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Application Value Analysis of a New Empowerment Teaching Method Based on Kirkpatrick's Evaluation Model in Teaching Chinese Medicine Nursing in Otorhinolaryngology

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Abstract: *Objective*: To explore the application value of a new empowerment teaching method based on Kirkpatrick's evaluation model in teaching Chinese medicine nursing in otorhinolaryngology. *Methods*: 60 nurses who practiced in the otolaryngology department of our hospital from June 2022 to October 2024 were included in the study and equally divided into two groups using a convenient sampling method. 30 nurses who chose traditional Chinese medicine skill teaching management were included in the control group, and 30 nurses who chose the new empowerment teaching method based on Kirkpatrick's evaluation model were included in the observation group. Relevant indicators such as clinical teaching environment perception, theoretical knowledge scores of Chinese medicine nursing, and excellent rate of practical operation assessment were compared. *Results*: The nurses in the observation group had higher scores for clinical teaching environment perception than the control group ($P < 0.05$). However, the midterm and final exam scores for theoretical knowledge of Chinese medicine nursing were higher in the observation group than in the control group ($P < 0.05$). Compared with the control group, the observation group had a higher excellent rate of practical operation assessment (93.33% > 73.33%) and a higher Chinese medicine nursing ability score [(215.69 ± 19.73) points > (184.87 ± 15.66) points] ($P < 0.05$). *Conclusion*: Applying the new empowerment teaching method based on Kirkpatrick's evaluation model to Chinese medicine nursing teaching in otolaryngology can help nurses understand the theoretical knowledge of Chinese medicine nursing and optimize the clinical teaching environment, thereby promoting their practical skills and Chinese medicine nursing abilities.

Keywords: Kirkpatrick evaluation model; New empowerment teaching method; Otolaryngology; Chinese medicine nursing

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1. Introduction

Otolaryngology is an important department in hospitals, mainly treating various diseases related to ears, nose, throat, and head and neck [1]. Chinese medicine nursing is a nursing service guided by Chinese medicine theory, which fully reflects the concept of "three parts treatment, seven parts nursing" advocated by Chinese medicine. In the past, most of the Chinese medicine nursing teaching in the otolaryngology department adopted conventional skill teaching management, with the purpose of teacher instruction and completing teaching tasks. During the teaching process, teachers strictly implement the requirements of the syllabus to summarize and explain key knowledge, and students only need to follow the teacher's thinking to accept the instillation of knowledge. Due to the lack of communication between teachers and students, it is difficult for students to better integrate theoretical knowledge with practice, which not only affects the teaching effect and learning quality but also affects students' practical operation and Chinese medicine nursing ability. The Kirkpatrick evaluation model was first proposed by American scholars in the 1950s, initially focusing on evaluating training effectiveness, and then gradually promoted in the field of education, receiving widespread praise [2]. The new empowerment teaching method is a teaching method aimed at enhancing learners' self-efficacy. By guiding learners to actively and independently learn, it promotes their rapid growth and long-term development. Relevant research shows that the new empowerment teaching method has achieved remarkable results in Chinese medicine nursing teaching in neurosurgery and nephrology [3]. This article mainly analyzes the application value of the new empowerment teaching method based on the Kirkpatrick evaluation model in Chinese medicine nursing teaching in otolaryngology, as reported below.

2. Methods and materials

2.1. General information

A total of 60 nurses interning in the Otorhinolaryngology Department of our hospital from June 2022 to October 2024 are selected as the study subjects. Using convenience sampling, the 60 nurses are evenly divided into a control group (30 nurses) and an observation group (30 nurses). All participants in both groups are female. The average age of nurses in the control group ranged from 19 to 26 years, with a mean age of (23.27 ± 0.78) years. Their educational backgrounds included 19 with bachelor's degrees and 11 with associate degrees. The average age of nurses in the observation group ranged from 19 to 25 years, with a mean age of (23.48 ± 0.82) years. Their educational backgrounds are 18 with bachelor's degrees and 12 with associate degrees.

The inclusion criteria of the study are: (1) Intern nurses from nursing colleges with college degree or above; (2) Completed theoretical training in otolaryngology Traditional Chinese Medicine; (3) Internship period of 4 weeks or more; (4) Understanding and voluntary participation in the entire process of this study.

Meanwhile, the exclusion criteria are: (1) Participation in course training but not in assessment; (2) Absence from class or leave for 3 or more class hours; (3) Credit retake.

2.2. Methods

2.2.1. Control group

Conventional traditional Chinese medicine (TCM) teaching methods are used. Learning tasks are completed with the assistance of mentors, requiring interns to apply theoretical knowledge to practical operations. Typical cases are selected to guide students in strengthening their knowledge of TCM nursing, impart practical experience, and

urge students to participate in practical training. Groups of 2–3 students are assigned to one mentor who guided them in learning TCM-related knowledge, mastering TCM skills, and actively carrying out practical training.

2.2.2. Observation group

A new empowering teaching method based on the Kirkpatrick evaluation model is adopted.

(1) New empowering teaching method: Papers and works related to new empowering teaching methods in otolaryngology TCM clinical practice are reviewed using websites such as Wanfang and CNKI. These resources are combined with real typical cases to design teaching plans. Before the training, the ultimate goal of the mentorship is clarified, and then the content of each stage is refined. Training supervisors are responsible for coordinating and controlling the mentorship process, conducting teaching quality control and supervision, and promptly rectifying any issues found. Mentors need to send relevant materials and teaching processes to students for preview. During the learning process, mentors not only explained the training process, learning content, and goals of each stage but also clarified the learning tasks for each stage, requiring students to achieve learning objectives. All students are invited to join a WeChat group, where learning materials, including text, images, and videos, are regularly distributed. Students are encouraged to use their free time to study independently, attempt to solve difficult problems, broaden their thinking, and enhance their innovative abilities. Students are guided to analyze typical cases and combine them with daily rounds of practical operations, laying a foundation for acquiring more TCM nursing skills.

(2) Integration of TCM theory into clinical practice training allowed students to understand the profoundness of TCM culture, comprehend TCM nursing concepts, and enhance their professional TCM literacy during practical operations.

(3) During the mentorship, mentors could adopt various methods based on actual situations to ensure that students maximized their understanding of TCM nursing knowledge, mastered more operational skills, promoted the cultural connotation of TCM, and improved their humanistic care abilities and professional levels.

(4) The Kirkpatrick model's four-level evaluation included:

(a) Reaction level: This level mainly investigated students' impressions of teaching practices, including overall evaluations of mentors, teaching content, teaching methods, and teaching effects. Questionnaires are distributed to students one week before learning, with a scoring range of 1–5. One represented complete dissatisfaction, and five represented complete satisfaction.

(b) Learning level: This level primarily evaluated students' mastery of knowledge and skills. The full score is 100 points.

(c) Behavioral level: This level is used to evaluate teaching effectiveness, referring to whether learning outcomes had improved after a period of study. Questionnaires are distributed to students one week before and after learning, with a scoring range of 1–5. One represented complete disagreement, and five represented complete agreement.

(d) Results level: Questionnaires are distributed six months after learning to investigate whether significant achievements are made during this study, with a scoring range of 1–5. One represented strong disagreement, and five represented strong agreement.

2.3. Observation indicators

(1) Perception of clinical teaching environment: Evaluate nurses' perceptions by referencing the Clinical Teaching Environment Measurement Questionnaire. The clinical teaching environment perception module consists of 5 dimensions and 26 items, specifically: perception of learning (8 items); perception of clinical instructors (5 items); perception of academic self (3 items); perception of the environment (6 items); and perception of social self (4 items). The scoring range for each individual item is 1–5. 1 point indicates strong disagreement, and 5 points indicate strong agreement.

(2) Scoring of theoretical knowledge in Traditional Chinese Medicine (TCM) nursing: Select otolaryngology-related TCM nursing content from the TCM nursing question bank, and assess nurses at different stages. The maximum score for each assessment is 100 points. A higher score indicates a more solid grasp of theoretical knowledge in TCM nursing.

(3) Excellent rate of practical operation assessment: The teaching team will conduct on-site assessments of the practical operation skills of nurses in both groups. Effective integration of theoretical knowledge into practical operations without improper procedures is considered excellent; reasonable integration of theoretical knowledge and practical operations without improper procedures is considered good; failure to combine theory with practice or improper nursing operations is considered poor. The excellent rate is calculated as (excellent + good) / total number of cases ×100%.

(4) Scoring of TCM nursing ability: Evaluate nurses' TCM nursing ability by referencing the TCM Nursing Ability Self-Assessment Scale. The scale consists of 7 dimensions and 48 items. The scoring range for each individual item is 1–5, with a maximum score of 245 points. The score increases with improved nursing ability.

2.4. Statistical analysis

All data are analyzed and compared using the statistical analysis software SPSS 25.0. Data satisfying normal distribution are represented as ($\bar{x} \pm s$), probability values are represented as [n(%)], and tests are performed using t-values and $\chi 2$-values respectively. A comparison result of ($P < 0.05$) indicates statistical significance.

3. Results

3.1. Comparison of clinical teaching environment perceptions between the two groups

The nurses in the observation group scored higher on all aspects of clinical teaching environment perception compared to the control group ($P < 0.05$), as shown in **Table 1**.

Table 1. Comparison of clinical teaching environment perceptions between the two groups ($\bar{x} \pm s$, points)

Group	*n*	Perception of learning	Perception of clinical instructors	Academic self-perception	Perception of environment	Social self-perception
Control group	30	28.71 ± 6.12	26.43 ± 5.25	18.94 ± 4.52	28.65 ± 4.89	14.89 ± 4.13
Observation group	30	36.48 ± 5.96	31.48 ± 5.76	22.04 ± 4.19	32.42 ± 5.95	17.95 ± 3.95
t-value		4.982	3.549	2.755	2.681	2.933
P-value		<0.001	<0.001	0.008	0.010	0.005

3.2. Comparison of theoretical knowledge scores in traditional Chinese medicine nursing between the two groups

The examination scores of theoretical knowledge in traditional Chinese medicine nursing for both the midterm and final exams were higher in the observation group compared to the control group ($P < 0.05$), as shown in **Table 2**.

Table 2. Comparison of theoretical knowledge scores in traditional Chinese medicine nursing between the two groups ($\bar{X} \pm s$, scores)

Group	*n*	Pre-instruction	Midterm exam	Final exam
Control group	30	68.51 ± 3.35	81.95 ± 2.27	84.49 ± 3.49
Observation group	30	68.44 ± 3.33	94.52 ± 2.59	95.19 ± 1.48
t-value		0.081	19.991	15.460
P-value		0.936	< 0.001	< 0.001

3.3. Comparison of excellent and good rates in practical operation assessment between the two groups

The excellent and good rate of practical operation assessment was higher in the observation group compared to the control group ($P < 0.05$), as shown in **Table 3**.

Table 3. Comparison of excellent and good rates in practical operation assessment between the two groups [n(%)]

Group	*n*	Excellent	Good	Poor	Good-to-excellent rate
Control group	30	12 (40.00%)	10 (33.33%)	8 (26.67%)	22 (73.33%)
Observation group	30	18 (60.00%)	10 (33.33%)	2 (6.67%)	28 (93.33%)
χ^2					4.320
P-value					0.038

3.4. Comparison of traditional Chinese medicine nursing ability scores between the two groups

The traditional Chinese medicine nursing ability scores were higher in the observation group compared to the control group ($P < 0.05$), as shown in **Table 4**.

Table 4. Comparison of traditional Chinese medicine nursing ability scores between the two groups ($\bar{X} \pm s$, scores)

Group	n	TCM nursing competency score
Control group	30	184.87 ± 15.66
Observation group	30	215.69 ± 19.73
t-value		6.702
P-value		< 0.001

4. Discussion

Otorhinolaryngology-head and neck surgical diseases are common clinical conditions that cause significant distress to people's daily lives and work [4, 5]. In recent years, with the continuous development of traditional Chinese medicine, traditional Chinese medicine nursing techniques have been promoted in multiple departments, including otolaryngology. Providing corresponding traditional Chinese medicine nursing in the treatment of such diseases not only helps improve symptoms and control the condition but also fundamentally improves patients' psychological emotions, enhancing treatment compliance and clinical efficacy [6–8]. Traditional teaching methods for traditional Chinese medicine nursing mainly rely on classroom lectures, demonstration operations, and other approaches, which have significant deficiencies in guiding students' active learning and analyzing typical cases. This results in students only relying on rote memorization of fragmented knowledge points to prepare for exams, unable to effectively integrate theory with practice [9]. The new empowerment teaching method based on the Kirkpatrick evaluation model is a teaching mode that fully reflects the student-centered approach, utilizing various methods to promote students' subjective initiative, thereby enhancing their self-efficacy and practical abilities.

According to this study, the nurses in the observation group reported higher scores for their perception of the clinical teaching environment compared to the control group ($P < 0.05$). Before the teaching period, there was no significant difference in the scores of the theoretical knowledge test of traditional Chinese medicine nursing between the two groups ($P > 0.05$). However, the observation group achieved higher scores in both the midterm and final exams for traditional Chinese medicine nursing theoretical knowledge compared to the control group ($P < 0.05$). The new empowerment teaching method based on the Kirkpatrick evaluation model can provide strong support for nurses in otolaryngology to learn traditional Chinese medicine nursing through a multi-dimensional evaluation mechanism. During the teaching process, the new empowerment teaching method fully mobilizes nurses' enthusiasm for learning through methods such as data review and case analysis, so that they are no longer passively receiving knowledge [10].

The Kirkpatrick evaluation model can timely discover problems in teaching through multi-level evaluation and analysis, and improve and optimize them to meet nurses' learning needs for traditional Chinese medicine nursing theory and practice [11]. The results of this study showed that compared with the control group, the observation group had a higher excellent and good rate in practical operation assessment (93.33% > 73.33%) and a higher score for traditional Chinese medicine nursing ability [(215.69 ± 19.73) points > (184.87 ± 15.66) points] ($P < 0.05$). In application, the new empowerment teaching method based on the Kirkpatrick evaluation model can stimulate nursing students' enthusiasm for learning by combining teaching with a multi-level evaluation mechanism, enabling them to break away from the inherent mode of traditional teaching, actively understand and learn new knowledge, and explore the positive role of traditional Chinese medicine theory in recovery through real typical cases. This allows them to deeply understand the essence of traditional Chinese medicine nursing, better transform theoretical knowledge into practical skills, and enhance their traditional Chinese medicine nursing abilities.

5. Conclusion

In summary, the new empowerment teaching method based on the Kirkpatrick evaluation model has high application value in otolaryngology traditional Chinese medicine nursing teaching and is worthy of recommendation and application.

Disclosure statement

The authors declare no conflict of interest.

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