

# Assessment of the Effect of “3H” Nursing Mode on Negative Emotions and Insomnia in Patients with Enterostomy

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## Abstract

**Objective:** To explore the clinical significance of “3H” nursing mode in improving negative emotions and insomnia in patients with enterostomy through a prospective cohort study. **Methods:** Adult patients who underwent enterostomy surgery in our gastroenterology department with negative emotions and insomnia between August 2021 and August 2022 were selected as research objects and randomly divided into “3H” nursing mode group and conventional nursing management group. For the conventional nursing group, routine standard nursing mode was adopted after enterostomy, while extra systematic “3H” nursing service on the basis of conventional nursing management was applied for its counterpart. SAS and SDS scores, Pittsburgh sleep quality index, Barthel index and nursing satisfaction were compared between the two groups. **Results:** SAS and SDS scores, Pittsburgh sleep quality index, Barthel index and nursing satisfaction of “3H” nursing mode group were evidently better than those of conventional nursing management group, and the difference was significant ( $P < 0.05$ ). **Conclusion:** The “3H” nursing mode can effectively improve negative emotions of patients with enterostomy, such as anxiety and depression, improve their sleep quality and self-care ability in daily life, and play an important role in building a harmonious relationship between doctors and patients, nurses and patients, which is worthy of clinical application.

## Keywords

“3H” Mode, Enterostomy, Anxiety, Depression, Insomnia, Nursing

## 1. Introduction

Worldwide, with the change of people’s dietary structure and lifestyle, the pre-

valence and mortality of colorectal cancer are increasing rapidly, and enterostomy, as one of the most important modalities for colorectal cancer, has also caused the global enterostomy population to grow gradually [1] [2]. According to statistics, approximately 120,000 new enterostomy patients are added in the United States and Canada per year. In China, the situation is not optimistic. The total number of enterostomy patients has already exceeded one million, and there will still be about 100,000 new cases every year [1] [3]. Although enterostomy helps patients rebuild their excretory system and prolong their life cycle, patients often have to face challenges from many aspects, such as physiology, psychology and society. In addition, patients' adaptability to enterostomy is uneven, ostomy complications or psychological barriers like anxiety and depression occur consequently, which brings heavy burden to individuals and families [4]. Studies have noted significant mental health problems in patients with enterostomy during perioperative period and after operation. During this period, enterostomy patients have different feelings, such as uncertainty, shame, frustration, and changes in body image, resulting in many psychosocial problems, including depression, anxiety, sexual problems, social relationship disorders, and adaptation problems [5].

However, conventional nursing is disease-centered, focusing on physiological care, mainly implementing basic intervention measures, paying less attention to patients' psychological aspect, lacking individual differences in nursing mode and content, ignoring patients' self-needs, and it is therefore difficult to achieve satisfactory nursing outcome. The "3H" nursing service mode is a systematic nursing mode that advocates comprehensive intervention of physiology, psychology and society based on the demand theory [6]. "3H" stands for Hotel, Hospital and Home, among which Hotel contains the meaning of providing hotel-style services for patients during the diagnosis and treatment period, Hospital refers to implementing targeted and scientific nursing measures for patients during hospitalization, and the last Home is to let patients feel the warmth and care of their families in the hospital [7] [8]. At present, there is no literature report on the application of "3H" nursing mode in nursing enterostomy patients at home and abroad. In this study, the patients with enterostomy accompanied by negative emotions and insomnia are selected as the research objects, and the prospective cohort method is utilized. The "3H" nursing mode is adopted to improve the patients' quality of life and relieve their psychological pressure.

## 2. Methods

### 2.1. Research Objects

A total of 60 adult patients who underwent enterostomy surgery in the gastroenterology department of Jinzhou First People's Hospital with negative emotions and insomnia between August 2021 and August 2022 were selected as research objects. This study was conducted in accordance with the relevant principles of Helsinki Declaration, and was submitted to the ethics committee of the First Af-

filiated Hospital of Yangtze University for approval (No. KY202301). Among them, there were 27 males and 33 females, with an average age of  $54.10 \pm 10.89$  years. All cases met the following inclusion criteria: 1) all patients were diagnosed with colon cancer by pathological examination and underwent enterostomy, 2) all cases were informed consent and willing to cooperate with relevant experimental research, and 3) they had good communication and understanding skills. Samples were considered for exclusion if 1) patients had metastasis or recurrence after enterostomy, 2) patients with heart, lung, brain, liver, kidney and other organ diseases, 3) patients with mental disorders, and 4) those who did not have complete clinical data and cannot cooperate with the whole experiment. This study was reviewed and approved by the hospital ethics committee, and there was no significant difference in age, sex, physique and other general data of all selected cases ( $P > 0.05$ ).

## 2.2. Nursing Mode Grouping

An enterostomy nursing team was set up, consisting of one enterostomy therapist, four nurses in charge, and two gastrointestinal attending surgeons, with the head nurse as the team leader. All the selected cases were divided into “3H” nursing mode group (group A, 30 cases) and conventional nursing management group (group B, 30 cases) by using random number table method. Group B received conventional nursing after enterostomy, including keeping the skin around stoma clean and dry, giving dietary guidance, observing whether there was edema, bleeding, retraction, and prolapse, and blood supply of stoma intestine, giving health education to patients, and instructing them to use stoma bags correctly and participate in stoma nursing. Group A received “3H” nursing intervention on the basis of conventional nursing: 1) Hotel-style nursing service—comfortable nursing. The concept of comfort was highlighted on the basis of keeping the ward quiet, safe and tidy. The ward lights were soft, landscape paintings were hung for mood adjustment, TV and toilet were equipped and soothing music was played regularly to relieve the anxiety and tension of patients, as if they were in a hotel. The nursing staff was dignified and elegant. They were provided with corresponding training and guidance, including etiquette and communications skills, and were required to pass the examination. They were asked to be patient-centered, give more greetings and patience to patients, be gentle, be prompt, be efficient, and serve patients wholeheartedly. 2) Home-based nursing service—family nursing. A detailed introduction was given to patients when they were admitted to hospital, leaving a warm impression on them. During hospitalization, with the service aim at satisfying patients’ needs, nursing staff should think of whatever patients need and give them help as much as possible, and create a family-like nursing atmosphere. Flowers, cards and sincere wishes were sent to patients on festivals or patients’ birthdays, which reflected humanistic care and made patients feel at home in the hospital. 3) Hospital-based nursing service—personalized nursing. Patients were given a comprehensive assessment at the time of admission, and the nursing plan was formulated in combination

with patients' personal situation, with the goal of satisfying patients' needs. The nursing staff can understand the patients' conditions, medication and treatment effect in detail, provide the most professional, comprehensive and warmest nursing for patients, eliminate patients' negative emotions, and help them build self-confidence to actively cooperate with treatment.

### 2.3. Criteria for the Assessment of Negative Emotions

Self-rating Anxiety Scale (SAS) and Self-rating Depression Scale (SDS) compiled by W. K. Zung *et al.* are used to assess the subjective feelings of patients with anxiety or depression, and can measure the severity and dynamic changes [9] [10]. SAS and SDS both contain 20 items, each of which is based on a 4-level scoring system, 1 - 4 points for each level. The standard score of SAS is equal to [the sum of 20 scores \* 1.25], and the standard score of SDS is equal to [the sum of 20 scores \* 1.25]. The SAS standard score < 50 is considered normal, 50 - 60 considered mild anxiety, 61 - 70 considered medium anxiety, and >70 considered severe anxiety. The SDS standard score < 53 is considered normal, 53 - 62 considered mild depression, 63 - 72 considered medium depression, and >72 considered severe depression.

### 2.4. Criteria for the Assessment of Sleep Quality

Pittsburgh Sleep Quality Index (PSQI) is a widely used assessment tool that is currently developed for sleep disorder, and is often used as an auxiliary diagnostic index in clinic [11] [12]. The PSQI contains 9 items. Each item uses a 4-level scoring system, 0 - 3 points for each level. The PSQI standard score is equal to the sum of 9 scores (0 - 21 points). In China, the PSQI standard score > 7 is considered to have sleep disorder [13] [14]. The higher the PSQI score is, the worse the sleep quality is considered to be.

### 2.5. Assessment of the Ability of Daily Living

Barthel index (BI) measures a series of independent behaviors of patients to assess the functional status of daily living activities of patients. It can also clarify the degree of dysfunction of patients so as to guide clinical rehabilitation and nursing [15] [16]. The BI assessment includes 10 items, namely, defecation, urination, grooming, toilet use, eating, transfer, exercise, dressing, going up and down stairs, and bathing. Each item is assessed in three levels, with scores (0, 5, 10) for each level, respectively. The BI standard score is the sum of 10 scores, with 100 points being the full score, and >60 considered that patients are able to take care of themselves basically.

### 2.6. Survey of Nursing Satisfaction

Nursing satisfaction was quantified by questionnaire. The total score was 100 points, 81 - 100 was excellent, 60 - 80 was qualified, and <60 was unqualified. Nursing satisfaction = (excellent + qualified) number of cases/total number of

cases  $\times$  100%.

## 2.7. Statistical Analyses

SPSS20.0 Software was utilized for data analysis. Measurement data were expressed as mean  $\pm$  SD, and t test was used for comparison between groups. Count data is expressed by percentage (%), and  $X^2$  test was used for comparison between groups. A value of  $P < 0.05$  was considered statistically significant, and  $P < 0.01$  was considered very significant.

## 3. Results

### 3.1. Comparison of the Improvement of Negative Emotions between the Two Groups

Before the implementation of comparative nursing measures, the SAS and SDS scores of group A and group B were compared, and there was no significant difference between the two groups ( $P > 0.01$ ). After the intervention of different nursing measures, compared with the conventional nursing management group, the “3H” nursing mode can significantly reduce the SAS and SDS scores of patients after enterostomy, with a significant difference ( $P < 0.01$ ). See **Table 1**.

### 3.2. Comparison of the Improvement of Sleep Quality between the Two Groups

This comparison had a familiar result to that in section 3.1. There was no significant difference in sleep quality between the two groups before implementing the comparative nursing measures ( $P > 0.05$ ). After different nursing interventions, the PSQI score of patients in group A was reduced significantly compared to group B, and the sleep quality of patients in group A improved significantly ( $P < 0.01$ ). See **Table 2**.

### 3.3. Comparison of the Ability of Daily Living between the Two Groups

Before the implementation of comparative nursing measures, we compared the BL scores of the two groups, and it was found that there was no significant difference

**Table 1.** Comparison of negative emotions ( $\bar{x} \pm s$ ).

	Number of cases (n)	SAS		SDS	
		Before nursing	After nursing	Before nursing	After nursing
Group A	30	64.73 $\pm$ 6.01	45.27 $\pm$ 7.68	67.43 $\pm$ 5.55	46.73 $\pm$ 7.50
Group B	30	66.17 $\pm$ 5.97	57.63 $\pm$ 7.65	64.03 $\pm$ 5.20	59.93 $\pm$ 6.99
<i>t</i>		0.93	6.25	0.29	7.05
<i>P</i>		0.36	<0.01*	0.77	<0.01*

SAS: Self-rating Anxiety Scale; SDS: Self-rating Depression Scale; \* $P < 0.01$  vs. B group.

between the two groups ( $P > 0.05$ ). After different nursing interventions, the result showed that compared with group B, the BL score of patients in group A was increased significantly, and their daily living abilities were obviously improved ( $P < 0.05$ ). See **Table 2**.

### 3.4. Results of Nursing Satisfaction Survey

It was found from the quantitative analysis of the questionnaire that compared with group B, the nursing satisfaction of group A was significantly improved, with significant difference ( $P < 0.05$ ). See **Table 3**.

## 4. Discussion

Patients with enterostomy are often faced with both physiological and psychological obstacles before and after operation. Physiologically, the defecation mode has changed obviously after enterostomy, accompanied by odor and related complications. Psychologically, the economic and social pressure and the change of family's acceptance are likely to cause patients to have negative emotions such as anxiety, depression, avoidance and isolation, which is not conducive to their recovery and will also lead to the decline of their quality of life [17]. The "3H" nursing service mode is an integrated nursing mode based on Maslow's "hierarchy of needs", which provides comprehensive physiological, psychological and social interventions. Based on the "hierarchy of needs", holistic nursing and individualized nursing theory, it realizes all-round nursing service for patients from physiological, psychological, disease and social aspects through Hotel-style comfortable nursing service, Hospital-based individualized nursing service, and

**Table 2.** Comparison of sleep quality and daily living ability ( $\bar{x} \pm s$ ).

	Number of cases (n)	PSQI		BI	
		Before nursing	After nursing	Before nursing	After nursing
Group A	30	14.80 ± 3.29	8.20 ± 1.79	30.50 ± 4.97	45.00 ± 9.74
Group B	30	14.10 ± 3.86	11.30 ± 3.72	32.17 ± 6.39	40.17 ± 7.13
<i>t</i>		0.76	4.11	1.13	2.19
<i>P</i>		0.45	<0.01*	0.27	0.03 <sup>#</sup>

PSQI: Pittsburgh Sleep Quality Index; BI: Barthel Index; \* $P < 0.01$  vs. B group; <sup>#</sup> $P < 0.05$  vs. B group.

**Table 3.** Comparison of nursing satisfaction (n, %).

	Number of cases (n)	Excellent	Qualified	Unqualified	Total satisfaction
Group A	30	17 (56.67)	12 (40.00)	1 (3.33)	29 (96.67)*
Group B	30	8 (26.67)	15 (50.00)	7 (23.33)	23 (76.67)

\*Compared with group B,  $X^2 = 8.07$ ,  $P < 0.05$ .

Home-based warm nursing service [18]. The results of this research suggested that, after different nursing interventions, in contrast to the conventional nursing group, the “3H” nursing mode can significantly reduce the SAS and SDS scores of patients after enterostomy ( $P < 0.01$ ), and significantly improve patients’ negative emotions, such as anxiety and depression.

Intestinal stoma is a defecation channel established for patients after colorectal cancer surgery. The establishment of stoma brings the change of patients’ image and defecation way, making it easier for patients to feel ashamed of their disease, and the ensuing negative emotions will affect their sleep quality and aggravate their physical symptoms. Before the implementation of nursing measures, the PSQI scores of the two groups were  $14.80 \pm 3.29$  and  $14.10 \pm 3.86$ , respectively, with no significant difference, which indicated that enterostomy had distinct influence on the sleep quality of patients, suggesting that psychological nursing intervention before and after operation was necessary. The data of this study showed that in comparison with the conventional nursing group, the “3H” nursing mode significantly reduced the PSQI score ( $P < 0.01$ ), improved the sleep quality of patients, and reduced the adverse effects on patients’ physical and mental health.

Self-nursing ability of patients with stoma is the important factor that determines prognosis and nursing effect. Self-nursing includes daily examination of stoma, replacement of stoma bag, care of skin and soft tissue around stoma, diet, exercise rehabilitation, and so on [19]. Daily living ability is one of the fundamental factors to assess the nursing quality of stoma. Evidence in our research proved that the “3H” nursing mode can significantly improve patients’ self-nursing ability ( $P < 0.05$ ) and improve their quality of life by carrying out stoma knowledge and daily nursing education, compiling stoma health education manual, and combining post-discharge follow-up, Wechat group and stoma peer support.

The above research results illustrate that under the “3H” nursing mode, patients’ negative emotions, sleep quality and daily living ability are well intervened, and their quality of life is improved through the joint efforts of themselves and medical staff. Therefore, patients’ satisfaction of medical staff and the hospital are increased, which was confirmed by the survey results of nursing satisfaction in this study. Moreover, evidence further indicated that the “3H” nursing mode can significantly enhance patients’ subjective initiative, alleviate negative emotions, and promote disease recovery, thus creating a good interaction model between doctors and patients, nurses and patients, and promoting harmony together.

## 5. Conclusion

The “3H” nursing mode can effectively improve negative emotions of patients with enterostomy, such as anxiety and depression, improve their sleep quality and daily self-care ability, and play an important role in building a harmonious doctor-patient and nurse-patient relationship, which is worthy of clinical appli-

cation.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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