

Medical Students' Reflection on Early Clinical Exposure Experience: A Qualitative Research

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Abstract

Background: Early clinical exposure to medical curricula can help students understand the social context of medicine and facilitate their transition to the clinical environment.

Objectives: The present study was designed and implemented to investigate medical students' experiences in this regard.

Methods: In this qualitative research, 2nd-semester medical students underwent reflection and were asked to respond to open-ended questions in written form after their initial clinical exposure in teaching hospitals. The written responses provided by the students were analyzed using open coding to extract initial codes, subcategories, categories, and themes.

Results: The responses of 52 participating students were coded, resulting in the extraction and formation of 252 initial codes, 9 subcategories, 5 categories, and 2 themes.

Conclusion: Reflection through early clinical exposure can induce motivation to lay the foundation for developing core competencies, including communication skills, problem-solving, clinical reasoning abilities, personal development, and cultivation of professional identity and professionalism among medical students.

Keywords: Reflection; Medical Student; Early Clinical Exposure; Qualitative Research

Background

During the last decades, the education system, as a social institution, has undergone significant changes and transformations alongside other institutions, with notable reforms being implemented. Among the most crucial changes are the emphasis on the accountability of higher education and the adoption of competency and competency-based education in medicine, with Harden's introduction being recognized as the most influential development in the last decade (1). The implementation of competency-based education requires the incorporation of core competencies into educational planning as longitudinal themes, starting from the entrance to medical school and continuing through appropriate strategies and methods. As a result, early clinical exposure for medical students becomes crucial in creating suitable opportunities for developing the expected competencies. It is believed that reflection can be effective in this process (2). Dornan and Bundy

(2004) reported in their study that early clinical exposure may shift medical curricula toward the social context of medicine, facilitating the smooth transition of medical students into the clinical environment. This exposure can also serve as a source of motivation, making students more confident and fostering self-awareness and other-awareness. Additionally, it has the potential to strengthen and deepen their theoretical knowledge contextually, enhancing their understanding of behavioral and social sciences, the healthcare system, and the roles of healthcare professionals (3). Reflection is an indispensable and essential component of health professions education. It is a controllable process, and various educational interventions, such as guided reflection, can enhance it. Through reflection, rote learning is eliminated, paving the way for deep and meaningful learning (4).

One of the challenges of clinical training is the absence of a clear connection between basic science

courses and clinical practice. To bridge this gap, junior students require more exposure to the clinical environment and opportunities to observe the practical application of knowledge. Therefore, early clinical exposure and the presence of medical students in hospitals during the initial years are vital components of medical education (5, 6). Medical core competencies develop gradually during early clinical exposure and subsequent exposures in clinical training (2). Reflection can occur before, during, or after learning, leading to meaningful learning experiences. Notably, medical students may not fully comprehend the importance of learning basic sciences before entering the clinical environment. Early clinical exposure offers an appropriate platform for reflection, fostering meaningful learning and skill acquisition by combining theoretical knowledge with clinical experience. This approach enables students to identify and become familiar with the essential competencies required in future clinical situations (7). Studies have demonstrated that early clinical exposure and engagement in the real clinical environment can enhance active learning, increase learner participation, and foster student empathy (8). Various assessment tools, such as self-report questionnaires, written statements, and student learning logs, have been used to evaluate students during medical education courses (9).

As expected, medical students need to be able to identify and comprehend the professional behaviors of themselves and others. To promote critical thinking about these issues, we encouraged them to engage in guided reflection on the actions of healthcare professionals at work, their dress code, the professional context, and various observed interactions during early clinical exposure by responding to purposeful questions in this regard (10). Although reflection is a well-known process, our knowledge is little about its application in early clinical exposure and its role in developing professional identity and professionalism in this setting.

Objectives

The present study aimed to explore medical students' perceptions and the educational impact of guided reflection in the context of their first exposure to the clinical environment and social care experiences.

Methods

Study Design: This qualitative research utilized thematic content analysis conducted through guided reflective narrative writing following an early clinical exposure course.

Participants: All first-year medical students at Islamic Azad University of Medical Sciences participated in the first early clinical exposure in 2023.

Tools and Data Collection: In this university, the early clinical exposure program was initiated in the 2nd semester and lasted three days. During this program, students were classified into ten groups and accompanied by a trained mentor in teaching hospitals affiliated with the university. Guided reflection was designed in the form of five purposeful open-ended questions to gather insights into the medical students' perceptions and feelings regarding their first professional attendance in the hospital, dress code, observations of health professionals' work, cultural and social aspects in the clinical environment, professional communication in the hospital, and critical thinking about both themselves and others. Students wrote reflective narratives after providing informed consent. They were required to prepare their writings and return them after three days.

Data Analysis: The received written responses were carefully reviewed, and coding was performed simultaneously. Whenever there was ambiguity, or more explanation was needed, it was discussed with the student in-person. Moreover, the comments expressed by students and the mentor's observations in different groups were recorded as field notes and added to the written responses. First, the responses were divided into semantic units, and then, open coding was conducted. Afterward, different codes were compared based on their differences and similarities and classified into subcategories and categories. This iterative process of refining categories continued, taking into account each category's unique characteristics. During this stage of the coding process, the formation of categories and subcategories required considerable time and effort from the researchers to ensure the content accuracy. The findings were thoroughly discussed and reviewed multiple times by the researchers to enhance the study's rigor. The researchers tried to consider the trustworthiness criteria; therefore, ample time was dedicated to collecting and analyzing data concurrently, establishing good communication with the participants, and obtaining approval of their manuscripts. The researchers ensured a detailed description and sought feedback from other colleagues by re-reading the extracted codes to enhance accuracy. The conclusion and summary were reached with unanimous agreement among the researchers. Furthermore, to enhance the study's validity, an external expert (A.F.) in qualitative

research reviewed and confirmed the findings. (A.F. has a Ph.D. in medical education is experienced as a director of EDC, is the students' favorite professor and students have a good and friendly relationship with her, has enough experience in qualitative research, and has published several papers.) The early clinical exposure course is also supplementary and has no grade. Two authors were senior medical students who collaborated in implementing the course and data collection and analysis.

Similar to other qualitative research, this study is not devoid of potential errors, as the researcher's mentalities, thoughts, and opinions may inadvertently influence the research topic and data collection process. To resolve this problem, we made a concerted effort to practice researcher bracketing during data collection and analysis to ensure an unbiased approach. Additionally, we assured all participants that their responses would be treated with utmost confidentiality by the researcher, aiming to minimize potential biases in respondents' responses.

Results

A total of 52 students (29 women and 23 men; mean age = 21.8 ± 0.8) participated in this study. Two reports were excluded from the study due to incompleteness. The findings of this research resulted in the extraction and formation of 252 initial codes, 9 subcategories, 5 categories, and 2 themes. The extracted initial codes, subcategories, categories, and themes are presented in Table 1.

Discussion

In this study, 252 initial codes, 9 subcategories, 5 categories, and 2 themes were identified. The 5 main categories include: "Experiencing positive and motivating feelings," "development of medical professional identity," "fostering the competency of reflection and improvement," "fostering the competency of communication skills," and "fostering the competency of clinical reasoning ability and problem-solving." The 2 themes obtained are "guiding and accelerating the development of professional identity and medical professionalism" and "creating the basis for the establishment of core medical competencies."

Category of "Experiencing Positive and Motivating Feelings"

In general, this experience satisfied and motivated the students. Similar to findings of other studies, such as Lislot et al.'s qualitative research (2007) on medical students, the participants expressed their enjoyment of

clinical training and acknowledged the immense value of these experiences for their learning (11, 12). The students' reflections highlighted that early clinical experiences offer valuable opportunities to learn professional practices encompassing mind, action, and attitude (13, 14).

Category of "Development of Medical Professional Identity"

Early clinical exposure and presence in the clinical environment play a crucial role in the development of students' professional identity (15). Additionally, students' perception of the environment and adherence to essential principles, such as compliance with dress code, further strengthen this process. Stark has found that guided reflection is a valuable method for exploring professionalism in a real workplace, providing a rich learning experience (16, 17). A qualitative study conducted in Canada in 5 fields of medicine, dentistry, pharmacy, nursing, and physiotherapy also indicated that students had a limited understanding of their professional roles and mainly focused on the development of a unidimensional identity. Early clinical exposure, observation of professional role models, and exposure to teamwork are critical to developing collaborative practice and promoting the development of interprofessional identity. Therefore, interprofessional socialization and interprofessional identity should be considered in early exposure periods (3, 18).

Category of "Fostering the Competency of Critical Thinking and Improvement"

Reflection is a metacognitive skill that empowers learners to enhance their understanding of past, present, and future experiences. Through experiential learning, reflection aids students in improving their future learning processes.

The practice of reflection, incorporating self-awareness, self-monitoring, and self-regulation, leads to professional growth and improvement (9). In this study, all students mentioned their strengths and weaknesses through guided reflection. Analysis of the students' statements revealed that they expressed weaknesses in various areas, including communication with patients, experiencing stress, lack of self-confidence, deficiencies in basic knowledge and information, physical problems, and deficiencies in practical skills. Similar to many reports, including Sarikaya's study (2014), students in this research also experienced some stress during their first clinical encounter with patients (3, 9).

Of course, the students highlighted their strengths as well. In addition to identifying their strengths and weaknesses, the students mentioned strategies for improvement and development in their statements. For example, one student stated, "Since we are currently in the basic medical sciences stage and have limited exposure to bedside care, this experience allowed us to gain a better understanding of the courses by being in the hospital and interacting with internship students. It provided us with a broader perspective." Two students reported negative experiences, warranting early attention and advice to address any potential challenges the students may face during their clinical training.

Category of "Fostering the Competency of Communication Skills"

The presence of students in the clinical environment and their observations of interactions that took place in the hospital highlighted the importance of communicating with colleagues and patients and empathy in medical practice. A qualitative study conducted at the Mayo Clinic also revealed that early clinical experiences with hospitalized patients offered crucial opportunities for students' professional development. While some students experienced slight stress before each patient encounter session, they generally expressed enjoyment in the duties and roles of medicine. They expressed their fondness for interacting with patients in the hospital, engaging in effective communication, taking patient histories, conducting physical examinations, formulating differential diagnoses, and sharing knowledge (11).

Category of "Fostering the Competency of Clinical Reasoning Ability and Problem-Solving"

The students evidently understood the importance of clinical reasoning and problem-solving, and the significance of paying attention to the history, symptoms, and signs of the disease. They also articulated their observations in their essays. Numerous studies have also highlighted how students come to realize the importance of medical history and its findings in the diagnosis and treatment process during early clinical exposure (3).

Goto et al. (2009) also achieved results similar to our findings in a report on implementing the course in Japan. Students regarded communication skills, responsibility, professionalism, and sufficient motivation as essential items of the medical profession. Students evaluated this course as very valuable (19). In a cross-sectional survey in Oman, Tariq studied the experience of Internet students with early childhood

education (ECE). The students read this course as an important part of the pre-clinical curriculum; A significant relationship between ECE and theoretical knowledge, a sense of responsibility as a future doctor, and future career choice was also reported (20). In a study report entitled "Introducing Reflective Narrative for First-Year Medical Students to Promote Empathy as an Integral Part of Physiology Curriculum," Savitha concluded that guided reflection facilitated empathic behavior in medical students and the realities, and they understand the medical profession better (10). In a focus group study conducted by Aduli consisting of 12 participating medical students, the students were worried about the heavy workload and knowledge gap and felt inadequate and empowered. Reporting these shortcomings and challenges requires the support of senior students and mentors to overcome stress and worry. Also, course supervisors should strengthen lifelong learning and reflection (13, 21). The findings of various studies in different educational settings are in line with the findings of the present study; therefore, early clinical exposure can be used as a useful medical course enriched with targeted planning.

One of the limitations of this study was the inclusion of only one group of medical students admitted, and it was conducted in the form of a written narrative. It is suggested that future studies be conducted with more groups of students using face-to-face interview methods. Also, longitudinal and comparative studies can examine the consequences of this course at the clinical stage.

Conclusion

Reflection through early clinical exposure can induce motivation to lay the foundation for developing core competencies in medical students, including communication skills, problem-solving, clinical reasoning, personal development, and the establishment of professional identity and professionalism.

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Conflict of interests: There is no conflict of interest.

Ethical approval: In this study, all satisfied students voluntarily participated. Adequate explanations were provided to the students regarding the optional nature of their participation, the confidentiality of their information, and the anonymous use of data. Furthermore, this study obtained ethical approval (IR.IAU.MSHD.REC.1401.181)

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Table 1. Initial codes, subcategories, categories, and themes

Theme	Category	Subcategories	Initial codes	Semantic unit samples (Participant ID)	
Guiding and accelerating the development of professional identity and medical professionalism	Experiencing Positive and motivating feelings	Positive and motivating feelings	Good, positive, and satisfying feeling of being in the hospital	<p>“It was the first time I was in the hospital as a medical student. Despite not having slept for several days due to an exam that day and feeling hungry, I did not feel bored because I loved that environment, and it fascinated me every moment. I was eager to continue and explore the rest of the hospital.” (28)</p> <p>“It was a very exciting and interesting experience, giving me a better and deeper understanding of the field I chose.” (23)</p>	
				<p>“The type of dressing in the hospital is essential for a doctor. This opportunity allows us to apply what we have been taught in the university about how to dress, making us more organized and comfortable and promoting harmony among everyone.” (12)</p> <p>“Wearing a professional dress makes me feel comfortable as a student or doctor and allows me to focus on my work. It also gives the patient a sense of trust.” (41)</p> <p>“The hospital environment fosters unconscious professional behavior among doctors and staff. For example, I observed sincere relationships with patients and respectful interactions among the staff, reflecting a culture of professionalism.” (12)</p> <p>“The conditions in the hospital are different from the university, requiring a more professional approach. Despite the differences, the experience was pleasant and more disciplined.” (42)</p>	
	Development of medical professional identity	The role of environment in creating professional identity	Affected by the professional and legal environment of the hospital	Understanding the doctor's responsibility toward the patient	<p>“It was a good experience; it made us learn new things, and feeling responsible for the patient was interesting.” (37)</p> <p>“Talking with the patient and her comments about the experience and the course of the disease made me realize our responsibility in the future.” (16)</p>
				A deeper understanding of the future professional and career roles and responsibilities	<p>“Talking with the patient and her comments about the experience and the course of the disease made me realize our responsibility in the future.” (16)</p> <p>“It was a beneficial experience and made me seriously think about the future and presence in the hospital environment.” (20)</p> <p>“I had not understood the heavy responsibilities of a patient's life for a doctor until then.” (18)</p> <p>“The importance of responsibility is more than I can imagine in this job.” (3)</p>
			Valuing dress code	Valuing and compliance with professional dress code	<p>“Dress code had a sense of pride along with responsibility.” (16)</p> <p>“It should be said about the dress code that the things mentioned in it make us more comfortable, and it may induce the feeling of being a typical doctor.” (33)</p>
					<p>“Facing the future path so that I can acquire the necessary skills to enter this path as soon as possible.” (2)</p> <p>“Yes, very much... and my motivation to study basic science lessons increased.” (3)</p>
Creating the basis for the establishment of core medical competencies	Fostering the competency of critical thinking and improvement	Planning for personal development	Increasing motivation for progress and effectiveness	<p>“Facing the future path so that I can acquire the necessary skills to enter this path as soon as possible.” (2)</p> <p>“Yes, very much... and my motivation to study basic science lessons increased.” (3)</p>	
			Increasing the sense of responsibility for the	<p>“Through this experience, I realized my weaknesses. I had not studied the lessons taught in the university in enough detail, and I paid more attention to generalities. Now, I</p>	

			improvement of their knowledge and skills	<p>understand how these details are crucial in diagnosing diseases accurately. If we do not learn the subjects correctly and thoroughly at the university, we cannot provide proper care to patients as good doctors in the hospital, and the likelihood of error in disease diagnosis increases." (20)</p> <p>"Honestly, from a knowledge standpoint, I feel that I should study more than others, and I have a serious plan to improve my studying from the references." (22)</p>
Creating the basis for the establishment of core medical competencies		Identifying individual weaknesses	Feeling weak in initial communication with patients	<p>"Communicating with the patient for the first time was a little difficult for me, but I think the problem will be solved by getting more experience." (2)</p> <p>"My weaknesses were being shy and stressed due to doubting the correctness of what I was doing and not being used to the hospital environment as a medical staff." (36)</p>
			Experiencing stress and lack of self-confidence	<p>"When we were supposed to ask questions and take a history at the patient's bedside, I was very stressed and did not know how to communicate with the patient and ask him questions. I hope this problem and my lack of self-confidence will be resolved in the future." (36)</p>
			Identifying a lack of knowledge and basic information	<p>"My weakness, which I came to in this experience of being in the hospital, was that I did not study the lessons taught in the university in detail, and I paid more attention to the generalities, and now I understand how effective these details are in the correct diagnosis of the disease and if we do not learn them correctly and well in the university, in the hospital, we cannot take care of the patients as a good doctor, and the possibility of error in the diagnosis of the disease increases." (52)</p>
			Identifying physical problems	<p>"My problem was premature fatigue, and I was unable to stand for more than half an hour." (21)</p>
			Identifying practical skill problems	<p>"Skills such as taking blood pressure should be strengthened by practice and repetition." (50)</p> <p>"My weakness was taking blood pressure; I did not know how to do it." (46)</p>
		Identifying positive personal traits for future roles	Ability to communicate with patients	<p>"My strength is effective communication with patients. I believe I had a good rapport with them." (2)</p>
			Identifying the appropriate personal characteristics of the medical profession in oneself	<p>"I consider my strength in this course to be clinical reasoning and to further enhance it, I need to increase my knowledge as much as possible to excel in this aspect of my work."(30)</p>
		Observing some negative issues in the clinical environment	Reporting adverse observations and experiences during the hospital stay	<p>"As soon as I enter the hospital, I sense a heavy and gloomy atmosphere. Moreover, the prevailing silence creates a feeling of fear within me." (11)</p>
			Observing non-compliance with professional rules in some cases	<p>"The hospital experience does not align well with my mood." (6)</p>

	Fostering the competency of communication skills	Communication skill with patients and colleagues	Observing respect and effective communication with patients and their companions as one of the basic principles of medicine	"I found the respectful communication with patients fascinating. Despite the doctor's busy schedule, they demonstrated patience and treated the patients with respect." (18)	
			Observing professional interpersonal relationships, mutual respect, and teamwork	"Professional relations were founded on mutual respect. It is not about someone with higher education having the right to dictate to others. The first rule for a doctor is to respect the patients, nurses, and other colleagues." (8) "One of the best aspects of the hospital was the unity and mutual respect among all the staff, including doctors and nurses. Everyone showed great respect, helped and cooperated, and strived to provide the best possible care for the patients. Everyone in the ward dedicated their best efforts to enhance the overall quality of work." (2)	
Creating the basis for the establishment of core medical competencies			Creating a sense of empathy with patients	"I was truly impressed by the observation of a patient suffering from long coronavirus disease 2019 (COVID-19), who had sought treatment from various medical facilities and was visibly struggling with the illness, resulting in weight loss." (5) "In several cases, I noticed that I was affected by the suffering and sadness of the patients, which I had not paid much attention to before. I believe I should learn clinical empathy and how to respond to such situations appropriately. Additionally, I realized the significance of communication skills and the need for more practice, particularly in communicating with patients and taking their medical history." (24) "The conversations with the patient regarding expenses and the pressures that their families bear were very impressive to me." (40)	
				Understanding the importance of clinical reasoning in medicine	"What really caught my attention was the mental pathways we had to develop for ourselves. It was like a game or puzzle where we had to find the right answer, only much more seriously!" (16)
				The challenge of history-taking and clinical reasoning	"The communication skills between basic and clinical information by creating mental engagement and simulating the clinical reasoning process should be strengthened." (15) "Discovering the patient's problem and the main cause of his/her pain is very effective." (41)
	Fostering the competency of clinical reasoning ability and problem-solving	Understanding the importance of clinical reasoning and problem-solving in medicine	Realizing the importance of paying attention to the physical and mental symptoms and signs of patients in medicine	"While studying the patient's medical records and history, we tried to explain the reasons behind each symptom and determine which disease the symptoms might indicate. Finally, we summarized the information and achieved the most probable options." (33)	