

STUDENTS' PERCEPTIONS OF EARLY CLINICAL EXPOSURE IN A RESPIRATORY CARE PROGRAM

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ABSTRACT

Objective: To evaluate the perceptions of respiratory care program students on early introduction of clinical skills teaching.

Material and Methods: Seventy-one respiratory care students who completed their ECE course successfully were asked to fill a questionnaire using a Likert-scale. The questionnaire was developed based on the main themes that emerged from the focus group discussion.

Results: Majority of respondents agreed that "it was good to introduce clinical skill since the early years of the curriculum". On the other hand, students were not satisfied with some aspects of the organization and structure of ECE. An overall degree of agreement with ECE was found to be good, although the degree of agreement varied between the different themes of ECE and was found to be greater in males than in females.

Conclusion: The introduction of ECE in respiratory care program can be useful and has a positive impact on student learning and on their attitude toward the profession.

Keywords: Clinical, education, instructors, exposure, Respiratory care, Student, perception.

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INTRODUCTION

Respiratory Care (RC) is an allied health profession concerned with the evaluation and treatment of patients who have breathing problems. Respiratory Care Practitioners (RCP) exercises a considerable degree of independent clinical judgment in patient care. Students start their Early Clinical Exposure (ECE) in the bachelor's degree in RC at Imam Abdulrahman Bin Faisal University (IAU) from the second year. Contents covered during ECE are specified in the ECE Manual consisting of physical assessment, history taking, and certain respiratory care modalities. The performance of students during ECE is carefully monitored according to a specific set of contin-

uous assessment criteria by full time clinical instructors. Traditional allied health programs in the Kingdom of Saudi Arabia (KSA) have been based on lectures and laboratory sessions throughout the four-year program with minimal clinical exposure. Clinical exposure in such traditional programs is introduced in the last semester towards the end of the program. For decades, most clinical teaching occurred at the bed side during the last two years of medical education, while the early years were devoted to basic sciences. This model is now changing health profession education must respond to rapid changes in health care delivery systems. RCP at IAU responded to such changes and introduced the ECE in respiratory care since the inception of the program in 1999. Literature shows abundant research about the implementation, outcome, usefulness, and perception of ECE on medical students, for example, ECE has been evaluated at 10 medical schools of the Interdisciplinary Generalist Curriculum (IGC) project, the result showed that the majority of students in this study described ECE as important validation of their decision to go to medical school and gave them the opportunity to integrate basic sciences with their patient encounter experiences.¹ To the best of the investigator's knowledge, there

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has been no study to evaluate the impact, usefulness, and perception of ECE on RC students. This study aims to evaluate the ECE of the RC profession in KSA from student's perspective. Evaluation of ECE by students forms an essential aspect of quality improvement and assurance to the Respiratory Care education program. Furthermore, student satisfaction with ECE will be a useful indicator of the quality of the program and will help to introduce changes or improvement that could be made to satisfy both students and stake holders at IAU. Three research questions were raised: What are student perceptions of the implementation of ECE? To what extent does clinical instructor performance affect student perception of ECE? To what extent does organization and structure of ECE affect student perception of ECE?

A review of the literature shows evidence that supports the positive outcomes of ECE. As a result, several institutions are switching from traditional discipline-based curricula to integrated curricula.² Duban found that ECE facilitates integration of basic and clinical sciences and improves student attitude towards basic sciences.³ Eric et al studied some of the concerns of students in ECE and found that first-year medical students know little about clinical medicine. Students did not have a role in patient care and usually had no on-going relationship with the patient.⁴ As a result, this detachment made students feel inferior, inadequate, and depressed because they think that they will be perceived as intrusive, and possibly a source of discomfort to the patients. It is extremely important to conduct clinical education with quality to produce competent health care professionals. One way to improve the quality of medical education is to improve the relationship between medical students and instructors; also, development of a good advisory relationship can help students cope with feelings of inadequacy, anxiety, or fear.⁵ To improve educational quality, schools should seek and reward the best clinical instructors, according to Knowles teachers are a valuable resource to facilitate learning, teachers (Clinical instructors) can improve the retention of knowledge and experience by adhering to several educational concepts and principles.⁶ Educational theories on adult learning support the use of ECE, the cognitive approach addresses how a learner processes information using it to create useful knowledge in a domain, the humanist and constructivist approaches may clarify the development of clinical judgment and professionalism where each learner must assemble a variety of learning experiences and forge them into a meaningful whole.⁷

To get the most benefit of ECE and to have integration between basic sciences and clinical practice so that students become motivated, there is need to develop a system to put the whole picture of basic sciences and clinical practice together.⁸

MATERIAL AND METHODS

This research is a descriptive study to determine the perception of respiratory care students at IAU of their ECE. The questionnaires were administered in September 2018. The questionnaire was given to respiratory care students who completed the ECE course between the years 2016 and 2018. Four different batches of students were designated for this study.

A student survey was conducted using a self-developed questionnaire. The focus group discussion was used to identify the key factors in the ECE. These factors guided the development of the questionnaire. A discussion guide contained several distinct sections related to themes of ECE was used to guide the focus group discussions. The self-developed questionnaire was used after minor modifications based on the literature review and was piloted to identify any unclear or difficult wording or statements so that the questionnaire could be modified before conducting the study. The reliability of the questionnaire was assessed using Cronbach's alpha which was 0.877. The validity was determined by the face validity through consultation with the respiratory care program faculty at IAU and with senior respiratory care practitioners at different designated clinical facilities. To secure the validity of the questionnaire, independent expert opinions were sought.⁹ The data from the questionnaire were analyzed using Statistical Package for Social Science (SPSS version 22).

RESULTS

The overall perception of ECE is 854 (63%) in agreement, 238 (18%) undetermined, and 258 (19%) disagreement. Five items were included in the questionnaire to study the perception of students about the organization and structure of ECE, the results for this theme as a whole were that 48% of respondents perceived ECE as well organized and structured, 79 % and 69% of respondents agree that the group size was appropriate and that the objectives of ECE were clear, respectively, very few respondents agreed that ECE was well conducted, the manual was helpful, and the time allocated for ECE was adequate (Table1). Three questionnaire items were introduced to seek the perception of students about the implementation of ECE, the results for this theme were that 59% of the students perceived that ECE was well implemented, 61% and 59% of the respondents agreed that the skills taught in ECE were appropriate and that they had an adequate opportunity to practice the skills taught, respectively (Table 2).

Respondent opinions about the advantages of ECE were elicited through six different questionnaire items. The study showed that most respondents see advantages to ECE (Table3). Five questionnaire items were designed to perceive students' opinions about the compe-

tency of clinical instructor during ECE, the results of this theme were 57% of respondents perceived the competency of clinical instructors of ECE to be appropriate. The study also showed that 72% of students agreed that the clinical instructor was available when students were performing clinical skills. The rest of the items had agreement percentages around 50% (Table 4).

Overall difference in agreement between males and females for all themes was very highly significant ($p < 0.000$), for each theme the agreement among the male and female students was higher among male and was highly higher for all themes except for theme 3 (Advantages of ECE) (Table 5). Overall degree of agreement among student batches was a very highly significant ($p < 0.000$), batch IV was very highly significantly different from all other batches ($p < 0.000$), batch II was significantly different from batch III ($p < 0.02$), there was no difference between batches I and II ($P < 0.15$) and batches I and III ($p < 0.55$).

DISCUSSION

The result of the survey showed that overall agreement with ECE was calculated to be 67%. However, the degree of agreement varied between the different themes of ECE. The degree of agreement for the advantages of ECE was the highest (80%), while the degree of agreement for the organization and structure of ECE was the lowest (56%). Our results support the view that students found ECE to be valuable in their curriculum. However, many of them were not satisfied with ECE organization and structure; the manual was not helpful, and time allocated for ECE was inadequate. Student dissatisfaction with some aspects of the organization and structure of ECE could be explained on the basis that clinical instructors were not well prepared in terms of choosing appropriate cases related to their level or matching the specific objectives.¹⁰ Students thought that cases introduced or patient's they were supposed to see did not match with the curriculum objectives they were studying and because there was no previous arrangement or specific preparation with such

Table 1: Frequency Distribution of Organization and Structure of ECE

Items	Disagree		Undetermined		Agree	
	Freq	%	Freq	%	Freq	%
The objectives of ECE were clear	5	7	17	24	49	69
The ECE sessions were well conducted	24	34	30	42	17	24
The group size was appropriate	6	8	9	13	56	79
The student clinical manual was helpful	40	56	14	20	17	24
The amount of time for ECE was adequate	32	45	8	11	31	44
Organization and Structure of ECE	107	30	78	22	170	48

Table 2: Frequency Distribution of the Implementation of ECE

Items	Disagree		Undetermined		Agree	
	Freq	%	Freq	%	Freq	%
The skills taught in ECE were appropriate	9	13	19	27	43	61
There was adequate opportunity to practice the skills	16	23	13	18	42	59
The ECE enhanced my ability to communicate with patients	5	7	26	37	40	56
Implementation of ECE	30	14	58	27	125	59

Table 3: Frequency Distribution of the Advantages of ECE

Items	Disagree		Undetermined		Agree	
	Freq	%	Freq	%	Freq	%
I enjoyed the ECE skills sessions	5	7	8	11	59	83
The ECE sessions were useful	8	11	7	10	56	79
The ECE stimulated my interest in basic sciences	3	4	7	10	61	86
The ECE stimulated me to be an active learner	2	3	5	7	64	90
The ECE helped me to understand concepts and principles relevant to curriculum	10	14	5	7	56	79
It is good to introduce ECE in the early years of curriculum	6	8	3	4	62	87
Advantages of ECE	34	8	35	8	358	84

Table 4: Frequency Distribution of Clinical Instructor Competency in ECE

Items	Disagree		Undetermined		Agree	
	Freq	%	Freq	%	Freq	%
The clinical instructor helped me learn effectively	23	32	13	18	35	49
The quality of observation from the clinical instructor was appropriate	17	24	15	21	39	55
The quality of feedback from the clinical instructor was appropriate	19	27	16	23	36	51
The clinical instructor was available when students where performing clinical skills	14	20	6	8	51	72
The clinical instructor effectively communicated knowledge	14	20	17	24	40	56
Clinical Instructor Competency of ECE	87	25	67	19	201	57

Table 5: Comparing the Degree of ECE Theme Agreement between Genders and Themes

Themes of ECE	Gender	N	Mean	%	SD	P
The organization and structure of ECE	M	40	3.50	63	1.17	<0.001 **
	F	31	2.89	47	1.21	
The implementation of ECE	M	40	4.01	75	0.94	0.007 *
	F	31	3.61	65	1.18	
Advantages of ECE	M	40	4.19	80	0.98	0.95
	F	31	4.18	80	0.89	
Clinical instructor competency of ECE	M	40	3.66	67	1.06	<0.001 **
	F	31	2.95	49	1.15	
Overall agreement with ECE	M	40	3.84	71	1.08	<0.001 **
	F	31	3.43	61	1.23	

M=Male;F=Female;*=Highlysignificant(HS);**=veryhighlysignificant(VHS)

patients. It is plausible that both these factors may have created an atmosphere of uncertainty, stress, and unease to students. The result of this study agrees with a study done in which he concluded that it is worth investing some time and energy in planning bed side training rounds.¹¹ Recent systematic review also concluded that teaching sessions be divided into before, after and round activity due to importance of clinical rounds in learning of the students.¹² Students in our study agreed that the ECE program objectives were clear (69%),but some of them were confused about the extent of mastery they were expected to achieve for each skill. Furthermore, students felt that the time was inadequate to accomplish what was expected from them as specified in the manual. It is important to realize that it was not the length of time spent in ECE that mattered but that the quality of time spent in clinical teaching is more important. Based on the student comments, it can be inferred that the time spent in clinical teaching was not well utilized which gave them the impression that the overall time designated for ECE was not enough. This supposition was also supported by the free responses of students. Such student perceptions about the inadequacy of time agrees with a previous study in which students expressed their dissatisfaction due to improper time management and the lack of high-quality tasks spent in the learning/ teaching situation during the allocated time.¹³ The implementation of ECE as perceived by the students

in our study was reasonable, students get the opportunity to meet patients and they are to some extent involved with the patient in terms of interviewing, physical assessment, and observing some of the RC procedures performed. Students felt that clinical instructors were not familiar with the curriculum taught at IAU and they lack training in bed side teaching. This student perception agrees with an earlier study where he emphasized that faculty training in clinical skills and teaching methods is an important stage of preparation for implementing effective clinical teaching.^{14, 15}

In general, students enjoyed the ECE a great deal and they were very enthusiastic and satisfied with this instructional method. They felt it was an interesting change from traditional class room teaching. They also felt that ECE facilitated integration between basic and clinical sciences and improved their interest and attitude towards basic sciences. In a recent study the importance's of integration between basic and clinical sciences were highlighted in improvement of bridging the academic knowledge to clinical scenario.¹⁶ They also perceived ECE to stimulate their active learning and to be very useful and enjoyable. Some of the students' comments indicated that they felt like a real RCP which made them satisfied with their choice of the profession. These findings are consistent with other studies done earlier on medical students.^{5, 17-19} It is important to recognize that clinical instructor performance

and attitude directly influence student perception of ECE. If the clinical instructor lacks understanding, knowledge, and enthusiasm, a negative impression will be perceived by the student towards ECE. A recent study suggested that instructors knowledge, enthusiasm as well support as the most looked-for characteristic for students which are in agreement with our study.²⁰

Only half of the students agreed that the clinical instructor was helpful in effective learning. Most of the comments were revealing a negative perception concerning knowledge and competence of clinical instructors. Some of the comments showed that clinical instructors were not supportive. It is clear from those comments that it is important to improve the relationship between clinical instructors and respiratory care students. This will improve the quality of education and subsequently, health care. Clinical instructors also need to familiarize themselves with clinical curriculum in action. These findings are consistent with other studies done by different researchers. A study by Atack L found that both staff and students described staff characteristics and the work environment as important factors influencing relationships and student learning.²¹ Another study concluded that for clinical instructors to be effective as teachers, they should have clinical knowledge of medicine, patients, the context of practice, as well as awareness about the knowledge level of learners, and general principles of teaching.^{22, 23} One reason for such negative comments concerning clinical instructors encountered in our study could be due to the language barrier; English language proficiency of both the students' and clinical instructors were sub optimal. Most clinical instructors were non-native English speakers. These views are supported by a previous study on 99 international graduate medical students in an internal medicine program concluded that patient satisfaction and faculty/ peer evaluations were found related to English language proficiency.²⁴ To the overall difference in agreement between males and females for all themes was very highly significant ($p < 0.000$). For each theme the agreement was highly significant except for theme 3 (Advantages of ECE) which was non-significant ($p = 0.95$). This suggests that there are differences between males and females' students in the way that they perceive the advantages of ECE. In general, degree of overall agreement for all themes was greater among male than among female students. This could be since the extent of involvement of males in the clinic is greater than the female students because of cultural barriers and because all instructors were male. These findings are consistent with a study which confirmed that gender equity is important in facilitating successful learning by students.²⁵ "Gender takes up the questions of how educational opportunity differs for female and male students and how school can foster gender equity". It is important to note that clinical instructors remain the same for all batches. Furthermore it is also important to note that batches-I and-IV comprised of female students in contrast with batches-II and III of male students. Thus, the confounding effect of gender also should be considered. In addition, there call bias of respondents from different batches needs to be considered in comparing the differ-

ences in perceptions between the batches.

Our study also has some limitations; it was based on self-applied questionnaire. Another limitation was inclusion of study subjects from one institute; in future more universities can be included. It is vital to highlight that proper structuring and organization of ECE components, proper training and orientation of clinical instructors, setting clear objectives for clinical sessions, and proper time management are important factors and are pre-requisites for successful implementation of early clinical exposure program. Further studies using qualitative research techniques are required for an in-depth understanding of student perceptions about early clinical exposure.

CONCLUSION

The findings of our study could be concluded as

1. ECE can facilitate effective learning in respiratory care program.
2. Students found ECE more stimulating than traditional class room teaching.
3. Planning of bed side rounds or patient cases are important and should be harmonious with the objectives of the curriculum.
4. Students felt ECE integrated basic and clinical sciences which not only improved their interest but attitude towards basic sciences.
5. For effective clinical teaching, faculty needs to be trained in teaching methods as well as clinical skills.

REFERENCES

1. Carney PA, Bar-on ME, Grayson MS, Klein M, Cochran N, Eliassen MS, et al. The impact of early clinical training in medical education: a multi-institutional assessment. *Acad Med.* 1999; 74(1 Suppl):59-66.
2. Harden RM. Evolution or revolution and the future of medical education: replacing the oak tree. *Med Teach.* 2000; 22(5):435-42.
3. Duban S, Mennin S, Waterman R, LUCERO S, STUBBS A, Vanderwagen C, et al. Teaching clinical skills to pre-clinical medical students: integration with basic science learning. *Med Educ.* 1982; 16(4):183-7.
4. J. THOMAS, JANET PALMER HAFLER, BEVERLY WOODER. The patient's experience of being interviewed by first-year medical students. *Med Teach.* 1999; 21(3):311-4.
5. Lubetkin EI, Schmidt H, Charon R. Risks and benefits of early clinical exposure. *Acad Med.* 1999; 74(11):1153.
6. Knowles MS. The modern practice of adult education: From pedagogy to andragogy (revised and updated). Englewood Cliffs, NJ: Cambridge Adult Education. 1980.
7. Kneebone R. Simulation in surgical training: educational issues and practical implications. *Med Educ.* 2003; 37(3):267-77.
8. Matson CC, Ullian JA, Boisauvin EV. Integrating early clinical experience curricula at two medical schools:

- lessons learned from the Robert Wood Johnson Foundation's Generalist Physician Initiative. *Acad Med.* 1999; 74(1):53-8.
9. Gronlund NE. How to construct achievement tests. Prentice Hall; 1988.
 10. Bonney KM. Case study teaching method improves student performance and perceptions of learning gains. *J Microbiol Educ.* 2015; 16(1):21-28.
 11. Smith CA, Varkey AB, Evans AT, Reilly BM. Evaluating the performance of inpatient attending physicians. *J Gen Intern Med.* 2004; 19(7):766-71.
 12. Beigzadeh A, Adibi P, Bahaadinbeigy K, Yamani N. Strategies for teaching in clinical rounds: A systematic review of the literature. *J Res Med Sci.* 2019; 24:33.
 13. Dunlevy CL, Wolf KN. Perceived differences in the importance and frequency of practice of clinical teaching behaviors. *J Allied Health.* 1992; 21(3):175-83.
 14. Cox K. Planning bedside teaching--1. Overview. *Med J Aust.* 1993; 158(4):280-2.
 15. Kamel AM. Role of faculty development programs in improving teaching and learning. *Saudi J Oral Sci.* 2016; 3(2):61.
 16. Islam MA, Talukder RM, Taheri R, Blanchard N. Integration of basic and clinical science courses in US PharmD programs. *Am J Pharm Educ.* 2016; 80(10):166.
 17. Lam TP, Irwin M, Chow LW, Chan P. Early introduction of clinical skills teaching in a medical curriculum--factors affecting students' learning. *Med Educ.* 2002; 36(3):233-40.
 18. Higgins PM. Teaching medicine in general practice: the Guy's experience. *Med Educ.* 1989; 23(6):504-11.
 19. Johnson AK, Scott CS. Relationship between early clinical exposure and first-year students' attitudes toward medical education. *Acad Med.* 1998; 73(4):430-2.
 20. Reising DL, James B, Morse B. Student perceptions of clinical instructor characteristics affecting clinical experiences. *NursEducPerspect.* 2018; 39(1):4-9.
 21. Atack L, Comacu M, Kenny R, LaBelle N, Miller D. Student and staff relationships in a clinical practice model: impact on learning. *J Nurs Educ.* 2000; 39(9):387-92.
 22. Irby DM. Three exemplary models of case-based teaching. *Acad Med.* 1994; 69(12):947-53.
 23. AlHaqwi AI, Taha WS. Promoting excellence in teaching and learning in clinical education. *J Taibah Univ Med Sci.* 2015; 10(1):97-101.
 24. Eggy S, Musial J, Smulowitz J. Research and discussion note the relationship between English language proficiency and success as a medical resident. *English for Specific Purposes.* 1999; 18(2):201-8.
 25. Grant C, Sleeter C. Race, class, gender, exceptionality, and educational reform. *Multicultural education: Issues and perspectives.* 1989; (2):49-68.

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Following authors have made substantial contributions to the manuscript as under

Yadak M: Main Idea, Literature review, article writing, overall supervision

Farooqi FA: Data analysis, article writing and formatting.

Ansari K: Literature Review, final draft, proof reading bibliography

Ali S: Article writing, final draft, proof reading, bibliography

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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