

The Barriers to Improve Medical Students Learning of Clinical Skills

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ABSTRACT

Objective: The purpose of this study was to identify barriers in learning of clinical skills at College of Medicine (COM-J), King Saud bin Abdulaziz University for Health Sciences (KSAU-HS), Jeddah.

Study Design: Analytical cross-sectional study

Place and Duration of Study: This study was conducted at the College of Medicine (COM) (KSAU-HS), from August 2021 till Jan 2022

Materials and Methods: This study utilized a self-administered survey questionnaire developed by the authors based on the review of literatures and consensus from experts in the field of clinical teaching. After validation, the Questionnaire was distributed online via using Microsoft forms. A total of 806 students were included, convenience sampling technique was used. With a confidence interval of 95% and 5% margin of error, sample size of 206 was calculated by <https://www.surveysystem.com/sscalc.htm>

Results: In this study, we collected 210 responses from medical students at COM-J, KSAU-HS, Jeddah. The mean age among the participants was 22.3, while (N= 125, 59.5 %) of the students were male. We could recognize that the main barriers against improving of the medical students' learning of clinical skills were; time constraints or pressure the students (N=158, 75.2 %), difference and inconsistency between theoretical and practical training (N= 103, 49 %), poor understanding of the theoretical part before practical training (N= 100, 47.6 %), poor resource management (N=92, 43.8 %), and poor instructor teaching technique (N= 92, 43.8 %).

Conclusion: The main barriers to learning clinical skills were diverse and included time constraints or pressure, difference and inconsistency between theoretical and practical training, poor understanding of the students to theoretical part before practical training, poor resource management, and poor instructor teaching technique.

Key Words: Barriers, medical students, clinical skills, Saudi Arabia

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INTRODUCTION

Clinical skills learning is considered one of the important components in medical students' training and clinical experience.

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It has proven to improve medical students' technical skills, critical thinking, and problem-solving. Developing competence in clinical skills is a substantial objective of medical education. A medical student's capacity to perform proper clinical assessment has been perceived as a priority. However, there are several barriers that students face in the learning of clinical skills^[1].

To gain a clear perspective on this process of teaching and learning one needs to identify the barriers that hinder efficient learning. Identifying barriers could help us evolve and learn through feedback of students. Devolving competent clinical skills is an essential part of "doctoring." Unfortunately, the data shows an increasing theory-practice gap among healthcare professionals,^[2,3] which calls for a further examination of this process and a collaborative effort to refine clinical skills among medical students. Implementing an improved model will help students obtain knowledge and transfer it into a complex clinical environment.^[2] Literature review indicates a range of barriers hindering the competency of medical students. It includes difficulty adjusting to the change of the new way of learning, lack of quality in the communication between the faculty and students, not a clear set of objectives,

time frame pressure, and lack of resources.^[2,3] Multiple participants also report a lack of suitable cases, time constraints, and failure to provide students opportunities as the most common barriers to technical skill proficiency. This translates into lack of confidence to perform those skills in a clinical setting^[3].

All around the globe there has been a call to strengthen clinical teaching efficiently in order to enhance knowledge and skill retention^[4]. Our research intends to focus on finding the barriers our students face in their clinical learning. This would help us get an insight on student's perspectives and guide us to improve in order to enhance clinical teaching in future.

MATERIALS AND METHODS

This cross-sectional analytical study utilized nonprobability convenience sampling technique and was conducted at College of Medicine (COM-J), King Saud bin Abdulaziz University for Health Sciences (KSAU-HS), Jeddah. Our study subjects were the third year to sixth year male (489 students) and female (317 students) medical students of COM-J, KSAU-HS, Jeddah. There were 317 female and 489 male students. The minimum sample size calculated was 206 (i.e., 82 females and 124 male) with 95% confidence level and 5%, margin of error. Sample size was calculated by <https://www.surveysystem.com/sscalc.htm>. Upon the distribution of the survey questionnaire to all 3rd-6th year level male and female medical students in COM-J, those who voluntarily participated, completely filled-up and return back the questionnaire were included as our study participants. Pilot study was conducted on 20 (i.e., 10 males and 10 female) randomly selected students in all year levels. The questionnaire consists of 17 items on a 5point Likert's scale (i.e., 5=strongly agree to 1=strongly disagree). Inter-rater reliability (Cronbach's Alpha) ranging from 0.71 to 0.83 was found for all items. The final survey questionnaire was distributed to all medical students (3rd - 6th years) through a survey link to their email: (https://docs.google.com/forms/d/e/1FAIpQLSdsV3pbwbyiGB0iGPMpMA0K4vq6TBjVImRIS_rB1nCdIR2g/viewform). Closed ended questions were followed by an open ended question that asked any recommendations from the students. The informed consent was presented at the beginning of the questionnaire to all study participants. Participants confidentiality was guaranteed, and all data was saved

within MNGHA premises with password encrypted files only accessible for research team. This study was submitted to Institutional Review Board (IRB) of King Abdullah International Medical Research Centre (KAIMRC), Jeddah, Saudi Arabia for ethical approval.

Data analysis: All completely filled questionnaires were collected, encoded in excel and transported to Statistical Package for Social Sciences (SPSS), version 20.0 (IBM Corp., Armonk, NY, USA) for analysis. The data was presented as mean and standard deviation for continuous variables and frequencies and percentages for categorical variables. Chi-square test was used for comparison of categorical variables. The level of significance was set at a p-value of <0.05.

RESULTS

In this study, we collected 210 responses for our questionnaire from medical students at COM-J, KSAU-HS, Jeddah. The mean age among the participants was 22.3 years old, (N= 58, 27.6 %) of them were at sixth level and (N=58, 27.6 %) were at third level. Moreover, (N= 125, 59.5 %) of the students were male (Table 1).

Demographic Characteristics.

Table No. 1: Demographic factors of the participants (N=210)

		Count	Column N %
Age	Mean (SD)	22.3 (1.56)	
Year level	Third	58	27.6%
	Fourth	40	19.0%
	Fifth	54	25.7%
	Sixth	58	27.6%
Gender	Male	125	59.5%
	Female	85	40.5%

Barriers and Problems that affect learning of clinical skills: According to table 2, we could recognize that the main barriers against improving of the medical students' learning of clinical skills were time constraints or pressure (N=158, 75.2 %) of the students wither agree or strongly agree), difference and inconsistency between theoretical and practical training (N= 103, 49 %), poor understanding of the theoretical part before practical training (N= 100, 47.6 %), poor resources management (N=92, 43.8 %), poor instructor teaching technique (N= 92, 43.8 %) and conflict between academic objectives and expectations of practical training (N=91, 43.3 %).(Table 2).

Table No. 2: The main barriers in improving medical students learning of clinical skills as reported by the participants

	Strongly disagree/disagree	Neutral	Strongly agree/ Agree
There are difference and inconsistency between theoretical and practical training	17.1%	33.8%	49.0%
There are not enough resources for students	34.8%	25.7%	39.5%

The student didn't understand the theoretical part before practical training	21.0%	31.4%	47.6%
Poor instructor teaching techniques	26.7%	29.5%	43.8%
there is conflict between academic objectives and expectations of practical training	30.5%	26.2%	43.3%
time constraints or pressure students	6.7%	18.1%	75.2%
case is too complex for the students or not appropriate for students participation	26.2%	32.9%	41.0%
poor development of skill proficiency	21.4%	36.7%	41.9%
achieving competence in practical skills is above the level of students	27.1%	38.1%	34.8%
achieving competence in practical skills is below the level of students	40.0%	43.3%	16.7%
students didn't seek out opportunities or poor provision of opportunities	21.9%	40.0%	38.1%
The consultant or resident don't provide opportunities	34.8%	30.0%	35.2%
There is a poor resources management	25.7%	30.5%	43.8%
There is a lack of instruction or guidelines	17.6%	42.4%	40.0%

Table No. 3: The relation between demographic factors, satisfaction level and perception of barriers

		Perception toward barrier				
		High perceived of barrier**		Low perceived of barrier+		
		Count	Row N %	Count	Row N %	
Year level	Third	14	24.1%	44	75.9%	0.000*
	Fourth	27	67.5%	13	32.5%	
	Fifth	7	13.0%	47	87.0%	
	Sixth	47	81.0%	11	19.0%	
Gender	Male	54	43.2%	71	56.8%	0.472
	Female	41	48.2%	44	51.8%	
Please rate your level of satisfaction in the clinical skills training program/curriculum?	Very unsatisfactory	16	100.0%	0	0.0%	0.000*
	unsatisfactory	41	71.9%	16	28.1%	
	Moderately satisfied	24	32.4%	50	67.6%	
	satisfied	11	22.0%	39	78.0%	
	very satisfied	3	23.1%	10	76.9%	

* significant at p value lower or equal to 0.05 ** have score more than 66 % of total available score (70)
+ have score lower than 66 % of total available score (70)

Barriers perception on the basis of gender/level of study: According to table 3, we found a significant difference between students of different levels considering their perception of the barriers (P=0.000), where students of fourth years and sixth years have the highest level of perceived barriers. Students of fourth year have 6.5-time higher perception of barriers than students of third level (OR:2.5, 95 % CI:2.67:15.96, P=0.000) and students of six year have 13 times higher perception of these barriers (OR:13.4, 95 % CI: 5.5:32.7, P=0.0001). No significant difference was found between genders considering their perception toward barriers (P=0.472). Moreover, we found a significant relationship between perception of barriers and satisfaction level of the students where the higher the perception of barriers, the worsen the level satisfaction toward clinical skills training program.

DISCUSSION

When students enter medical school particularly reaching the clinical phase, they look forward to

develop their knowledge and learning their clinical skills^[5,6]. Medical studies is found to be quiet demanding and could lead to frustration and burn out, if the barriers or stressors that hinder learning are not identified.^[7] There has been a global cry to enhance students learning of clinical skills thus many initiatives taken to identify factors or interventions that could enhance clinical learning^[4,8]. To identify the barriers would be the first step to achieve excellence and improve clinical teaching^[9] Good clinical teaching revolves around good learners, optimum support, conducive environment and enthusiastic knowledgeable teachers who intervene and take remedial measures when a challenge or barrier is encountered.^[10] College of medicine Jeddah since inception has been striving hard to achieve excellence through feedbacks. This institute stands high on educational podium through acting & responding to feedbacks and surveys. In this study, we found that the main barrier against learning of clinical skills was time constraints or pressure on the students. This is supported by another study where it

was found that many students may have difficulties in management of their time and this could cause them to be stressed by poor study time management and making them feeling that they did not have enough time to complete required tasks [11]. One of the studies from Germany reported enhanced medical students practical learning and overcoming barriers to clinical teaching by involving teaching associates [8].

Theoretical knowledge serves as a gateway and foundation to clinical or practical hands on learning. Without integrating the sound theoretical knowledge one would not be able to link or appreciate the clinical relevance of what is being taught. [12] Sound theoretical base brings value and life to practical learning and serves as a bridge to enhance learning. In this study difference and inconsistency between theoretical and practical training and poor understanding of the students to the theoretical part before practical training was identified as a significant barrier. Our finding is supported by a systematic review study conducted among nursing students, where the authors showed that one of the main barriers to clinical skills was incompatibility of theoretical and practical lessons [13]. The space between theoretical and practical lesson and incompatibility between them could be a significant barrier against gaining new clinical skills where students may need more time to adapt the practical lessons [14].

Other barriers reported by the medical students were poor resources management, poor instructor teaching technique, and conflict between academic objectives and expectations of practical training. Poor resources management and poor instructor teaching techniques could be a significant barrier against developing new skills among fresh new medical students who need new teaching technique and practicing courses [11]. In this study, some students reported the need for one-to-one practicing where they complaint that the provided time for practicing does not allow all of them to practice their skills. Therefore, adequate management of the provided resources and provision of new teaching techniques are recommended to improve the student's clinical skills [15]. According to a report tomorrow's doctor; practicing hands on skills needs to be at the heart of clinical teaching [16]. Clinical teaching in clinical skills lab though is a resource hungry but effective way of teaching when blended with bedside teaching [17].

COVID-19 and distance learning was another barrier that was mentioned by the students in this study. There are many reasons that make distance learning a barrier against gaining new clinical skills including lack of infrastructure and technology [18], lack of personal interaction with teachers [19], and limited access to the Internet [20]. In this study, many students recommended increasing exposure time for clinical skill training and on-site clinical training, improving materials and

educational techniques and providing students with more time to prepare/ practice/ participate in educational process. These recommendations should be strongly considered in order to improve the gaining of clinical skills by the students where many previous studies found that interesting in recommendation provided by the students would significantly help in improving the whole process of education [21,22].

Moreover, we found in this study that there is a significant relation between the high perception of barriers and students at fourth and sixth year compared with third and fifth years. The probable reasons may include stress and increased workload on the penultimate year than other years of study. Kumar B et al. also reported that the final year medical students were more stressed than other years which hinders their ability to learn clinical skills optimally [23]. Moreover, we recognized that satisfaction level of the students is related to their perception of barriers, where the less the satisfaction is, the higher the perception of barriers are. Therefore, we should deal with both sides; improving the satisfaction of students in order to reduce their perception of barriers and vice versa.

CONCLUSION

The main barriers identified were time constraints or pressure, difference and inconsistency between theoretical and practical training, poor understanding of the students to theoretical part before practical training, poor resources management, poor instructor teaching technique and conflict between academic objectives and expectations of practical training.

Factors identified in this study could be used as a guide by planners and can be modified to enhance learning. In order to enhance student's satisfaction, the barriers identified should be removed. Increasing exposure time for clinical skill training and on-site clinical training, improving learning resources, facilities, educational techniques, and providing students with more time to practice & participate in educational process would improve clinical teaching learning process.

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