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ORIGINAL ARTICLE

Randomized Controlled Trial

Effect of CICARE communication nursing model combined with motivational psychological intervention in patients with post-intensive care unit syndrome

Sun-Ju She, Ying-Ying Xu

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Abstract

BACKGROUND

Post-intensive care syndrome (PICS) is a term used to describe a constellation of new or worsened dysfunctions in the physical, cognitive, or mental health status of critically ill patients after their discharge from the intensive care unit (ICU). These dysfunctions persist beyond the acute phase of illness and have a significant impact on both the patient and their family. Connect, Introduce, Communicate, Ask, Respond, Exit (CICARE) communication advocates that patients should be respected and accepted when receiving medical services. Clinicians should attach importance to the communication mode of feelings, including connection, introduction, communication, ask, response, and exit 6 steps.

AIM

To assess the impact of CICARE communication on the reduction of anxiety, depression, and post-traumatic stress disorder (PTSD) symptoms in patients transitioning from the ICU to other care settings.

METHODS

This prospective, randomized, controlled study was performed between October 2021 and March 2023. Intensive Care Unit Memory Tool was used to evaluate patients' ICU memory. The Hospital Anxiety and Depression Scale was employed to determine the presence of anxiety or depression symptoms. Impact of Event Scale-Revised was utilized to assess the presence of PTSD. All data were processed and analyzed using R language software version 4.1.0. The measurement data were expressed as mean ± SD, and the *t* test was used. The count data were analyzed by the χ^2 test and expressed as [*n* (%)].

RESULTS
In total, 248 subjects were included in this study. Among them, 206 were successfully followed up for three months after transfer from the ICU, and 42 cases were lost to follow-up. There was no significant difference in the composition of ICU memory between the two groups. The application of the CICARE communication nursing model combined with the motivational psychological intervention nursing model, as well as the adoption of only the motivational psychological intervention nursing model, demonstrated favorable effects on PICS. Both groups of patients showed a reduction in anxiety scores, depression scores, and PTSD scores following the implementation of these two nursing models. However, it is noteworthy that the experimental group exhibited greater improvements compared to the control group.

CONCLUSION
Our findings suggest that CICARE communication nursing mode may have good influence on relieving PICS.

Key Words: Connect, Introduce, Communicate, Ask, Respond, Exit; Post-intensive care syndrome; Motivational psychological intervention

Core Tip: Post-intensive care syndrome (PICS) is a series of new or aggravated dysfunctions in the physical, cognitive or mental health status of a critically ill patient after discharge from intensive care unit. Connect, Introduce, Communicate, Ask, Respond, Exit (CICARE) communication advocates that patients should be respected and accepted during the provision of medical services. CICARE communication nursing mode may have good influence on relieving PICS.

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INTRODUCTION

Connect, Introduce, Communicate, Ask, Respond, Exit (CICARE) communication is an approach that emphasizes the respect, acceptance, and acknowledgement of patients during the delivery of medical services. It places importance on the effective communication of emotions, encompassing six key steps: Connect, introduce, communicate, ask, respond, and exit. Research has shown that under the clear guidance of these steps, patients' satisfaction with health care has been improving[1]. For example, the application value of CICARE communication mode nursing intervention in patients with coronary artery disease after percutaneous coronary intervention has demonstrated notable value. It has shown great potential in reducing disease uncertainty, improving treatment adherence, enhancing patients' self-care abilities, and promoting both quality of life and nursing satisfaction[2].

With the development of modern technology and medical technology, intensive care unit (ICU) treatment technology has rapid development, including advanced respiratory and circulation acquired immunodeficiency syndrome, a variety of standard diagnosis and treatment guidelines, the implementation of health education programs, so that the short-term results of ICU patients, including mortality rates and 28-d survival rates, there has been a significant increase[3]. However, the long-term prognosis and quality of life of sepsis patients remains poor, and there are many studies showings that some patients transferred out of ICU may be suffer from cognitive, mental, and physical impairments are common in patients transferred out of ICU, which can last for months or even years, or remission over time and this syndrome is called post-intensive care syndrome (PICS) which is a range of cognitive, mental, and physical impairments that are new or increased in critically ill patients after transfer from ICU and continue to affect the patient after discharge; or because of the patients admitted to ICU for treatment and late care, the family members brought a variety of pressure, resulting in psychological and physical disorders[4-7].

Numerous studies have focused on developing strategies to reduce the risk of PICS, and caregivers of PICS. High levels of education and early active mobilization are considered potential risk factors for PICS[8-11]. The impact of nursing interventions on PICS is an area that has been inadequately explored in the existing literature. Specifically, the influence of CICARE communication on PICS remains largely understudied. In light of this knowledge gap, our study aimed to evaluate the potential effects of CICARE communication on the duration of post-ICU stay, as well as its impact on anxiety, depression, and post-traumatic stress disorder (PTSD) symptoms among patients transitioning from the ICU to other care settings.

MATERIALS AND METHODS

Research contents

This prospective, randomized, controlled study was performed between October 2021 and March 2023 in Department of Neurosurgery, Dushu Lake Hospital Affiliated to Soochow University. The study was registered at the Clinical Trial Center (www.researchregistry.com) with registration number (researchregistry9376). All subjects have signed the consent form before participating in the study. Patients were divided into two groups, experiment group and controlled group. The patients of experiment group received the CICARE communication nursing model combined with motivational psychological intervention nursing model, and the patients of controlled group received the motivational psychological intervention nursing model. The main study objective was to investigate differences in the occurrence of symptoms of anxiety, depression and PTSD at 3 mo after ICU transfer between two groups of patients receiving different modes of nursing care.

Patient selection

Patients hospitalized and successfully transferred out of comprehensive ICU were selected as subjects by convenience sampling. All patients seen by the investigators in their clinical practices or who responded to requests for volunteers were screened for participation in the study. Those who met the screening criteria and gave their consent were sequentially admitted. Inclusion criteria: (1) At least 18 years old; (2) ICU stay longer than 24 h; (3) Patients transferred to the general ward after ICU treatment; and (4) Informed consent and voluntary participation in the study. Exclusion criteria: (1) Patients with severe brain injury or brain disease; (2) Patients with cognitive dysfunction; (3) Patients with language dysfunction and inability to communicate effectively; (4) Patients transferred to ICU twice or more; (5) Patients with mental disorders; and (6) Patients with malignant diseases receiving palliative care.

Materials

General information questionnaire: The general information questionnaire included gender, age, education, length of stay in ICU, diagnosis of ICU admission, presence of sepsis during ICU treatment, presence of hormones, and presence of analgesics. Intensive Care Unit Memory Tool (ICUMT): The ICUMT, assessment of patients' ICU memory, consists of a total of 14 questions: 5 open-ended questions and 9 closed questions. It mainly includes three parts: (1) The memory of admission and ICU transfer; (2) The memory during ICU care was divided into three dimensions, a total of 21 items: Factual memory (family, face, darkness, alarm sound, breathing tube, clock, sound, sputum aspiration, nasal cannula, light, medical rounds); delusional memories (others wanting to harm themselves, hallucinations, nightmares, dreams); emotional memory (discomfort, confusion, low mood, anxiety and panic, panic, pain); and (3) Memory after transfer out of ICU and ICU[12].

The Hospital Anxiety and Depression Scale (HADS): HADS was divided into two subscales of anxiety and depression, with a total of 14 items, among which 7 items (A) assessed anxiety and 7 items (D) assessed depression, and each item was scored at four levels of 0-3. The subscale was divided into critical value with 8 points, 0-7 points indicated no symptoms, and 8-10 points indicated possible anxiety or depression. A score of 11 to 21 indicates the presence of anxiety or depression symptoms, and the higher the score, the more severe the anxiety or depression symptoms[13,14].

Impact of Event Scale-Revised (IES-R): IES-R consists of 22 entries, including the three core symptoms of PTSD: Intrusion, avoidance and increased alertness were scored on five levels ranging from 0 (never) to 4 (always), with a total score ranging from 0 to 88, and a critical value of 35. The total score ≥ 35 was classified as positive PTSD symptoms, and the higher the score, the more serious the PTSD symptoms[15].

Within one week after the patients were transferred from ICU to the general ward (with appropriate extension to two weeks for special patients), the researchers visited the ward for follow-up, and reported. After knowing the purpose and significance of the study, the informed consent was signed after obtaining the informed consent of the patients, and the general information questionnaire and ICU memory assessment scale were distributed. For the patients who could not complete the questionnaire independently, the questionnaire contents were read aloud word by word, and the patients provided oral answers, and the researchers filled in the answers for them. HADS and IES-Rs were collected by telephone interview at 3 mo after patients were transferred out of the ICU. The questionnaire was read aloud, word for word, and the patients responded verbally, while the researchers wrote the answers for them. Limit each phone interview to 15 to 20 min.

Statistical analyses

The integrity of all questionnaires was checked before input, and invalid questionnaires with obvious logical contradictions or too many missing items were eliminated. All data were processed and analyzed using R language software version 4.1.0. The measurement data were expressed as mean ± SD, and the t test was used. The count data were expressed as [n (%)], and the χ^2 test was used. $P < 0.05$ was considered statistically significant.

RESULTS

There were 248 subjects were included in this study, and 206 patients were successfully followed up three months after being transferred out of ICU, and 42 cases were lost to follow-up from October 2021 and March 2023. The reasons for the loss of follow-up included death, refusal to participate in the investigation, loss of contact, and failure to cooperate with

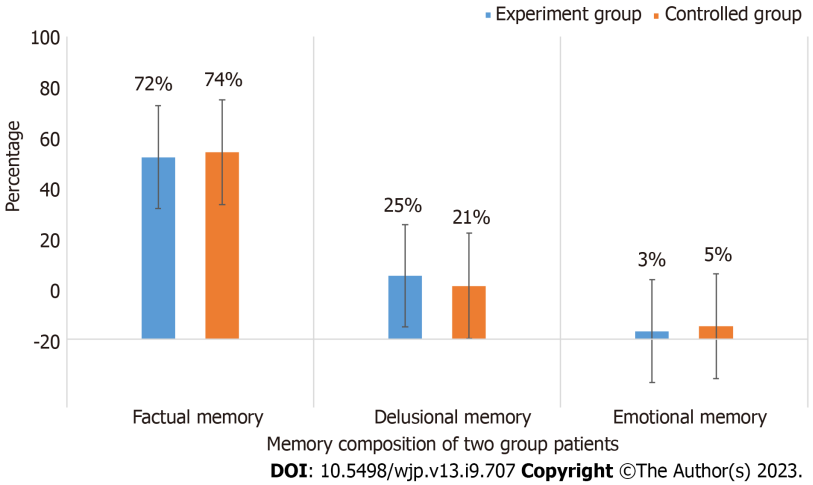

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Figure 1 Intensive care unit memory composition of two group patients.

the investigation in critical condition. Among 206 patients successfully followed up, 125 (60.7%) were male and female in 81 cases (39.3%); most of the patients were over 45 years old, with 112 cases (54.4%), which were presented in Table 1.

There was no statistical difference in the composition of ICU memory between the two groups, and 72% of patients in the experimental group had factual memory. Delusional memory was present in 25% of patients and emotional memory was present in 3%; in the control group, 74% of patients had factual memories, 21% had delusional memories, and 5% had emotional memories (see Figure 1). There was no statistic difference in ICU memory composition of two group patients.

HADS and IES-R score change of two group patients were presented in Table 2. Adopting CICARE communication nursing model combined with motivational psychological intervention nursing model and only adopting motivational psychological intervention nursing model both had good influence on PICS. Anxiety score, depression score and PTSD score of both group patients decreased after using these two nursing modes, but experiment group was better than the control group.

DISCUSSION

Annually, a staggering number of over 20 million patients worldwide necessitate ICU treatment due to severe illness, injury, or the worsening of chronic conditions. Advances in medical technology have increased the survival of critical illness, increasing the number of patients transferred out of the ICU, and increasing attention to their long-term outcomes [16,17]. Patients may experience both physiological and psychological stressors during their stay in the ICU, including critical illness, sedation, pain, sleep deprivation, noise, delirium, lack of privacy, and fear. These experiences can significantly impede the recovery process and may even contribute to the development of psychological disorders, including anxiety, depression, and PTSD, following the patient's discharge from the ICU. Among these, anxiety, depression, and PTSD are the most prevalent psychological conditions observed in such cases[18]. According to the above facts, The American Academy of Critical Care Medicine Put forward the concept of PICS that it is a series of new or aggravated dysfunction in the physical, cognitive or mental health status of a critically ill patient after discharge, which continues to affect the patient or his or her family. There are many studies on the influencing factors of psychological disorders in patients transferred out of ICU, mainly focusing on demographic factors (such as gender, age, education level, family income, *etc.*), disease factors (such as chronic history, severity of disease, sepsis, *etc.*), and factors related to ICU treatment (such as the use of glucocorticoids, the use of analgesics, the use of sedatives, *etc.*). It is a great challenge for intensive care to improve long-term mental health and health-related quality of life of patients transferred out of ICU.

CICARE communication mode is a process-oriented communication approach advocated by American medical institutions. It integrates psychological and medical knowledge along with humanistic values to enhance the effectiveness of communication between healthcare providers and patients in outpatient settings. The implementation of CICARE communication mode aims to improve patients' medical experience and enhance the overall quality of care delivery. In our study, 14 nurses were trained in CICARE communication mode for 1 mo and passed the examination. CICARE mode was fully applied in the experiment group patients who accepted the motivational psychological intervention at same time. After study and observation, the experiment patients more willing to speak out their demand and worries. Other studies have found the same thing[2,19-21]. CICARE communication is a mode of communication that advocates good communication that attends to the patients feelings of being respected, accepted and valued during the provision of medical services for patients, including connect, introduce, communication, ask, response and exit. Patients feel respected and are more likely to trust their doctors, talk about their problems, and give feedback. A major limitation of this study is that we enrolled a small sample size from a single-center study. Therefore, our results may not be generalized.

Table 1 Baseline characteristics of subjects

	Indicator	Number	Percentage
Gender	Male	125	60.7
	Female	81	39.3
Age (yr)	< 30	27	13.1
	30-45	67	32.5
	> 45	112	54.4
Operation situation	Non-operation	38	18.4
	Elective operation	102	49.5
	Emergency	66	32.1
Length of ICU stay	1-5	123	59.7
	5-10	55	26.7
	10-20	14	6.8
	> 20	14	6.8
Tranquilizer	Yes	181	87.9
	No	25	12.1
Sedative	Yes	166	80.6
	No	40	19.4

ICU: Intensive care unit.

Table 2 Hospital Anxiety and Depression Scale and Impact of Event Scale-Revised score change of two group patients

	Experiment group	Controlled group
Samples	103	103
Anxiety score	12	11
Depression score	10	9
PTSD score	52	52
ICU transfer anxiety score at three months	3	6
Depression score at three months after ICU transfer	2	5
PTSD score at three months after ICU transfer	16	38

PTSD: Post-traumatic stress disorder; ICU: Intensive care unit.

CONCLUSION

CICARE communication nursing mode may have good influence on relieving PICS. Patients transferred from ICU can be adopted CICARE communication nursing model combined with motivational psychological intervention nursing model, rather than only motivational psychological intervention nursing model.

ARTICLE HIGHLIGHTS

Research background

Connect, Introduce, Communicate, Ask, Respond, Exit (CICARE) communication is a kind of advocating that patients should be respected, accepted and accepted when providing medical services attach importance to the communication mode of feelings. Post-intensive care syndrome (PICS) is a series of new or aggravated dysfunction in the physical, cognitive or mental health status of a critically ill patient after discharge, which continues to affect the patient or his or her family.

Research motivation

The aim of this study was to evaluate CICARE communication whether shorten post-intensive care (ICU), affecting anxiety, depression, and post-traumatic stress disorder (PTSD) in patients transferred out of the ICU.

Research objectives

The object of this study as follows: (1) Assess the impact of CICARE communication combined with motivational intervention on anxiety, depression, and PTSD symptoms in PICS patients; (2) Compare outcomes between CICARE + motivational intervention and motivational intervention alone; and (3) Determine feasibility and acceptability of implementing CICARE communication in PICS care.

Research methods

The study employed a prospective, randomized, controlled design. Data collection occurred from October 2021 to March 2023. ICU memory was evaluated using the Intensive Care Unit Memory Tool. Anxiety and depression symptoms were assessed using Hospital Anxiety and Depression Scale, while PTSD was measured with Impact of Event Scale-Revised. Statistical analysis utilized R software (version 4.1.0). Follow-up was conducted for three months after ICU transfer.

Research results

There was no statistical difference in the composition of ICU memory between the two groups. Adopting CICARE communication nursing model combined with motivational psychological intervention nursing model and only adopting motivational psychological intervention nursing model both had good influence on PICS. Anxiety score, depression score and PTSD score of both group patients decreased after using these two nursing modes, but experiment group was better than the control group.

Research conclusions

CICARE communication nursing mode may have good influence on relieving PICS.

Research perspectives

Patients transferred from ICU can be adopted CICARE communication nursing model combined with motivational psychological intervention nursing model, rather than only motivational psychological intervention nursing model.

FOOTNOTES

Author contributions: She SJ and Xu YY contributed equally to this work; Xu YY designed the study; She SJ contributed to the analysis of the manuscript; She SJ and Xu YY involved in the data and writing of this article; and all authors have read and approved the final manuscript.

Institutional review board statement: The study was reviewed and approved by the Dushu Lake Hospital Affiliated to Soochow University Institutional Review Board.

Clinical trial registration statement: The study was registered at the Clinical Trial Center (www.researchregistry.com) with registration number (researchregistry9376).

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