Table of Contents

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Building Clinical Competence: Effectiveness of Pre-Clinical Skills Modules in Competency-Based Medical Education at Tanta University

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Abstract

Background:

Medical education has adopted an integrated competency-based approach that combines theory and practice. This approach aims to produce competent, confident, motivated, and well-rounded healthcare professionals. There is, however, relatively little research on the effectiveness of early pre-clinical skills teaching that might have implications, undertaken at Tanta University.

Aim:

The aim of this research is to scrutinize how well the pre-clinical skill modules at the Faculty of Medicine, Tanta University, prepare students for the clinical part of their clerkship training.

Method:

A cross-sectional study took place over eight months with 352 medical students in their fourth and fifth years at Tanta University. Data were collected via an online self-administered questionnaire, employing a five-point Likert scale to gauge students' perceptions. An expert panel validated the questionnaire for both validity and reliability with a Cronbach's alpha of 0.966, indicating excellent internal consistency.

Results:

A significant number of students reported that pre-clinical courses effectively prepared them for clinical roles, improving their confidence and communication skills. Nonetheless, 31% expressed doubts regarding their readiness for real-life patient interactions, indicating a need for increased hands-on procedural practice. Gender differences were noted, with female students demonstrating greater confidence in communication and medical history skills essential for successful patient interactions.

Conclusion:

The pre-clinical skills modules were generally well-received, effectively preparing students for their clinical years. However, enhancement is needed, particularly in providing more practical experiences and better integration with simulated clinical practice.

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Introduction:

Medical education increasingly adopts competency-based approaches. These integrate theoretical knowledge with practical clinical skills to prepare well-rounded healthcare professionals [1]. Early clinical skills teaching exposes medical students to simulated patients starting in their first year. This approach enhances their academic experience, clinical skills, communication abilities, confidence, and professionalism [2].

However, the infrastructure and resources available, such as skill and simulated labs, significantly influence the delivery and effectiveness of early clinical skills teaching [3]. Academic medical centers with advanced simulation facilities and interprofessional training opportunities provide a rich learning environment that fosters skill acquisition and collaboration among learners. Conversely, smaller institutions and community-based settings may face resource constraints but can utilize innovative teaching modalities such as virtual simulation [4] and telemedicine to supplement clinical exposure [5].

For many years, the foundational biomedical science courses usually took place in the first three years of traditional medical education, with most of the independent clinical teaching and training occurring in the final three years [6]. Nowadays, competency-based medical education (CBME), seems to be the new buzzword in medical education. It integrates the components of medical practice, early clinical skills, professionalism, and technical components of the CBME system into one cohesive whole strategy. In this way, the integrated courses content is brought closer to the performance context in which students will apply their medical knowledge [7].

Despite the potential benefits, the transition to an integrated competency-based paradigm poses challenges, such as resistance to change, crossing disciplinary boundaries, and difficulties for faculty who feel a strong affiliation to their own specialties [8].

This study investigates the effectiveness of pre-clinical skills modules at the Faculty of Medicine, Tanta University, in preparing medical students for their clerkship years. By examining the perceptions of fourth and fifth-year students, this research seeks to inform curriculum developers to improve the quality of medical education programs.

Participants and methods

Study Design:

This cross-sectional study was conducted at Faculty of Medicine, Tanta University, over an eight-month period from July 2023 to February 2024

Study Participants and sample size:

The total number of medical students in the fourth and fifth years was 1700. The calculated sample size was 314, using Epi-Info software, ensuring a representative sample, but 352 students responded properly to the integrated competency based medical program questionnaire.

Inclusion criteria:

• Enrolment: All undergraduate medical students who are actively enrolled in both the fourth and fifth years in the integrated competency-based medical program (academic year 2023–2024) at the Faculty of Medicine, Tanta University.

• Participation: Those students who will voluntarily consent to participate in this research and complete the questionnaire.

• Program Exposure: Students who had attended and completed all relevant pre-clinical skills modules (professionalism, early clinical skills, and physician patient communication skills) during their first three years of study.

Exclusion criteria:

• Students in the fourth and fifth years who did not respond to all statements in the questionnaire.

• Student in the fourth and fifth years enrolled in old discipline-based curriculum.

Data Collection and procedure:

Data were collected from the 4th and 5th year undergraduate medical students of the integrated competency-based medical program of the academic year 2022-2023, using an online self-administered questionnaire. It was designed electronically using Google Forms and delivered to the students through the faculty's official student platform (Microsoft Teams), in addition to other social media applications (WhatsApp, Telegram, and Facebook). The link was also published on the Tanta University website after approval from the faculty administration.

Questionnaire Design

The questionnaire used a five-point Likert scale with ten closed-ended statements and two open-ended questions (Table 1). This design ensured clarity and minimized response bias. The decision to use positively worded statements aimed to enhance clarity and ensure consistent response

Table 1: The five-point Likert scale questionnaire.

Statement	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
1. The pre-clinical skills modules provided a strong foundation for my clinical years.					
2. The pre-clinical skills modules facilitated my adaptation to the clinical environment in hospitals..					
3. The pre-clinical skills modules prepared me to approach patients confidently in a real clinical setting.					
4. The pre-clinical skills modules enhanced my ability to take a comprehensive and focused medical history..					
5. The pre-clinical skills modules improved my competence in performing clinical examinations.					
6. The pre-clinical skills modules prepared me to communicate effectively with clinical supervisors and colleagues.					
7. The pre-clinical skills modules helped me analyse and interpret patient findings to determine the nature of diseases.					
8. The pre-clinical skills modules significantly improved my clinical and procedural skills.					
9. The pre-clinical skills modules prepared me to work effectively within a multidisciplinary team.					
10. The pre-clinical skills modules equipped me to deal ethically and professionally with patients and their families.					
11. What additional benefits did you recognize after studying these pre-clinical skills modules?					
12. Do you have any suggestions for improving these pre-clinical skills modules?					

Question Selection Process

The questions from 1 to 10 were designed to assess the students' perception of foundational skills, adaptation to clinical environment, self confidence in interaction with patients, taking history, clinical competencies, communication, problem solving, procedural skills, team-work skills and ethical consideration. The development of the questionnaire began with selecting questions aligned with the research focus on pre-clinical skills. A collaborative meeting with course coordinators was held to ensure that the questions accurately reflected the curriculum content and could predict subsequent clinical competencies. The coordinators contributed by providing insights and feedback on question relevance and coverage.

Validation Process

To assess the construct and hypothesis validity of the questionnaire, a panel of three medical education experts conducted independent evaluations and suggested improvements. Discrepancies were resolved through discussions, requiring unanimous agreement for any changes.

Reliability was verified using Cronbach's alpha which confirmed high internal consistency (0.966).

Pilot Testing

The questionnaire was piloted in 30 respondents, excluded from the main sample, to complete the validity process, assess clarity, response accuracy, and completion time. Feedback indicated that some questions required rephrasing for better understanding, and the overall completion time needed to be shortened. Necessary modifications were accordingly made.

Scoring and Confidentiality

Responses were scored on a 5-point Likert scale: 5 (strongly agree), 4 (agree), 3 (uncertain), 2 (disagree), and 1 (strongly disagree). Participants received a comprehensive explanation of the study's objectives, purpose and methodology. To ensure confidentiality, responses were anonymized, and all data were securely stored.

Ethics approval and consent:

The study was approved for conduct and publication by the Medical Research Ethical Committee of Faculty of Medicine, Tanta University, Egypt (Approval No.36264PR291/8/23).

Informed consent was taken from the students in the fourth and fifth years, Faculty of Medicine, Tanta University before conducting the study. Confidentiality and privacy were guaranteed throughout the study by assigning a code number to each participant.

Data Entry and Statistical Analysis

Data analysis was carried out using SPSS version 26 for Windows (IBM Corp., Armonk, N.Y., USA). To ensure the accuracy of data entry, a rigorous double-entry system was implemented, with discrepancies addressed through comprehensive verification processes. Categorical variables such as gender were summarized with counts and percentages with significance difference check using Chi square test. The Mann-Whitney test was selected to compare differences between groups, given its effectiveness in handling ordinal data and non-normal distributions. For the Likert scale responses, we utilized the median and interquartile range (IQR; 25th - 75th percentiles) to capture central tendencies and variability, providing a clear picture of the participants' attitudes and perceptions.

Results:

This study evaluated the effectiveness of pre-clinical skills modules in preparing medical students for clinical training. The questionnaire showed high reliability (Cronbach's Alpha = 0.966) (Table 2), indicating excellent internal consistency. The validity of the questionnaire was verified by three medical education experts and 20 students by pilot test.

Table 2: Reliability testing.

Reliability statistics	Cronbach's Alpha
Q1	0.962
Q2	0.961
Q3	0.963
Q4	0.962
Q5	0.963
Q6	0.963
Q7	0.962
Q8	0.963
Q9	0.964
Q10	0.962
No of items=10	0966

Cronbach's Alpha is 0.966 indicating good internal consistency of 10 item scale.

The total number of students who participated in this study and completed the questionnaire was 352, comprising 183 male (52%) and 169 female (48%) participants. The sample reflects a balanced representation (Figure 1).
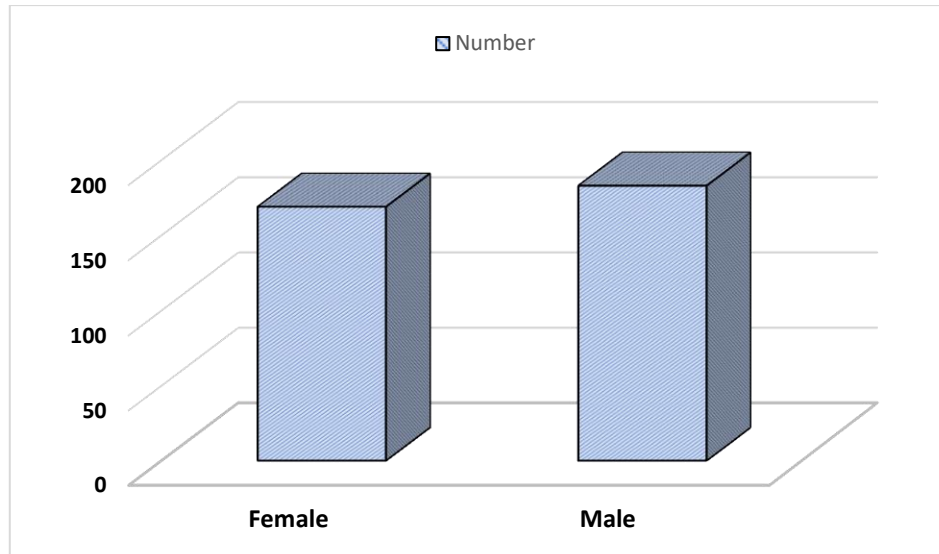

Fig.1: The gender among the respondents

Chi Square (X^2) =0.56, and the p-value = 0.46 (* significant if p value<0.05)

The survey captured a wide range of students' opinions on how well the teaching of pre-clinical skills modules in the first three years prepared them for clinical practice. Table 3 illustrates how medical students perceive the effectiveness of early exposure to pre-clinical skills modules.

Table 3: Responses of the participants to the 10-item Likert-scale questionnaire (n = 352).

Questions 1 to 10	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Median [IQR]
1. The pre-clinical skills modules provided a strong foundation for my clinical years.	43 (12.2%)	35 (9.9%)	57 (16.2%)	153 (43.5%)	64 (18.2%)	4 [3 - 4]
2. The pre-clinical skills modules facilitated my adaptation to the clinical environment in hospitals..	48 (13.6%)	54 (15.3%)	61 (17.3%)	139 (39.5%)	50 (14.2%)	4 [2 - 4]
3. The pre-clinical skills modules prepared me to approach patients confidently in a real clinical setting.	52 (14.8%)	57 (16.2%)	70 (19.9%)	124 (35.2%)	49 (13.9%)	3 [2 - 4]
4. The pre-clinical skills modules enhanced my ability to take a comprehensive and focused medical history..	53 (15.1%)	57 (16.2%)	64 (18.2%)	136 (38.6%)	42 (11.9%)	4 [2 - 4]
5. The pre-clinical skills modules improved my competence in performing clinical examinations.	61 (17.3%)	59 (16.8%)	78 (22.2%)	109 (31.0%)	45 (12.8%)	3 [2 - 4]
6. The pre-clinical skills modules prepared me to communicate effectively with clinical supervisors and colleagues.	37 (10.5%)	43 (12.2%)	70 (19.9%)	151 (42.9%)	51 (14.5%)	4 [3 - 4]
7. The pre-clinical skills modules helped me analyse and interpret patient findings to determine the nature of diseases.	47 (13.4%)	54 (15.3%)	73 (20.7%)	134 (38.1%)	44 (12.5%)	4 [2 - 4]
8. The pre-clinical skills modules significantly improved my clinical and procedural skills.	39 (11.1%)	55 (15.6%)	70 (19.9%)	139 (39.5%)	49 (13.9%)	4 [2 - 4]
9. The pre-clinical skills modules prepared me to work effectively within a multidisciplinary team.	38 (10.8%)	51 (14.5%)	59 (16.8%)	147 (41.8%)	57 (16.2%)	4 [2 - 4]
10. The pre-clinical skills modules equipped me to deal ethically and professionally with patients and their families.	43 (12.2%)	49 (13.9%)	53 (15.1%)	142 (40.3%)	65 (18.5%)	4 [2 - 4]

IQR: interquartile range (25th – 75th percentiles)

Most of the students (nearly 62%) felt that the modules offered a solid groundwork and foundational skills for their future clinical roles. However, around 12% strongly disagreed, highlighting a need for potential curriculum adjustments to better serve all students. Over half of the students found that the modules eased their transition into clinical settings, and facilitated their adaptation to the clinical environments, although some students (nearly 29%) expressed difficulties, pointing to a need for improved support mechanisms during this phase.

While nearly half of the students reported increased confidence in interacting with patients, a significant portion (31%) felt uncertain, suggesting that more emphasis on real-life patient scenarios might be beneficial.

About half of the students appreciated the training in taking medical histories, yet over 31% were unsure or dissatisfied, indicating room for enhanced focus on this critical skill.

Nearly 44% of the students showed competent to perform clinical examination while more than 53% of them felt that their procedural skills improved. Moreover, about half of students confirmed that they gained better analytical skills and problem-solving competency. Furthermore, many students felt they gained strength and well-prepared communication skills with colleagues and interprofessional teamwork skills in multidisciplinary of healthcare system. Finally, ethical and professional behaviour training was viewed positively, yet more could be done to integrate ethical considerations into practical scenarios.

Table 4 presents a comparison of how male and female students responded to the 10 points of the questionnaire. This analysis helps identify any differences in how each gender perceives the effectiveness of the pre-clinical skills training. Uniform Perceptions for several areas, such as adapting to clinical environments, confidence, and clinical examination skills and problem solving, indicated no notable gender differences, and these parts of the training are considered to be equally effective for both genders.

Table 4: Comparison between the male and female participants regarding their responses to the 10-item Likert-scale questionnaire (n = 352).

Questions	Gender	Strongly disagree (1)	Disagree (2)	Uncertain (3)	Agree (4)	Strongly agree (5)	p-value a	Median [IQR]	Mean rank	p-value b
Q1	Female	15 (8.9%)	15 (8.9%)	30 (17.8%)	79 (46.7%)	30 (17.8%)	0.141	4 [3 - 4]	182.4	0.275
	Male	28 (15.3%)	20 (10.9%)	27 (14.8%)	74 (40.4%)	34 (18.6%)		4 [2 - 4]	171.1	
Q2	Female	16 (9.5%)	25 (14.8%)	34 (20.1%)	69 (40.8%)	25 (14.8%)	0.104	4 [3 - 4]	183.8	0.177
	Male	32 (17.5%)	29 (15.8%)	27 (14.8%)	70 (38.3%)	25 (13.7%)		4 [2 - 4]	169.7	
Q3	Female	17 (10.1%)	28 (16.6%)	36 (21.3%)	61 (36.1%)	27 (16.0%)	0.050	4 [2 - 4]	186.4	0.069
	Male	35 (19.1%)	29 (15.8%)	34 (18.6%)	63 (34.4%)	22 (12.0%)		3 [2 - 4]	167.3	
Q4	Female	16 (9.5%)	29 (17.2%)	25 (14.8%)	75 (44.4%)	24 (14.2%)	0.004*	4 [2 - 4]	192.4	0.003*
	Male	37 (20.2%)	28 (15.3%)	39 (21.3%)	61 (33.3%)	18 (9.8%)		3 [2 - 4]	161.8	
Q5	Female	23 (13.6%)	29 (17.2%)	37 (21.9%)	56 (33.1%)	24 (14.2%)	0.094	3 [2 - 4]	185.5	0.103
	Male	38 (20.8%)	30 (16.4%)	41 (22.4%)	53 (29.0%)	21 (11.5%)		3 [2 - 4]	168.2	
Q6	Female	13 (7.7%)	16 (9.5%)	35 (20.7%)	81 (47.9%)	24 (14.2%)	0.051	4 [3 - 4]	185.7	0.086
	Male	24 (13.1%)	27 (14.8%)	35 (19.1%)	70 (38.3%)	27 (14.8%)		4 [2 - 4]	168.0	
Q7	Female	18 (10.7%)	22 (13.0%)	38 (22.5%)	70 (41.4%)	21 (12.4%)	0.111	4 [3 - 4]	184.4	0.147
	Male	29 (15.8%)	32 (17.5%)	35 (19.1%)	64 (35.0%)	23 (12.6%)		3 [2 - 4]	169.2	
Q8	Female	13 (7.7%)	24 (14.2%)	30 (17.8%)	78 (46.2%)	24 (14.2%)	0.022*	4 [3 - 4]	188.6	0.025*
	Male	26 (14.2%)	31 (16.9%)	40 (21.9%)	61 (33.3%)	25 (13.7%)		3 [2 - 4]	165.3	
Q9	Female	15 (8.9%)	22 (13.0%)	25 (14.8%)	77 (45.6%)	30 (17.8%)	0.072	4 [3 - 4]	186.3	0.069
	Male	23 (12.6%)	29 (15.8%)	34 (18.6%)	70 (38.3%)	27 (14.8%)		4 [2 - 4]	167.4	
Q10	Female	10 (5.9%)	22 (13.0%)	24 (14.2%)	79 (46.7%)	34 (20.1%)	0.001*	4 [3 - 4]	192.6	0.003*
	Male	33 (18.0%)	27 (14.8%)	29 (15.8%)	63 (34.4%)	31 (16.9%)		4 [2 - 4]	161.6	

IQR: interquartile range (25th – 75th percentiles); p-value a: p-value from linear-by-linear association (Cochrane Armitage test for trend); p-value b: p-value from Mann-Whitney test; * significant at $p<0.05$.

Compared to male students, female students significantly outperformed in questions 4, 6 and 10, indicating a tendency towards agreement. ($p<0.05$) in the following key insights; history taking, clinical exposure and procedural skills. The female students reported feeling more confident in their ability to take medical histories after the training, indicating the modules may cater more effectively to their learning styles. In addition, their procedure skills also improved with potential increase of hands-on practice. Female participants also felt that their ability to work in multiprofessional teams improved significantly more than males did, suggesting potential differences in how each gender benefits from the curriculum.

Open-Ended questions & Feedback

Table 5 summarizes students' feedback regarding the benefits of the preclinical skills modules, and several points can be observed: 28.7%, realized that the module prepared them for the future clinical scenario, and 24.1% concentrated on improvements in doctor-patient interaction. In addition, 15.1% stated that the modules helped them understand clinical courses taken in later years; and 10.2% appreciated the development of the essential clinical skills. Some students, 7.7%, also mentioned professional development skills such as presentation and CV writing. A few students, 3.4%, considered the modules were ineffective or a complete waste of time, showing there is still more that can be done to benefit all diverse students.

Table 5: Benefits recognized by the participants after studying this pre-clinical skills modules (n = 352).

Are there other benefits you recognized after studying this pre-clinical skills modules ?	Total = 352 (100.0%)
Prepare students for future clinical situations	101 (28.7%)
Demonstrate and teach doctor-patient relationship	85 (24.1%)
Facilitating learning clinical courses later	53 (15.1%)
Good clinical skills are acquired	36 (10.2%)
professional skills as ppt, cv writing	27 (7.7%)
No benefits/time waste	12 (3.4%)
No response	38 (10.8%)

Students also made useful suggestions for improving the pre-clinical skills modules themselves, summarized in Table 6. While 20.4% of respondents had no further suggestions, another significant group 17.9% suggested more regular and constructive feedback was needed to help them advance their learning. Additionally, 16.8% suggested increasing opportunities for practicing clinical exams to gain more hands-on experience, and 14.8% recommended collaborating with students from other healthcare disciplines to foster teamwork, mirroring real hospital settings. Other suggestions included the inclusion of more real-life examples (9.9%) and more demonstration and application of practical components with less theory (7.7%). While 3.7% of students propose extend the course duration, and 2.3% suggest moving the pre-clinical skills modules to higher clinical years.

Table 6: Suggestions provided by the participants to improve this pre-clinical skills modules (n = 352).

Are there any suggestions would you like to add to improve this pre-clinical skills modules ?	Total = 352 (100.0%)
Nothing	72 (20.4%)
Get more feedback would really help us improve.	63 (17.9%)
Do more practice with clinical exams to get more training	59 (16.8%)
Work together with students from other healthcare fields to learn teamwork like in a real hospital	52 (14.8%)
Increase real-life examples to see how things work in real situations.	35 (9.9%)
More demonstration & application of practical parts, decrease time for theoretical basis	27 (7.7%)
Increase the time dedicated for the course	13 (3.7%)
Combine with other clinical courses in higher years	8 (2.3%)

Discussion

This study examines the effectiveness of pre-clinical skills modules at the Faculty of Medicine, Tanta University. It provides insights into how fourth- and fifth-year medical students perceive these modules. It was grounded in constructivism, an educational theory that emphasizes the active involvement of learners in constructing their own understanding and knowledge through experiences and interactions. In the context of early clinical skills teaching, the constructivist approach suggests that students benefit from hands-on experiences and engagement with real-world clinical scenarios from the start of their education [9]. Additionally, this study was guided by a phenomenological framework [10], which focuses on exploring and understanding the lived experiences of medical students who have undergone early clinical skills teaching and how this has influenced their subsequent performance in their clinical years.

The high reliability of the questionnaire designed and used in this study suggests that it effectively measures the intended constructs, providing confidence in the robustness of the data collected [11].

The results confirmed the importance of early clinical exposure in developing foundational competencies for effective medical practice. This aligns with the principles of competency-based medical education (CBME), which integrates theoretical knowledge with practical skills to prepare healthcare professionals for real-world clinical settings [12].

Previous studies have shown that pre-clinical skills are crucial and valuable for medical students as they lay the foundation for clinical practice. Mastery of these concepts enhances diagnostic skills, promotes evidence-based decision making, and fosters a solid medical knowledge base [13]. In addition, it contributes to effective communication with patients and interdisciplinary collaboration which are essential aspects of being a competent and compassionate healthcare professional [14].

Interestingly, student motivation, particularly positive motivation, emphasizes on clinical learning, better understanding with improved problem-solving skills and knowledge about their profession. This help students develop a more patient-centered approach to care and can also have a positive impact on the development of professional values and ethical decision-making skills [15].

The findings of this study demonstrate that while the pre-clinical skills modules are largely successful in building foundational knowledge, the areas where the translation of this knowledge into practical competence need some improvement. A third of students (34%) expressed uncertainty about their preparedness for real-life patient interactions and clinical examinations, suggesting a gap between theoretical learning and practical application. Addressing this gap is essential for achieving the broader goals of CBME.

The success of CBME depends on producing graduates who are well-prepared to handle the complexities and demands of clinical practice [16]. To reform, the curriculum should be redesigned to include more immersive, hands-on experiences that mirror real-life clinical scenarios. This could be achieved through the increased use of advanced simulation technologies, standardized patient interactions, and earlier clinical placements [17].

In this study, a significant portion (31%) of students uncertainly have poor confidence to take history and build rapport with patient. In alignment with these results, Tabriz et al., 2024 who mentioned that the skills modules should provide students with the practical exposure necessary to build their confidence and competence in clinical settings [18].

Moreover, the study highlights the need for continuous and structured feedback mechanisms throughout the learning process. Such feedback would not only help students identify their strengths and areas needing improvement but also foster a culture of self-reflection and continuous learning, the key components of CBME [19].

Communication of team-work skills were seen as a strength point in this study. Some research concluded that more collaborative exercises and standardized communication training are needed to help the development of these skills [20].

The open-ended questions reflect the desire of students for a more practical, interactive, and integrative learning experience. The students identify the benefits of the pre-clinical skills modules, underlining the role of these modules in their clinical practice readiness. Most students reported increased confidence, communication, and doctor-patient relationships, which coincides with other studies' results on early clinical exposure and professionalism [13]. The modules allowed the acquisition of practical and professional competencies, that aligned with the principles of competency-based medical education [12].

Other suggestions for improvement included more hands-on training, scenarios that mimic real life, and teamwork across disciplines-reflecting the importance of experiential learning and team-based approaches to better clinical application [17, 20]. However, 3.4% felt the modules were ineffective, which may point to gaps in delivery or mismatching of individual learning preferences.

The absence of continuous feedback, which plays a crucial role in supporting self-reflection and skill refinement, was highlighted as an area for improvement. Addressing this gap through an enhanced curriculum with structured constructive

feedback mechanisms, as suggested by Ramani et al. (2019), could significantly strengthen the modules' impact on clinical readiness and professional development [19].

The balanced representation of male and female participants ensures that the findings accurately reflect the experiences and opinions of both genders. This provides a well-rounded view of the pre-clinical skills modules teaching impact, allowing for more nuanced insights into how the modules are perceived by different students. The observed gender disparities in confidence, history-taking skills, and teamwork might be due to differences in learning styles and preferences between male and female students, as noted in studies like Yang (2020) [21]. Societal expectations and roles influencing communication and interpersonal skills may also play a role, alongside the possibility that the structure of the modules may cater differently to these preferences [22-24]. These insights, supported by relevant literature, provide a nuanced understanding of the disparities and suggest recommendations for designing a more inclusive and equitable curriculum. Also, this has a valuable educational implication on both curriculum enhancements and supportive learning environment. Understanding these gender differences can help educators tailor the curriculum to address any disparities and ensure that all students can fully engage with and benefit from the training. Moreover, educators can create a more inclusive and supportive learning environment that meets the diverse needs of the student body. This approach can lead to more equitable educational outcomes and better preparation for clinical practice [21].

Conclusion and Suggestions:

Early teaching of pre-clinical skills modules at the Faculty of Medicine, Tanta University, effectively establishes a strong foundation for medical students, particularly in enhancing their confidence and communication skills

Recommendations:

• Integrate advanced simulation technologies that replicate real clinical environments, allowing students to practice clinical skills in a controlled setting.
• Expand opportunities for students to interact with standardized patients, providing realistic practice in history taking, physical examinations, and patient communication.
• Implement scheduled performance reviews where instructors provide detailed, and constructive feedback on students' clinical skills, guiding their ongoing development.
• Facilitate interdisciplinary training sessions where medical students work alongside peers from other healthcare disciplines, simulating the collaborative nature of real-world clinical practice.
• Future research for the opinion of clinical teachers in the performance of students in clinical years.

Study strength:

- What a great thing that this research is the first study at Faculty of Medicine, Tanta University to discuss the perception of 4th and 5th year students on the impact of early teaching of clinical skills on their clinical years.

- This study confirms the value of pre-clinical skills.

Limitations:

The responses to the online questionnaire were slow and delayed. The study focused on a single institution, which may limit the generalisability of the findings. The study focused on student perceptions rather than performance. Further studies are recommended in different institutions with a larger sample size. Future studies are recommended to include faculties' feedback on student performance in the clinical years. Further studies are needed to measure student performance in clinical examinations.

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