ORIGINAL RESEARCH

Application Effects of SBAR Communication Mode in ICU Nursing Physical Restraint Shift

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ABSTRACT

Context • Correct and effective handovers of patients' information during shift changes can ensure patients' safety and can help an incoming shift of nurses to continuously monitor patients' psychological problems and avoid unnecessary physical restraints. Development of a standard procedure for handover of patients who have been physically restrained has important clinical significance related to the smooth continuation of nursing work and assurance of the quality of care.

Objective • The study intended to investigate the clinical effects of the situation-background-assessment-recommendation (SBAR) communication mode on the quality of the information passed during shift changes about patients in intensive care units (ICUs) who had been physically restrained and to compare it to the clinical effects obtained using traditional methods of communication.

Design • The study was a retrospective analysis of the process used by nurses who were passing patient's information during shift changes when caring for patients who had been physically restrained.

Setting • The study took place in an ICU at the Second Hospital of Hebei Medical University in Shijiazhuang, Hebei, China.

Participants • Participants were 21 nurses caring for 239 ICU patients under physical restraint at the Second Hospital.

Intervention • Of the 239 patients, 118 had been hospitalized between March 1 and March 15, 2018 and were assigned to the control group, and 121 had been hospitalized between June 1 and June 15, 2018 and were assigned to the intervention group. An ICU Physical Restraint Handover Order was established according to the SBAR communication mode. The intervention group used the SBAR communication mode and the control group used the hospital's routine communication mode for the physical restraint of a patient during a nursing shift.

Outcome Measures • The study measured the differences between the groups in the nurses' passing rates based on standards for the use of physical restraints, the quality of handover of information during shift changes about patients under physical restraint, the quality of the documentation written by nurses about the physical restraint, and the nurses' satisfaction with the handover of information during a shift change.

Results • Among the patient, 112 in the intervention group (92.56%) and 92 in the control group (77.97%) were qualified for physical restraint. A statistically significant difference existed between the two groups in the passing rate for the use of physical restraints ($P = .001$). The quality score for the handovers during shift changes of patients under physical restraint in the intervention group was 95.46 ± 2.50 and for the control group was 91.08 ± 3.57, with the difference being statistically significant ($P = .030$). The quality score for the nursing documentation for the intervention group, at 97.21 ± 1.49, was higher than that of the control group, at 90.78 ± 3.42, and the difference was statistically significant ($P < .001$). The nurses' satisfaction score for the intervention group, at 98.14 ± 1.01 was higher than that of the control group, at 92.57 ± 1.86, and the difference was statistically significant ($P = .006$).

Conclusions • The use of the SBAR communication mode to improve the information passed to nurses about patients under physical restraint during a shift change can improve the quality of the physical restraint and nurses' satisfaction and has a better clinical-application effect than the traditional methods used during shift changes. (*Altern Ther Health Med.* 2022;28(6):112-117)

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The concept of a shift change is important in nursing work and plays an important role in the transmission of patient-care information.[1] At the same time, the shift system is one of the core systems of nursing and plays an important role in ensuring the quality of nursing care.[2]

Patients in intensive care units (ICUs) are usually in a serious condition, and most patients experience anxiety or delirium, which is a common clinical syndrome in the ICU. It's an acute brain dysfunction, characterized by transient and widespread cognitive impairment, with acute onset and rapid development.[13] These characteristics of patients can affect the smooth progress of treatment and even lead to adverse events. For example, unplanned extubation is a serious adverse event in nursing that can bring serious harm to patients, and physical restraints are aimed at reducing such adverse events. Therefore, clinical nurses usually use physical restraints to ensure safety during the nursing process.[3]

Benbenbishty et al reported that the average rate of usage of physical restraints in the care of 34 comprehensive ICU patients in Europe was 39%.[4] In China, Zhu et al and Chen et al found that the rate of physical restraint for ICU patients was 39.4% to 45.7%.[5,6]

Use of physical restraints requires continuous work, and the reasons for physical restraints are complex, so the patient's consciousness, treatment mode, and degree of ability to cooperate need to be considered comprehensively. The reasons for physical constraints are diverse and complex, which can lead to issues regarding the transfer of information during nursing handovers at shift changes and poor time continuity.

Physical restraints aim to prevent accidents and maintain patients' safety by restricting their activities.[10] Patients under physical restraint often are unconscious or have trouble expressing their needs. These factors make it difficult for nurses to smoothly transfer patients' care during a shift change, but because of the particularities of ICU patients, the handover between nurses is especially important. Correct and effective handovers of patients' information during shift changes can ensure patients' safety and can help an incoming shift of nurses to continuously monitor patients' psychological problems and avoid unnecessary physical restraints. Poor communication between doctors and nurses has been found to be the main cause of patients' accidental injuries.[11]

According to Xin et al and Rose et al, nurses use physical restraint in clinical practice to ensure the safety of patients with delirium and the smooth progress of treatment and nursing while a patient is restrained, but they have indicated that physical restraint can aggravate the degree of delirium.[14,15] Sone studies have suggested that patients can experience depression, irritability, and humiliation after physical restraint; some patients feel that their personality and dignity have been violated and have even developed delirium and posttraumatic stress disorder.[12]

One study found that 81.75% of ICU nurses believe that physical restraint was effective in preventing unplanned extubation.[7] However, another study found that physical restraints had little effect on reducing the occurrence of adverse events but may have caused adverse consequences, such as skin damage, constipation, depression, and anger, which might increase the mortality rate and hospital stays of patients.[8] Chang et al's study suggested that 25.6% to 80% of patients with unplanned extubations were under physical restraint.[18]

The smooth transfer of patients' information has been found to be the primary factor in a safe transition of patients to new nursing staff, ensuring that they receive good follow-up treatment and continuous care.[20] The correct assessment of the patient's condition requires comprehensive knowledge and comprehensive analysis of a patient's information, while effective advice depends on the application of critical thinking. One study found that patients who weren't evaluated for physical restraint had three times as much agitation as those who weren't.[17]

The development of a standard procedure for handover of patients who have been physically restrained has important clinical significance related to the smooth continuation of nursing work and assurance of the quality of care. In January 2016, the Australian Center for Evidence-based Healthcare released the Physical Restraint Standards, which state that "the patient's needs, risks, and benefits should be considered in the best interests of the patient," and advocated that "the use of physical restraint should be avoided as far as possible and the withdrawal of restraint (should be) as early as possible."[23]

SBAR

The situation-background-assessment-recommendation (SBAR) communication mode is an evidence-based, standardized form of communication and refers to a communication process that focuses on what happened, what caused it, what the problem is, and what should be done to solve it.[9]

SBAR ensures the effective transmission of information,[16] thus ensuring the continuity of use of physical restraints. Evaluation of the process of handovers during shift change based on the SBAR mode for patients under physical restraint can help nurses in the process of information transmission to form a consensus about the use of restraints. Chang et al found that the application of the SBAR communication mode during the nursing shift change in the ICU could reduce the rate of unplanned extubation and improve the quality of nursing care through a standardized process.[2]

The SBAR communication mode can play a positive role in improving the comprehensive quality of nursing care. The required detailed description of the current situation depends on an accurate grasp of a patient's information, and the accurate description of the background during the shift depends on a nurse's comprehensive grasp of the patient's treatment and nursing situation.

The standardized communication mode of SBAR has been found to be helpful in improving the critical thinking ability and communication ability of nurses and improving the quality of their decisions to use physical restraints by improving the collaborative ability of the nursing team, to ensure patients' safety.[19]

In clinical work, communication barriers are often caused by differences in communication modes among medical staff.

The SBAR mode standardizes the communication mode, which can help nurses to clarify communication content, highlight key points, and reduce communication barriers.[21] Smooth communication can ensure the transmission of information, and a standardized communication mode can increase the benefits of the information-transmission process.

Gou et al found that a succession schedule created using the SBAR communication mode had allowed standardization of the succession order and content, helping the nurses at a shift's end to fully grasp the patients' information, and the succession nurses to understand a patient's condition and treatment in a short time and to determine the follow-up nursing focus, so as to avoid the occurrence of a poor handover.[2]

Wang and Gao also found that the application of the SBAR communication mode strengthened nurses' understanding of patients' overall situations, improved nurses' ability to observe and summarize patients' conditions, reduced the differences caused by different communication modes among the nurses, and effectively reduced the incidence of adverse events during shift changes and patient transport.[22]

Therefore, the current study intended to investigate the clinical effects of the SBAR communication mode on the quality of the information passed during shift changes about patients who had been physically restrained and to compare it to the clinical effects obtained using traditional methods of communication.

METHODS

Participants

The study was a retrospective analysis of the process used by nurses who were passing patient's information during shift changes when caring for patients who had been physically restrained. Prospective participants were nurses caring for patients who had been admitted to the ICU of the Second Hospital of Hebei Medical University in Shijiazhuang, Hebei, China and who underwent a shift change during the period in which their patients were physically restrained.

Potential patients were included if they: (1) had been hospitalized in the ICU for ≥24h; (2) were ≥18 years or age; and (3) had no damage to, loss of integrity in, or edema of the skin at the restraint site before restraint occurred. Potential patients were excluded if they had: (1) a bleeding tendency or skin disease or (2) a history of mental illness.

The study was approved by the ethics committee of the Second Hospital of Hebei Medical University, and written informed consent was obtained from all participants.

Procedures

Groups. The patients who had been hospitalized between March 1 and March 15, 2018 were included in the control group, and patients who had been hospitalized between June 1 and June 15, 2018 were included in the intervention group. The nurses were the study's participants, with their assigned groups being those of the patients for whom they cared.

Intervention. For the handovers during shift changes of patients under physical restraints, the intervention group's nurses received training regarding the established ICU Physical Restraint Order and followed its procedures for handovers, and the control group's nurses received no training and performed handovers following the procedures in the hospital's routine communication mode.

Establishment of ICU Physical Restraint Handover Order according to the tenets of the SBAR communication mode. An order was designed and established for use by the nurses in the intervention group.

With respect to the situation (S), the SBAR requires that the nurses document their patients' bed numbers, names, and current physical restraints.

With respect to the background (B), the SBAR requires that the nurses document: (1) the reason why a patient was placed under physical restraint, including the patient's awareness of the restraint; (2) the patient's ability to take care of his or her personal needs, such as urination; (3) the patient's degree of cooperation; (4) the patient's mobility; and (5) the patient's complaints about the restraint.

With respect to the assessment (A), the SBAR requires that the nurses: (1) assess patients' current states of physical restraint, if any, and (2) describe the main nursing problems and measures to be taken.

With respect to the recommendation (R), the SBAR requires that the nurses suggest what their successors for the next shift should focus on for each patient, such as medical indicators that need to be continuously assessed and monitored and a plan of care that communicates what the need for physical restraint is during the next shift.

Training of nurses to follow the established ICU Physical Restraint Order. A training team for the intervention group was set up, comprising one head nurse, three senior nurses, and two doctors. The training content included: (1) the meaning of the SBAR communication mode, (2) theoretical knowledge of and operational skills for physically restraining patients, including the correctness of tool selection and (3) the methods to use the ICU Physical Restraint Handover Order according to SBAR mode.

Data collection. According to the SBAR model, a Physical Restraint Handover Checklist was created, and the clinical application of the order in the ICU was monitored. To enable quality control, the training team evaluated whether: (1) the description of the current situation as documented was consistent with a patient's real situation, (2) any omissions had occurred, (3) the reason for the physical restraint of a patient was valid, (4) the comprehensiveness of the situation's description, (5) the correctness of the physical-restraint assessment, (6) the rationality of the use of physical restraint, and (6) the rationality of the follow-up nursing suggestions about the physical restraint.

The responsible team leader checked the nurses' compliance with the checklist twice a day. The head nurse randomly checked the compliance of two nurses per week, and the nurse participants checked their own compliance once a week, forming a three-level, quality-control mechanism related to physical restraints during shift changes in the ICU.

Outcome measures. The research team performed an assessment of the effects of the order on the outcomes of shift changes. The clinical effects for each shift were evaluated using the following indicators: (1) an evaluation of the passing rate for the use of physical restraint—the reasonableness of the justifications for the physical restraints, and the correctness of the use of the restraint methods, with a nurse failing to follow the order if he or she didn't meet any of the three requirements; (2) use of a self-designed quality table regarding the handover during shift change of patients under physical restraint, which included the physical-restraint status, background, evaluation, and suggestions, with a maximum possible score of 100 points; (3) an examination of the written nursing records documenting the physical restraints used for the two groups of patients during their hospitalizations, based on the quality standards of the hospital, with a maximum possible score of 100 points; (4) administration of a self-designed questionnaire to investigate the 21 nurses' satisfaction with the shift changes for their patients' who were under physical restraint, with a maximum possible score of 100 points.

Intervention

The training included theoretical learning and skill training, and the training period was one month, 2 times per week and 2 hours at a time. During the training process, theoretical assessment, skill assessment, and scenario-simulation assessment were adopted to help the nurses to master the SBAR mode and conduct a handover of patients under physical restraint at a shift change.

Problems that nurses encountered in the implementation of a handover order were collected for one month, and the training was conducted again at that time to optimize the use of the established order.

Outcome Measures

Passing rate. the reasonableness of physical restraint reasons, the correctness of tool selection and the correctness of restraint methods. If one of them fails, the option is disqualified

Self-designed quality table. Self-designed physical restraint handover quality table, including physical restraint status, background, evaluation and suggestions, with a full score of 100 points.

Examination of written nursing records documenting physical restraints. according to the quality standard of nursing document writing in our hospital, physical restraint nursing records of the two groups of patients during hospitalization were examined, with a full score of 100

Nurses' satisfaction questionnaire. the self-designed questionnaire was calculated with a score of 100 points to investigate 21 nurses' satisfaction with physical restraint shift.

Statistical Analysis

Statistical analysis was performed using the SPSS software program, version 17.0 (IBM Corp, LA, CA, USA). Normally distributed measurement data were expressed as means ± standard deviations (SDs), and the comparisons were examined by Student *t* test. Categorical variables were presented as numbers with percentages and compared with the Chi-square tests. Statistical significance was set at $P < .05$.

Table 1. Comparison of Eligibility of Patients for Physical Restraint Between the Groups (N = 239)

Group	Patients n	Qualified n (%)	Unqualified n (%)
Intervention group	121	112 (92.56)	9 (7.44)
Control group	118	92 (77.97)	26 (22.03)
χ^2			10.182
P value			.001[a]

[a]Indicates a significant difference in the eligibility for the intervention group compared to the control group's eligibility

Table 2. Comparison of the Quality of the Nurses Handovers During Shift Change for Patient's Under Physical Restraint (N = 239). The maximum possible score was 100 points.

Group	Patients n	Quality Score Mean ± SD
Intervention group	121	95.46 ± 2.50
Control group	118	91.08 ± 3.57
t		10.994
P value		0.030[a]

[a]Indicates a significantly better quality for the handovers for the intervention group than for the control group

RESULTS

Participants

Of 239 patients who were admitted to the hospital and who underwent physical restraint, 118 were assigned to the control group, and 121 were assigned to the intervention group. No significant differences existed in the demographics between the patients in the two groups, with $P > .05$.

The shift nurses involved in the study were 21 ICU nurses, including one male and 20 females. Their ages ranged from 26 to 39 years, with a mean age of 30.42 ± 2.97 years (data not shown). Their number of years of working as an ICU nurse ranged from 4 to 20 years, with a mean number of years of 6.42 ± 3.55 years.

Shift Changes

In terms of the nurses' passing rates regarding the use of physical restraints, 112 patients in the intervention group (92.56%) and 92 patients in the control group (77.97%) were qualified for physical restraint, and the difference was statistically significant ($P = .001$) (Table 1).

Regarding the quality of the handovers of patients under physical restraint, the score was 95.46 ± 2.50 for the intervention group's nurses, while that for the control group's nurses was 91.08 ± 3.57. The difference between the two groups was statistically significant, with $P = .030$ (Table 2).

The comparison of the quality of written nursing documentation for patients under physical restraint between the two groups showed that the intervention group's quality score was 97.21 ± 1.49, which was higher than that of the control group, at 90.78 ± 3.42, and the difference was statistically significant, with $P < .001$ (Table 3).

In the comparison of the nurses' satisfaction with the transfer of information about patients under physical restraint during shift changes for the two groups, the score of the intervention group's nurses was 98.14 ± 1.01, which was higher than that of the control group's nurses, at 92.57 ± 1.86, and the difference was statistically significant, with $P = .006$ (Table 4).

Table 3. Comparison of Quality of Written Documentation by Nurses About Physical Restraints (N = 239). The maximum possible score was 100 points.

Group	Patients n	Quality Score Mean ± SD
Intervention group	121	97.21 ± 1.49
Control group	118	90.78 ± 3.42
t		18.916
P value		0.001[a]

[a]Indicates a significantly better quality for the documentation for the intervention group than for the control group

Table 4. Comparison of Nurses' Satisfaction With Physical-restraint Handovers (N = 21) The maximum possible score was 100 points.

Group	Nurses n	Quality Score Mean ± SD
Intervention group	21	98.14 ± 1.01
Control group	21	92.57 ± 1.86
t		12.055
P value		0.006[a]

[a]Indicates a significantly greater satisfaction for the nurses caring for the intervention group compared to those caring for the control group

DISCUSSION

In the current study, the research team applied the SBAR communication mode for the first time to the handovers of patients under physical restraint during shift changes in the ICU. The use of the SBAR communication mode improved the quality of the handovers and the nurses' satisfaction with the handovers, which indicated that the mode might be able to play an important role in improving the quality of nursing in the ICU.

The results of the current study suggested that after the establishment of the ICU Physical Restraint Handover Order based on the SBAR communication mode, the qualified rate of patients' physical restraint and the handover quality score both improved, suggesting that the adoption of the SBAR communication mode was helpful to the successful completion of handover during shift changes of patients under physical restraint.

The results of the current study indicated that the satisfaction of nurses using the SBAR communication mode was significantly higher than that in traditional mode ($P = .006$), suggesting that the SBAR model was conducive to the standardization use of restraints and promoted the improvement of the quality of the decision to use a restraint.

The current study had the following limitations: (1) it was conducted in a single institution and may not be representative of the workflow of other institutions; (2) the sample size was small, which may have led to bias; (3) only physical-restraint eligibility, handover quality, written nursing documentation, and nurses' satisfaction with handovers of patients under physical restraint were investigated. In future studies, the research team will explore more parameters to further evaluate the clinical application of the SBAR communication mode in multiple aspects.

CONCLUSIONS

The use of the SBAR communication mode to improve the information passed to nurses about patients under physical restraint during a shift change can improve the quality of the physical restraint and nurses' satisfaction and has a better clinical-application effect than the traditional methods used during shift changes.

AUTHORS' DISCLOSURE STATEMENT

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