



IMPACT OF HORIZONTAL INTEGRATED TEACHING ON FIRST YEAR MBBS STUDENTS

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ABSTRACT **Background:** Integrated teaching is one of the most important and required part of the changes in medical education. It implies instead of compartmentalised delivery of content of topic, there is modified learning activities for interrelated subjects taught together in harmonious way. The present study is an attempt to introduce horizontal integration in the department of Anatomy and Physiology.

Aims and Objectives: To evaluate impact of integrated teaching, to compare between conventional teaching and integrated teaching, to study if integrated teaching helps students to understand the topic better.

Material and Method: A cross sectional questionnaire based study was conducted among medical students of first year M.B.B.S. Result: There was significant difference between pre and post test score of integrated method. There was a marked difference in the post test marks between traditional and integrated teaching. **Conclusion:** The new method of integrated teaching is more effective than traditional method of teaching.

KEYWORDS : Horizontal Integration, Integrated Teaching, Medical Curriculum

Introduction

Change is inevitable and constant. We always adopt changes in every aspect of life. Medical education is also not excluded from the changes and there is an expectation to bring some changes in medical curriculum. Time to time new methods is adopted in medical teaching. Integrated teaching is one of the most important and required part of these changes in medical education¹. Webster's Encyclopaedic Dictionary defines integration as "combining or co-ordinating separate elements so as to provide a harmonious inter-related whole"². Integrated teaching in medical education implies instead of compartmentalised delivery of content of topic there is modified learning activities for interrelated subjects taught together in harmonious way.³

Medical Council of India has implemented changed curriculum of first MBBS in respect to duration and content which was made from one and half year to one year course in professional year 1998.⁴ There is exponential rise in knowledge of medical subjects along with lesser duration and professional environments for first year medical students. This makes students difficult to cope up with themselves and understanding of the subject.¹ Current curriculum of first year MBBS possesses compartmentalisation, repetition, overlapping and lack of correlation of the contents which at time does not give overview and concept as whole body to the students⁵. While completing any course a student aims to complete or pass that particular year. Hence their approach is assessment oriented. So they prefer to memorise the topic instead of understanding the concept of topic due to lack of time. Such type of superficial learning may have more medical graduates but they will fail to evaluate the subject, to integrate with other subjects and applying this knowledge to understand the human body in toto⁶. Hence there is need to amalgamate multiple subjects to have better assimilation and consolidation of knowledge.

To overcome above said problem Medical council of India introduced horizontal and vertical integration in a new curriculum⁷. Horizontal integration means integration of those subjects which are taught during the same year in conventional curriculum. Basic sciences or preclinical subjects is building block of all other major paraclinical and clinical subjects. First year students are new to professional colleges, in addition to this; they require some time to do adjustments to this new environment. Introduction of horizontal integration at the level of intra-departments as well as inter-departments for same year subjects will always reduce the time consumed during first year curriculum along with other benefits of less confusion, negligible repetition and improved understanding of the topic. Various departments can join together to identify the topic and form different module for horizontal

as well as vertical integration. It is always better to introduce horizontal integration at early stages followed by forward and backward vertical integration to students.

In first MBBS course with lesser duration it is suggested to do horizontal integration in the subjects for better understanding of the topic. Anatomy and Physiology subjects are related to the structure and function of the normal human body respectively. Till now there is no integration in the department of Anatomy and Physiology in our Institute. Any learning should be enjoyable and unregimented to person so that it has long term impact. An attempt was made to introduce horizontal integrated teaching for better understanding of particular topics in Anatomy and Physiology.⁸ The present study is an attempt to introduce horizontal integration in the department of Anatomy and Physiology.

Aims and Objectives

Primary

To evaluate impact of integrated teaching.

Secondary

To compare between conventional teaching and integrated teaching
To study if integrated teaching helps students to understand the topic better.

Methodology

Type of study: A cross sectional questionnaire based study of medical students of first year M.B.B.S.

Place of Study: Department of Anatomy and Physiology, R.G.M.C. and C.S.M. Hospital, Kalwa, Thane.

Study Duration: Six months from the date of approval of IEC.

Study tool: A predesigned questionnaire adapted from previous studies with some changes to suit local environment.

Inclusion Criteria: First MBBS students present on Roll call.

Exclusion Criteria: - Those who were passed from first MBBS.

Those that were not willing to participate or did not return the questionnaire within the stipulated time.

Study Procedure:

permission of Institutional Ethics Committee before starting the study.
The objectives explained to the participants
A written informed consent was obtained from each participant
Demographic information noted.
Analysis of Integrated lecture of topic from the department of Anatomy and Physiology after discussing with the Head of the Department.
Conducted Traditional lecture.
Pre test & post test was taken
Conducted Integrated lectures by Anatomy and Physiology teacher.
Pre test and post test was taken.
Evaluation of data with appropriate statistical methods

Confidentiality of participants was maintained throughout the study.

Results:

A written informed consent was obtained from the students before enrolling them into the study. Total 56 students had participated in the study out of which 45% were female and 55% were male students. Mean age of the student was 19 years. Out of 56 students, 97% of students agreed that integrated teaching method is good practice and 95% students are saying that there is a need of IT in anatomy and physiology.

Table 1: Comparison between marks obtained in pre-test and post-test using integrated teaching

Marks of Test	Number of students	Mean	Standard deviation	P-value
Pre test of Integrated method	56	8.95	1.99	<0.00001
Post test of Integrated Method	56	16.01	2.28	

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 Standards Error of difference of mean test. P-value of less than 0.05 was considered to establish statistical significant difference between the 2 groups. Table 1 shows that in the pre-test of integrated group mean score was 8.95 with standard deviation of 1.99. But in the post-test of the same group, there was an improvement in the mean knowledge score 16.01 with standard deviation of 2.28. As p value is less than 0.00001, there is significant difference between pre and post test score of integrated method at 0.05. There was significant improvement because of integrated method of teaching.

Table 2: Comparison of marks obtained in the pre-test by students

Group teaching by	Number of students	Mean	Standard deviation	P-value
Traditional method	56	9.13	2.65	0.336
Integrated Method	56	8.95	1.99	

Table 2 shows mean marks of pre-test of traditional method and integrated teaching method. The mean knowledge scores of pre-test of both the groups were compared using Standards Error of difference of mean test. P-value of less than 0.05 was considered to establish statistical significant difference between the 2 groups. There was no statistically significant difference found between pre-test marks of traditional and integrated teaching way ($p = 0.336 > 0.05$)

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

Groups	Number of students	Mean	Standard deviation	P-value
Traditional method	56	12.99	3.24	<0.00001
Integrated Method	56	16.01	2.28	

Table 3 shows that in the post-test, total marks obtained for traditional

and integrated group were 12.99 ± 6.48 and 16.01 ± 4.56 , respectively. The mean knowledge scores of post-test of both the groups were compared using Standards Error of difference of mean test. P-value of less than 0.05 was considered to establish statistical significant difference between the 2 groups. In analysis of student's performance in assessments, it was found that there was a marked difference in the post test marks between traditional and integrated teaching as $p < 0.00001$ (table-3).

Discussion:

As integrated teaching is a need of time, introduction of it in medical curriculum is under process but it is still questionable whether it is really beneficial to the students or not. Due to reduced duration of first year MBBS students from one and half year to one year and vast syllabus of first year MBBS, integrated teaching concept come in focus. In medical curriculum it is must that the learned facts should be co-related with the present scenario. With too vast syllabus and reduced duration it is quite difficult to achieve these goals. To tackle with these problems, integrated teaching concept has to be taken in consideration¹⁰. With this study we were trying to find out the effect of integrated teaching as compared to the traditional teaching.

In our study we found statistically significant difference between the marks obtained in pre-test and post-test using integrated teaching. This indicates that there is significant improvement in students after integrated teaching. T. Muthukumar et al, Mausumi Basu et al, Vyas et al, Stalin et al, Varsha Shaha et al, Kate et al, Gulab Kanwar et al found the same result in their study. We also compared marks obtained in pre-test in integrated teaching as well as in traditional teaching. There is no statistically significant difference found in pre-test marks in integrated teaching and in traditional teaching. This shows that the previous knowledge is equal before integrated as well as traditional teaching. Varsha Shaha et al, Mausumi Basu et al reported the same findings in their study. On comparing the marks obtained by the students in the test post integrated method with the traditional method we obtained statistically significant results. This is similar to the results noted by Kate et al, Sonali Sharma et al Doraisamy R et al, Mausumi Basu et al, Varsha Shaha et al, Lalita Nikam et al, Rehana et al.

Limitations:

In this study sample size is small as we involved the students of only one batch from single institute (Intake of this institute is less).

Future:

The present study can be extended as a multicentric, phase wise study in many batches to observe the short term, intermediate and long term impact of traditional as well as integrated teaching.

Conclusion:

In this study as significant results were obtained after comparing integrated teaching with traditional teaching, it is concluded that the new method of integrated teaching is more effective than the current traditional method of teaching. Now it is necessary to introduce this new method of integrated teaching in undergraduate medical curriculum.

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