and the incidence of complications.

MELD score effectively predicts short - and medium-term mortality in end-stage liver disease. High risk with MELD score > 18, medium danger with MELD score 15~18, low risk with MELD score ≤14. Its data are calculated from baseline biochemical data of patients, as Equation (1).

$$MDLD = 3.8ln(TB) + 11.2\ ln(INR) + 9.6ln(CR) + 6.4(A)$$

In the above equation, A represented the cause, 0 was for alcoholic or biliary disease, and 1 stood for other types. SAS is a self-assessment tool could reflect the subjective feelings of psychopaths with anxiety tendencies well. It is consisted of 20 questions related to anxiety symptoms.

Four-level scoring method was adopted. The standard score of SAS was as follows: less than 50 points (normal); 50 ~ 60 points (mild anxiety); 61 ~ 70 points (moderate anxiety); and more than 70 points (severe anxiety). SDS was made on the basis of the Zung Depression Scale (1965) and was divided into 4 grades according to the frequency of symptoms. Depression severity index = cumulative total score of each item / 80; the index range was 0.25 ~ 1.0. < 0.5, 0.5 ~ 0.59, 0.6 ~ 0.69, and > 0.70. meant no, mild, moderate, and severe depression, respectively.

The SCL-90 scale included feeling, emotion, thinking, awareness, behavior, living habits, interpersonal relationships, diet, sleep, and other contents. They can be summarized into four aspects: somatic symptoms, interpersonal relationships, psychological emotions, and psychological needs. The lower the score, the healthier the patient.

Statistical analysis

Statistic Package for Social Science (SPSS) 19.0 (IBM, Armonk, NY, USA) was utilized for data processing. The mean of measurement data was expressed as ± standard deviation ($\bar{x} \pm s$), and that of comparison among groups was displayed as independent samples t test, the count data was expressed as a percentage (%). $P < .05$ indicated a statistically significant difference.

RESULTS

Biochemical indicators of patients on admission

Figure 1 compares the biochemical indicators of patients on admission. ALT, AST, GGT, TB, ALB, and CR levels in Exp group were 123.25U/L, 93.45U/L, 39.25U/L, 6.17U/L, 37.24U/L, 0.56U/L, respectively. ALT, AST, GGT, TB, ALB, and CR levels in Ctrl group were 116.42U/L, 90.33U/L, 43.24U/L, 5.75U/L, 36.38U/L, 0.56U/L, respectively. No observable difference was found in ALT, AST, GGT, TB, ALB, and CR levels in patients with Exp group and Ctrl group patients before admission ($P > .05$).

Anxiety and depression of patients before nursing

Figure 2 illustrates the distribution of SAS scores before nursing of patients receiving the CN and CN combined with PN. Meanwhile, Figure 3 displayed the distribution of SAS scores before the nursing of patients with different nursing methods for comparison. The SAS score and SDS score distribution in the Exp group and Ctrl group patients before nursing presented no obvious differences ($P > .05$).

Comparison of SAS and SDS scores of patients before and after nursing

Figure 4 shows the comparison of SAS scores of patients before and after nursing. The SAS scores in the Exp and Ctrl groups patients were 52.02 ± 6.35 points and 51.53 ± 7.43 points, respectively before they were nursed, showing a difference with $P > .05$. After nursing, the SAS score in the Exp group patients was 42.98 ± 5.13 points, much lower than in the Ctrl group (48.01 ± 6.32 points) ($P < .05$).

Figure 1. Comparison of biochemical indicators of patients on admission.
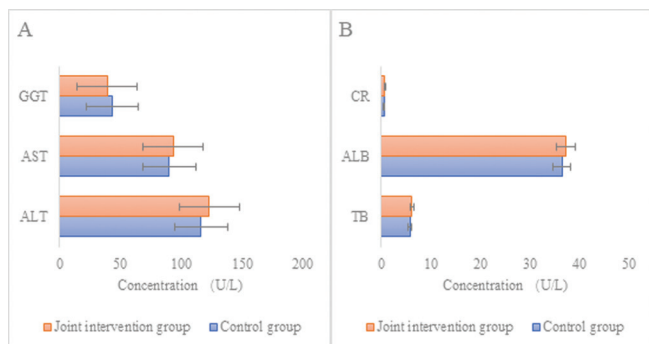
Note: A: comparison of ALT, AST, and GGT; B: comparison of TB, ALB, and CR

Figure 2. SAS score distribution of patients before nursing
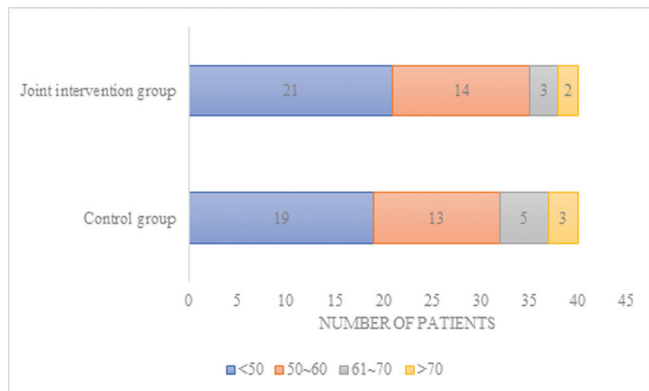

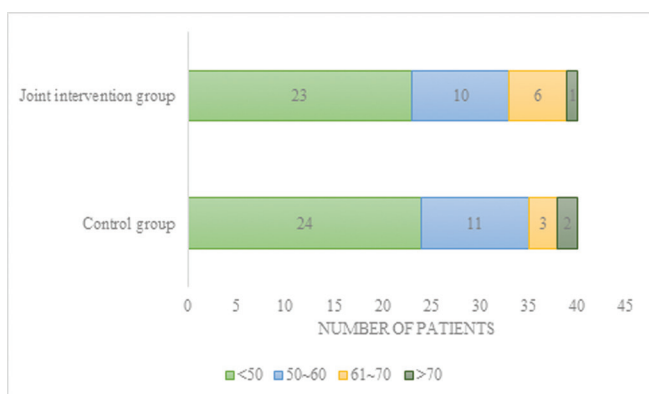**Figure 3.** SDS score distribution of patients before nursing

Figure 5 shows the comparison of the patients' SDS scores before and after receiving different nursing modes. Before the patients were nursed, the SDS scores in the Exp and Ctrl group patients were 47.02 ± 7.46 points and 46.53 ± 8.22 points, respectively ($P > .05$). After the intervention, the SDS score was observably lower in the Exp group (35.89 ± 6.23 points) than in the Ctrl group (42.87 ± 7.21 points) ($P < .05$).

Comparison of MELD scores of patients before and after they received different nursing modes
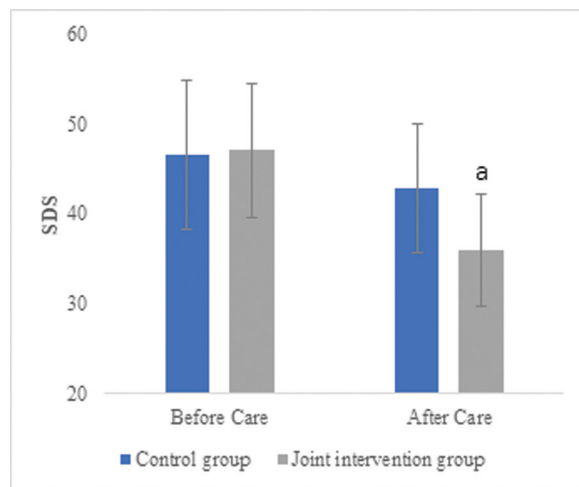
Figure 6 indicates the comparison of patients' MELD scores before and after receiving the CN or CN combined with PN. According to Figure 6, before they were nursed, the

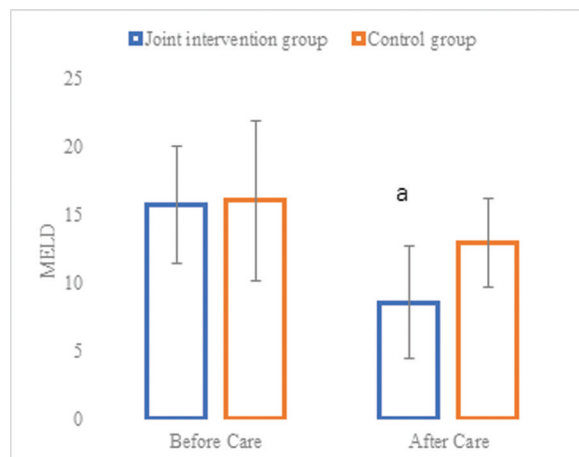**Figure 4.** Comparison of SAS scores of patients before and after they were nursed
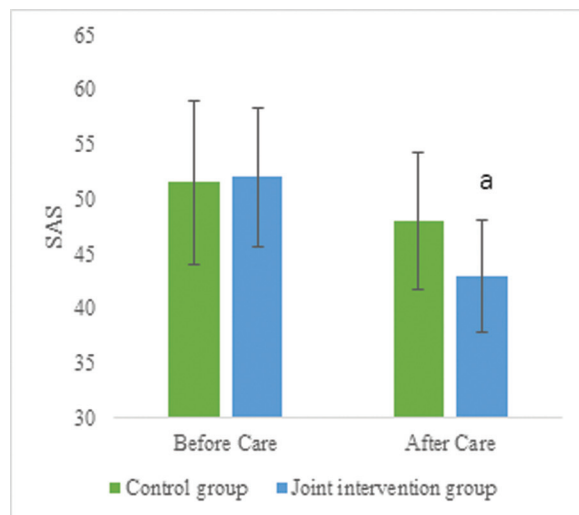
[a]indicated difference with $P < .05$

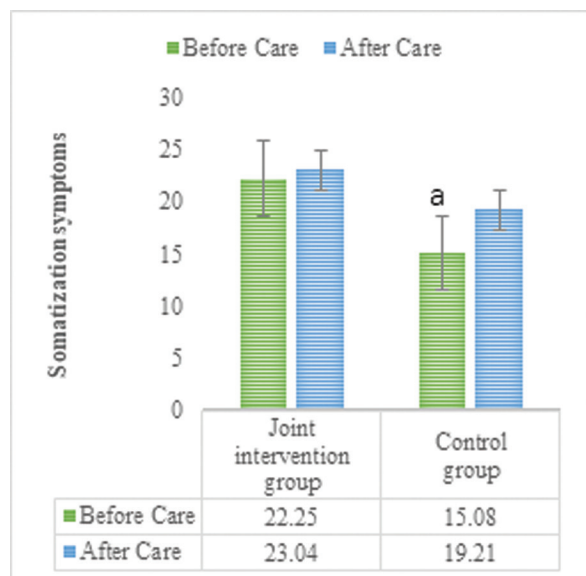**Figure 5.** Comparison of SDS scores of participants before and after they received different nursing modes

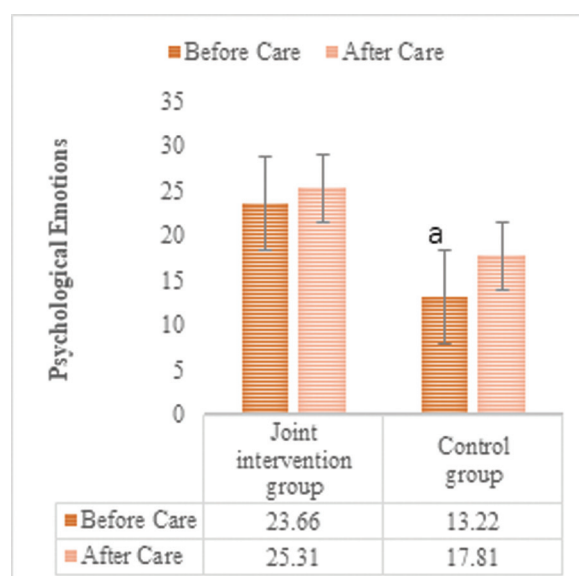[a]indicated $P < .05$

Figure 6. Comparison of MELD scores.

[a]indicated difference with $P < .05$)

**Figure 7.** Somatic symptoms scores on SCL-90 scale of patients before and after they received the nursing.

	Joint intervention group	Control group
Before Care	22.25	15.08
After Care	23.04	19.21

[a]indicated difference with $P < .05$

Figure 9. Psychological emotion scores of patients.

|	Joint intervention group	Control group
Before Care	23.66	13.22
After Care	25.31	17.81

[a]indicated difference with $P < .05$

Figure 8. Comparison of SCL-90 interpersonal relationship scores of patients.

	Joint intervention group	Control group
Before Care	16.82	9.05
After Care	17.03	12.31
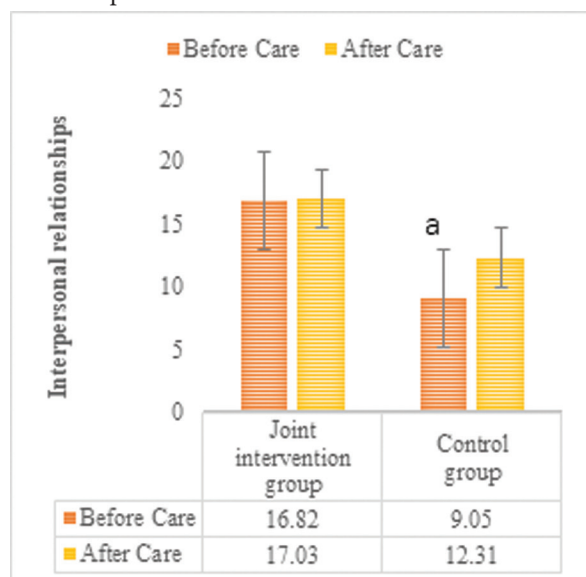
[a]indicated difference with $P < .05$

Figure 10. Psychological needs scores of SCL-90 scale of patients.

	Joint intervention group	Control group
Before Care	16.53	7.42
After Care	17.26	10.74
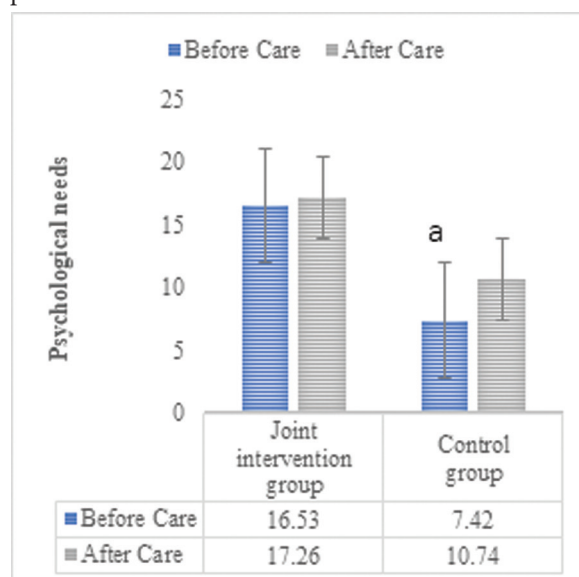
[a]indicated difference with $P < .05$

MELD scores of patients were 15.74 ± 4.27 points and 16.03 ± 5.83 points in the Exp and Ctrl groups, respectively, and the difference presented $P > .05$. After nursing, the MELD score in the Exp group (8.57 ± 4.11 points) was remarkably lower than that in the Ctrl group (12.96 ± 3.21 points) ($P < .05$).

SCL-90 scale scores of patients before and after different nursing methods

Figure 7 showed patients' somatic symptoms score of SCL-90 scale with different nursing modes before and after. The Exp group and Ctrl group patients had SCL-90 scale somatic symptoms scores of 22.25 ± 5.45 points and 23.04 ±

3.42 points before they were nursed, respectively ($P > .05$); while the scores after nursing were 15.08 ± 5.62 and 19.21 ± 4.56, respectively ($P < .05$).

Figure 8 revealed the comparison of SCL-90 interpersonal relationship scores of patients. Before nursing, the interpersonal relationship scores of SCL-90 in Exp and Ctrl groups were 16.82 ± 43.16 points and 17.03 ± 1.84 points ($P > .05$). After nursing, the interpersonal relationship score was 9.05 ± 2.98 in the Exp group, much lower than 12.31 ± 2.35 in the Ctrl group ($P < .05$).
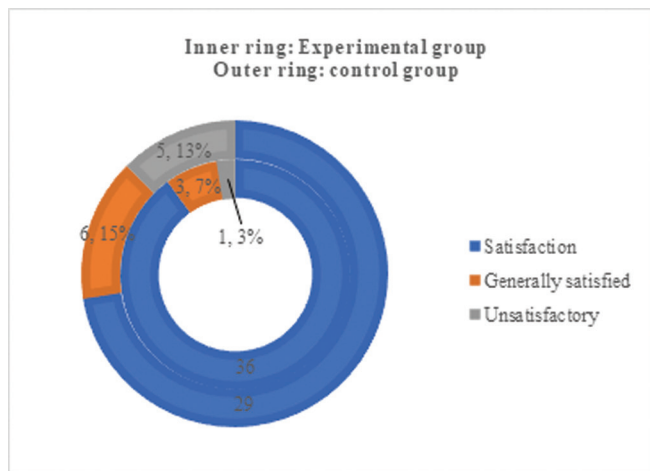
Figure 9 was the psychological emotion scores of the SCL-90 scale of patients before and after receiving different

Figure 11. Comparison of the distribution and incidence of complications of patients from different groups. (Note: A: the complication distribution diagram, and B: the comparison diagram of the complication rate. a - f represented the pressure ulcer, ascites, pulmonary infection, hepatic encephalopathy, hepatorenal syndrome, and spontaneous meningitis, respectively.
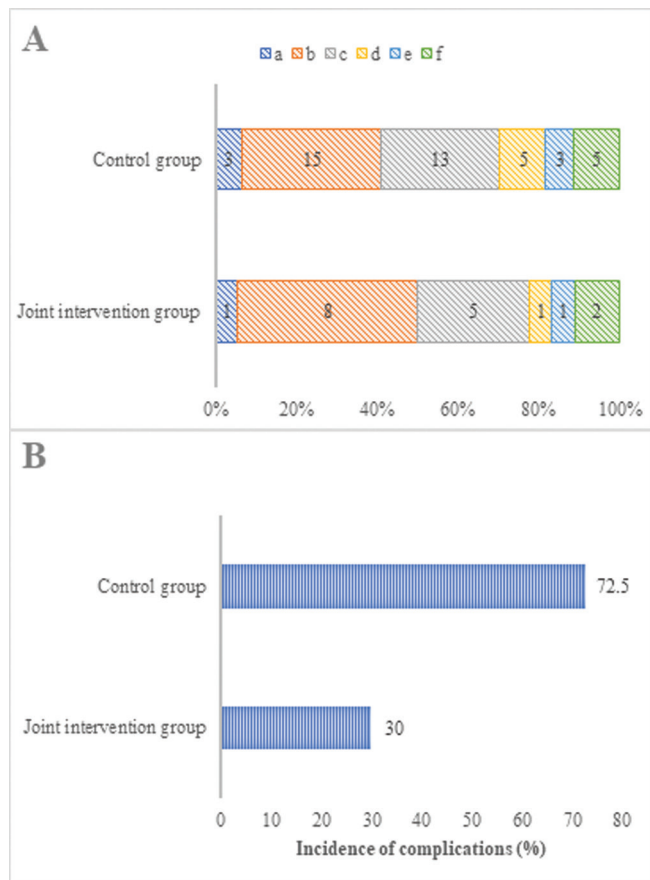
ªindicated a difference with *P* < .05 to the Ctrl group

Figure 12. Distribution of nursing satisfaction of patients from different groups

ªindicated a difference with *P* < .05 to the other group

nursing modes. According to Figure 9, before the intervention, the psychological emotion score of the SCL-90 scale in the Exp and Ctrl groups patients was 23.66 ± 4.17 points and 25.31 ± 3.73 points, respectively (*P* > .05). After nursing, the psychological emotion score of SCL-90 was 13.22 ± 3.93 points in the Exp group and 17.81 ± 3.64 points in the Ctrl group (*P* < .05).

Figure 10 demonstrates the comparison of patients' psychological needs scores before and after being nursed with different nursing methods. According to Figure 10, the psychological needs scores in the Exp group and Ctrl group patients were 16.53 ± 2.63 points and 17.26 ± 0.96 points before nursing, showing a difference with *P* > .05. After they received the nursing, the Exp group patients exhibited a somatic symptoms score of 7.42 ± 2.46 points, and the Ctrl group patients presented a score of 10.74 ± 2.74 points, showing *P* < .05.

Incidence of complication

Figure 11 discovered the distribution and incidence of complications of patients receiving different nursing methods. The numbers of patients with pressure sores, ascites, pulmonary infection, hepatic encephalopathy, hepatorenal syndrome, and spontaneous meningitis after they received CN combined with PN were 1, 8, 5, 1, 1, and 2, respectively. The numbers of patients with a pressure sore, ascites, pulmonary infection, hepatic encephalopathy, hepatorenal syndrome, and spontaneous meningitis were 3, 15, 13, 5, 3, and 5, respectively, after they received CN. The complication rate in the Exp group (30%) was obviously lower than Ctrl group (72.5%) (*P* < .05).

Nursing satisfaction of patients from different groups

The nursing satisfaction of patients receiving CN and CN combined with PN was compared, as given in Figure 12. As it revealed, 36, 3, and 1 patients in the Exp group were satisfied, basically satisfied, and dissatisfied with PN combined CN scheme, respectively. Among those in the Ctrl group, 29 patients were satisfied, 6 were basically satisfied, and 5 were unsatisfied with CN. The total nursing satisfaction in the Exp group was 97.5%, which was much higher than 87.5% in the Ctrl group (*P* < .05).

DISCUSSION

Cirrhosis is a serious disease characterized by an abnormal secretion system in the liver. People with very serious conditions are prone to GIB if not treated in time.[19] In treating patients with GIB and cirrhosis, a series of complications are likely to occur, so clinical nursing intervention greatly impacts the prognosis of patients. PN and CN enhance communication with patients and their families, provide comfort and encouragement, reduce the psychological burden of patients, eliminate adverse emotional reactions, make patients more proactive in treatment, reduce the risk of gastrointestinal bleeding, and help with nutritional absorption and rehabilitation of patients with gastrointestinal

bleeding, improve the quality of life.[15,17] To study the effects of different nursing interventions on patients with GIB and cirrhosis, this work compared the clinical symptoms and psychological status of patients with GIB and cirrhosis in the treatment of conventional CN and PN combined with CN.

In the study, the mainly finding was that the SAS scores and SDS scores were significantly reduced after nursing in the Exp and Ctrl groups. However, compared with conventional CN, PN combined with CN mode can reduce greater. Hence, compared with conventional CN, PN combined with CN mode can greatly reduce patients with GIB and cirrhosis of anxiety and depression and play a positive role in soothing the psychological emotion of patients. Cirrhosis patients who are primarily affected by GIB, high blood loss, and repeated bleeding should be treated by surgery, which includes ligation of esophageal variceal vein fundus, transsection of stomach base, and then anastomosis to achieve a good therapeutic effect and effectively protect the life safety of patients.[20,21] PN combined with CN include cognitive intervention, health knowledge education, behavioral intervention, humanistic nursing, comprehensive consideration of patients' physiological and psychological needs, helping patients to carry out planned and step-by-step health intervention guidance, and correcting patients' poor psychological emotions.

As an indicator of evaluating a patient's condition and clinical recovery, MELD score can effectively predict short - and medium-term mortality from end-stage liver disease. MELD scores were also significantly reduced after nursing in the patients who received the CN combined with PN and those who underwent the CN only. But the reduction of MELD scores is more significant in the patients who received the CN combined with PN. The results here indicate that compared with conventional synthesis, PN combined with CN mode reduced the mortality of patients with GIB and cirrhosis, delayed the progression of disease, and prolonged the life of patients. PN combined with CN can provide comprehensive and accurate guidance for problems in treating and rehabilitating, and provide support in physiological and psychological treatment to achieve a better treatment effect.

In addition, after different nursing interventions, the scores of somatic symptoms, interpersonal relationships, psychological emotion, and psychological needs suggested a downward trend in patients with different nursing modes. Among them, the scores in the Exp group were lower than those in the Ctrl group and exhibited a statistically lower difference. Patients with GIB and cirrhosis are prone to fear, anxiety, depression, and other emotions, thus inducing the body's stress response, increasing blood pressure, reducing their own hemostatic ability, and aggravating the pain experience of the disease. Timely and effective psychological emotion counseling can reduce patients' psychological burdens and eliminate their uneasiness, which refers to patients' treatment compliance.[22] PN combined with CN were more beneficial for patients' treatment and rehabilitation.

The distribution and incidence of complications in the two groups showed that the main complications with GIB and cirrhosis in the two groups included pressure ulcers, ascites, pulmonary infection, hepatic encephalopathy, hepatorenal syndrome, and spontaneous meningitis. The complication rate in the Exp group (30%) was lower than that in patients who underwent the CN only (72.5%). This agrees well with the findings of Gao et al.[23] In conclusion, compared with PN alone, PN combined with CN greatly reduced the probability of complications in patients with GIB and cirrhosis and improved the prognosis of patients. In addition, in terms of nursing satisfaction, it was 97.5% in patients who underwent CN combined with PN, which was much higher than 87.5% in patients with CN only. In conclusion, compared with conventional CN, PN combined with CN can effectively improve the nursing satisfaction of patients with GIB and cirrhosis and help patients adopt a more positive approach to the treatment process, PN should be given to patients on the basis of CN in clinical practice.

Limitations

This study has some limitations. Firstly, the sample size of this study is small, with biases between groups, which may limit the study. Future research with larger and more diverse samples is needed to confirm the results. Secondly, all patients were selected from one hospital within a specific period of time, this limits the general applicability of the results. Although the findings of this study have some limitations and need to be confirmed by a larger sample size study, they still provide valuable reference for clinical diagnosis and treatment.

CONCLUSION

The PN combined with CN can obviously relieve the anxiety and depression of patients, improve their clinical symptoms, reduce the incidence of complications, and improve their nursing satisfaction in the digestive tract process, offering a reference value for the clinical diagnosis and treatment of patients with GIB and cirrhosis. Integrating PN into the standard care protocols for patients with GIB and cirrhosis should be consider in clinical.

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