The impact of Early Clinical Exposure on First M.B.B.S. Students

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Abstract:
Introduction: Early clinical exposure ensures well integrated knowledge of the basic sciences, clinical sciences and social functions especially doctor-patient interaction. With this view the present work was planned to study the impact of ECE on students’ knowledge, skills and attitude and the perception of students and faculties towards ECE.

Material and Methods: The 120 voluntary participants were first year M.B.B.S. students who consented to undergo study. These 120 students were arranged randomly into two groups, Group A (ECE Group) & Group B (Non ECE Group). Group A was trained by using early clinical exposure method for one hour session directly in Surgery OPD by professor of surgery. Group B was trained by using traditional method (Chalk & Board) for one hour session in Department of Physiology with same topic. Both groups were tested. Knowledge was tested by MCQ sheet, Skills were tested by OSPE and attitude was tested by perception based questionnaire using likert scale. Perception of faculty were recorded by an in depth interview and analyzed qualitatively.

Observations and Results: There was found statistically significant difference in the knowledge, skills and attitude of students of two groups namely ECE Group & Non-ECE group.

All faculties (100%) agreed that ECE increases student interest in learning and increased recall capacity.

Conclusion: From present study we found early clinical exposure was better learning methodology than traditional teaching for medical students in Indian Scenario. However it was also noted that faculties believed that ECE consumes more manpower, infrastructure, time and requires extra efforts on their part. Faculties also raised concern over coordination with clinical department. All faculties agreed that some level of training may be required.

Key words: Early clinical exposure, Medical education, Traditional teaching
Education system across the world now emphasise early clinical exposure towards horizontal and vertical integration and contextual learning in the local settings. Keeping in mind the implications of ECE, Medical council of India, New Dehli, has recommended ECE in new proposed syllabus from 2015 \(^{(2)}\). Learning is a process involves improving knowledge, skill and attitude respectively with cognitive domain, pchycomotor domain and affective domain of the student. With this view the present work was planned to study the impact of ECE on students’ knowledge, skills and attitude and the perception of students and faculties towards ECE.

Materials & Methods: The 120 voluntary participants were first year M.B.B.S. students for academic year 2012 – 2013, who consented to undergo study at Pravara Institute of Medical Sciences, Loni, India. The present interventional study was approved by the Institutional ethical committee from Pravara Institute of Medical Sciences University and was conducted at department of Physiology & department of Surgery. Orientation program on ECE was conducted for the students and faculty. The students were selected by random sample technique by lottery method. These 120 students were arranged randomly into two groups, Group A (ECE Group) & Group B (Non ECE Group). The students not willing for participation were excluded from present study. The proper instructions were given to the students before beginning of session. The written consent was obtained.

Group A was trained by using early clinical exposure method for one hour session directly in Surgery OPD by professor of surgery. Clinical examination of two cases of breast cancer were discussed with students. The anatomy as well as physiology of breast was discussed along with signs and symptoms, stages of cancer and disease management. The students were allowed to clinically examine the patient under supervision of professor of surgery.

Group B was trained by using traditional method (Chalk & Board) for one hour session in Department of physiology with same topic. The topic was theoretically explained including anatomy and physiology of breast, sign, symptoms, stages of cancer and disease management etc.

Both groups were tested. Knowledge was tested by MCQ sheet, Skills were tested by OSPE and attitude was tested by perception based questionnaire using likert scale. This was followed by compilation and statistical analysis was done by using unpaired ‘t’ test with the help of SPSS software, version 11. Perception of faculty were recorded by an in depth interview and analyzed qualitatively.

Observations & Results:

Table 1) List of variables measurement scale & Method

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Measurement scale</th>
<th>Measurement method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Knowledge</td>
<td>Problem based MCQs</td>
<td>Score</td>
</tr>
<tr>
<td>2</td>
<td>Skills</td>
<td>OSPE</td>
<td>Score</td>
</tr>
<tr>
<td>3</td>
<td>Attitude</td>
<td>Questionnaire</td>
<td>Score</td>
</tr>
</tbody>
</table>
Table 2) Statistical analysis

<table>
<thead>
<tr>
<th>Scores (In bracket total score)</th>
<th>Group A ECE Group (Mean±SD)</th>
<th>Group B Non ECE Group (Mean±SD)</th>
<th>Value of ‘t’</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCQs (5)</td>
<td>4.2 ± 0.76</td>
<td>3.7 ± 0.91</td>
<td>2.38</td>
</tr>
<tr>
<td>OSPE (20)</td>
<td>17.7 ± 2.18</td>
<td>20.8 ± 2.29</td>
<td>5.28</td>
</tr>
<tr>
<td>Questionnaire (50)</td>
<td>47.8 ± 2.6</td>
<td>19.6 ± 5.6</td>
<td>25.64</td>
</tr>
</tbody>
</table>

As the calculated value of t test is greater than table value, hence null hypothesis was rejected. Therefore, there was found statistically significant difference in the knowledge, skills and attitude of students of two groups namely ECE Group and NonECE Group.

**Faculty perception:** All faculties (100%) agreed that ECE increases student interest in learning and increased recall capacity. However it was also noted that faculties believed that ECE consumes more manpower, infrastructure, time and requires extra efforts on their part. Faculties also raised concern over coordination with clinical department. All faculties agreed that some level of training may be required.

**Discussion:**

In our present study significant difference was found in score between two groups. The students exposed to early clinical exposure session benefited more than traditional learning exposed group. The faculty perceptions were also found more positive towards early clinical exposure than traditional teaching mode. Preclinical, paraclinical or clinical divide was established as the norm in medical education a century ago at a time when biomedical science was proving its ability to explain disease and provide a theoretical basis for treatment (Dornan, 2005). Nowadays, medical colleges/universities in many parts of the world are ‘vertically integrating’ practical knowledge into the first year of medical education course. The rapid pace of change in health care and medicine is giving rise to corresponding rapid changes in the content and process of medical education. The goals of medical education should be student oriented in which the student development should be along with knowledge, skills and attitude. Learning is the active process going on inside the student’s mind and teachers main role is to facilitate this learning process. A good learning involves a good communication. Bell K et al stated real patient learning led to a rich variety of learning outcomes, of which at least some medical students showed high metacognitive awareness. Bell K observed that teaching from doctor teachers found more appreciable than other teachers.

It is now becoming more commonly recognized that the traditional structure of medical education created an almost impenetrable wall between the so-called preclinical basic sciences years and the clinical postings. Changes in health care have led to experimentation by medical schools, with the introduction of clinical experience into the otherwise didactic first year. Most attempts at early clinical experiences (ECEs) have been confined to limited
patient contact in an introductory course on patient interviewing, a beginners physical examination skills course, or elective opportunities. Early clinical exposure, and the accompanying knowledge and skills development, does not replace the basic and clinical sciences, but rather enriches and contextualises that learning and offers a wider variety of teaching and learning methods.

Some of the key issues in designing a clinically relevant basic science course are:

1. Identifying clinically relevant core content and principles of understanding.
2. Developing critical thinking and reasoning skills by offering students opportunities to repeatedly apply their learning in the clinical context of patient care.
3. Encouraging students to critically think about problems of health care evaluate and incorporate new information which is a skill that they will use for the rest of their professional lives.
4. Providing opportunities for students to be sensitised to the broader context of health and health care in India and encouraging them to reflect on their role in addressing issues of health care.
5. It also increases their ability to establish rapport with the patients.

Therefore the purpose for early clinical exposure in the 1st year is to learn basic clinical skills, enhance their motivation and prepare them towards the purpose for which they entered the profession, enable students to correlate what they are learning in basic sciences by learning basics clinical skills and observing relevant disease abnormalities, encourage students to learn the professional behaviour of a doctor by observing and being mentored by a clinical teacher and provide the context for application of their learning in practice.

Spencer J et al found direct contact with patients can be seen to play a crucial role in the development of clinical reasoning, communication skills, professional attitudes and empathy. Few studies have explored this area, including effects on the patients themselves, although there are examples of good practice in promoting more active participation. Bokken et al also found similar results stating importance of patient involvement in medical education. Johnson AK reported the students' attitudes toward medical education were generally favorable, regardless of their clinical exposures.

BEME systemic review (2006) stated including, 76% of results were from descriptive studies and 24% from comparative studies. Early experience motivated and satisfied students of the health professions and helped them acclimatize to clinical environments, develop professionally, interact with patients with more confidence and less stress, develop self-reflection and appraisal skill, and develop a professional identity. It strengthened their learning and made it more real and relevant to clinical practice. It helped students learn about the structure and function of the healthcare system, and about preventive care and the role of health professionals. It supported the learning of both biomedical and behavioural/social sciences and helped students acquire communication and basic clinical skills. There were outcomes for beneficiaries other than students, including teachers, patients, populations, organizations and specialties. Early experience increased recruitment to primary care/rural medical practice, though mainly in US studies which introduced it for that specific purpose as part of a complex intervention. Educational research has shown that students who are actively
involved in the learning activity will learn more than students who are passive recipients. (14) In early clinical exposure the students actively participate in learning process.

Conclusion: From present study we found early clinical exposure was better learning methodology than traditional teaching for medical students in Indian scenario. Faculties believed that ECE consumes more manpower, infrastructure, time and requires extra efforts on their part. Faculties also raised concern over coordination with clinical department. All faculties agreed that some level of training may be required for before implementation of ECE in curriculum.

Study Limitations: This study was conducted with small sample size and single batch of students was involved.

Abbreviations:
- ECE: Early clinical exposure
- MCI: Medical council of India
- US: united States
- MCQ: Multiple choice questions
- OSPE: Observation Structured Practical Examination

References:
2. MCI MCI Booklet ; Vision 2015, downloaded from www.mci.org on 21 June 2013
6. Hitesh Mishra, Vipin Kumar, Pankaj Kumar Modi, Comparison of different teaching methodologies in a Medical college in North India. Indian Journal of Basic & Applied Medical Research; March 2013: Issue-6, Vol.-2, P. 464-469

11. Johnson, A K; Scott, C S , Relationship between early clinical exposure and first-year students' attitudes toward medical education, Academic Medicine, April 1998 ; 73: 04

