



The Effectiveness of Integrated Teaching over Traditional Teaching in Second Year MBBS Students and Faculties of a Medical College in Maharashtra

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Abstract

Objectives: This study was planned to assess the effectiveness of integrated teaching method over the traditional teaching method in the Pharmacology subject in second MBBS students and faculties of a medical college.

Methods: A cross sectional interventional study was conducted in the second MBBS students and faculties for the two important topics from the Pharmacology subject.

Results: Results were of mixed nature for two different topics.

Conclusion: It was concluded that there is need of incorporating the integrated teaching method along with traditional teaching methods.

Keywords: Integrated teaching, Traditional teaching, Didactic lectures, Tuberculosis, Diabetes mellitus

Introduction

Basic science courses in medical colleges are typically taught as standalone, independently which give students a view of the parts, but not of the whole. Every discipline wants to update medical student in their own way. So in the end, it becomes responsibility of the students to correlate and integrate all the knowledge gained for diagnosis and treatment of patients. Integrated teaching is one of the most commonly used teaching - learning

methods which help in correlating the symptoms, signs, and diagnosis [1]. Integration of teaching is defined as the organization of teaching matter to interrelate or unify the subjects which are frequently taught in separate academic courses or departments. Hence, it is expected that integrated teaching sessions might be an important education strategy in medical education for the students for adequate retention of the knowledge as well as the clinical applicability of the basic sciences. This may improve students' learning abilities for better understanding of pharmacology. Integration can be done in the following ways. Horizontal integration means that two or more departments teaching concurrently merge their educational identities. Vertical integration is integration between disciplines traditionally taught in the different phases of curriculum. [2] In Competency Based Medical Education 20% of the teaching must be Integrated Teaching. So, we planned this study to implement integrated teaching module and test its effectiveness on second year MBBS students in the Pharmacology subject.

Materials & Methods

A cross-sectional, study was conducted in the Department of Pharmacology in Dr.V.N.Pawar Medical College, Nasik after taking approval from Institutional Ethical Committee.

Before study, the faculty as well as students was sensitized about the integrated teaching sessions. Learning objectives and content for two topics “Tuberculosis and Diabetes mellitus” were finalized. Preparation of Integrated Teaching Module was done in prior meetings and continuous contact by emails.

Written informed consent was taken from the students before each session. To conduct the session, students were divided into two groups. After introducing about session on integrated teaching, all the 68 students were given a pre-tested questionnaire on Tuberculosis and management. The questionnaire of testing the knowledge consisted of 10 multiple choice questions and 2 applications based therapeutic problems (pre-test). Didactic lectures on Tuberculosis were delivered to one group. The other group was exposed to multidisciplinary integrated teaching session on Tuberculosis. For the next integrated session on diabetes mellitus, the groups were swapped; the one which received didactic lectures in earlier session received multidisciplinary integrated teaching session and vice versa. To evaluate the performance of student, post test was conducted. Feedback forms were filled by the faculties and the students to know their perception.

Teaching learning methods used in the integrated teaching lecture & traditional academic lecture were power-point presentation with question answer session and group discussion. 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 Liker scale from 1 to 5. The effectiveness of study is assessed by analysing pre and post-test questionnaires. Pre-test and post-test scores were compared.

Statistical Analysis

The mean knowledge scores of pre-test and post-test of both the groups was compared using paired t-test. P-value of less than 0.05 was considered to establish statistical significant difference between the two groups. The mean knowledge post-test score between integrated and didactic teaching method was compared by using unpaired t-test.

Results

In the first session on tuberculosis (TB), 68 students participated (35 in integrated lecture and 33 in didactic lecture). In the session on Diabetes Mellitus (DM) 66 students participated (34 in integrated lecture and 32 in didactic lecture). There was significant difference between pre-test score and post-test score obtained in integrated and didactic lectures of tuberculosis and diabetes mellitus. There was no significant difference between post-test score of integrated vs traditional lecture of tuberculosis but significant difference between post-test score of integrated vs traditional lecture of diabetes mellitus. (P < 0.001).

Table 1 (a): Comparative post –test score of integrated teaching method with didactic method of TB &DM

Teaching method	Mean score (marks)	SD	SE	95% CI	
				Lower bound	Upper bound
Integrated Tuberculosis (n=35)	9.0286	2.9554	0.4996	8.01	10.04
Diabetes mellitus (n=32)	16.0313	2.4294	0.4295	15.16	16.91
Didactic Tuberculosis (n=33)	7.4545	3.0217	0.5108	6.38	8.53
Diabetes mellitus (n=30)	11.4667	1.978	0.3497	10.73	12.21

SE: Standard error; SD: Standard deviation; CI: Confidence interval

Table 1 (b): Comparative score of integrated teaching method with didactic method of TB &DM

Score	Traditional		Integrated	
	Mean score TB	Mean score DM	Mean score TB	Mean score DM
Pre-Test	3.3	2.76	3.06	3.56
Post-Test	7.46	11.46	9.0286	16.03

Feedback from students

About 80% of students believed that knowledge and skills acquired during integrated teaching could help them to perform better in clinical practice. They felt that their

doubts were better addressed and cleared in such interactive sessions. A significant proportion of students believed that more topics should be taught with the integrated methodology.

The feedback response from the students is summarized in Table 2. Maximum satisfactory index was observed for item number 1, 3, 4, 6. (>80%) The SI for different items is shown in **Table 2**.

Table 2: Response of the students on the various aspects of integrated teaching session on a 5 point Likert scale

Questions Items	1	2	3	4	5
1. The objectives of the session were clear	2.85	2.85	8.57	40	45.7
2. Time allocated for the session was not adequate	57.1	14.3	14.3	5.71	8.57
3. It covered important concepts and were helpful in achieving the objectives of the session	2.05	5.71	0.57	42.9	40
4. The clinical applications of topic were explained by the teacher (s)	2.85	5.71	2.85	71.4	17.2
5. This teaching technique encouraged my intellectual curiosity	5.71	5.71	42.9	42.9	2.05
6. The knowledge and skills acquired about this topic via this teaching technique will help me in clinical practice	2.85	5.71	11.4	57.1	22.9
7. Good understanding is achieved by this teaching technique	2.85	8.57	20	40	28.6

Scale of grading 5: Strongly agree; 4: Agree; 3: Neutral/can't say; 2: Disagree; 1: Strongly disagree. For questions 3 and 6 1: Strongly agree; 2: Agree; 3: Neutral/can't say; 4: Disagree; 5: Strongly disagree. figures in parenthesis are percentage

Feedback from the faculties

The feedback from faculty is >80% of faculties were agree that integrated teaching method is useful for good understanding and covered important concepts. So this method is very useful ; however, 10% felt that it was not useful because it was time consuming with syllabus burden.

Table 3: Response of the faculties on the various aspects of integrated teaching session on a 5 point Likert scale

Questions items	1	2	3	4	5
1. The objectives of the session were clear	-	-	-	60	40
2. Time allocated for the session was not adequate	-	10	40	10	40
3. It covered important concepts and were helpful in achieving the objectives of the session	-	-	-	60	40
4. Such teaching sessions are not very useful to cover whole medical curriculum	-	30	20	30	20
5. Good understanding is achieved by this teaching technique	-	-	-	60	40
6. This form of teaching is useful for other subjects also	-	-	-	70	30

Scale of grading 5: Strongly agree; 4: Agree; 3: Neutral/can't say; 2: Disagree; 1: Strongly disagree. For questions 2 and 8 1: Strongly agree; 2: Agree; 3: Neutral/can't say; 4: Disagree; 5: Strongly disagree, figures in parenthesis are percentage

Discussion

This study was conducted to compare the integrated teaching method to traditional (didactic) teaching method. The post-test score obtained in the integrated and traditional method of teaching was significantly more in both teaching method. There was no significant difference between two teaching methods on sessions on Tuberculosis, but the post-test score obtained in integrated lecture on diabetes was significantly more than that of traditional teaching. The reason for this high score in integrated teaching session on DM may be better understanding with correlation of basic sciences with clinical subjects that will lead to adequate retention of knowledge. Since the feedback from students as well as the faculty was in support of integrated teaching thus further evaluation with a comparison of more number of sessions is imperative to reach to some concrete conclusion. Due to time constraints, only two topics were compared for this study. This might not be adequate to assess the impact of any teaching style. Similar studies are published from different institutions of India and other countries, and it was observed that students and faculty feedback was positive for the integrated teaching as compared to the traditional teaching method, but the improvement of post-test score was not observed in every study. [3-6] In this study, faculty opined that majority of the teaching should be through the integration between different departments but more number of faculties are required for such teaching as presently the no. of faculties are very less in each private college. The need for initiation of integrated teaching as policy is a demand from various academicians in India and other part of the world. There is a need of structured module based integrated curriculum based on body organ or system which is taught by multidisciplinary faculty. The curriculum and process should be reviewed by the faculties

periodically to make changes based on previous experience.

Conclusions

Through this study, it is concluded that there is significant impact on the learning outcomes of students by integrated teaching on diabetes mellitus as compared to traditional method, but for tuberculosis session both teaching methods are equally effective. Integrated teaching learning sessions are well appreciated by students and faculties. This small intervention revealed that though the learning by integrated teaching has potential to improve the knowledge, skills, and comprehensive learning. This might be useful to improve their prescription skills and to be a better qualified health professional.

Limitations

This study has some limitations. The study was conducted in one specialty of the medical science, i.e., Pharmacology and only two topics from the whole course were selected. For comparison of teaching methodologies, it is always advisable to use the same method for multiple topics of different specialties. This should be kept in mind before generalizing the findings of this study to other specialties.

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