

The effectiveness of integrated teaching over traditional teaching in third MBBS students

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Abstract

Background: Integration in education means co-ordination in teaching learning activities to ensure harmonious functioning of the educational processes. Well-designed curriculum and good teaching methods will help students gain a body of knowledge, habit of study, and capacity of independent thinking.

Objectives: To assess the effectiveness of the integrated teaching method over the traditional teaching method among third year MBBS students.

Materials and Methods: Study was conducted on 80 students of third year MBBS, Part I. Two study groups, each of 40 students were formed. They were exposed to integrated teaching and traditional lecture method. Integrated teaching was implemented by the active involvement of medicine, pharmacology, and physiology departments. Traditional teaching was implemented by faculty of medicine department. Evaluation was done by pre-test, post-test, and feedback questionnaire of students with Likert scale.

Results: Statistically significant difference in marks was obtained in the test provided after integrated teaching when compared to traditional teaching method (significant *P*-value). 95% students felt that integrated teaching provides better understanding of subject and learning skills.

Conclusion: Results of this study suggest that integrated teaching was found more effective than traditional teaching. Integrated teaching should be introduced in undergraduate medical curriculum.

KEY WORDS: Integrated teaching, traditional teaching, teaching methodology, medical education

Introduction

Medical curriculum is very extensive and students are expected to learn many subjects at the same time. Current medical education system provides knowledge to the students in an unbalanced and disproportionate manner. Students will not develop the sufficient skills to investigate, diagnose, and treat the patient as a whole. Students absorb information passively rather than actively. Students do not develop

critical thinking, problem solving, and decision making skills. MCI has structured the innovative new curriculum, *Integration: Horizontal and Vertical*, to overcome this problem.^[1] This will facilitate horizontal and vertical integration between different disciplines. It bridges the gaps between theory and practice, and hospital based medicine and community medicine.^[1]

Integration in education means co-ordination in teaching learning activities to ensure harmonious functioning of the educational processes.^[2] Incorporation of integration in the medical curriculum can lead to improved understanding in students. Well-designed curriculum and good teaching methods will help students gain a body of knowledge, habit of study, and capacity of independent thinking. Students should become competent in different disciplines and apply their knowledge and skills rightly for the benefit of the patients and society as a whole. Teaching – learning method for medical students should be in an integrated and organized manner.

In India, some medical colleges have started integrated teaching program with student-centered case based learning

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to enhance clinical learning.^[3,4] In our institution, teachers teach medical students by the traditional method of teaching. By this method, students get segmented knowledge. The integrated teaching method provides multifocal benefits to the students, faculty, and the institution as a whole. Hence, this study was planned with the objective to evaluate effectiveness of integrated teaching in improving the knowledge of third MBBS students when compared to traditional lecture module in our institution.

Materials and Methods

A cross-sectional, interventional study was conducted in GMERS Medical College, Gandhinagar, for students of third year MBBS, Part I, of 2015-16 batch. Study was approved by Institutional Ethics Committee. A written informed consent was obtained from the students before enrolling them into the study. Total 80 students had participated in the study. After introducing about session on integrated teaching, all the 80 students were given a pre-tested questionnaire on hypertension. The questionnaire of testing the knowledge consisted of 20 multiple choice questions (pre-test). The students were divided into 2 groups as Group-1 and Group-2, having 40 students in each group. Group-1 students received integrated teaching on hypertension for 1 hour by faculties of medicine, physiology, and pharmacology. A period of 20 minutes was allotted to all faculties. Teaching learning methods used in the Group-1 were integrated teaching lecture by power-point presentation with question-answer session, a group discussion. While Group-2 students received traditional academic lecture on same topic by medicine faculty for 1 hour. Immediately after each lecture, the same questionnaire was provided to students (post-test) to assess the change in knowledge after integrated and traditional lectures. At the end of the session, evaluation of integrated teaching methodology was done by feedback questionnaire of students using Likert scale from 1 to 5. The effectiveness of study was assessed by analyzing pre and post-test questionnaires. Pre-test and post-test scores were compared. The mean knowledge scores of pre-test and post-test of both the groups were compared using t-test of students. *P*-value of less than 0.05 was considered to establish statistical significant difference between the 2 groups.

Table 4: Students' response to feedback questionnaire

Questions	Students' response (%)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Integrated lecture module provides better understanding of subject and learning skills.	76.25	18.75	5.00	0.00	0.00
It enhances student's intellectual curiosity.	70.00	16.25	7.50	6.25	0.00
It gives concept clarity.	71.25	17.50	7.00	2.50	0.00
It gives knowledge and skills that are helpful in clinical practice.	68.75	25.00	6.25	0.00	0.00
It helps in better retaining of the subject.	65.00	26.25	3.75	5.00	0.00

Results

The mean marks of pre-test are depicted in Table 1. There was no statistically significant difference found. Table 2 shows that in the pre-test of integrated group mean score was 8.275 with standard deviation of 2.136. But in the post-test of the same group, there was an improvement in the mean knowledge score 14.875 with standard deviation of 2.334. There was significant improvement in the Group-1. Table 3 shows that in the post-test, total marks obtained for traditional and integrated group were 12.625 ± 2.084 and 14.875 ± 2.334 , respectively. There was a significant improvement in marks of students of integrated group when compared to traditional group ($P < 0.00067$). At the end of the session, evaluation was done by feedback questionnaire of students using Likert scale from 1 to 5, where 1 is for strongly agree and 5 is for strongly disagree (Table 4).

Table 1: Comparison of marks obtained in the pre-test by students

Groups	Number of students	Mean	Standard deviation	<i>P</i> -value
Group 1	40	8.275	2.136	0.258
Group 2	40	7.750	1.980	

Table 2: Comparison between marks obtained in pre-test and post-test using integrated teaching

Test	Number of students	Mean	Standard deviation	<i>P</i> -value
Pre-test	40	8.275	2.136	0.002*
Post-test	40	14.875	2.334	

* Significant difference

Table 3: Comparison of total marks obtained in the test post integrated and traditional teaching

Groups	Number of students	Mean	Standard deviation	<i>P</i> -value
Group 1	40	14.875	2.334	0.0067*
Group 2	40	12.625	2.084	

* Significant difference

95% of students agreed that integrated lecture provides better understanding of subject and learning skills.

Discussion

India has the highest number of medical colleges in the world and the numbers are still increasing. Major challenge for regulatory bodies like the Medical Council of India is to balance the need for more medical colleges with the maintenance and improvement of quality standards, especially quality of teaching. To strengthen the medical education and health care system of India, MCI has reformed the medical education with integrated teaching as integral part of it.^[1] This study was planned with the objective of comparing integrated with the traditional approach with an attempt to find out possibilities of its implementation, while considering the perception of students.

There is no statistically significant difference found in the mean marks of pre-test in both the groups in the present study indicating that both the groups are equal in terms of prior knowledge of the topic. The present study revealed the significant improvement in the students with the integrated teaching approach as per the comparison of pre-test and post-test marks. The present study also revealed that the mean marks obtained by students after an integrated teaching approach was greater than the marks obtained by students after the traditional teaching method.

Integrated teaching method was found better compared with traditional teaching method in terms of improvement in marks in many Indian studies.^[5-8] One such study done by Doraisamy et al, compared these 2 teaching methodologies in first year MBBS students. The study found that the marks obtained by students with integrated method were higher than the marks obtained with traditional teaching and this difference was found to be statistically significant.^[5] Raman et al,^[6] and Kate et al,^[7] conducted study in students of second year MBBS while Kalpana Kumari et al,^[8] conducted study in students of third year MBBS, Part I, with same results.

In the present study, 95% of students agreed that integrated lecture provides better understanding of subject and learning skills. Similar results were obtained in the study done by Kalpana Kumari et al, which shows 91.8% students agreed that integrated teaching helped in appreciation and application of the basic science knowledge to health and disease. 51.7% of the students preferred the horizontal to vertical integrated teaching.^[6] They collectively concluded that integrated teaching can definitely save their time and energy and give students better insight into the subject.^[6] Another Indian study, done by Vyas et al, studied on effective integrated learning program in the first year of the medical course. The majority of students received satisfactory and more than satisfactory grades for their performance in the problem-based learning sessions. Most of the faculty members and students recommended that integrated program should be continued and extended to the parts of the curriculum.^[9]

The problem with current medical education system was very well highlighted by Haranath in his editorial.^[10] It states that "We are reluctant to revise and adapt the newly established curriculum with novel idea." Medical teachers delivered lectures and concentrated only on their subject and the students study with an only aim to pass and qualify. Integration cannot be done by individual subjects. MCI has also recognized the need for integration. Integrated teaching can succeed only through an official institutional policy.

Conclusion

Results of this study suggest that integrated teaching was found more effective than traditional teaching. Integrated teaching should be introduced in undergraduate medical curriculum.

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