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A Study on Preceptorship for New Staff in the Central Sterile Supply Department from the Perspective of Narrative Teaching

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ABSTRACT: Objective Based on narratology theory, this study aims to explore the application efficacy of narrative teaching in the preceptorship of new employees working in the Central Sterile Supply Department (CSSD). **Methods** New employees were categorized into two groups chronologically. Fifteen recruits hired between 2022 and 2023 constituted the control group, who received orientation training via the conventional teaching model. The observation group consisted of 15 new employees recruited from 2024 to 2025, who were taught with narrative teaching supplemented with conventional training. The final examination results and professional identity of the two groups were compared. **Results** All 15 participants from the control group and 15 participants from the observation group completed the study. The total examination scores and professional identity scores of the observation group were statistically superior to those of the control group (all $P<0.001$). **Conclusion** In contrast to the traditional preceptorship mode, narrative teaching can greatly improve new CSSD staff's proficiency in professional theories and boost their professional identity, safety awareness, and team cohesion simultaneously. As an effective teaching mode fitting the operational characteristics of CSSD, it is worthy of widespread promotion and further optimization in central sterile supply departments.

KEY WORDS: Narrative Teaching; Central Sterile Supply Department; preceptorship for new staff

The CSSD in a medical institution is an indispensable department. The CSSD is the department in a hospital responsible for the cleaning, disinfection, sterilization, and supply of sterile items for all reusable diagnostic and therapeutic instruments, appliances, and articles from various departments[1]. It undertakes important tasks in the prevention and control of hospital-acquired infections and in ensuring the quality and safety of medical care, and plays a vital role in the prevention and control of infections within the hospital. Standardized pre-employment training for new CSSD staff is an important link in ensuring the quality of instrument processing and reducing the risk of hospital-acquired infections. However, the traditional teaching model still has certain limitations[2]. New CSSD staff usually differ greatly in educational background, specialty, age, knowledge background, etc. However, because CSSD work is highly technical and its procedures are complex, new staff are prone to feeling confused in the early stage of employment. The traditional mentoring model for new staff generally consists of the mentor transmitting knowledge and the new staff listening. This model is mainly based on "operation demonstration + rote memorization", making it difficult for new staff to develop a sense of professional identity, and the mentoring effect is unsatisfactory. In the 1990s, the scholar Diekelmann[3] first used methods related to narrative education to study how nursing students at different levels, educators, and clinical nurses understood and experienced nursing education in the United States. Since then, narrative education methods have been widely applied in teaching in multiple nursing fields, including clinical nursing, doctor-nurse relationships, cross-cultural nursing, and nursing theory. Narrative teaching refers to a teaching approach in

which educators, during the teaching process, narrate and reconstruct the stories and experiences of students or educators, so that students strengthen their understanding and mastery of abstract concepts throughout the entire teaching process and gradually form their own unique and positive professional values, thereby achieving good teaching results. This article explores the application of narratology in the mentoring of new CSSD staff, aiming to improve the effectiveness of mentoring for new CSSD staff and enhance their sense of professional identity and responsibility.

1 Data and methods

1.1 Study subjects

This study selected newly hired staff of the CSSD of a certain hospital as the study subjects and used a split-period controlled grouping method for grouping. The specific selection was as follows: 15 staff who joined the CSSD between January 2022 and December 2023 were selected as the control group, and 15 staff who joined the CSSD between January 2024 and December 2025 were selected as the observation group (a total of 30 study subjects in the two groups). Inclusion criteria: new staff joining the CSSD for the first time, with no relevant work experience; those who voluntarily participated in this study and were able to cooperate fully with the department's mentoring training and all examinations; those with normal communication, learning, and comprehension abilities and able to complete theoretical study and skills training. Exclusion criteria: trainees and temporary staff; those who resigned for personal reasons or took leave for longer than the training period after employment, and therefore could not complete the full course of mentoring and examination; those with learning disabilities or physical conditions that could not meet the job requirements of CSSD positions. There were no statistically significant differences in general information between the two groups of new staff (P>0.05), indicating that they were comparable. Among the 15 new staff in the control group, 1 was male, and 14 were female; they were 20~25 years old, with a mean age of (23.15±1.32) years; educational levels: 3 with a secondary vocational school education, 11 with a junior college education, and 1 with a bachelor's degree. Among the 15 new staff in the observation group, 1 was male, and 14 were female; age: they were 20~24 years old, with a mean age of (22.98±1.17) years; educational levels: 1 with a secondary vocational school education, 12 with a junior college education, and 2 with a bachelor's degree. The two groups of new staff were balanced and consistent in general information such as gender, age, and educational level, which ruled out interference from baseline differences on the study results and ensured the objectivity and reliability of the findings.

1.2 Methods

The control group adopted the conventional departmental mentoring model, which centers on "operation demonstration + rote memorization". The mentoring teacher explained and demonstrated the basic theories of the CSSD, the ten major operating procedures, and instrument processing standards, while new staff learned by listening, imitating, and rote memorization. After completing the prescribed training content, they underwent a theoretical examination and evaluation using a professional identity scale. On the basis of the traditional mentoring used in the control group, the observation group received a systematic mentoring program based on narratology theory. The mentoring training period was set at 4 weeks, with one specialized narrative teaching training session conducted each week, and each session lasting 90 minutes. Narrative teaching was carried out from four major dimensions using four core teaching methods: storytelling and sharing, narrative analysis and deconstruction, role-playing, and scenario simulation.

1.2.1 Narrative history to enhance new staff's sense of professional honor

When first joining the CSSD, new staff may mistakenly think that the CSSD is merely a "washing and scrubbing" department, with little technical content, and therefore lack a sense of professional identity. The strategies addressing this problem are: ① Narrate the history of medical sterilization, such as

Semmelweis's discovery in the 19th century that hand disinfection could reduce the mortality rate of puerperal fever, emphasizing the role of the CSSD in medical progress. ② Share cases of hospital CSSD development, such as a hospital optimizing the recovery and processing workflow for precision instruments, thereby reducing the risk rate of damage to precision instruments.

1.2.2 Narrative processes to strengthen new staff's understanding of standardized operating procedures

The processing of diagnostic and therapeutic instruments, devices, and items in the CSSD includes ten processes: recovery, classification, cleaning, disinfection, drying, instrument inspection and maintenance, packaging, sterilization, storage, and distribution of sterile items. There are many processes, and each step has its own standard requirements[4]. The steps of standardized operating procedures are numerous and monotonous, and new staff are likely to omit key steps during processing. The strategies addressing this problem are: ① Use the metaphor method, comparing the standardized operation of the entire process of cleaning and disinfection equipment to core risk control nodes, highlighting the important significance of standardized handling in each link of the equipment; and comparing the compliant issuance of sterile items and the completion of full-process closed-loop quality control to the achievement of post-quality goals. ② Narrate error cases. By telling real incidents, such as a hospital where a new staff member neglected inspection and maintenance before instrument packaging, resulting in missing instruments in the instrument pack and causing adverse consequences, the risks of non-compliant operations are illustrated.

1.2.3 Narrative risks to strengthen new staff's safety awareness

The CSSD handles a large number of contaminated instruments every day and is a high-risk department; therefore, the occupational safety of new staff must not be ignored. A survey study on occupational exposure among CSSD staff in a tertiary grade A hospital in Zhengzhou[5] showed that the incidence of occupational exposure was as high as 31.94%. CSSD staff are required to clean and disinfect recovered contaminated instruments, devices, and items, making them a key population for occupational exposure. With the continuous development of medical technology, a large number of precision surgical instruments have been widely used[6]. Precision instruments have complex structures and a high degree of refinement, and their processing points are more numerous and complex than those of conventional instruments. Even minor errors may damage the instruments or even trigger serious infection events. In the early stage of employment, new staff are unfamiliar with the work and environment of the CSSD and are prone to overlook the occupational exposure risks in the CSSD and the risks of adverse events caused by non-standard operations. The strategies addressing this problem are: ① Teaching on adverse events and safety hazard events, using pictures or videos to show new staff risk events caused by non-standard operations that led to the outbreak of serious nosocomial infection events. ② Conducting scenario simulations, allowing new staff to act as the parties involved in the incident, immersing themselves in it, and analyzing the problems that arose in the incident and the chain reactions triggered.

The practical case of narrating risks is "The Disappearing Tracheal Dilator": instruments need to be inspected and maintained before packaging, and new staff who are not proficient in the process are prone to forgetting the inspection step. Narrative design: role-playing and scenario simulation of an emergency involving missing instruments in a pack, after which new staff analyze the causes, possible consequences, and preventive measures, and the mentoring teacher provides comments.

1.2.4 Narrative team roles to enhance new staff's team cohesion

Work in the CSSD requires strong collaboration and needs to be completed collectively, while new staff who have just joined the team tend to feel isolated and helpless. The strategies addressing this problem are: ① Hold story-sharing sessions with senior staff, in which teachers who have won the title of "Nursing Safety Verification Star" share their work

experience and so on. ② Write narrative reflection journals, and regularly write "learning stories" to record one's own feelings and growth.

1.3 Effect evaluation

1.3.1 Theoretical scores

After the completion of mentoring for new staff, a theoretical examination was conducted. A closed-book examination was carried out using the CSSD professional theoretical examination paper uniformly formulated by the department. The full score of the paper was 100 points. The examination content covered core knowledge points such as the core systems of the CSSD, work standards, operating procedures, occupational protection knowledge, risk prevention and control, and hospital infection control theory. The average scores of the two examinations were compared.

1.3.2 Sense of professional identity

While the theoretical examination was conducted after the mentoring work for new staff was completed, the Chinese version of the Nurses' Professional Identity Scale was distributed for investigation[7]. The scale consists of five main factors with a total of 21 items, including 6 items on self-efficacy and sense of control, 3 items on sense of consistency, 3 items on sense of self-determination, 5 items on sense of influence on patients and the organization, and 4 items on sense of meaning. A 7-point Likert scoring method was used, with scores of 1~7 assigned from "completely disagree" to "completely agree". The total score ranges from 21 to 147, and a higher score indicates a stronger sense of professional identity among new staff.

1.4 Statistical methods

Statistical methods were applied when comparing the scores between the two groups. The theoretical examination scores and professional identity scale scores of the control group and the observation group were entered into an Excel table and double-checked, and then imported into SPSS 27.0 in Excel format. Count data were expressed as frequency or percentage/percent; measurement data with a normal distribution were described as mean±standard deviation, and measurement data with a non-normal distribution were expressed as median and interquartile range. The two groups consist of mutually independent study subjects, and independent-samples t-tests were used for between-group comparisons. A difference was considered statistically significant at $P<0.05$.

2 Results

2.1 Comparison of theoretical scores between the two groups

The mean theoretical score of the control group (74.33±7.208 points) was compared with that of the observation group (91.40±6.057 points), and the difference was statistically significant ($t=7.021$, $P<0.001$), as detailed in Table 1.

2.2 Comparison of sense of professional identity between the two groups

The sense of professional identity of new staff in the two groups was assessed using the professional identity scale. The mean score on the professional identity scale for the control group was 97.47±9.978, and that for the observation group was 112.47±8.193. The difference was statistically significant ($t=4.500$, $P<0.001$), as detailed in Table 2.

3 Discussion

3.1 The implementation of narrative teaching helps improve the professional competence of new CSSD staff

Studies[8-9] have shown that narrative teaching can enhance learners' learning ability, improve teaching effectiveness, and promote learners' professional qualities. The results of this study showed that the theoretical examination scores of the exper-

Table 1 Comparison of theoretical Scores Between the Control Group and the Observation Group

Grouping	Mean±standard deviation (points)	Difference and 95% confidence interval (points)	*t*-test	
			t	*P*
Control group	74. 33±7. 208	17. 067(−22. 046,−12. 087)	7. 021	<0. 001
Observation group	91. 40±6. 057			

Table 2 Comparison of Sense of Professional Identity Between the Control Group and the Observation Group

Grouping	Mean±standard deviation (points)	Difference and 95% confidence interval (points)	*t*-test	
			t	*P*
Control group	97. 47±9. 978	15. 000(−21. 828,−8. 172)	4. 500	<0. 001
Observation group	112. 47±8. 193			

imental group were significantly higher than those of the control group (P<0.001), indicating that narrative teaching is notably effective in the mentoring of new CSSD staff and that its implementation can improve the professional competence of new staff. CSSD positions place high demands on practitioners' comprehensive competence, including theoretical knowledge, operational skills, and risk identification[10]. New employees play a vital role in a department by bringing fresh perspectives and new energy while helping build a strong pipeline of talent for future growth. With the development of public health undertakings in China, the public's health needs have increased, and new technologies and concepts have continued to emerge, placing higher demands on staff[11]. The traditional teaching model is teacher-centered and emphasizes one-way transmission of knowledge and process-based learning, making it easy for learners to rote memorize, with unsatisfactory learning outcomes. Narrative education is a teaching method based on the study of stories, which achieves educational goals by interpreting, analyzing, and reconstructing the life experiences of students, teachers, clinical medical and nursing staff, and patients. This teaching method precisely meets the mentoring needs of the CSSD.

3.2 The implementation of narrative teaching helps enhance the sense of professional identity among new CSSD staff

The work of the CSSD is carried out behind the scenes, so new staff tend to underestimate its importance and lack a correct understanding of the CSSD. CSSD staff do not directly contact patients or their families and are disconnected from clinical work. New staff are unfamiliar with the complex process by which instruments go from "contaminated" to "sterile" and therefore believe that CSSD work involves little technical expertise. In the early stage after employment, they are prone to experiencing career confusion and a weak sense of belonging[12]. Kong Fang et al. [13] conducted a survey analysis which showed that the level of professional identity and core competence of newly hired staff was slightly below average, requiring intervention measures. Through narrative teaching methods such as storytelling and sharing, role-playing, and scenario simulation, new staff can intuitively feel the connection between their own work and clinical practice and patients, which can help them establish professional identity with CSSD work.

3.3 Directions for optimizing the application of narrative teaching in CSSD mentoring

In implementing narrative teaching in the CSSD, a CSSD-specific story bank can also be established to collect various typical events, error cases, and exemplary deeds of outstanding staff, and narrative teaching can be enhanced by integrating the story bank with multimedia teaching. Meanwhile, a narrative education online teaching system can also be fully developed by integrating new staff's educational backgrounds, overall qualities, and course objectives, to explore new training ideas[14].

This study has certain limitations. The duration of the narrative teaching mentoring program was limited, the sample size was small, and the study only targeted newly hired CSSD staff in our hospital, without multicenter controlled validation. In the future, the sample size can be expanded, and multiple medical institutions can be jointly engaged to build a teaching resource bank and extend the observation period, to further refine the evaluation index system for narrative teaching and continuously optimize the CSSD narrative teaching mentoring model.

4 Conclusion

Given the particular nature of CSSD work, narrative teaching emphasizes a learner-centered approach and, by focusing on narrative history, narra-

tive procedures, and narrative risks, not only improves the operational skills of new CSSD staff but also strengthens their sense of professional identity. In future teaching practice, we can continue to enrich the methods and content of narrative teaching, for example by further exploring the application of artificial intelligence in mentoring new CSSD staff, in order to optimize learning outcomes.

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