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Original Article

Effects of situation-background-assessment-recommendation handover combined with detail nursing intervention on patients with infections

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Abstract: Objective: To analyze the nursing effects of situation-background-assessment-recommendation (SBAR) handover combined with detailed nursing intervention on patients with contagious diseases. Methods: A total of 106 patients with infectious diseases who were hospitalized from April 2018 to April 2020 were selected and randomly divided into a control group (n=53, SBAR handover model) and an experimental group (n=53, SBAR handover model, combined with detailed nursing intervention) based on a random number table method. The nursing quality, professional recognition of nursing staff, patients' psychological status, and the quality of life of patients between the two groups were compared. The visual analogue scale (VAS) scores, hospital stay, gastrointestinal recovery time, and complication rate of the two groups were recorded and compared at 24 h and 72 h after intervention. Results: Scores for comprehensive nursing quality of doctors, nursing managers, nursing staff, and patients in the experimental group witnessed a greater rise than before (P<0.05). Patients' social status, development prospects, mental health, and professional recognition in the experimental group garnered more of a superior outcome than the control group (P<0.05). Both the Self-Rating Anxiety Scale (SAS) score and Self-Rating Depression Scale (SDS) scores dramatically decreased after intervention (P>0.05), with lower scores in the experimental group in contrast to the control group (P<0.05). Patients in the experimental group enjoyed a better quality of life than those in the control group (P<0.05). More patients were satisfied with the nursing in the experimental group (94.34%) in comparison with the control group (81.13%) (P<0.05). The experimental group experienced better outcomes in terms of 24 h, 48 h, and 72 h VAS scores, hospital stay, and gastrointestinal recovery time, and the incidence of complications than the control group (P<0.05). Conclusions: SBAR handover model combined with detailed nursing intervention can ease negative emotions of patients with infections, optimize their life qualities and nursing satisfaction, and enhance comprehensive nursing performance and professional recognition.

Keywords: SBAR handover model, detail nursing intervention, infectious diseases, nursing effects

Introduction

Infectious diseases are common in clinical practice and require more medical attention during treatment [1, 2]. As an important method to transfer nursing messages, clinical handover is essential for the treatment of patients [3]. Sixty percent of all medical errors are caused by miscommunication, which can be effectively reduced by the application of SBAR handover. However, the SBAR model cannot improve the patients' negative emotions, quality of life, or nursing satisfaction [5], which consequently requires a new nursing method with such capabilities. As a new nursing method, the detailed nursing can alleviate patients' negative emotions and drive down the comorbidity rate by providing comprehensive nursing care [6, 7]. Research concerning the nursing effect of the SBAR handover combined with detailed nursing intervention on infectious patients is little, if anything, to be found. This study aimed to provide references for the clinical treatment of infectious diseases through analyzing the effects of the SBAR handover combined with detailed nursing intervention on patients with infections.

Table 1. Comparison of general information of patients between two groups

Groups	n	Gender		Average age (sui)	Average duration of diseases (year)	Hepatitis A (n)	Hepatitis B (n)	Hepatitis C (n)
		Male	Female					
Experimental group	53	29	24	47.22±5.37	3.41±0.87	16	23	14
Control group	53	27	26	47.98±5.11	3.59±0.82	17	22	14
X^2/t		0.151					0.053	
P		0.697					0.974	

Materials and methods

General resource

A prospective study involving 106 cases of infectious patients admitted to our hospital from April 2018 to April 2020 was conducted, and the patients were randomly divided into a control group and an experimental group. This study was supervised under and approved by Medical Science Research Ethics Committee of the Fifth People's Hospital of Suzhou, with the Approved No. of 2018 (0345).

Inclusion criteria: (1) patients' conditions fit in diagnostic standards of infectious diseases; (2) patients were diagnosed with infectious disease by laboratory tests and imaging examinations; (3) patients voluntarily signed informed contents. Exclusion criteria: (1) patients with multiple comorbidities; (2) patients with a history of mental disease; (3) patients with heart, kidney, and liver; (4) patients not willing to participate. Comparison of general information between the two groups indicated no statistically significant difference (P>0.05). See **Table 1**.

Methods

Control group: The SBAR handover was used in the control group. The handover communication charts were used for a better communication and information sharing between nurses. (1) A SBAR communication check list: A SBAR communication check list for infectious diseases was created after checking relevant references, which takes the specific characteristics of treatments for infectious patients into consideration. S represented situation, which included general information about patients and questions and situations needed to be delivered. B represented background, which contained allergies, medical histories, medications, and positive tests of patients. A represented assessment, including observations, changes in patients' conditions, drug administrations, special treatments, and diets. R referred to recommendation, including nursing actions which have been adopted, and nursing interventions recommended for the nursing staff to be on duty. (2) Training and implementation. The nurses were trained by professional managers based on practical situations in the ward. The training session included the conception of SBAR communicative model, its practical meaning, and methods. Training included lectures, case studies, stimulations, and clinical observations.

Experimental group: Besides SBAR in the control group, patients in the experimental group also received intervention of detailed nursing management. (1) Hospital admission education: relevant disease knowledge was introduced to patients and their families by the nurses, including the cause of infectious diseases, clinical symptoms, and treatments. (2) Nursing in psychology: patients can be easily haunted by negative feelings such as fear, worries, and anxiety because some infectious diseases such as Hepatitis B and C require long-term therapy, and can be transmitted through blood, body fluids, and intimate contact. The patients were encouraged by the nurses to share their emotions and communicate with others to build up confidence. (3) Nursing in hospital environment: it was indispensable to keep the wards clean, quiet, at a comfortable temperature, and an appropriate humidity. (4) Nursing in medication administration: the medications were checked strictly in accordance with the checking rules to ensure the safety of drugs, and the patients were instructed to take medicines on time and in a correct manner. (5) Nursing in diets: patients were instructed to have a light diet, with less spicy food, more high-protein and nutrient-rich foods, and more fruit and vegetables.

Table 2. The comparison of comprehensive nursing quality care between two groups ($\bar{x} \pm s$, points)

Groups	n	Cooperation awareness	Communication skills	Problem solving	Purification operation skills
Experimental group	53	90.24±4.15	94.41±3.56	95.30±3.11	98.77±0.73
Control group	53	83.47±4.44	90.73±3.42	91.67±4.15	94.16±2.76
t		8.110	5.427	5.096	11.763
P		<0.001	<0.001	<0.001	<0.001

Observation criteria

(1) Scores of comprehensive nursing quality care. Nursing quality: the self-made nursing quality questionnaire was used for the assessment of theoretical knowledge and professional skills, including 4 major items of cooperative awareness, coordination and communication skills, problem solving abilities and purification operation skills, with a total of 100 points for each item. The higher the score, the better the quality of care. (2) Professional recognition of nursing staff. There are four sections, which include social status, career pathway, mental health, and professional recognition. Each section included 5 points. Higher scores indicate higher professional recognition of nursing staff. (3) Patients' psychological status. ① The result is evaluated based on SAS [10]. Patients are considered in a severe anxiety level if the scores are over 69, moderate anxiety if the scores are between 60 to 69, mild anxiety if the scores ranged 50 to 59, and normal when the scores below 50. ② The result was also evaluated based on SDS [11]. Patients were considered severely depressed if their scores were over 72, moderately depressed if the scores were between 63 to 72, mildly depressed if the scores ranged 53 to 62, and within the normal range when the scores were below 53. (4) The quality of life for patients. The short form 36 health survey (SF-36) was used in this study, which contained an evaluation of psychology, emotion, physical health, and social status. Each section had 100 points in total and life quality was measured by the average score of four sections. Higher scores indicated better life quality. (5) Patients' satisfaction on nursing care. The satisfaction was based on the survey designed by the nursing staff, which contained 8 catalogues, ranging 5 levels from "very satisfied" to "very dissatisfied". The satisfaction rate = (very satisfied + satisfied + averagely satisfied)/patients' number * 100%. (6) The visual analogue scale (VAS) scores of the two groups of patients at 24 h, 48 h, and 72 h after intervention. (7) The hospitalization time and gastrointestinal recovery time of the two groups of patients. (8) The incidence of complications in the two groups.

Statistical methods

SPSS 23.0 was used for statistical analysis of the data, and Graphpad 8.0 was used to plot the graphics. The measurement data and count data were represented by ($\bar{x} \pm s$) and [case, (n%)] respectively. Two independent sample t-test were used for pairwise comparison of measurement data between two groups, and analysis of variance was used for comparison of multiple time points within a group; count data were compared by chi-square analysis. A *p* value less than 0.05 was considered statistically significant.

Results

The comparison of comprehensive nursing quality care between the two groups

The experimental group experienced a better comprehensive nursing quality care from doctors, nursing managers, nursing staff, and patients, as compared to the control group (P<0.05). See details in **Table 2**.

The comparison of professional recognitions of nursing staff between the two groups

Strong evidence of higher nursing professional recognition levels in social status, career pathway, psychological health, and skill recognition in experimental group than those in control group was found (P<0.05). See details in **Table 3**.

The comparison of SAS and SDS scores of patients between the two groups

The two groups did not differ with regard to the SAS and SDS scores of patients (P>0.05). Both

Table 3. The comparison of nursing professional recognitions between two groups ($\bar{x} \pm s$)

Groups	n	Social status	Career pathway	Psychological health	Skill recognition
Experimental group	53	4.56±0.32	4.32±0.44	4.51±0.33	4.18±0.51
Control group	53	3.15±0.56	3.07±0.63	3.49±0.41	3.26±0.71
t		15.924	11.843	14.115	7.662
P		<0.001	<0.001	<0.001	<0.001

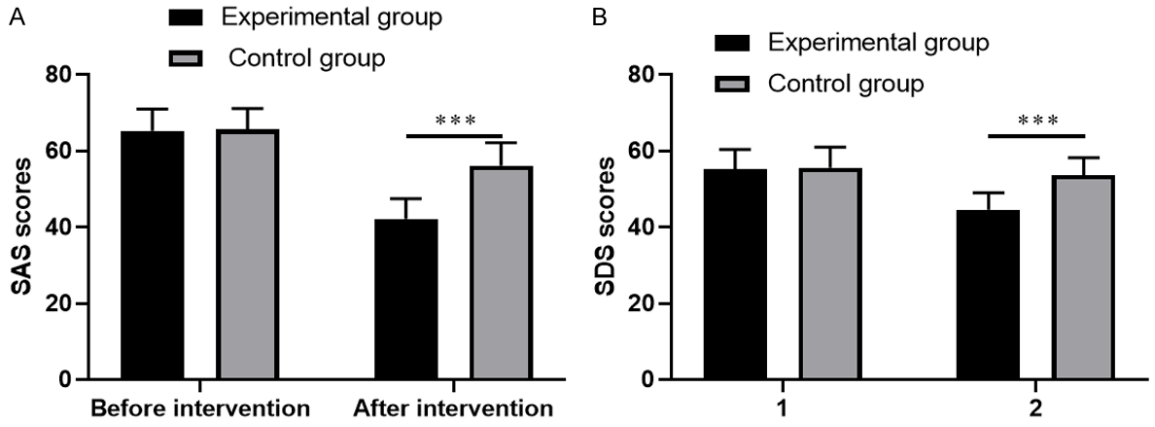

Figure 1. The comparison of SAS and SDS in two groups. A. The SAS score; B. The SDS score; *** indicates P<0.001.

Table 4. The comparison of quality of life between two groups of patients ($\bar{x} \pm s$, points)

Groups	n	Psychology	Emotions	Physical health	Social status
Experimental group	53	81.24±7.35	86.57±7.48	79.88±7.44	82.45±7.19
Control group	53	74.48±6.95	76.98±7.12	65.34±6.15	70.51±6.43
t		10.562	4.865	6.761	10.972
P		<0.001	<0.001	<0.001	<0.001

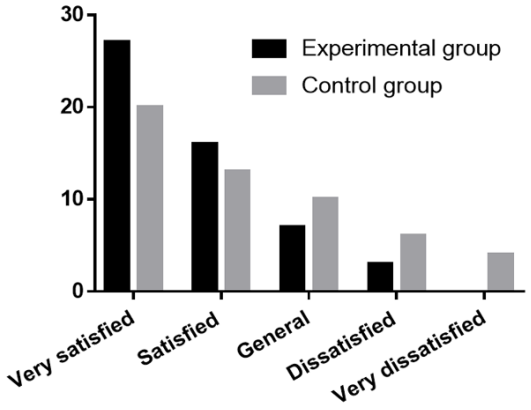

Figure 2. Comparison of nursing satisfaction between the two groups.

SAS and SDS in two groups after intervention witnessed a drastic slump, with an apparently lower score in the experimental group than the control group (P<0.05). See details in **Figure 1**.

The comparison of life quality of patients between the two groups

Patients in the experimental group enjoyed a better quality of life in comparison with those in the control group (P<0.05). See **Table 4**.

The comparison of satisfaction on nursing care between the two groups

Patients in the experimental group were found to be more satisfied with a rate of 94.34%, as compared to the 81.13% of the control group (P<0.05). See **Figure 2**.

Comparison of VAS scores

Results of repeated measurement analysis in **Table 5** demonstrated statistical differences in the comparison of VAS scores between the two groups ($P_{intergroup}$<0.01), in the comparison of the VAS scores of different time points (24

Table 5. Comparison of VAS scores between the two groups of patients at 24 h, 48 h and 72 h after surgery

Group	n	24 h	48 h	72 h
Experimental group	53	6.30±1.36	4.36±1.01	2.98±0.87
Control group	53	7.36±2.34**	5.96±1.85**	3.75±1.21**
$F_{intergroup}$			8.164	
$P_{intergroup}$			<0.01	
F_{time}			25.008	
P_{time}			<0.01	
$F_{interactive}$			14.767	
$P_{interactive}$			<0.01	

Note: vs. experimental group, **P<0.01.

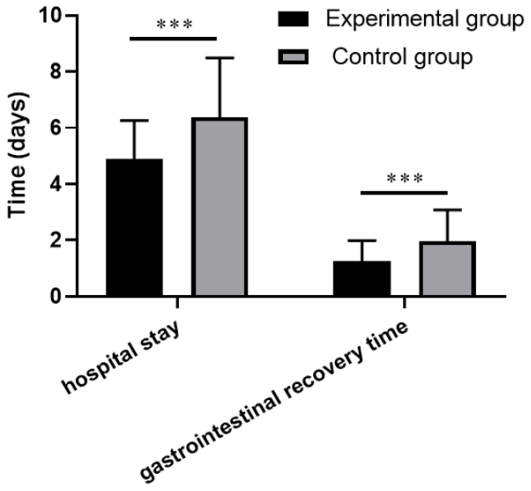

Figure 3. Comparison of hospital stay and gastrointestinal recovery time between the two groups. *** indicates P<0.001.

hours, 48 hours, and 72 hours), and in the comparison of the VAS scores of the intergroup comparison and time points comparison ($P_{interactive}$<0.01). Lower VAS scores at 24 h, 48 h, and 72 h after the intervention in the experimental group than the control group were obtained (P<0.05).

Comparison of hospital stay and gastrointestinal recovery time

The experimental group experienced a shorter hospital stay and gastrointestinal recovery time than the control group with a *p* value less than 0.05. See **Figure 3**.

Comparison of complication rate

Results in **Table 6** stated that patients in the experimental group were of lower possibility to suffer from complications by contrast to the control group (P<0.05).

Discussion

Infectious diseases are different from other diseases with its unique characteristics and potential dangers, the unfamiliarity with which results in fears among patients [13], giving rise to psychological and physical stress. Consequently, patients with infectious diseases tend to generate negative emotions such as anxiety and depression, which may stop them from seeking medical treatment [14, 15]. Clinical nursing is of certain significance in treatment. As a new nursing model in modern clinical practice, detailed nursing intervention mainly focuses on quality nursing in details compared with regular nursing care [16]. This new model requires nursing staff to enhance their mastering of nursing care concepts, skills, and professional knowledge. Then, considering the practical situation and the unique characteristics of infectious diseases, professional, comprehensive, and person-centered nursing care can be implemented by the nursing staff [17]. Likewise, the detailed nursing intervention is considered unique as it takes the patients' psychological and physical needs into consideration, discovers, and solves patients' problems in time [18, 19].

The application of the detailed nursing intervention model in infectious patients can improve the quality of nursing care. Results of this study presented higher scores of comprehensive nursing quality from doctors, nursing managers, nursing staff, and patients in the experiment group than in the control group. SBAR handover model plus detailed nursing intervention is conducive to optimizing the nurse's skills in understanding the patients' condition and in communication. This helps to avoid the problems of occasional carelessness of the nurses in shift exchange and incomplete handover which may be easily affected by memory, time, external environment, and expression. The professional recognition levels of social status, career pathway, psychological health, and skill recognition in the experiment group were higher than that those in the control group. The scores of SAS and SDS for patients in the two groups before intervention were also compared in this study. Patients in the experimental group enjoyed a

Table 6. Comparison of the incidence of infection between the two groups

Group	n	Respiratory system	Digestive system	Urinary system	other	Total infection rate (%)
Experimental group	53	1	1	1	1	4 (7.55)
Control group	53	3	3	3	2	11 (20.75)
X^2						4.570
P						0.001

better quality of life than the control group. Studies have shown that poor information exchange has become the main cause of more than 60% of medical adverse events. With the goal of "promoting communication efficiency and ensuring patient safety", SBAR handover model combined with detailed nursing intervention substantially reduces ineffective communication between doctors and nurses and drives down the impact of medical information deviation on patient safety. Patients receiving the combined intervention were more satisfied with the treatment than the control group. Lower VAS scores, length of stay, gastrointestinal recovery time, and complication rate were obtained in the experimental group by contrast to the control group. It indicated that detailed nursing intervention model yields a promising outcome in improving patients' negative emotions such as anxiety and depression, elevating nursing quality, alleviating negative emotions and optimizing the nursing satisfaction, and quality of life of patients. The high efficiency and accuracy of information transmission is conducive to the timely adoption of corresponding treatment measures, which is extremely crucial to the safety of patients. Both the SBAR handover model and detailed nursing play a key role in the nursing of patients with infections. This research innovatively combined the two to improve clinical efficacy and nursing effects by enhancing nurses' mastering in understanding patients' conditions and communication skills.

Conclusion

In conclusion, SBAR handover model combined with detailed nursing intervention can ease negative emotions of patients with infections, optimize patients' life qualities and satisfaction, and enhance comprehensive nursing performance and professional recognition.

Disclosure of conflict of interest

None.

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