Original Article

Impact of early clinical exposure upon communication skills pertaining to undergraduate medical students as assessed on Kalamazoo scale

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Objective: To assess the impact of early clinical exposure upon communication skills on Kalamazoo scale.

Methodology: This quasi-experimental, multicenter study was conducted among 160 third year MBBS students of one each private and public medical college from March 2017 to January 2018. Communication skills of students were scored using Kalamazoo Checklist-Adapted (KEECC-A). Data were analyzed on SPSS version 23.

Results: The disparity between both categories was significant (p < 0.001). The seventh element, providing closure included asking patient to summarize, acknowledge and close the interview. The ECE students performed very good to excellent 41 (51.3%) as compared to the Non-ECE students 3 (3.8%). The dissimilarity among categories remained statistically significant (p < 0.001).

Conclusion: The Kalamazoo scale was well performed by the ECE group showing that early clinical exposure can improve communication skills of students and hence better physician-patient relationship.

Keywords: Kalamazoo scale, communication skills, clinical exposure.

INTRODUCTION

Learning being a dynamic process concerning every student, the teachers' main responsibility is to accelerate this learning process.[1] Communications skills are essential in medical profession. Dornan et al defined timely clinical exposure as pre-clerkship involvement with real-life patient contact in a clinical situation that augments learning.[2] Well integrated knowledge of basic sciences and clinical sciences especially doctor-patient interaction are very important in modern medical education.[3] Medical students found their first interaction with clinical settings beneficial.[4] The ECE layout showed the potential benefits leading the policymakers to furnish a framework integrating basic and clinical sciences.[5] Few studies have analyzed the attitudes and not the effect on communication skills of the students.[6]

In traditional pattern of medical learning at early years, pupils learn theory with no patient interaction.[7] In clinical setup, they cannot recall important basic concepts; therefore, portion of their academic education become impractical. Unfortunately, we have no set standards referring to physician communication skills. The tools used widely are the Patient Satisfaction Questionnaire (PSQ) and Kalamazoo Essential Elements Communication Checklist Adapted (KEECC-A).[8] KEECC-A, however is psychometrically sound, valid and reliable tool (Cronbach alpha of 0.89), coupled to expert consensus which can be used quickly by examiners. This study will provide a framework for further research in the field of undergraduate medical education as there is no similar work reported from our country.

METHODOLOGY

This quasi-experimental multicenter study was conductedamong160third year MBBS students of one each private and public medical college from March 2017 to January 2018. In private medical college, number of students was 100 in each year. Using Raosoft calculator, keeping population size at 100, confidence interval 95%, margin of error 5% and response distribution at 50%, the sample size was calculated as 80. For comparison, 80 students were included from public medical college. In public medical college numbers of students in each year from first to final are around 350 to 400. Simple random sampling was done using computer initiated chart of random figures for selection of 80 students from year 3 in each college. Ethical/IRB approval was taken from both medical colleges and verbal consent was taken from all students. The inclusion criteria among dividing two groups was:

1) Students in private medical college from year 3, where from 1st year student had early clinical exposure (ECE group) to clinical settings in the integrated curriculum, followed by Integrated Practical exam.

2) Students in public medical college from year 3, where they had no early clinical exposure (non-ECE group) in traditional curriculum. Students who had migrated from another medical college were excluded from the study.

Communication skills were scored using KEECC-A.[8] This consists of 7 key elements of physician communication: building a relationship, opening a discussion, gathering information, understanding patient's viewpoint, sharing relevant details, arriving at an agreement, and finally providing closure,[9] Each item was graded against a five-point Likert scale where; 5 = excellent, 4 = very poor, 3 = adequate, 2 = fair and 1 = poor. One faculty member not working in either of these two medical colleges with fellowship in Medicine was trained to assess the students on Kalamazoo scale, who observed the students for 10 minutes and recorded the findings in the Performa.

**Statistical Analysis:** Data were analyzed on SPSS version 23.Comparison of the proportion of students from excellent to poor communication skills in each study group was made by Chi square test. $p < 0.05$ denoted significance.

RESULTS

One hundred and sixty students (80 in each group) constituted the study participants; mean age was 21.15 0.56 years. There were 69 (43.1%) male and 91 (56.9%) female students. Students with early clinical exposure (ECE) performed better. Based on Likert scale, the ECE students performed good 19 (23.8%) or very good to excellent 61 (76%) as compared to the Non-ECE students, 33 (41.3%) and 12 (15%) separately. Second element of Kalamazoo Communication Checklist analyzed opening of the discussion with the patient and allowing patient to finish their presenting problem without intrusion (Table 1). Building Relationship among ECE and Non- ECE Group is shown in the Fig. 1.

Table 1: Performance of ECE and Non-ECE students based on Kalamazoo scale (n = 160).

Elements	Clinical Exposure	Poor n (%)	Fair n (%)	Good n (%)	V. Good n (%)	Excellent n (%)	Total n (%)	P-value
Builds Relationship	ECE	0 (0)	0(0)	19 (23.8)	53 (66.3)	8 (10)	80 (100)	< 0.001
	Non-ECE	1 (1.3)	34 (42.5)	33 (41.3)	12 (15)	0 (0)	80 (100)	
Opens Discussion	ECE	0 (0)	4 (5)	30 (37.5)	40(50)	6 (7.5)	80 (100)	< 0.001
	Non-ECE	1 (1.3)	33 (41.3)	42 (52)	4 (5)	0 (0)	80 (100)	
Gather Information	ECE	0 (0)	15 (18.8)	26 (32.5)	33 (41.3)	6 (7.5)	80 (100)	< 0.001
	Non-ECE	1 (1.3)	40 (50)	32 (40)	7 (8.8)	0 (0)	80 (100)	
Patient Perspective	ECE	0 (0)	18 (22.5)	33 (41.3)	24 (30)	5 (6.3)	80 (100)	< 0.001
	Non-ECE	2 (2.5)	54 (67.5)	23 (28.8)	1 (1.3)	0 (0)	80 (100)	
Shares Information	ECE	0 (0)	10 (12.5)	19 (23.8)	46 (57.5)	5 (6.3)	80 (100)	< 0.001
	Non-ECE	2 (2.5)	49 (61.3)	25 (31.3)	4 (5)	0 (0)	80 (100)	
Reaches Agreement	ECE	0 (0)	14 (17.5)	20 (25)	41 (51.3)	5 (6.3)	80(100)	< 0.001
	Non-ECE	2 (2.5)	47 (58.8)	29 (36.3)	2 (2.5)	0 (0)	80 (100)	
Provides Closure	ECE	0 (0)	13 (16.3)	26 (32.5)	35 (43.8)	6 (7.5)	80 (100)	< 0.001
	Non-ECE	4 (5)	48 (60)	25 (31.3)	3 (3.8)	0 (0)	80 (100)	
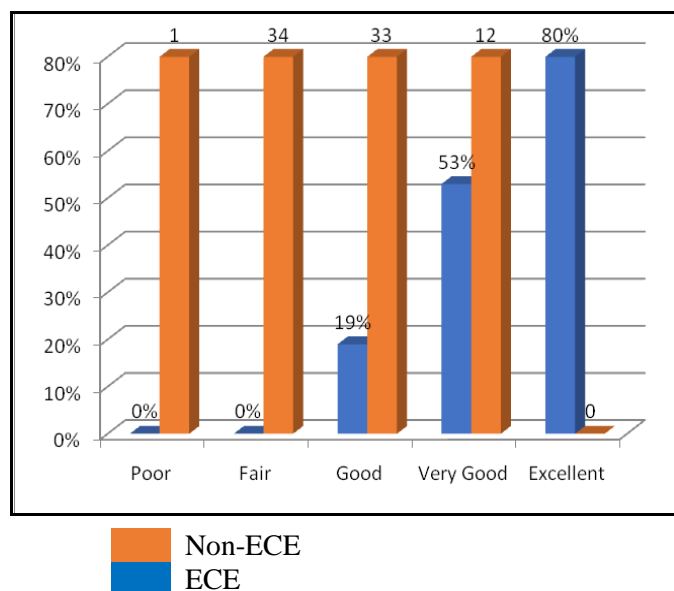
Fig. 1: "Building Relationship" among ECE and Non-ECE Group.

DISCUSSION

In medical profession, good communication skills are a key to good patient-doctor interaction and hence better outcome in terms of patient management and patient satisfaction.[10,11] ECE can improve communication skills of students leading to better problem solving skills.[12] In Pakistan, there are two systems of medical education in practice. One is the traditional medical schooling where the students are exposed to patients in the third year and other is integrated curriculum where the students are interacting with patients from the first year of their education.

Based on KEECC-A, students in the integrated curriculum with ECE were able to build effective relationship with patients which is the most important step in physician-patient interaction.[13,14] They were able to express more concern and empathy for the patient as compared to the Non-ECE group. In essence, building a relationship is an ongoing task throughout the encounters.[9]

In opening of the discussion, the students in the ECE group were better in eliciting full set of concerns of the patient as compared to the Non-ECE group and explain the purpose of visit. Relationships with faith and harmony not only add to better healthcare but also reduce distress and improve patients' engagement in decision making.[15] The third element was about gathering of Information. This required eliciting the patient's history while guiding the interview through a process of clinical diagnostic reasoning.[9] ECE students were more patient centered, focusing on patient's disease process. The students were able to summarize

and give patient space to add information and moved efficiently to further queries. Recognizing the patient's point of view is an important element in patient care.[16]

Sharing information by physician with the patient facilitates physician-patient partnership.[17] By using sentences that patient can follow, checking for mutual understanding of management outline endorses decision making.

This was a one-time assessment of student and may not give an idea of the whole picture, thus representing tip of the iceberg. Students were not followed till final year at which point, they may become better communicators. Inter-rater reliability was not checked which would have better identified the outcome. In private setup (the ECE group) most of the students were from O and A level of education system while the students in the Non-ECE group were mostly from the traditional (matric followed by FSC) education system that might have affected their communication skills.

CONCLUSION

The communication expertise of undergraduate medical pupils with early clinical exposure in the integrated curriculum were better as compared to those with non-ECE in traditional curriculum necessitating introduction of timely clinical exposure in undergraduate curriculum.

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