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Application and Practice of Scenario-Based Simulation Teaching in Cultivating Medical Students' Doctor-Patient Communication Skills

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Abstract: This paper primarily explores the effectiveness and practical significance of scenario-based simulation teaching in cultivating medical students' doctor-patient communication skills. Through comparative analysis of questionnaire data on medical students' doctor-patient communication skills before and after training, the study finds that scenario-based simulation teaching significantly enhances medical students' communication skills, empathy, and problem-solving abilities. The study systematically evaluates the communication skills of 40 medical students before and after scenario-based simulation teaching. The results indicate that after training, medical students demonstrate notable improvements in communication initiative, accuracy of information transmission, and ability to stabilize patient emotions. This study demonstrates that scenario-based simulation teaching is both effective and practical in cultivating medical students' doctor-patient communication skills, providing strong support for medical education reform.

Keywords: Scenario-based simulation teaching; Medical students; Doctor-patient communication skills; Clinical practice

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1. Introduction

With the transformation of medical models and increased patient demands for high-quality medical services, doctor-patient communication skills have become one of the key indicators for measuring a doctor's comprehensive qualities. Doctor-patient communication skills encompass various aspects such as communication techniques, empathy, and problem-solving abilities. Communication skills involve verbal and non-verbal forms of communication, as well as listening and feedback; empathy requires doctors to understand patients' feelings and needs, providing emotional support; doctors' problem-solving abilities are reflected in their ability to propose effective solutions to patients' problems. These components collectively form the core aspects of doctor-patient communication skills. The *Undergraduate Medical Education Standards - Clinical Medicine Major (Trial)* jointly issued by the Ministry of Education and the former

Ministry of Health in 2008 requires that clinical medicine graduates should possess the ability to effectively communicate with patients and their families and fully involve them in treatment plans. In 2015, the Ministry of Education further emphasized in the *Implementation Opinions on Promoting the Reform of Entrance Examinations and Recruitment for Master's Degree Programs in Clinical Medicine, Stomatology, and Traditional Chinese Medicine* that doctor-patient communication skills should be included as a compulsory component in the training of medical master's students, with rigorous assessment implemented [1]. However, traditional medical education often focuses on imparting medical knowledge while neglecting the cultivation of doctor-patient communication skills, resulting in many medical students being unable to communicate effectively with patients in clinical practice, adversely affecting the quality of medical services and doctor-patient relationships. Therefore, exploring effective methods for cultivating doctor-patient communication skills holds significant practical value [2].

2. Analysis of issues in cultivating doctor-patient communication skills

2.1. Deficiencies in traditional medical education in cultivating doctor-patient communication skills

Traditional medical education suffers from structural deficiencies characterized by an emphasis on professional knowledge over humanistic aspects. Firstly, there is a deviation in training objectives, with communication skills being marginalized as "soft indicators" [2]. The proportion of communication training courses in the curriculum is limited, and there is a lack of progressive and systematic design. Secondly, teaching methods are outdated, primarily involving one-way knowledge infusion without immersive training activities in real-world scenarios, making it difficult for students to master key skills such as empathy expression and conflict resolution. Thirdly, the assessment mechanism is inadequate, with evaluations mainly relying on theoretical written exams, while process indicators such as patient satisfaction and communication effectiveness are not included in the assessment. This model leads some intern doctors to encounter issues such as fragmented information collection and a lack of emotional support during clinical practice, directly undermining the foundation of doctor-patient trust.

2.2. Communication challenges faced by medical students in clinical practice

During clinical practice, medical students frequently encounter multi-layered communication challenges. Patients' emotional outbursts due to the pain of illness require medical students to possess the ability to recognize and soothe emotions. Information mismatches arising from the boundaries of professional knowledge between doctors and patients necessitate that medical students provide precise explanations using understandable language. Differences in values under multicultural backgrounds, such as perceptions of illness and disagreements over treatment plans, test their cultural insight and the flexibility of their communication strategies.

2.3. Limitations and improvement space of existing training methods

Currently, doctor-patient communication training generally exhibits three limitations. Firstly, content design focuses on theoretical frameworks without considering the complexities of real clinical scenarios. Secondly, teaching approaches are dominated by one-way lectures without interactive elements such as role-playing and feedback reviews. Thirdly, the assessment system only focuses on knowledge retention without incorporating

process indicators such as communication effectiveness and patient experience into the evaluation scope. These deficiencies result in unsatisfactory training conversion rates that fail to meet clinical requirements. Scenario-based simulation teaching, by constructing a closed system of "case library-simulated scenarios-multidimensional assessment," can specifically overcome existing obstacles.

3. Application strategies of scenario-based simulation teaching in cultivating doctor-patient communication skills

3.1. Design principles and concepts of scenario-based simulation teaching

The design of scenario-based simulation teaching should closely adhere to three key principles: authenticity, targetedness, and interactivity. Authenticity is the core support of scenario-based simulation teaching, requiring simulated scenarios to highly replicate the actual clinical environment, including the layout of consultation rooms, the interaction process between doctors and patients, and various unexpected situations, ensuring that students can learn and practice under near-real conditions. Targetedness emphasizes that the design of simulated scenarios should effectively meet the actual needs of medical students [3]. Customized designs should be implemented for the difficult and painful points they may encounter during actual communication, such as dealing with patients' emotional fluctuations, explaining complex medical conditions, and discussing treatment plans. Interactivity stipulates that during the teaching process, students' active participation and immediate feedback should be fully highlighted, using methods such as role-playing and group discussions to ignite students' enthusiasm for learning and improve their communication skills and adaptability.

3.2. Construction of specific teaching scenarios and role allocation strategies

During the implementation of scenario-based simulation teaching, diverse scenarios including initial consultation communication, comprehensive explanation of medical conditions, discussion of treatment decisions, and resolution of doctor-patient conflicts should be created based on the training objectives and actual needs of medical students. Each scenario should clearly define the characteristics of the doctor and patient roles, communication objectives, and task specifications. For example, in the scenario of initial diagnosis communication, doctors should master how to effectively collect patients' medical histories and establish a trusting relationship; in the scenario of discussing treatment decisions, they should master how to reconcile patients' wishes with medical regulations to form optimal treatment judgments. Through detailed role division and task planning, students can deeply experience the psychological situations and task challenges of different communication roles in simulated situations, thereby improving their communication skills and empathy during practice.

3.3. Organization and implementation of the teaching process and assessment feedback mechanism

In the preliminary preparation stage, teachers should prepare detailed teaching plans, construct simulated situations, and prepare various relevant props and materials according to teaching objectives and student characteristics. The implementation stage should highlight students' subjectivity and active participation, using methods such as role-playing and scenario reproduction to help students master communication skills and experience the complexity of doctor-patient interactions during simulated operations. The

feedback stage is an indispensable part of scenario-based simulation teaching. This stage requires teachers to comprehensively and objectively evaluate students' performance, covering multiple aspects such as communication skill demonstration, empathy display, and problem-solving effectiveness.

4. Practical case analysis

4.1. Case selection and background introduction

This study focuses on improving medical students' doctor-patient communication skills and carefully selects 40 medical students majoring in clinical medicine as research subjects. These students possess a certain level of medical theoretical knowledge and preliminary clinical practice experience, but their mastery and application of doctor-patient communication skills are not yet adequate. By conducting a comparative analysis of questionnaire data on their communication skills before and after scenario-based simulation teaching, we aim to comprehensively evaluate the actual effectiveness of scenario-based simulation teaching in optimizing medical students' doctor-patient communication skills [4].

4.2. Specific implementation process of scenario-based simulation teaching

4.2.1. Scenario construction and role allocation

During the implementation of scenario-based simulation teaching, teachers carefully design multiple doctor-patient communication scenarios that align with actual clinical situations, covering core aspects such as initial consultation communication, detailed notification of medical conditions, and formulation of treatment decisions. Each scenario clearly defines the role settings and specific task details of doctors and patients, ensuring the authenticity and targetedness of the simulation process. In the scenario of initial diagnosis communication, medical students need to act as doctors, collect patients' medical history information through efficient communication channels, conduct accurate physical examinations, and provide preliminary diagnostic judgments; while in the scenario of notifying patients and their families of medical conditions, they should convey unfavorable conditions to patients and their families with empathy and professionalism and provide necessary psychological encouragement and subsequent treatment suggestions.

4.2.2. Teaching implementation and recording

During the teaching process, teachers organize students to conduct role-playing in groups to simulate real doctor-patient interaction situations. At the end of each simulation, teachers promptly provide feedback on students' performance, pointing out strengths and weaknesses in communication. They also record students' key performances and relevant data to provide support for subsequent effectiveness evaluations. Through repeated practice and feedback, students gradually grasp the core elements of doctor-patient communication and strengthen their ability to handle complex situations.

4.3. Specific scenario examples and implementation details

4.3.1. Initial consultation communication scenario

The scenario design focuses on the connection between symptom collection and preliminary diagnosis. A patient enters the consultation room with the chief complaint of "persistent upper abdominal pain for three days." Medical students need to use structured questioning to collect key points, including the nature of the pain, inducing factors, accompanying symptoms, and past medical history. In terms of role allocation, the

role of the attending doctor is assigned to medical students, and another student or a standardized patient is selected to play the role of the patient. Task implementation requires doctors to use the "5W1H" open-ended questioning method (e.g., "Where exactly does the pain occur?" "When are the symptoms most pronounced?") and simultaneously perform standard physical examination actions such as abdominal palpation and auscultation. Teachers use concealed recording and observation record forms to evaluate the completeness of students' medical history collection, the rationality of the physical examination sequence, and the rigor of the diagnostic logic. After the simulation ends, teachers provide point-by-point feedback using the "Clinical Consultation Assessment Scale," focusing on analyzing information gaps and planning improvement paths.

4.3.2. Medical condition notification scenario

This scenario simulates the ethical challenges encountered when notifying patients of malignant tumors. Assuming the patient has advanced gastric cancer with liver metastasis, medical students need to complete the notification of the medical condition, explanation of the prognosis, and psychological counseling within 10 minutes. Role allocation adopts a "doctor-patient-family" triangular system, with teachers selected to play the role of an anxious family member to increase the complexity of communication. Task implementation emphasizes the use of the "SPIKES" six-step method, setting up the notification environment (S), assessing patients' cognition (P), providing key information (I), obtaining patients' understanding (K), responding to emotions with empathy (E), and formulating subsequent plans (S). Teachers use real-time video playback to examine the impact of students' non-verbal communication (e.g., eye avoidance, rigid sitting posture) on the trust relationship and organize role-swapping experiences to enhance their understanding of the psychological situations of both doctors and patients.

4.3.3. Treatment decision-making scenario

This scenario focuses on the practical operation of the shared decision-making model. The patient is set as a middle-aged hypertensive patient facing two options: "drug therapy combined with lifestyle intervention" and "pure lifestyle adjustment." Medical students need to make objective statements using decision-making aid tools (e.g., risk probability booklets, cost comparison lists) and also use the "explore-suggest-support" cycle (Ask-Share-Know) to encourage patients to express their value preferences. Teachers' evaluation focuses on the balance of information presentation (e.g., not exaggerating the adverse effects of drugs), the appropriate degree of decision-making guidance (avoiding dominating the patient's choice process), and respect for the patient's right to autonomous choice. After the simulation is completed, the "Decision Regret Scale" is used to measure the satisfaction of the patient role-player as a reference for quantifying students' communication effectiveness.

4.4. Implementation effectiveness evaluation and data analysis

By comparing and examining questionnaire data before and after training, teachers find that scenario-based simulation teaching has a significant effect on improving medical students' doctor-patient communication skills. Medical students become more proactive in communication, actively asking about patients' medical histories and analyzing key points of medical conditions, demonstrating higher communication initiative and enthusiasm; their expression of medical terms becomes clearer and more precise, reducing

information misinterpretation and omission, and enhancing communication smoothness. When patients' emotions become agitated, medical students can adopt more effective methods for emotional soothing and provide psychological support, enhancing patients' trust and satisfaction; when facing complex doctor-patient communication conflicts, medical students can quickly formulate effective solutions, improving communication effectiveness and problem-solving efficiency.

4.5. Student feedback and teaching experience summary

4.5.1. Student feedback

After the completion of scenario-based simulation teaching, teachers comprehensively collect student feedback through questionnaires. The vast majority of students claim that the simulated practice has significantly strengthened their awareness of the importance of doctor-patient communication, allowing them to truly experience the significant impact of communication skills on diagnostic and treatment effects from clinical physical truth. Most students state that through role-playing and case analysis, they have learned practical communication methods such as listening skills, empathy expression techniques, and hierarchical information transmission, and have enhanced their perception of patients' psychological needs. Students propose multiple constructive improvement proposals, hoping to supplement case collections covering complex scenarios such as critical and severe illnesses and cross-cultural communication; they expect teachers' feedback to shift from "pure scoring" to "specific behavior correction and improvement path guidance"; and they suggest introducing standardized patients to enhance the authenticity of interactions.

4.5.2. Teaching experience summary

Based on feedback data and teaching practice, the teacher team has condensed these optimization strategies. Firstly, build a "disease spectrum + communication scenario" dual-dimensional case collection library, covering the entire process from outpatient initial diagnosis to end-of-life care, and embedding variables such as age, cultural background, and emotional state to simulate the uncertainty of clinical situations. Secondly, adopt a "role rotation + cross-evaluation" model, requiring students to switch among the roles of doctor, patient, and observer, enhancing their understanding of communication through multi-dimensional perspectives; add a real-time review session, using the "communication behavior coding table" to quantitatively analyze indicators such as turn-taking and emotional feedback. Thirdly, formulate a "problem identification-root cause analysis-improvement plan" three-level feedback mechanism, requiring teachers to deliver customized reports within 48 hours, including video clip selection, specific expression corrections, and literature support. Fourthly, update 30% of the simulation teaching content every quarter based on student evaluation data, the latest clinical guidelines, and typical cases of doctor-patient disputes to ensure that teaching keeps pace with clinical practice and iterates progressively. Through systematic improvements, scenario-based simulation teaching has constructed a "practice-feedback-optimization" closed loop, driving an increase in the pass rate of medical students' doctor-patient communication and providing a replicable model for improving the quality of medical education.

5. Conclusion

In summary, scenario simulation teaching has demonstrated significant application effects and practical value in cultivating medical students' doctor-patient communication skills. By simulating realistic doctor-patient

communication scenarios, it encourages students to learn and master communication skills, empathy, and problem-solving abilities in practice, significantly enhancing their doctor-patient communication capabilities. In the future, continuous exploration and improvement of scenario simulation teaching methods can provide substantial empirical support and practical experience for medical education reform. Additionally, it is hoped that more medical educators will pay attention to and emphasize the cultivation of doctor-patient communication skills, working together to advance medical education to new heights.

Disclosure statement

The author declares no conflict of interest.

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