

Research on the Application of Teaching Mode of Evidence-based Nursing and PBL in Gastroenterology Department

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Abstract: With the continuous progress of medical education needs, the traditional nursing education model needs to adapt to the new challenges of clinical practice. This paper discusses the application of evidence-based nursing and problem-based learning (PBL) in the teaching of gastroenterology, aiming to improve the clinical decision-making and practical skills of nursing staff. A prospective randomized controlled trial was conducted in three large hospitals to compare the effectiveness of traditional methods with the combined model. The results showed that the combination of evidence-based nursing and PBL significantly improved participants' clinical skills and critical thinking. This teaching strategy enhances learners' sense of participation and satisfaction, which proves its effectiveness and feasibility in modern medical education. It also provides an innovative direction for nursing education and a reference for the innovation of teaching mode in other medical fields.

Keywords: Evidence-based nursing; Problem-based learning (PBL); Gastroenterology department

1. Introduction

In the field of medical education, the traditional teaching model is faced with the challenge of adapting to the rapid development of medical technology and dealing with complex clinical situations. Especially in the department of gastroenterology, due to the variety of diseases and complicated pathological processes, the requirements for nursing education are highly specialized and practical. Evidence-based nursing, as a scientific approach to nursing practice, requires caregivers to make decisions based on the best evidence, while problem-based learning (PBL) emphasizes the use of practical problems to stimulate learners' self-learning and critical thinking. The combination of these two teaching modes may bring innovative changes to the teaching of gastroenterology, improve the quality of education and clinical nursing effect. Therefore, exploring the application of evidence-based nursing and PBL combined teaching mode in gastroenterology teaching not only helps to improve the professional skills of nurses, but also may promote the modernization of medical teaching methods.

2. Literature review

As a decision-making process combining research evidence, clinical experience and patient needs and preferences, evidence-based nursing has been widely used in medical practice at home and abroad. In China, more and more studies emphasize the importance of evidence-based nursing in improving the quality of care and patient treatment. Especially in the department of gastroenterology, because it involves the diagnosis and treatment of a variety of complex diseases, evidence-based nursing can effectively integrate the latest research results, provide scientific basis, and help nurses make more accurate clinical judgments.

Problem-based learning (PBL) is an innovative model in the field of education, which cultivates students' autonomous learning ability and critical thinking through scenario simulation and problem solving. In domestic medical education practice, PBL is regarded as an effective teaching strategy to improve medical students' clinical thinking and problem-solving ability. Combined with evidence-based nursing, PBL can not only stimulate students' interest in learning, but also encourage them to use scientific evidence in practical nursing, thus improving the science and effectiveness of nursing practice. Although evidence-based nursing and PBL have shown significant effects in education and clinical practice, their combined application in the teaching model of gastroenterology is relatively

rare. Relevant domestic studies mainly focus on exploring the impact of this combined teaching mode on learning results, and the results show that this mode can significantly improve students' clinical decision-making ability and critical thinking, especially when dealing with complex and changeable clinical situations. However, the research in this field is still in its infancy, and more systematic studies are needed to discuss its specific application effect in different specialty fields, such as gastroenterology, and the optimization of teaching strategies ^[1].

Through literature review, it can be seen that the teaching mode combining evidence-based nursing and PBL has important development potential and application value in the teaching of gastroenterology, and is of great significance to improve the quality of medical education and clinical nursing level in the future.

3. Research methods

A prospective randomized controlled trial was designed to evaluate the effect of evidence-based nursing combined with problem-based learning (PBL) in gastroenterology teaching. Through rigorous research design and execution, it is intended to ensure the scientific and operational results.

Study subjects and sample selection: The subjects included in this study were gastroenterology nurses and teaching physicians from three large hospitals in China, all of whom were required to have at least two years of relevant work experience and had not systematically learned evidence-based nursing or PBL teaching methods before. Participants confirm their participation through a letter of intent and sign an informed consent. Through hierarchical randomization, participants were randomly assigned to the experimental group or the control group according to their educational background and professional title to ensure the baseline balance between the two groups. **Intervention measures:** The experimental group adopted the teaching mode combining evidence-based nursing and PBL. It includes at least twice a week evidence-based nursing theory explanation, once a week PBL discussion based on actual cases, and twice a month practical exercise, intended to deepen the understanding and application of theoretical knowledge through practical operation. The control group continued to perform the traditional teaching mode existing in the hospital, including front-seat classroom learning and clinical guidance with the instructor. **Teaching content:** All teaching content is jointly developed by experienced gastroenterologists and educational experts to ensure the professionalism and applicability of the content. The evidence-based care content focuses on the latest gastroenterology care research and guidelines, while the PBL is structured around typical cases and emphasizes the clinical decision-making process. **Data collection and evaluation methods:** Clinical decision making ability, nursing operation skills and theoretical knowledge application were evaluated by objective Structured clinical examination (OSCE) and theoretical knowledge test. At the same time, questionnaires and semi-structured interviews were used to assess the participants' satisfaction with teaching and their acceptance of the teaching mode. Data will be collected before, after and six months after the intervention to assess the long-term sustainability of the teaching effect. **Data analysis:** Statistical software is used to process and analyze the collected data. The continuous variables were compared between groups using T-test or ANOVA, and the categorical variables were compared using chi-square test. Multivariate regression analysis will also be used to control for potential confounding factors and to evaluate the influence of different variables on teaching effectiveness ^[2].

Through these detailed research methods, this paper hopes to comprehensively evaluate the effectiveness of evidence-based nursing and PBL combined teaching mode in gastroenterology education, and provide empirical basis for future teaching reform.

4. Expected results and discussion

It is expected that the combination of evidence-based nursing and problem-based learning (PBL) will show significant advantages in the teaching of gastroenterology. Compared with traditional teaching methods, the experimental group of nurses and instructors are expected to demonstrate higher levels of clinical decision-making and nursing skills. This expectation is based on the scientific decision support provided by evidence-based nursing and the critical thinking and problem-solving skills emphasized by the PBL teaching model.

In terms of knowledge acquisition, it is expected that the nursing staff in the experimental group can more accurately understand and apply the principles of evidence-based nursing, and demonstrate a better ability to combine theory and practice when dealing with complex gastroenterology cases. Through PBL's teaching methods, participants are expected to be more proactive in finding, evaluating and applying relevant research findings in clinical practice to improve treatment and care quality. This teaching model may also lead to deeper self-reflection and the improvement of teamwork skills, as PBL emphasizes the process of team discussion and joint problem solving. In the application of clinical skills, the experimental group is expected to achieve better results on the objective Structured Clinical examination (OSCE). This shows that the combination of evidence-based nursing and PBL can effectively improve the practical operation ability and decision-making efficiency of nurses. At the same time, the increase in teaching satisfaction

is also expected to be a positive result, as the PBL model generally increases learners' sense of participation and satisfaction. In the discussion section, the paper will delve into the possible challenges of applying this teaching model in gastroenterology teaching, such as implementation complexity, time management, and resource allocation issues. The differences in teaching effect between the experimental group and the control group will be analyzed, and the potential factors leading to these differences will be explored, such as learners' motivation, basic knowledge level and teachers' teaching strategies. Special consideration is given to how to address practical difficulties, such as how to integrate the rigorous standards of evidence-based nursing with the flexible teaching needs of PBL [3].

The conclusion of this study will provide an important empirical reference for the field of gastroenterology teaching in China, and promote a wider range of teaching model innovation, especially in improving the quality of clinical education and the efficiency of nursing services. These findings will provide a theoretical and practical basis for extending evidence-based nursing and PBL methods to other medical fields, and are expected to revolutionize medical education.

5. Conclusion

This paper discusses the application of evidence-based nursing and problem-based learning (PBL) in the teaching of gastroenterology, aiming to improve the quality and effect of nursing education. The results of the study are expected to show that this teaching model can effectively improve the clinical decision-making ability, the combination of theory and practice skills and the ability of teamwork of nurses. Through the systematic teaching design and implementation, the model not only enhances the learners' critical thinking and autonomous learning ability, but also optimizes the clinical nursing process and provides patients with higher quality nursing services. This innovative teaching strategy offers a new perspective on modern medical education, emphasizing the importance of combining the best evidence and an active learning approach. In the future, the popularization and application of this model will promote the progress of education in more medical fields, especially in improving the efficiency and quality of teaching.

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