Article published online: 2020-04-22

nuJHS
Nitte University Journal of Health Science

Original Article

Effectiveness of Integrated Teaching Module among Final Year Medical students

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Received : 22-12-2015
Review Completed : 30-03-2016
Accepted : 15-04-2016

Keywords : Effectiveness, Integrated teaching, Medical Students

Access this article online
Quick Response Code

Abstract :

Background: Didactic lectures and the current practice of teaching in Medical colleges has many limitations. Correlation and integration of knowledge into practice becomes difficult in the absence of integrated teaching at appropriate levels in medical curriculum.

Aim: To assess the effectiveness of the vertical integrated teaching method among the final year MBBS students and to study the attitude towards integrated teaching.

Materials and Methods: This is a prospective study conducted among 102 final year MBBS students at a tertiary care medical college hospital in South India. The teaching was implemented by the active participation of faculty from the departments of Physiology, Pathology and General Medicine on a single topic. Students' knowledge about the subject before and after the session was evaluated by a questionnaire of 20 questions (Pre-test and Post-test). The mean score before and after the session was compared using the paired't' test. The students were also asked to give their feedback about the usefulness of this method in improving their knowledge.

Results: The mean scores before and after the session were 8.8± 2.87 and 16.88±1.23 (p value < 0.001). Majority of the students (97.1%) opined the need for integrated teaching to be a part of medical curriculum. Most of them (54.9%) felt the need for integrated teaching to be conducted monthly. On self-grading the knowledge on a scale of 1 to 10 before and after the session, the mean scores were 4.73±1.84 and 7.83±1.86 respectively (p value < 0.001). Conclusion: The integrated teaching was found to be an effective method of teaching. Medical students had a positive attitude towards integrated teaching.

Introduction

Integration in education means coordination in teaching learning activities to facilitate harmonious functioning of educational processes. [1] In the present medical education system, knowledge is gained in isolation. Each subject is taught in different blocks and the student is unable to correlate and integrate the knowledge gained in the existing medical education system. This leads to disinterest about the subject among the students. Integrated teaching is an important strategy to promote meaningful learning and efficient recall. It improves the cognitive domain about the topic. Integration ensures continuity of learning and avoids duplication and redundancy. [2] The Medical Council of India currently stresses on the need based curriculum to evoke interest among the students. [3]

Integrated teaching is an innovation which may change the outlook of teaching learning process. It aims at a holistic rather than fragmented approach to teaching which helps the student to assimilate the learned facts. [4] There are two types of integration, horizontal and vertical. Integration within the subjects being taught at the contemporary stage is called horizontal integration. Vertical integration means integration between the subjects taught at different phases of curriculum.

The present study is conducted to know the effectiveness of vertical integration module for the final year MBBS students in a tertiary care medical college hospital in South India. This new teaching learning methodology was studied to evaluate the effectiveness of integrated teaching method among medical students.

Materials and methods

This is a prospective, questionnaire based study conducted among 102 final year MBBS students at a tertiary care medical college hospital in South India. The teaching was implemented by the active participation of faculty from the departments of Physiology, Pathology and General Medicine. The students were taught the physiology of gas exchange, pathological changes, risk factors, clinical features, investigations and management of Chronic Obstructive Pulmonary Disease (COPD). As the subjects (Physiology, Pathology and General medicine) chosen belonged to first, second and final year MBBS respectively, we had targeted final year students for better understanding of the subject.

Students' knowledge about the subject before and after the session was evaluated by a questionnaire of 20 questions (Pre-test and Post-test).The questionnaire included 10 questions of medicine and 5 each of physiology and pathology. The mean score before and after the session was compared using the paired't' test. The students were also asked to give their feedback about the usefulness of this method in improving their knowledge. The data was analysed by paired t test using SPSS version 16.

Results

A total of 102 final year medical students participated in the study and feedback was obtained from all the participants. The mean scores before and after the session were 8.8± 2.87 (mean ± SD) and 16.88±1.23 (mean ±SD) respectively and the difference was statistically significant (p value < 0.001). [Table 1]

Majority of the students (97.1%) opined the need for integrated teaching to be a part of medical curriculum. Most of them (54.9%) felt the need for integrated teaching to be conducted monthly. About 28.4%, 8.8% and 7.8% of the students felt that it should be conducted once in 3 months, 6 months and annually respectively. [Table 2]

The students were asked to grade their knowledge on a scale of 1 to 10 before and after the session. The mean scores were 4.73±1.84 (mean ± SD) and 7.83±1.86 (mean ± SD) respectively, which is statistically significant (p value < 0.001). [Table 3]

Table 1 : Comparison of scores obtained by students in pre- and post-test (N=102)

Scores obtained	Mean	SD	*P* value
Pre-test	8.81	2.87	<0.001
Post-test	16.88	1.23	

Table 2 : Feedback obtained from students (N=102)

Parameter		N	%
Integrated teaching should be a part of medical curriculum	Yes	99	97.1
	No	3	2.9
Frequency of conducting integrated teaching	Monthly	56	54.9
	Once in 3 months	29	28.4
	Once in 6 months	9	8.8
	Annually	8	7.8
Usefulness of the current integrated teaching session	Useful	56	54.9
	Not useful	46	45.1

Table 3 : Comparison of self-scoring of students' knowledge pre- and post-test (N=102)

Knowledge grading	Mean	SD	*P* value
Pre-test	4.73	1.84	<0.001
Post-test	7.83	1.86	

Discussion

The goal of education in medical curriculum is to assimilate the knowledge in different principles and apply the same for the benefit of the society. The current medical education system focuses on a building principle to achieve this goal. The disadvantage of the present medical curriculum is the fragmented and disjointed approach which creates disinterest among the students. [5] The students should be introduced to integrated teaching method along with the didactic lectures. Integrated lecture is the organization of teaching matter to interrelate or unify subjects being taught in separate academic years. The medical education may become more effective by the

incorporation of this integrated method. To enhance the effectiveness of integrated teaching, the topic must be defined in terms of theme, content, sequence and relationship of contents to the learning process. This can be achieved by the coordination and adequate pre-session planning by the interdepartmental teachers. These interdepartmental pre-session activities are time consuming and needs commitment on the part of teachers and subject experts to achieve good results. [3]

We adopted vertical integration module in this study. The students were educated about the various aspects of COPD in an integrated manner. Our study showed that the mean score after the integrated teaching was better than the score obtained before the session, thereby proving that the session was effective. Study by Madhuri et al. showed that the mean score before and after the session was 6.2 and 9.6 respectively which was statistically significant (P=0.000). [1] Another study done by Tripathi et al. revealed statistically significant difference ($p<0.001$) in the mean score before and after the integrated teaching session (6.17+1.54 and 17.64+2.68 respectively). [6]

In our study, 54.9% the study participants felt that the sessions were very useful. Most of them were enthusiastic about the new teaching learning methodology and had a positive feedback about the session. In a study done by Shah et. al, 83.67% students wanted integrated teaching program for regular teaching every month. [7] Similar results were obtained by Ghosh et al, and Kumari et al. [9] In a study done by Lokendra et al, majority (95.35%) of the students felt that this method helped them to retain the subject better. [10] In a study by Raman et al, 95% of the students opined that this new methodology helped them in improving their learning. [4] Similar results were obtained in another study. [11]

According to Smith SR et al, [12] new trends in field of medical education that have been accepted globally include integrated teaching, problem based learning and self-directed learning. Basic sciences when simplified and taught with clinical principles give a composite picture to the students. [13] It prevents fragmentation of knowledge, repetition and wastage of time. It promotes interdepartmental collaboration.

There were few limitations of the study. Faculty feedback was not included in the study. Also, this new method of teaching was not compared with the conventional method of teaching.

Conclusion

Integrated teaching as a new teaching learning methodology is effective among the medical students. There was a positive response about this new innovation by the students. Integrated teaching method should be incorporated in the early phase of medical curriculum. This will enhance the effectiveness of the method in improving the cognitive and psychomotor domain of the student.

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