Original Research

Medical Students' Perspectives on the Active Role of Internal Medicine Residents as Peers in Clinical Education at Jahrom University of Medical Sciences

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Abstract

Background: Peer teaching, where students learn from and teach each other, is recognized as an effective educational strategy that enhances learning outcomes and strengthens a collaborative learning environment. This study aimed to examine the role of residents as peers in the clinical education of medical students.

Method: This cross-sectional descriptive study was conducted on 114 medical students (students, externs and interns) at Jahrom University of Medical Sciences in 2024. The data collection tools included two questionnaires: a demographic information questionnaire and a researcher-made peer teaching questionnaire. Data analysis was performed using SPSS version 21 and descriptive statistics.

Results: The average score for the active role of residents as peers in clinical education was 3.44 ± 1.08. The highest average scores were for the items "Observing peers demonstrating a clinical skill is indicative of an organized clinical process" (3.99 ± 1.23) and "Interactions between residents (peers) and students enhance active learning environments" (3.99 ± 1.75). The lowest average score was for the statement "The responsibility of teaching skills by peers in the internal medicine ward contributes to the development of student-centered teaching strategies" (2.50 ± 1.13).

Conclusion: This study showed that medical students generally perceive the active role of residents as peers in the clinical education process positively. These findings suggest that integrating peer teaching into the clinical curriculum can enhance the learning experience of medical students, but it should be supported by structured and organized programs.

Keywords: Medical education, Clinical Education, Residents, Peers, Medical Students.

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Introduction

The development of education and the transformation within it require an understanding of the educational process and awareness of modern implementation methods (1). Shaping transformations and educational innovations, especially at the university and higher education institution level, is essential (2). Clinical education can be considered a facilitative activity for learning in a clinical environment, where students gain experiences by being present at the patient's bedside and apply their acquired knowledge in interaction with the instructor and the environment. In clinical education, students are provided with an opportunity to transform their theoretical knowledge into a variety of cognitive, psychological, and motor skills necessary for patient care (3). Clinical environments are characterized by their variability and unpredictability, which inevitably impacts student education and emphasizes the role and performance of clinical instructors. Some educational experts and scholars consider clinical education more important than theoretical education (4). It is important to note that the learning of medical students in clinical environments is significantly influenced by the effectiveness of these educational settings. Among the important factors affecting this effectiveness, which are highly regarded, are the clinical instructor, the clinical environment, individual characteristics of students, clinical evaluation, planning, and, in general, the creation of a native model that can be effective in the educational process. Many studies have shown that there is a relatively deep gap in the scientific education process of students, such that existing clinical education does not provide the necessary ability for students to demonstrate clinical competence and skills. Various studies have indicated the presence of numerous problems that hinder the achievement of educational goals (5). Some of these obstacles include: the lack of clear objectives and task descriptions for students, instructors not emphasizing pre-reading, not granting independence and responsibility to students, the absence of a unified evaluation system for students, instructors not using modern evaluation systems, the majority of practical training time being spent on theoretical topics, and instructors delegating initial ward tasks and related low-level health system jobs to students (6,7). Given the obstacles mentioned, modern teaching methods have been introduced to overcome these challenges. One of these modern methods in education is Peer Assisted Learning (PAL). Peer learning is an educational strategy defined as the development of knowledge and skills through active interaction and support among peers. In this educational method, both the instructor, who designs and guides the teaching process, and the student, who implements the method, are involved in the teaching process. This method is an important and effective approach for teaching students at various levels of medical education (8). In this process, students of the same level typically participate with a peer learner, or a senior student with different experiences who plays a supportive role in teaching theoretical or practical skills to a junior student (9). In these programs, peers do not act as professional and formal teachers but rather provide opportunities for the transfer of a wide range of learning experiences through interactive and reciprocal engagement between students and peers (10). A review of the literature shows that students can play a significant role as peer teachers in medical schools (11). This teaching method is attractive for medical schools because, on the one hand, they face a significant increase in the number of students while the number of faculty members remains constant (12), and on the other hand, it can help save the instructor's time and overcome the limitations of traditional teaching methods (13). Research indicates that peer learning can lead to academic growth and improvement (14), enhance student motivation (15), and positively impact student self-perception (16). It can also improve clinical skills and student satisfaction (17), accelerate learning (18), reduce stress-inducing factors in the clinical environment (19, 20), promote scientific growth and the integration of knowledge, attitudes, and skills (17, 19, 21), increase confidence (20, 22), reduce anxiety and confusion (19, 22, 23), and improve leadership skills and professional identity (19). In peer teaching, both educators and learners benefit from this method. Learners benefit from direct instruction from a peer, and

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because students share a similar discourse, learners typically feel more comfortable, ask more questions, and better understand the content. Educators, by answering learners' questions, reinforce their own knowledge. These interactions between educators and learners enhance active learning and increase student engagement, as all students participate in the process (24). However, some studies have reported that the positive effects of peer learning are short-term, do not lead to sustained learning, and with increased follow-up, do not have a positive impact on learner learning or show no significant difference compared to traditional methods (25). Therefore, given the conflicting results among studies, the question remains as to what impact peer teaching has on learners. Thus, there is a need to promote active learning methods and create motivation among students to learn more. This necessitates examining the peer teaching method from the perspective of learning outcomes and student perceptions. Therefore, the present study was conducted to investigate the perspectives of medical students on the active role of internal medicine residents as peers in clinical education.

Method

This cross-sectional descriptive study was conducted on all medical students (students, externs, and interns) in 2024 at Jahrom University of Medical Sciences. The sampling method in this study was a census. The inclusion criteria included all medical students at the student, extern, and intern levels, while the exclusion criteria included incomplete questionnaire completion and lack of cooperation in participating in the study. The data collection tools in this study included two questionnaires: a demographic information questionnaire and a researcher-made peer teaching questionnaire. The demographic information questionnaire included age, gender, and academic level, while the researcher-made questionnaire consisted of 15 questions. The scoring method for this questionnaire was based on a Likert scale (strongly agree, agree, neutral, disagree, strongly disagree), with a minimum score of 1 and a maximum score of 5. The cut-off point for the total scores of all questions in the questionnaire was between 15 and 75. The validity and reliability of the questionnaire were assessed by ten expert faculty members. The questionnaire was piloted by 20 medical students, and the Cronbach's alpha coefficient for the questionnaire was 89%. The data collection method involved distributing the questionnaire to students during their breaks. Before distributing the questionnaire, the researcher provided necessary explanations about the study's objectives to minimize any reluctance to participate. Data analysis was performed using SPSS version 21 and descriptive statistics (mean, percentage, and standard deviation).

Results

Total number of 114 medical students participated in the study. 56 (50.5%) were female and 55 (49.5%) were male. According to the medical students, the average score for the active role of residents as peers in the clinical process was 3.44 ± 1.08. The results showed that the average active role of residents was above the moderate level.

From the perspective of medical students, the highest average active role of residents was in the items "Observing peers demonstrating skills indicates an organized clinical process" and "Interactions between residents (peers) and students enhance active learning environments." The lowest average active role of residents was in the item "The responsibility of teaching skills by peers in the internal medicine ward contributes to the development of student-centered teaching strategies."

Discussion

The implementation of peer mentoring programs has been facilitated by the close and reciprocal relationship between peers. Peers are often at a similar academic level to the students, which makes them well-suited for teaching. Senior peers, who are often students in higher years, typically instruct students in lower years (26-27). This teaching model emphasizes the concept of collaborative learning. In this model, where students are of the same age, it is believed that the active role of peers in clinical education is more effective. However, this approach is not without its challenges (28).

Our study found that the active role of residents as peers in clinical education was positively perceived by medical students. The results of Benè and colleagues (29) support the positive

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impact of peer teaching. Their findings indicate that peer teaching positively influences medical students' learning. A systematic review and meta-analysis also showed that learning with the help of peers in medical education can positively impact academic outcomes (30). Furthermore, a narrative review of studies on peer teaching in medical schools revealed that peer teaching enhances the quality of learning (31).

Najafi Pour and colleagues focused on the detailed evaluation of medical students' perceptions of peer mentoring programs. Their findings suggest that, although the process of implementing peer mentoring programs as mentors is challenging, it can facilitate, enhance student motivation, and improve the interactive and communicative skills of medical students (32).

Our study identified areas for improvement in peer teaching by residents, particularly in the responsibilities of residents for teaching skills and the structure of teaching sessions. These findings align with other studies that highlight the importance of structured and formal programs to support peer teaching (33-34).

The average score for the active role of residents as peers in clinical education was 3.44 ± 1.08. This aligns with previous studies (36-38) that have shown that residents can act as effective mentors and that peer teaching can enhance learning outcomes.

From the perspective of medical students, the highest average score for the active role of residents was for the items "Observing peers demonstrating skills indicates an organized clinical process" and "Interactions between residents (peers) and students enhance active learning environments." The lowest average score was for the item "The responsibility of teaching skills by peers in the internal medicine ward contributes to the development of student-centered teaching strategies."

Kiazy and colleagues evaluated the impact and the of peer students to understand the roles of and to that residents can act as critical skills and to act as effective mentors and that peer teaching can positively impact clinical performance (39).

Hudson and colleagues used senior medical students to teach clinical skills to junior students and found that senior students were effective in teaching clinical skills to junior students (40).

The study by Blank and colleagues showed that peer teaching significantly improved the performance of third-year medical students in clinical examinations (41). Mehrabi and colleagues evaluated the impact of peer teaching on the clinical skills of medical students in different stages of their training and found that taking on the role of a teacher helps in the acquisition of skills and knowledge and enhances clinical reasoning skills in medical students in the internship phase (42). In peer teaching, students help each other in the learning process (43-44). one hand students feel more comfortable with peers and find peer teaching to be more engaging (45-46).

Conclusion

The results of this study indicate that medical students generally perceive the active role of residents as peers positively in the clinical education process. These findings suggest that integrating peer teaching into the clinical curriculum can be highly beneficial, but it should be supported by structured and formal programs for residents. Future research could focus on developing and evaluating specific educational programs for residents to enhance their effectiveness as peer teachers and, ultimately, improve the clinical education of medical students.

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Authors Contributions:

The author contributed to the data analysis. Drafting, revising and approving the article, responsible for all aspects of this work.

Ethical Consideration

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Tables

Table 1: The Extent of the Active Role of Residents as Peers in the Clinical Process of Medical Students

Questionnaire Items	Mean	SD
I listen to the teaching provided by peers with interest and respect.	3.24	1.31
I participate in learning internal medicine skills based on peer teaching with full awareness and attention.	3.74	1.65
I attend clinical teaching sessions in the internal medicine ward by peers with motivation and actively.	3.74	1.65
Peer teaching in the internal medicine ward increases interaction between senior and new students.	3.50	1.51
I am satisfied that residents participate in teaching skills to students.	3.49	1.51
I am pleased that residents play an active and vibrant role in clinical teaching of other students.	3.74	1.65
Peer teaching provides an opportunity for reflective thinking for participating and presenting students.	3.49	1.51
Observing peers demonstrating skills indicates an organized clinical process.	3.99	1.23
The participation of residents in teaching students is commendable and valuable.	3.74	1.65
Interactions between residents and students during skill teaching, along with teaching by the instructor, are influential.	3.75	1.65
Interactions between residents and students enhance active learning environments.	3.99	1.75
Peers alone cannot provide high-quality skill teaching.	3.00	1.24
Participating in peer teaching sessions is equivalent to wasting clinical teaching time.	2.76	1.31
The responsibility of teaching skills by peers in the internal medicine ward contributes to the development of student-centered teaching strategies.	2.50	1.13
The responsibility of teaching skills by peers influences student learning and self-learning reasoning.	2.99	1.23

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