

Original article

Achieving Clinical Laboratory Exposure in the 1st MBBS Traditional Curriculum

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Abstract

Background: In the traditional curricula 1st MBBS students are not exposed to the clinical environment and thus not exposed to the clinical laboratory and actual procedure of blood sample collection and its processing. This ignorance of blood collection procedure is carried out through out their further years of education and as clinicians could also lead to errors in diagnostic tests. Hence we thought we could expose the students to the clinical laboratory settings and determine how effective this intervention is..

Objectives: To determine the effectiveness of learning by exposing the 1st M.B.B.S students to the clinical laboratory setting during their practical class, in comparison with the traditional teaching method of conducting practical's in the undergraduate laboratory

Methods: Common LCD for 50 students on Plasma glucose estimation. Then Roll nos-26-50 were exposed to the Central pathology laboratory working. Feedback questionnaire consisting of both open and close ended (Likert's scale of 1-5 -strongly agreed to strongly disagreed) were administered to these students. Written exam for all 50 students was conducted immediately. Data collected was categorized into quantitative and qualitative. Quantitative data was the written exam and close ended questions. Qualitative data by perception in open ended questions by categorizing the responses .

Result: Quantitative Results - Students Perception of the Feedback to the questions. In comparison with traditional teaching Students (n -23) were strongly in favour of undergoing exposure to the Central Pathology Laboratory, where 61% developed interest , 51% helped in contributing Knowledge. There was no response for both strongly disagreed and disagreed. In Knowledge written exams mean score was higher for laboratory exposure-4.84 (p not significant)

Qualitative Results - Students perception categorized into different categories depending upon their responses.

Conclusion: ECE is necessary for building the foundation for 1st MBBS students. It helps in increasing interest in the subject.. and also helps in better performance and retention of knowledge.

Key words: ECE, Clinical, Laboratory, Students, Perception.

Introduction

The First year of Undergraduate Education in a Medical Profession is very critical and therefore Success depends on how you impart it. Thus Clinical exposure is an important part of the Health professional training. Hospital based educational system has covered a wide variety of learning

environments like ward based teaching (including bedside teaching), the learning of technical skills, academic work in a clinical context and use of outpatients [1]. The medical education community has thus increasingly emphasized the value of early patient contact experiences for preclinical medical students.

Dorn defined early clinical experience as pre-clerkship experiences with authentic patient contact in a clinical context that enhances learning [2].

Data suggest that early clinical exposure can make basic science curricula more relevant [3] and help prepare students for clerkships [4]. In the traditional curricula of medical education, students learn theoretical knowledge without contact with the patients in a clinical context. [1,5]

Various approaches have been introduced to find new ways of didactic instructions in order to improve teaching basic sciences and make it more practical. [1,3,4]

Many medical schools now implement a program called early clinical exposure to introduce important issues in medicine to pre-clinical undergraduate medical students. Early exposure to real clinical setting may promote socialization and strengthen students' affective and cognitive learning [1,6,7]

In India, the curriculum is mainly discipline based. Medical students for generations spend preclinical years in classrooms, dissection hall and laboratories. They find it difficult to correlate the knowledge of preclinical subjects without seeing patients and understanding the purpose of what they are learning. Teaching them remains in separate academic departments, without integration to interrelate the subjects. They look forward to dealing with patients and interact with them. Exposing medical students to the patients or community at the very first year is the need of current scenario. Early Clinical Exposure (ECE) is nothing but preparing the first year MBBS students to meet and learn from the patients.

The MCI in its Vision 2015 also states that students should have Early Clinical Exposure [8]

As we have stated earlier even in our traditional curriculum at the 1st MBBS, the students are not exposed to the clinical environment and thus are not exposed to the clinical laboratory. The laboratory training is done in the undergraduate laboratory without visiting the clinical laboratory. Thus it leads to not being exposed to the actual procedure of blood collection and its processing. Students are exposed to the clinical laboratory only during their internship days. This ignorance of blood collection is carried out through out their further years of education and could also reflect in their latter years as clinicians leading to pre analytical errors in diagnostic tests. Hence we decided to expose the students to the clinical laboratory settings and determine how effective this intervention is.

Aims & Objectives

To determine the effectiveness of learning by exposing the 1st M.B.B.S students to the clinical laboratory setting during their practical class, in comparison with the traditional teaching method of conducting practicals in the undergraduate laboratory only.

Methodology

The study is an Experimental type. Ethical Clearance was taken from the Ethical clearance committee of K.J.Somaiya Medical College & Hospital. Students consent was taken before exposing the students to this project. Common Lecture cum Demonstration for a practical topic was conducted for 50 students from the must know area of the subject. 25 students were sent to the Central laboratory where they observed the complete blood collection procedure and its processing. After that they underwent the practical in the undergraduate laboratory. A feedback form was given, the validated questions had both open ended and close ended

on Likert's scale of 1-5 (strongly agreed to strongly disagreed). The remaining 25 students underwent the practical in the undergraduate laboratory. After the completion of the practical all the 50 students underwent a knowledge based test immediately so as to avoid any interaction.

The remaining 25 students who did not undergo exposure in the laboratory were also exposed and feedback taken but not included in the study.

Data collected was categorized into qualitative and quantitative. Quantitative data was the written exam analyzed by Primer of Biostatistics using the student's unpaired 't' test and close ended questions by percentage. Qualitative data by perception in open ended questions by categorizing the responses.

Results :

The results were analyzed into Quantitative and Qualitative data

Graph 1 : The perception of feedback questionnaire

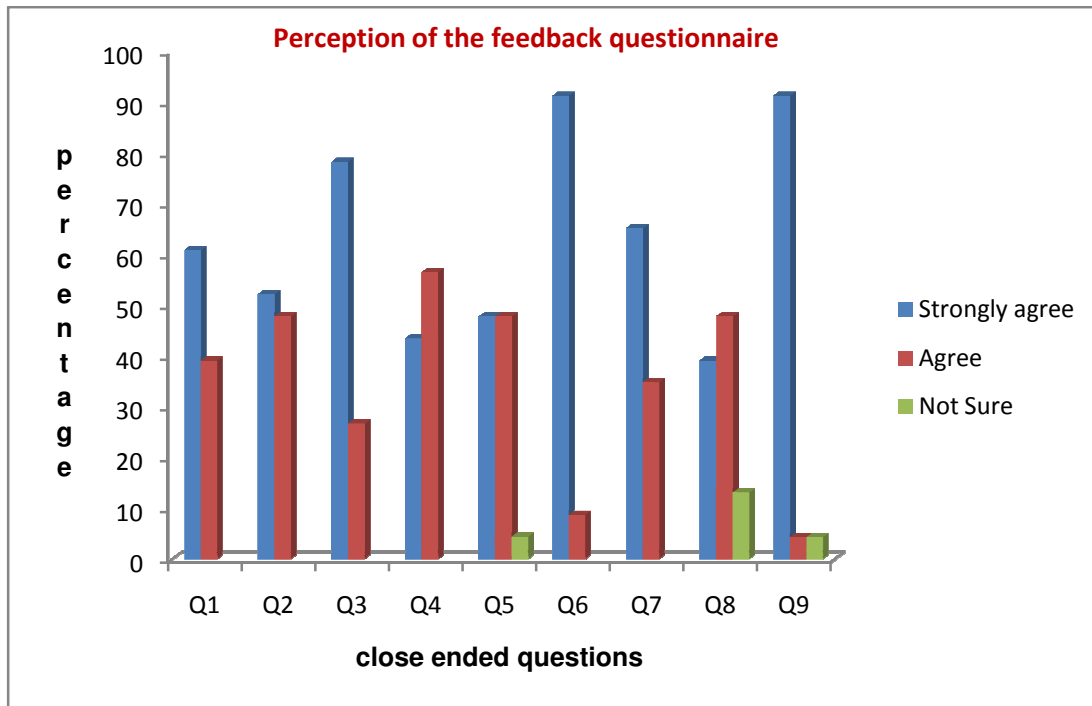


Table-1 Depicting the questions on Likert's scale of 1-5

Question No	Questions
1	ECE developed interest towards the subject
2	ECE helped towards contributing knowledge in comparisons with the traditional way
3	There was excitement while visiting the laboratory
4	You developed sensitivity towards patient's problems
5	It helped you to integrate the relevance of performing the experiment
6	This type of exposure is useful for my foundation in Medical school
7	Helped me in adapting the clinical learning environment
8	Prepared me to approach patients
9	You feel such type of interventions should be there

Table-2 Marks of the answers to the Knowledge based written exams

Group	N	Mean of written exam marks out of 10	SD
No laboratory exposure	24	4.396	1.503
Laboratory exposure	23	4.848	1.682

95% confidence interval for difference: -1.388 to 0.484

P=0.336 not significant

Qualitative Results- Perception of Open ended questions**Table 3 1.What aspect of ECE contributes towards your understanding in comparison with the normal way of learning?**

Category	Responses	A few Comments in Verbatim
Retention of knowledge	25	“ I understood the subject as it gave me a better insight”
Created Interest	18	“ Observing the technique in increased our interest more”
Adapting to clinical environment	33	“the maintenance of a stature appropriate decorum & patient friendly approach “

Table 32. Was there anything that you did not like about ECE? If so can you suggest any improvements

Category	Responses	A few Comments in Verbatim
Liked everything	23	“Everything was so good no changes to be done”
Suggestions	17	“ Number of students should be small in one batch ” “ Could be able to talk to the patient”

Discussion :

Basic sciences is the foundation of medical education but it is difficult to correlate it at the 1st MBBS level and therefore in our study 60.8% and 38.1% students strongly agreed and agreed respectively that Early clinical exposure created interest in their basic sciences and around 47.8% students equally, strongly felt & felt the relevance of studying basic sciences. 52.1% and 47.8% students strongly agreed and agreed respectively that ECE helped them towards contributing knowledge. Students statements read as "I understood the subject and gave me a better insight" and "Observing the technique created more interest"

when asked a question based on what aspect of ECE contributed to your knowledge . A similar type of study carried out by Sedighehin a survey conducted for 4 years for freshly admitted medical students at the end of their 1st semester or beginning of 2nd semester who visited the hospital, 87% felt it increased their interest in the learning of basic sciences and their application, 29% of the respondents showed that their attitudes towards basic sciences and their role in medical practice had been changed and after this program their motivation to study basic sciences had increased [9].

In a study carried out by Rezaon 45 Ist& 4th semester students,93.3% students reported that ECE helped them in maintaining interest towards medical education. 77.8% reported that they do not think of changing their field of study after passing the ECE, 29 students either strongly agreed or agreed with the statement "I do not think of fields other than medicine?".[10]

As seen in our study 78.2 % strongly agreed and 22% agreed that there was excitement while entering the laboratory and 43.4 % strongly agreed 56.5% agreed that they developed sensitivity towards patients. Similarly 65.2% and 34.7% strongly agreed and agreed that it helped in adapting to a clinical environment. These can be compared to a study carried out by Chari et al who have reported 74% students were excited even on the announcement of the visit to the wards and 16% were happy to know about it .80% students indicated that their health care visit to the wards was a rewarding worthwhile and effective experience. Out of 60% participants rated their experience as excellent and 32% as good. 87% students could link ward visit with the preclinical subjects and indicated that it increased their interest and motivated them in learning of basic medical subjects.[11]

Knowledge based test scores between control and study group are not statistically significant but there is an increase in the mean marks of the study group. similarly it is also observed in the scores of post -test OSCE for the knowledge component where there is a significant difference in control and study group in the study done by Rawekar et al [12] which is similar to our study though our knowledge

based test scores between control and study group are not statistically significant but there is increase in the mean marks of the study group.

Similar results were also shown in the study conducted by Tayde MC et al in which there was statistically significant difference in gain in the skills of students of the ECE and non-ECE group.[13]

Even in a study by Satishkumar for endocrine physiology more than 60% students felt that seeing patients helped them and over 95% of students felt that ECE helped them to understand the concepts better.[14]

In our study 91% strongly agreed and 4% agreed that there should be such types of interventions. and there were suggestions that "they could be smaller batches". In study done by Nimkuntod P et al., he stated that the experience of the students with ECE was valuable to them as a physician in clinical practice [15].

Even Duque G et al., stated in their study in which students found their posting more effective as a learning experience and expressed greater satisfaction in interactions with physicians. The grades that the students obtained in the exams showed a better and more effective acquisition of knowledge.[16]

Baheti S N et al. found that the students had increased motivation with ECE.[17]

A study where Branstetter BF et al., exposed the students to the subject of radiology revealed that Radiology had greater importance to the overall practice of Medicine and they stated that the exposure encouraged them select Radiology as a career option. They also performed better on the

test of basic radiologic knowledge, which was statistically significant [18].

The positive impact of ECE on student learning was observed in a study by Johnston and Scott 1998 [19]

Thus Littlewood has also said that Early clinical exposure can facilitate medical students rapport with patients, increase their motivation and self confidence, while helping them establish their taught knowledge. In general, this course can teach medical students how to accept their role in clinical practice [1]

Dornan T in his paper. "What can experience add to early medical education" says to conclude that early clinical experience has a strong formative influence that can be used to foster a socially responsive career orientation. [7]

Conclusion :

ECE is necessary for building the foundation for Ist MBBS students. It helps in increasing interest in the subject.. and also helps in better performance and retention of knowledge.

1. ECE is necessary for building the foundation for Ist MBBS students
2. It helps in increasing interest in the subject
3. Helps in integrating the relevance of performing the practical's and thus enhancing it's understanding.
4. ECE helps in better performance and retention of knowledge

Thus helps in adapting to clinical environment.

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