

ORIGINAL ARTICLE

STUDENTS' OPINION ABOUT USEFULNESS OF INTERACTIVE LECTURES IN CONVENTIONAL AND HYBRID CURRICULUM

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Background: Lecture is considered to be an imperative teaching methodology used for large group of students. An interactive lecture (IL) is one that maintains interest of students during lecture period by means of question and answers. The objective of this study was to compare usefulness of IL in subject of Physiology by comparison of students' perception in a conventional medical curriculum (CMC) with hybrid medical curriculum (HMC). **Methods:** It was a cross-sectional survey carried out from January 2010 to January 2011. Students' perception on usefulness of IL of Physiology was evaluated through a questionnaire filled by first year MBBS students from two medical colleges. The colleges were labelled as Group I with conventional medical curriculum (CMC) and Group II hybrid medical curriculum (HMC) that is conventional lecturing with problem based learning. Differences in responses obtained from students were interpreted by Chi-square test, and results were considered significant at $p < 0.05$. **Results:** The comparison of perception in both medical colleges indicated better understanding of subject content with the help of IL by CMC as compared to HMC ($p < 0.0072$). IL helped students of CMC to interact with each other, gain confidence, apply knowledge in clinical medicine and perform better in examinations compared to HMC students ($p < 0.001$). **Conclusion:** Lectures continue to be an important teaching tool in medical colleges with conventional teaching. In hybrid system of education their importance is debatable in terms of active and self-directed learning.

Keywords: Learning method, Interactive lecture, Conventional medical curriculum, Hybrid curriculum, Problem Based Learning, PBL

INTRODUCTION

Medical teachers stretch their extent of information and knowledge in a logical, planned, integrated and sequential manner to the students through different teaching learning methods (TL).¹ The Hybrid medical curriculum (HMC) organises conventional teaching by lectures, tutorial sessions and performance in laboratories with implementation of problem based learning (PBL).² Lectures are used for conceptual awareness of facts and figures in order to bridge knowledge gap between lecturer and audience and lecturing is a teaching tool that is well recognised and accepted by medical colleges following both conventional medical curriculum (CMC) and HMC.³ To begin with, lectures were didactic in which instructors passed on the required information in a passive tone without any participation from students. This laid down groundwork for interactive lectures (IL) where question and answers along with interaction with the lecturer is employed.³ This strategy of interaction during lecturing breaks monotony of the lecture resulting in heightened attention; students in fact said they "could actually stay awake." It has been found that students prefer to take part in discussion, enjoy and retain the topic whenever they learn during brain storming either by IL or in tutorial sessions.⁴

The subject of Physiology is part of the basic sciences, which form the foundation of coherent medical practice, hence it is required that effective teaching methodology should be applied for

understanding of students.⁴ The problems faced in facilitation of learning process during IL is attributed to a large group of students on one hand and duration of attention span which declines after 10 to 15 minutes.⁵ This calls for enquiry about place of IL and its weightage in the era of paradigm shift from teacher-centred to learner-centred approach.

The objective of our study was to compare usefulness of IL in teaching of Physiology in CMC and HMC. The knowledge gained may help the educationists to decide effectiveness of IL and establish its continuation in both educational systems.

MATERIAL AND METHODS

It was a cross-sectional questionnaire based study, after approval from Ethical Review Boards of both participating medical colleges, and was conducted from January 2010 to January 2011. The convenience sampling of one batch of first year (100 students) in HMC (Group II) was matched with distribution of questionnaire to same number of students in CMC (Group I). The questionnaire was distributed to 100 students and the complete filled responses were included. The questionnaire was designed with a 5-point Likert scale with a score of 1= strongly disagree (SDA), 2= disagree (DA), 3= neutral, 4= agree (A) and 5= strongly agree (SA) enquired about role of IL in learning of Physiology. A comparison was made between responses of students in Group I and Group II on usefulness of IL in terms of understanding of the

content, structure and functional relationship, difficult concepts, applied anatomy, perception of pathological aspects, orientation of basic science knowledge with medicine, active and self-directed learning.

Data were analysed using SPSS-15. Frequencies of responses from students were analysed by merging the responses SA and A as 'good', DA and SDA were merged and considered as 'poor' whereas neutral responses were discarded. Data were compared by Chi-square test and $p < 0.05$ was considered as significant.

RESULTS

The proportion of IL of Physiology in TL methods employed with their time frame in CMC (Group I) is shown in Table-1 which specifies 73% Physiology credit hours to lectures in comparison to rest of teaching tools like laboratory skilled and interactive sessions. In HMC despite admixture of PBL and seminars more than half of total credit hours were allotted to lectures (Table-2). The complete response of 92 students from Group I (CMC) and 87 from Group II were considered. Comparison of student responses, indicated better understanding of subject content in CMC as compared

to HMC ($p < 0.0007$). Statistically significant difference was seen in perception of role of IL in active and self-directed learning by CMC students as compared to HMC students (Table-3). HMC students were not convinced that lectures play any role in building up of confidence, interaction with the lecturer, clinical practice and performance in examination ($p < 0.001$). Both groups of medical students did not consider it useful for critical reasoning and understanding of relationship with other subjects (Table-3).

Table-1: Physiology credit hours in Conventional Medical Curriculum

Activity	Hours
Lectures	73%
Tutorials	12%
Lab Skills	15%

Table-2: Physiology credit hours in Hybrid Medical Curriculum

Activity	Hours
Lectures	54%
Interactive Sessions	7%
PBL	14%
Lab Sessions	25%

Table-3: Perception of students on lectures usefulness in two medical colleges

Parameters	Conventional Curriculum Group I, n=92		Hybrid Medical Curriculum Group II, n=87		p
	Poor	Good	Poor	Good	
Understanding of content	36	56	56	31	0.0007
Relation with other subjects	60	32	50	37	0.2872
Active learning	43	49	62	25	0.0009
Self directed learning	40	52	57	30	0.0031
Usefulness in group work	50	42	61	26	0.0298
Critical reasoning	57	35	61	26	0.2497
Presentation skills	63	29	87	0	0.0000
Interaction	47	45	87	0	0.0000
Confidence	52	40	87	0	0.0000
Better performance in examination	39	53	87	0	0.0000
Can apply the knowledge in clinical practice	55	37	87	0	0.0000

DISCUSSION

The transition of the medical curriculum from a classical didactic and discipline-based approach to integrated PBL has been adopted by many institutions around the globe and it is in process of implementation in Pakistan as well.^{6,7} The impact of change in strategies in both systems of education is part of reflective practice, initiative of which is expected to facilitate ongoing learning, understanding and improvement in constructive mental activity.^{8,9} The decision to implement, modify and discontinue a teaching strategy however is based on feedback from students, faculty and end user community who experience the curriculum.^{1,10}

Prince and Felder pointed out that guided inquiry learning which uses questions and problems to provide contexts with a sufficient level of challenge helps students to develop better thinking skills and encourages self-directed learning (SDL).¹¹ It is well

known that SDL is positively influenced by PBL components of the hybrid PBL curriculum in which students learn to see gaps in their own knowledge, their strengths and weaknesses and become more self-directed, creative, independent and collaborative in their literature search.^{12,13} This is supported by results of our study in which HMC students exposed to PBL did not agree to the role of IL in understanding of content and development of SDL ability compared to students of CMC.

PBL is an educational strategy which encourages teamwork, distributes work amongst students and helps to develop their skills, confidence by presentation in group projects and promotes deep learning among medical students.^{14,15} Our study results revealed that CMC students since were not exposed to PBL were not familiar with the concept of team based learning. Students during PBL develop the ability to transform information to knowledge with the help of a

process that involves reasoning, understanding, conceptualisation and interpretation with integration of library books and internet facilities.^{16,17} This strategy builds students' confidence which is assimilated by gathering information and asserting their opinions with relevant references independently hence concepts of development of confidence by IL was totally disagreed by students of HMC compared to CMC students.¹⁸

Active learning is viewed as a way of improving student learning in the science classroom by involving the student directly in the learning process. The students of CMC were satisfied with lecture contribution in active learning in contrast to HMC students. This is in contrast to a study in which, physical therapist students in a basic physiology course of first year perceived that they had learnt less in active learning courses (PBL) compared to lectures.⁵

Clinical teaching and learning with the help of various teaching tools is an intellectually challenging experience in which students are able to gain conceptual understanding through extensive interactive teaching. The importance of contextual relationship of lecture content with clinical and other basic subjects is required to maintain the interest of students as well as faculty members.¹⁹ Heimlich and Norland argued that the relationship among these elements depends on the situation and how 'the educator operationalises personal beliefs regarding the relationship and importance of each component'.²⁰ In our study both groups were not satisfied with the utility of lectures in understanding of relation with other subjects.

Price and Mitchell cite evidence that interactive learning is enhanced through the effective use of key teaching skills including questioning, demonstrating, providing positive reinforcement and reviewing.¹¹ Most students in CMC endorsed the effectiveness of IL with regards to focus on the core knowledge with understanding of content of physiology course. In HMC since students are exposed to brain storming exercises and questions and answers in small groups, rating of lectures as useful educational tool is much less compared to conventional teaching especially on the perspectives of SDL, active learning, teamwork and confidence building.

Lectures continue to be an essential teaching tool in medical colleges especially with conventional teaching. In hybrid system of education where PBL has enhanced the quality of medical education and the educational preparation of students to meet the challenges of future medical practice the importance of IL is debatable especially from active and SDL point of view.^{21,22} What is the future of IL in HMC, has yet to be decided, but we believe that system of education should be constructed or modified with respect to students needs, objectives, resources and learning capabilities so as to promote their confidence, understanding, test

performance and appearance in community as good and capable doctors. The information gained from students' feedback used for modification and improvement in the quality of teaching and evaluation methods can be applied in this regards as well.^{1,23} The attempts thus made can help to promote the effective learning in the subject of physiology and its alterations in disease process which can finally help in the management of patient.²⁴

The limitations of study are lack of uniformity in teaching styles of lecturers, distribution of hours in two medical colleges and the validity of questionnaire, however this is the first comparative study done to evaluate role of IL in two different curricula.

CONCLUSION

The medical students of both curricula responded to usefulness of IL in teaching of physiology in a different manner. Only students of CMC were convinced with the role of IL in understanding of core content, perception of pathological aspects, guidance towards SDL and assistance to clear the university examination. Both groups of students did not respond to its efficacy in development of critical reasoning and orientation with other subjects.

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