



A randomised controlled trial: effect of the meticulous nursing model on the treatment compliance and quality of life of patients with upper gastrointestinal bleeding

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Background: The purpose of this study was to analyze the effect of the meticulous nursing model on the treatment compliance and quality of life of patients with upper gastrointestinal bleeding (UGIB).

Methods: A total of 108 UGIB patients treated in Linyi Central Hospital from October 2018 to October 2019 were selected as the study subjects, and were randomly divided into a research group and reference group, with 54 cases in each group. The reference group received conventional nursing while the research group received meticulous nursing on this basis to compare the clinical intervention effect and the impact on quality of life in the 2 groups of patients.

Results: The Generic Quality of Life Inventory-74 (GQOLI-74) scores in the 2 groups of patients after intervention were significantly higher than those before intervention ($P<0.001$), and the score of the research group after intervention was significantly higher than that of the reference group ($P<0.001$). The Stanford Acute Stress Reaction Questionnaire (SASRQ) scores of the patients presented a trend opposite to GQOLI-74 ($P<0.001$). The number of fully satisfied cases in the research group was significantly higher than that in the reference group ($P<0.05$), while the number of dissatisfied cases was significantly lower than that in the reference group ($P<0.05$). The self-rating anxiety scale (SAS) scores in the 2 groups of patients after intervention were significantly lower than those before intervention ($P<0.001$), and the score of the research group after intervention was significantly lower than that of the reference group ($P<0.001$). The total clinical effective rate and treatment compliance of the research group were significantly higher than those of the reference group ($P<0.05$).

Conclusions: The meticulous nursing model can effectively improve the quality of life of UGIB patients, reduce the psychological stress response, and improve clinical treatment compliance and nursing satisfaction with a definite effect, making it worthy of promotion and application.

Trial Registration: Chinese Clinical Trial Registry ChiCTR2100048735.

Keywords: Meticulous nursing; upper gastrointestinal bleeding (UGIB); treatment compliance; life quality

Submitted Apr 20, 2021. Accepted for publication Aug 17, 2021.

doi: 10.21037/apm-21-1283

View this article at: <https://dx.doi.org/10.21037/apm-21-1283>

Introduction

Upper gastrointestinal bleeding (UGIB), a common gastrointestinal disease, usually refers to gastrointestinal bleeding above the Treitz, occurring at the stomach, esophagus, duodenum, and biliary and pancreatic regions (1-3). Epidemiological studies have found that the

mortality rate of this disease is as high as 25–30%, and mainly occurs in adults. According to the different types of the disease, it can be specifically divided into chronic concealed hemorrhage, chronic revealed hemorrhage, and acute massive hemorrhage, with the characteristics of acute onset and rapid progression. If patients are not treated in

time, their lives will be endangered (4-6). Since clinical studies have confirmed that gastrointestinal ulcer is the main cause of UGIB, active treatment of gastrointestinal ulcers can effectively prevent UGIB. Due to its acute onset, some patients suffer from massive hematochezia and hematemesis, which easily lead to fear and anxiety of different degrees and psychological stress reactions, affecting clinical treatment (7). The psychological stress response is an individual non-specific response caused by various stressors, including increased corticosteroid secretion, increased blood glucose and blood pressure, and increased heart rate, which will affect the clinical treatment of patients to a certain extent. Therefore, in addition to emergency treatment, effective clinical nursing measures should be taken for UGIB patients, which is of great significance for improving negative emotions, improving treatment compliance, and reducing mortality (8-10). The meticulous nursing model centers on patients, and further optimizes and subdivides the nursing process, thereby truly grasping the inner demands of patients. While controlling bleeding, this model alleviates negative emotions, achieving a comprehensive, detailed, and thoughtful nursing process, so as to provide better inpatient nursing services and improved patient satisfaction (11). Based on this, this paper aimed to further study the effect of the meticulous nursing model on the treatment compliance and quality of life of UGIB patients. We present the following article in accordance with the CONSORT reporting checklist (available at <https://dx.doi.org/10.21037/apm-21-1283>).

Methods

General information

A total of 108 UGIB patients treated in Linyi Central Hospital from October 2018 to October 2019 were selected as the subjects for two-parallel study, and were randomly divided into a research group and reference group, with 54 cases in each group. The allocation ratio is 1:1. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by ethics board of Linyi Central Hospital (No: 20181005) and informed consent was taken from all individual participants.

Inclusion criteria

(I) Patients met the diagnostic criteria for UGIB; (II)

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patients had complete clinical data; (III) patients were in a stable condition after treatment; (IV) this study was approved by the hospital ethics committee, and the patients and their families knew the content of this experimental study, and signed the informed consent.

Exclusion criteria

(I) Patients had mental disorders and other cognitive disorders or communication disorders; (II) patients had organic lesions such as those of the brain, heart, and liver; (III) patients had a history of gastrointestinal bleeding; (IV) patients refused to cooperate with the experiment.

Study methods

Conventional nursing was carried out in the reference group through regularly measuring indicators such as routine blood, liver function, and feces tests of the patients, instructing patients to take their medications on time, implementing dietary interventions, and formulating detailed treatment plans after observation of the disease progression of the patients.

The research group received meticulous nursing on the basis of conventional nursing, and additional processes as follows: (I) the ward was disinfected regularly every day to keep the ward clean and tidy. Fresh and soothing music was played with the approval of patients or family members to eliminate the tension and anxiety of patients and relax them physically and mentally. (II) The patients were instructed to rest on time and maintain adequate sleep time. The nursing staff actively communicated with patients, listened to them patiently and carefully, and provided psychological counseling in time. The staff also informed patients of the relevant UGIB knowledge so that patients correctly understood their own disease and had more courage and confidence to overcome the disease, improving treatment compliance. The daily visits of family members were recorded to ensure that each patient was accompanied by family members during hospitalization. The patients were informed of the importance of family company to reduce their loneliness and make them feel warmth from their family. (III) The specific lifestyles of patients and their families were investigated to formulate detailed life plans for patients, and publicize risk factors. (IV) Exercise prescriptions were formulated based on the clinical condition and physical fitness of patients, maintaining existing limb motor function, and preventing the occurrence

of “disuse”. (V) According to patients’ conditions, the staff formulated specific medication schedules, supervised and recorded patients’ medications, and informed patients and their families of medication precautions.

Observation indexes

General data of patients in both groups were analyzed and compared, including gender, age, body mass index (BMI), smoking history, drinking history, marital status, and UGIB volume.

The Generic Quality of Life Inventory-74 (GQOLI-74) (primary outcome) (12) was used to evaluate the quality of life in both groups of patients before and after intervention. The scale was scored from 4 scoring factors including psychological function, physical function, social function, and material life status, with a total score of 100 points. The higher the score, the better the quality of life.

The Stanford Acute Stress Reaction Questionnaire (SASRQ) (primary outcome) (13) was used to evaluate the psychological stress responses in both groups of patients before and after intervention, with a total score of 150 points. The higher the score, the stronger the psychological stress response of the patients.

The patient clinical satisfaction questionnaire prepared by the department was used, and the patients filled it in truthfully (primary outcome). According to the degree of clinical nursing satisfaction, the questionnaire was divided into fully satisfied, satisfied, needing improvement, and dissatisfied.

The self-rating anxiety scale (SAS) (primary outcome) (14) was used to evaluate the anxiety level in both groups of patients before and after intervention. With a total score of 100 points, this scale was divided into normal (<50 points), mild anxiety (50–59 points), moderate anxiety (60–69 points), and severe anxiety (>69 points).

For efficacy judgments (primary outcome), markedly effective: blood loss was well controlled after intervention with no bleeding, and symptoms of hematochezia and hematemesis ceased. After 48 hours, occult blood was negative for 3 consecutive examinations. Effective: the bleeding condition was basically controlled, and symptoms of hematochezia and hematemesis ceased. After 72 hours, occult blood was negative for 3 consecutive examinations. Ineffective: The bleeding condition was not effectively controlled, and the related symptoms were not improved or even aggravated. Three consecutive occult blood tests

were positive and invalid. Among them, total effective rate = markedly effective rate + effective rate.

The self-prepared evaluation form of patient clinical treatment compliance (secondary outcome) was used to evaluate treatment compliance in the 2 groups of patients after intervention. With a total score of 100 points, the scale was divided into complete compliance (≥ 85 points), partial compliance (75–84 points), and noncompliance (≤ 74 points).

Statistical analysis

The experimental data were statistically analyzed and processed by SPSS 20.0 software. GraphPad Prism 6 (GraphPad Software, San Diego, USA) was used for image rendering of the data. Count data were tested by the χ^2 test and expressed as n (%). Measurement data were measured by the t test and expressed as $\bar{x} \pm s$. The difference was statistically significant when $P < 0.05$.

Results

Comparison of general data in the 2 groups of patients

As was shown in *Figure 1*, 158 patients were included in this study, and were divided into research group and reference group. There were no remarkable differences in gender ratio, age, BMI value, smoking and drinking histories, marital status, and UGIB volume between the 2 groups of patients ($P > 0.05$), as shown in *Table 1*.

Comparison of quality of life scores between of patients

Compared with the GQOLI-74 scores of patients before intervention, the scores of all patients after intervention increased obviously ($P < 0.05$), and the score of the research group after intervention was significantly higher than that of the reference group ($P < 0.05$), as shown in *Figure 2*.

Comparison of SASRQ scores before and after intervention between the 2 groups of patients

The SASRQ scores in the 2 groups of patients after intervention were significantly lower than those before intervention ($P < 0.05$), and the score of the research group after intervention was significantly lower than that of the reference group ($P < 0.05$), as shown in *Figure 3*.

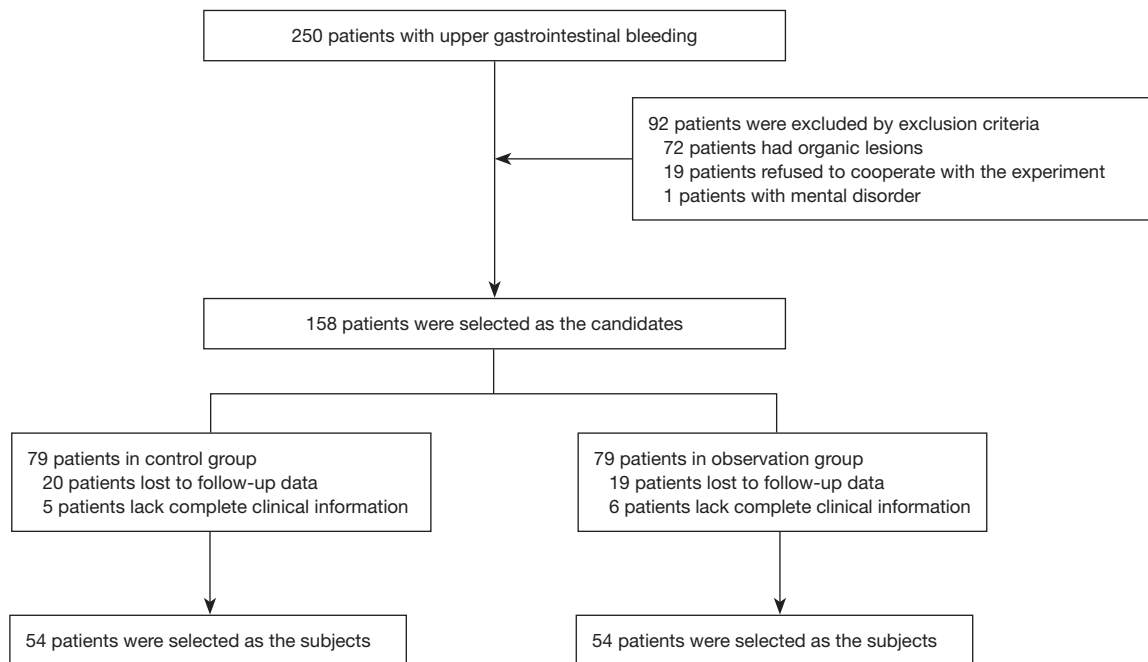


Figure 1 The flow diagram of subject selection.

Table 1 Comparison of general data in the 2 groups of patients [n (%), $\bar{x}\pm s$]

Items	Research group (n=54)	Reference group (n=54)	χ^2/t	P
Gender			0.150	0.699
Male	29 (53.70%)	31 (57.41%)		
Female	25 (46.30%)	23 (42.59%)		
Average age (years old)	42.35±3.46	42.38±3.42	0.045	0.964
BMI (kg/m ²)	22.23±1.73	22.26±1.71	0.091	0.928
Smoking history			0.152	0.697
No	32 (59.26%)	30 (55.56%)		
Yes	22 (40.74%)	24 (44.44%)		
Drinking history			0.172	0.679
No	36 (66.67%)	38 (70.37%)		
Yes	18 (33.33%)	16 (29.63%)		
Marital status			0.101	0.750
Unmarried	48 (88.89%)	49 (90.74%)		
Married	6 (11.11%)	5 (9.26%)		
Average upper gastrointestinal bleeding volume (mL)	746.89±102.35	747.03±102.41	0.007	0.994

BMI, body mass index.

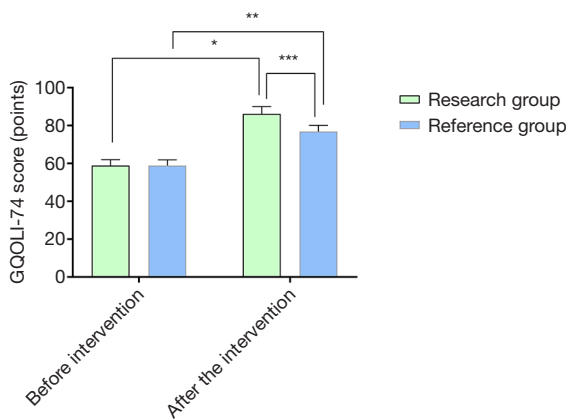


Figure 2 Comparison of quality of life scores before and after intervention between the 2 groups of patients. The abscissa represents the stages of intervention, and the ordinate represents GQOLI-74 score (points). The GQOLI-74 scores of patients in the research group before and after intervention were 56.68±4.37 points and 83.54±5.36 points, respectively. The GQOLI-74 scores of patients in the reference group before and after intervention were 56.70±4.31 points and 74.62±4.55 points, respectively. * indicated that there was a significant difference in GQOLI-74 scores of all patients before and after intervention ($t=31.287$, $P=0.000$); ** indicated that there was a significant difference in GQOLI-74 scores in the reference group before and after intervention ($t=21.011$, $P=0.000$); *** indicated that there was a significant difference in GQOLI-74 scores between the 2 groups after intervention ($t=10.187$, $P=0.000$). GQOLI-74, Generic Quality of Life Inventory-74.

Comparison of the satisfaction of patients on clinical nursing

There were no significant differences in the number of patients who were satisfied and the number needing improvement between the 2 groups of patients ($P>0.05$). The number of fully satisfied cases in the research group was significantly higher than that in the reference group ($P<0.05$), while the number of dissatisfied cases was obviously lower than that in the reference group (*Table 2*, $P<0.05$).

Comparison of the SAS scores of patients

Compared with the SAS scores of patients before intervention, the scores of the patients after intervention decreased obviously ($P<0.05$), and the score of the research group after intervention was remarkably lower than that of the reference group (*Figure 4*, $P<0.05$).

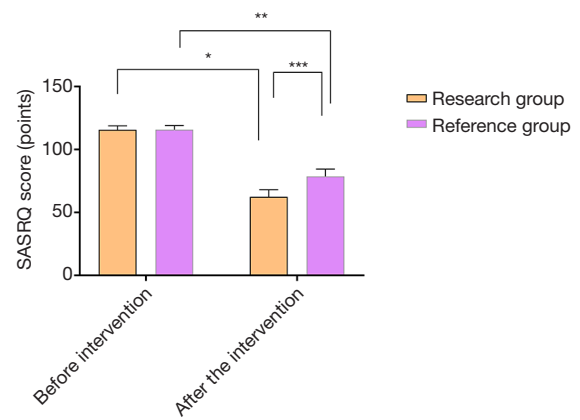


Figure 3 Comparison of SASRQ scores between the 2 groups of patients before and after intervention. The abscissa represents before intervention and after intervention, and the ordinate indicates SASRQ score (points). The SASRQ scores of patients in the research group before and after intervention were 113.56±4.37 points and 58.32±8.12 points, respectively. The SASRQ scores of patients in the reference group before and after intervention were 113.49±4.58 points and 74.69±8.07 points, respectively. * indicated that there was a significant difference in SASRQ scores of all patients before and after intervention ($t=40.021$, $P=0.000$); ** indicated that there was a significant difference in SASRQ scores in the reference group before and after intervention ($t=30.727$, $P=0.000$); *** indicated that there was a significant difference in SASRQ scores between the 2 groups after intervention ($t=10.508$, $P=0.000$). SASRQ, Stanford Acute Stress Reaction Questionnaire.

Comparison of clinical efficacy between the 2 groups of patients

After nursing intervention, the total clinical effective rate of the research group was remarkably higher than that of the reference group (*Table 3*, $P<0.05$).

Comparison of treatment compliance between the 2 groups of patients

After nursing intervention, the treatment compliance of the research group was remarkably higher than that of the reference group (*Table 4*, $P<0.05$).

Discussion

Hematemesis and melanosis are typical clinical manifestations of UGIB diseases, and the severity of

Table 2 Comparison of clinical nursing satisfaction between the 2 groups of patients [n (%)]

Degree of satisfaction	Research group (n=54)	Reference group (n=54)	χ^2	P
Fully satisfied	32 (59.26%)	19 (35.19%)	6.279	0.012
Satisfied	14 (25.93%)	14 (25.93%)	0.000	1.000
Needing improvement	5 (9.26%)	9 (16.67%)	1.313	0.252
Dissatisfied	3 (5.56%)	12 (22.22%)	6.271	0.012

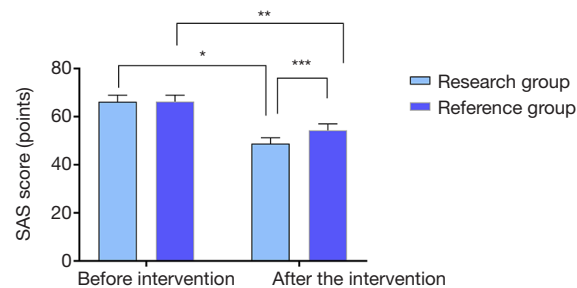


Figure 4 Comparison of SAS scores between the 2 groups of patients before and after intervention ($\bar{x}\pm s$). The abscissa represents before intervention and after intervention, and the ordinate indicates SAS score (points). The SAS scores of patients in the research group before and after intervention were 64.32 ± 3.84 points and 47.16 ± 3.35 points, respectively. The SAS scores of patients in the reference group before and after intervention were 64.36 ± 3.82 points and 52.47 ± 3.76 points, respectively. * indicated that there was a significant difference in SAS scores in the research group before and after intervention ($t=24.745$, $P=0.000$); ** indicated that there was a significant difference in SAS scores in the reference group before and after intervention ($t=16.301$, $P=0.000$); *** indicated that there was a significant difference in SAS scores between the 2 groups after intervention ($t=7.748$, $P=0.000$). SAS, self-rating anxiety scale.

Table 3 Comparison of clinical efficacy between the 2 groups of patients [n (%)]

Group	n	Markedly effective	Effective	Ineffective	Total effective rate
Research group	54	30 (55.56%)	22 (40.74%)	2 (3.70%)	96.30% (52/54)
Reference group	54	19 (35.19%)	23 (42.59%)	12 (22.22%)	77.78% (42/54)
χ^3					8.207
P					0.004

Table 4 Comparison of treatment compliance between the 2 groups of patients [n (%)]

Group	n	Full compliance	Partial compliance	Noncompliance	Treatment compliance
Research group	54	29 (53.70%)	21 (38.89%)	4 (7.41%)	92.59% (50/54)
Reference group	54	18 (33.33%)	19 (35.19%)	17 (31.48%)	68.52% (37/54)
χ^3					9.990
P					0.002

symptoms is related to the amount of blood loss and bleeding speed. Excessive blood loss will cause dizziness, fatigue, chills, and other symptoms, as well as shock, which can endanger life (15-17). Most of the bleeding symptoms in mild patients disappear by themselves, and effective hemostatic measures should be taken if they do not disappear by themselves. Antishock treatment and rapid blood volume supplementation should be put first in the rescue process. On this basis, targeted treatment measures should be taken according to the different types of UGIB (18-20). Most patients have a significant psychological burden due to obvious clinical symptoms, which makes clinical diagnosis and treatment difficult and creates higher requirements for the work of the medical staff. The meticulous nursing model grasps the daily lifestyles of UGIB patients through optimizing the nursing process, providing a basis for doctors to make accurate judgments. This nursing model can alleviate patients' negative emotions and eliminate fear and depression generated during the treatment process to establish treatment courage and confidence, improving treatment compliance (21,22). This study found that after the patients of the research group received the meticulous nursing model on the basis of conventional nursing, the SAS score of the research group after intervention was significantly lower than that of the reference group. By keeping the ward environment clean and comfortable, and listening to beautiful and soothing music, the patients' negative emotions were stabilized to improve their internal anxiety. Psychologists believe that music, as a method to reduce stress, can stabilize anxiety and treat psychological disorders to a certain extent. In addition, music can also stimulate brain activity and brain cells, and can improve sleep quality (23). The results of this study are similar to the research results of Kiran *et al.* (24) who pointed out in their article that after patients with chronic revealed hemorrhage in upper gastrointestinal tract received meticulous nursing, the SAS score of patients (47.37 ± 2.47) after intervention was significantly lower than (54.28 ± 2.65) of the control group, indicating that meticulous nursing can effectively improve the anxiety of patients and promote treatment. Patient compliance (treatment compliance), also known as compliance, means that patients are treated according to the doctor's regulations (25). This study confirmed that the treatment compliance of patients in the research group after meticulous nursing intervention was significantly higher than that of the reference group. This may be because the nursing model was patient-centered, providing a comfortable treatment environment

for patients, and informing them of disease-related knowledge to eliminate their incorrect cognition, establish treatment confidence, and effectively improve their treatment compliance. In addition, rational drug use and various physical examinations are also important measures to prevent the recurrence of UGIB. This study also had deficiencies, such as the small number of selected samples and the lack of exploration on the long-term efficacy of the nursing intervention, leading to insufficient accuracy of the research results. Therefore, it is necessary to increase the number of samples, prolong the follow-up time, and improve the accuracy and scientificity of experiments in the future.

In conclusion, the application of the meticulous nursing model in the clinical nursing of UGIB patients can effectively improve their quality of life, reduce the psychological stress response, and improve nursing satisfaction and treatment compliance with a definite effect, making it worthy of promotion and application.

Acknowledgments

Funding: None.

Footnote

Reporting Checklist: The author has completed the CONSORT reporting checklist. Available at <https://dx.doi.org/10.21037/apm-21-1283>

Trial Protocol: Available at <https://dx.doi.org/10.21037/apm-21-1283>

Data Sharing Statement: Available at <https://dx.doi.org/10.21037/apm-21-1283>

Conflicts of Interest: The author has completed the ICMJE uniform disclosure form (available at <https://dx.doi.org/10.21037/apm-21-1283>). The author has no conflicts of interest to declare.

Ethical Statement: The author is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by ethics board of Linyi Central Hospital (No: 20181005) and informed

consent was taken from all individual participants.

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(English Language Editor: C. Betlazar-Maseh)

Cite this article as: Ai H. A randomised controlled trial: effect of the meticulous nursing model on the treatment compliance and quality of life of patients with upper gastrointestinal bleeding. *Ann Palliat Med* 2021;10(8):8737-8745. doi: 10.21037/apm-21-1283