

Effectiveness of Nursing Safety Education in Teaching Nursing Technical Operations

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Abstract: *Objective:* To investigate the effect of implementing nursing safety education in the teaching of nursing technical operation. *Methods:* A total of 80 nursing interns in Shaanxi Provincial People's Hospital were randomly selected between January 2023 and December 2023, 40 cases of the implementation of the conventional teaching mode were named as the control group, and 40 cases of the implementation of the nursing safety education mode were named as the seminar group. The degree of nursing teaching acceptance, theoretical knowledge mastery, skill operation performance, and the incidence of nursing adverse events in the two groups after receiving the two different teaching modes were observed and analyzed in depth. *Results:* Compared with the control group, the nursing interns in the seminar group had significantly better teaching effects, superior assessment results, higher nursing teaching recognition, and fewer incidences of nursing adverse events ($P < 0.05$), which fully proved their advantages in teaching practice with research value. *Conclusion:* The interns of nursing specialty can significantly improve the teaching quality of the nursing internship stage by receiving the effective intervention of nursing safety education, which in turn will make the intern nurses more skillful in mastering the nursing technical operation and effectively reduce the occurrence of nursing error events, and it is worth to be applied.

Keywords: Nursing teaching; Nursing safety education; Nursing errors; Application effects

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1. Introduction

Nursing safety, i.e., when nursing care is performed, it must be ensured that the patient does not suffer psychological, physiological structural, or functional damage that is not permitted by laws and regulations. This work is a top priority in hospital operations, and a high degree of clinical attention is always given to the safety of nursing care for hospitalized patients^[1]. Therefore, it is particularly important to strengthen nursing safety education. Nursing internship, as a key link in nursing professional education, aims to lay a solid foundation for nursing interns to engage in nursing in the future. During the internship, nursing interns mainly learn and master nursing technical operations as well as the application of theoretical knowledge. Proficiency in nursing technical operations has a direct decisive role in the effect of internship^[2,3]. Given this, a study aimed at exploring the practical application value of the nursing safety education model was carried out at the Shaanxi

2. Materials and methods

2.1. General information

Eighty nursing interns were randomly selected from January 2023 to December 2023 for this study. The cultural level was distributed as follows: 45 people with college degrees and 35 people with bachelor's degrees. The 80 nursing interns were divided into two groups: a control group that implemented the conventional teaching model, which consisted of 40 people whose age range was between 18 and 22 years old, with an average age of 20.23 ± 2.34 years; and a seminar group that implemented the nursing safety education model, which also contained 40 people whose age range was between 18 and 23 years old, with an average age of 20.67 ± 2.36 years. After preliminary analysis, the difference between the two groups in terms of research data was not significant ($P > 0.05$), thus allowing for subsequent comparative studies.

2.2. Methods

A standard teaching model was implemented for 40 nursing interns in the control group. Upon joining the unit, the nursing interns will be assigned by the head nurse to undertake the nursing interns' admission education and subsequently assigned to a senior nurse practitioner for professional guidance. During this period, nursing interns are required to closely follow the lead instructor and participate in nursing rounds and learning activities. The nursing staff of the seminar group received the nursing safety education model on this basis, with the following specific contents:

- (1) Setting teaching objectives and processes: Planning the teaching contents and objectives according to the specific characteristics of the nursing work in the department and improving the professional skills and practical abilities of the nursing interns by organizing them to participate in the teaching of simulated nursing operations. To ensure the quality of teaching, the teaching objectives are evaluated in real time according to the feedback results of the simulation operation, and necessary adjustments are made accordingly. To facilitate the learning of nursing interns, the teaching process and scoring criteria are organized into a booklet and distributed to each nursing intern, who is required to preview and master the relevant knowledge in advance ^[4];
- (2) Improve the awareness of safe nursing care among nursing interns: While being committed to providing quality teaching, the importance of nursing safety was emphasized. When a new nursing trainee participates in practice activities for the first time, it is the responsibility of the lead teacher to elaborate on the potential risk factors, closely observe his/her operation process, and provide necessary guidance and advice. After the operation is completed, the instructor should give timely feedback to the nursing interns, clearly pointing out where they need to improve;
- (3) Develop a personalized teaching mode: The instructor should have a comprehensive understanding of the actual ability level of each nursing intern, and accordingly develop a personalized nursing safety teaching program. The program should clearly explain the process and methods of crisis management to ensure that nursing interns can quickly and correctly respond when facing emergencies ^[5]. In addition to collective teaching, the lead teacher should also provide individual guidance for the characteristics of each nursing intern, combining case teaching and intuitive teaching methods to enable nursing interns to deeply understand the importance of nursing safety, thereby strengthening their understanding and mastery of nursing safety ^[6];
- (4) Nursing interns' summarization and exchanges: The form of group teaching is used to conduct an

in-depth exploration of common safety hazards, and systematically summarize the corresponding emergency treatment measures. At the same time, extensive review of relevant information to ensure the effective avoidance of potential nursing risks [7]. To ensure the legality and rationality of nursing operations, each nursing intern is issued with a legal knowledge manual to provide clear guidelines for the protection of their own rights and the rights of patients in actual work. In addition, we will pay special attention to combining routine operation skills with nursing principles, emphasizing the critical importance of isolation and protection, aseptic operation, and standard preventive operation [8];

- (5) Practical operation: A series of practical operations are organized for the nursing interns, and the instructor conducts close observation and comprehensive assessment of the operation process of the nursing interns. In the process of observation, the errors of nursing interns were found in time, and necessary guidance and correction were given. At the end of each stage of training, a corresponding assessment mechanism is set up, and nursing interns who pass the assessment are eligible to enter the next stage of training, nursing interns who fail to meet the standards will be provided with the opportunity for retraining [9].

2.3. Observation indexes

After the end of teaching, the two groups of nursing interns were compared in terms of their comprehensive ability assessment scores (theoretical knowledge, specialty care, basic care, and comprehensive nursing skills, with scoring using a percentage system), nursing teaching recognition (whether they improved their independent learning ability, motivation to learn, efficiency in learning, ability to identify problems and problem-solving ability), as well as the incidence of adverse events in nursing (including nursing safety accidents, serious infections in hospitals, poor execution of medical advice, and nursing medication errors). The results of the comparison were presented in a table.

2.4. Statistics analysis

All research data were analyzed using the SPSS 23.0 software. Data were expressed by either mean \pm standard deviation (SD) or [n (%), and the differences between the two groups were compared using *t* and χ^2 tests. A *P* value of less than 0.05 indicated a statistically significant difference.

3. Results

Table 1 shows that the seminar group exhibited significantly higher comprehensive ability assessment scores as compared to the control group ($P < 0.05$).

Table 1. Comparison of the comprehensive ability assessment scores of nursing interns in the two groups (mean \pm SD, points)

| Group | Theoretical knowledge | Specialty nursing skills | Basic nursing skills | Comprehensive nursing skills |
|--------------------------------|-----------------------|--------------------------|----------------------|------------------------------|
| Control group (<i>n</i> = 40) | 73.26 \pm 2.23 | 72.09 \pm 2.87 | 71.48 \pm 2.27 | 73.28 \pm 2.65 |
| Seminar group (<i>n</i> = 40) | 85.27 \pm 2.27 | 85.09 \pm 2.76 | 88.04 \pm 2.75 | 89.62 \pm 2.27 |
| <i>P</i> | < 0.05 | < 0.05 | < 0.05 | < 0.05 |

The seminar group appeared to have a significantly lower incidence of adverse nursing events as compared to the control group ($P < 0.05$), as presented in **Table 2**.

Table 2. Comparison of the incidence of adverse events in nursing work between the two groups of nursing interns [*n* (%)]

| Group | Nursing safety accidents | Serious nosocomial infections | Failure to carry out medical advice | Nursing medication errors |
|--------------------------------|--------------------------|-------------------------------|-------------------------------------|---------------------------|
| Control group (<i>n</i> = 40) | 4 (10.00) | 3 (7.50) | 7 (17.50) | 5 (12.5) |
| Seminar group (<i>n</i> = 40) | 0 (0.00) | 0 (0.00) | 1 (2.50) | 0 (0.00) |
| <i>P</i> | < 0.05 | < 0.05 | < 0.05 | < 0.05 |

As shown in **Table 3**, the nursing interns in the seminar group have significantly higher nursing teaching recognition than the control group ($P < 0.05$).

Table 3. Comparison of nursing interns' nursing teaching recognition in the two groups [*n* (%)]

| Group | Problem-solving skills | Problem-finding skills | Self-directed learning | Learning efficiency | Learning motivation |
|--------------------------------|------------------------|------------------------|------------------------|---------------------|---------------------|
| Control group (<i>n</i> = 40) | 30 (75.00) | 28 (70.00) | 26 (65.00) | 30 (75.00) | 33 (82.50) |
| Seminar group (<i>n</i> = 40) | 40 (100.00) | 40 (100.00) | 40 (100.00) | 40 (100.00) | 40 (100.00) |
| <i>P</i> | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |

4. Discussion

Medical safety is the first priority, which is directly related to the life safety of patients and the professional responsibility of healthcare workers. Safe nursing is the basis for guaranteeing that patients receive high-quality, low-risk medical services, and it is also an inevitable requirement for the professional behavior of nursing staff^[9,10]. In the traditional way of nursing teaching, there is a certain degree of rigidity, and the teaching content often lacks relevance, which may lead to the inhibition of the learning enthusiasm of nursing interns and is not conducive to their comprehensive and in-depth mastery of nursing knowledge and skills. Given the special nature of nursing work, it is crucial to ensure the safety of nursing care, therefore, it is especially critical to provide nursing interns with adequate nursing safety education during the internship stage^[11,12].

The importance of nursing safety education is to cultivate the nursing staff's safety alertness and ensure the safety of the clinical operation process without errors. In teaching practice, instructors personally conduct demonstration teaching to provide nursing interns with intuitive and practical learning opportunities to ensure that nursing interns are able to master standard operating procedures and norms, develop good operating habits, and deeply understand the importance of nursing safety. Nursing safety education is further strengthened by popularizing knowledge of relevant laws and regulations^[13,14]. At the same time, the impact of safety during nursing operations on treatment effect is emphasized. By combining the two teaching modes of individualization and centralization, nursing interns can be guided more effectively and their safety awareness can be strengthened, which will help to improve the working ability and professional quality of nursing interns. So that nursing interns can realize standardized and safe operations in clinical practice and provide patients with safer and more effective nursing services^[15,16].

In summary, the use of the nursing safety education model for teaching nursing interns shows significant application effects. The model not only effectively improves the quality of teaching in the nursing internship stage, but also enables nursing staff to more skillfully master nursing technical operations. This is not only conducive to improving the overall quality of nursing care but also significantly reduces the occurrence of

nursing errors, which is worthy of clinical promotion and application.

Disclosure statement

The authors declare no conflict of interest.

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