



Integrated Teaching Practices among 6th Semester Medical Students during Their Clinical Posting in the Community Medicine Department: A Cross Sectional Study

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ABSTRACT

Background: Integrated Teaching makes the learning more meaningful as it discusses all the different aspects of the disease together. Thus, in this study an attempt was made to introduce structured integrated practice of teaching method on Protein Energy Malnutrition (PEM) and see its effect on learning outcomes as compared to the existing method

Methodology: A quasi-experimental pre and post-test study was done among conveniently selected 119 undergraduate medical students divided in two groups.

Findings: The student group consisted of 53 participants and the mean score 7.47 (SD±1.62) in the pre-test and it improved to 9.4 (SD±1.99) in the post test. In the faculty group, there were 62 participants and the mean score was 8.18 (SD±1.68) in the pre-test and it improved to 8.95 (SD±2.07) in the post test. Both the results were statistically significant.

Conclusions: There was a significant rise in the Post-test scores in both the groups exposed to integrated teaching which establishes an improved learning outcome. Thus there is an urgent need for adopting Integrated Practice teaching for enhanced learning outcomes.

Keywords: Integrated Teaching, Protein Energy Malnutrition, undergraduate medical students

BACKGROUND

To introduce reforms in medical education is both difficult and challenging. Integrating a curriculum is a complex process. It is differentially understood and experienced by students and faculty, and can refer to instructional method, content, faculty work or synthesis of knowledge in the minds of learners. It can occur at different rates and some subjects are integrated more easily than others.¹ Maximal efforts have to be made to encourage integrated teaching between traditional subject areas using a problem based learning approach starting with clinical or community cases and exploring the relevance of various preclinical disciplines in both understanding and resolution of the problem.

Every attempt should be made to de-emphasize compartmentalization of disciplines so as to achieve both horizontal and vertical integration in different phases.²

Integration aims at giving the students a holistic instead of a fragmented outlook on his studies. Thus the topics can be presented in a more meaningful way. This overcomes the separation in the students mind between form and function of the system concerned, its diseases, their diagnosis, therapy and social and preventive aspects. 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 an integration be-

tween disciplines traditionally taught in the different phases of curriculum.³ Harden described 11 steps of the integration ladder - A tool for planning, implementing and evaluating medical curriculum.⁴

Integrated Teaching makes the learning more meaningful as it discusses all the different aspects of management of the disease together. Thus, in this study an attempt was made to strengthen the integrated practice of teaching method on Protein Energy Malnutrition (PEM) and see its effect on learning outcomes. It was a small endeavor to contribute to the existing evidence.

AIM & OBJECTIVES

The study was aimed to strengthen Integrated Practice teaching among undergraduate medical students

Specific objectives of the study included to sensitize faculties on the structured integrated teaching methods; to prepare and introduce a structured Integrated Practice Teaching method on Protein Energy Malnutrition among undergraduate medical students; and also to identify the effect of structured integrated practice method of teaching on learning outcome among the study participants as compared to the existing integrated teaching method.

METHODOLOGY

It was a quasi-experimental pre and post-test study. The study was conducted in a government medical college in South Gujarat. Study participants included a convenience sample of 119 undergraduate medical students attending the Community Medicine postings.

Initially ethical approval was obtained from the institutional review board (IRB). A sensitization workshop for faculties on Integrated Teaching was done under the Medical Education Unit (MEU) of the college. A known and established expert from the nodal centre on Integrated Practice was invited as the facilitator. Two faculties from all the departments involved with undergraduate teaching were invited as participants. A total of 42 participant faculties from 21 departments were invited, out of which 39 (93%) faculties could participate and were trained in this workshop. Four faculties currently registered for ACME were present for technical support along with the MEU coordinators. One day training workshop was conducted. The participants were divided into 4 groups and they prepared integrated practice teaching formats on Protein Energy Malnutrition,

Hypertension, Diabetes Mellitus and Diarrhoea. The format which included content, timings, T/L methods, target audience and departments to be involved was prepared in the group and presented for critiquing in front of all the participants and facilitators.

As a part of this study, two faculties from Paediatrics and 1 faculty from Community Medicine who were trained in this sensitization workshop were approached to deliver a structured Integrated Practice of teaching. The prepared structured format in the workshop on Protein Energy Malnutrition was kept as the baseline. For the comparison or control group, existing Integrated Practice of teaching by the students was carried out.

In the control batch (53 students), routine Integrated Practice (IP), already in place as an existing teaching method in the Community Medicine department was done. Two students were assigned the topic on Protein Energy Malnutrition (PEM). A self-administered pretest and post-test questionnaire was given to the students of the batch before and after their routine integrated teaching of PEM by their fellow students.

For the intervention in the second batch (62 students), 3 faculties (2 Paediatricians and 1 Community Medicine specialist) trained in the sensitization workshop developed a structured format for Integrated Practice Teaching on PEM. The format for structured IP on PEM prepared by the group in the workshop was used as the baseline. The identified faculties then addressed the second batch of students using the predesigned structured format on PEM. A self-administered pretest and post-test questionnaire was given to the students of the batch before and after the structured integrated teaching of PEM by faculties.

Pre and Post-test questionnaires were developed by an independent faculty from Community Medicine who was not involved in the workshop or had seen the Integrated Practice Teaching content to reduce bias.

Data was collected using pre-validated pre and post-test questionnaires. Data was entered in MS Excel sheet. The effectiveness of the newly designed structured integrated teaching method on learning outcome as compared to the existing integrated teaching was measured by using student's paired *t*-test in both the groups. Comparison between the two batches was done by using the unpaired student's *t*-test and conclusions were drawn based on the results.

RESULTS

The student group consisted of 53 participants. Mean score of student group was 7.47(SD±1.62) in the pre-test and it improved to 9.4 (SD±1.99) in the post test. This difference in the mean scores between post and pre-test in the student group was statistically significant (t=6.22, p=0.00) (Table 1).

In the faculty group, there were 62 participants. Mean score of faculty group was 8.18(SD±1.68) in the pre-test and it improved to 8.95 (SD±2.07) in the post test. This difference in the mean scores between post and pre-test in the faculty group was statistically significant (t=3.78, p=0.000) (Table 2)

Table 1: Difference of means between post and pre test scores of student group (n=53)

	Mean	SD	SE	t statistic	P value* (2 tailed)
Pre-test score	7.47	1.62	0.22	6.22	.000
Post test score	9.4	1.99	0.27		
Difference between post and pre test scores	1.93	2.25	0.31		

*Paired Sample t - test; SD Standard Deviation; SE Standard Error

Table 1: Difference of means of post and pre test scores in faculty group (N= 62)

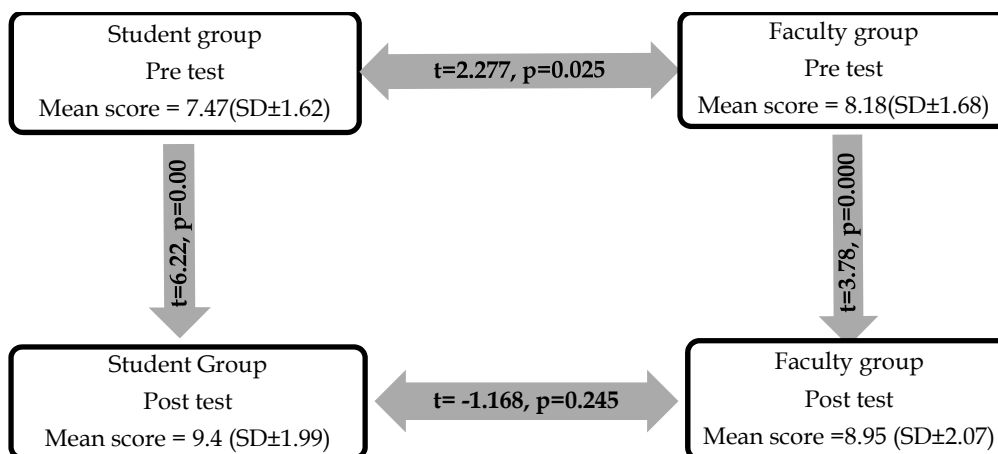
	Mean	SD	SE	t statistic	P value* (2 tailed)
Pre test score	8.18	1.68	0.21	3.78	0.000
Post test score	8.95	2.07	0.26		
Difference between post and pre test scores	0.77	1.61	0.21		

* Paired Sample t - test; SD Standard Deviation; SE Standard Error

Table 3: Relationship between the difference of means of pre and post test scores of student and faculty group

	Levene's Test for equality of variances		t test		
	F	Sig.	t	p value (2 tailed)	Std. Error of Difference
Pre test Scores	0.115	0.735	2.277	0.025	0.310
Post test Scores	0.059	0.809	-1.168	0.245	0.381

Figure 1: Inter relationship between pre and post-test scores between the student and the faculty group



The difference of means of pre test scores between the student and faculty group were statistically significant whereas in the post test, the difference was not statistically significant. (Table 3)

the Post-test scores in both the groups which establishes the need for adopting Integrated Practice teaching for better learning

The second batch of students addressed by the faculties had a significantly higher baseline score in the pre-test which might have influenced the less increase in knowledge score as compared to the students. However, there was a significant rise in

DISCUSSION

This study helped in sensitizing all the departments of the institute on Integrated Teaching methods. The involvement of all departments in

the sensitization workshop helped in developing a core trained faculty group within each department, who can carry forward the integrated teaching practice in the department. Thus the Integrated Practice teaching was strengthened.

The study also helps in developing a structured Integrated Teaching method for PEM and implementing it among undergraduate medical students. It demonstrated a significant increase in learning outcome in the post test.

The study reiterated the role of Integrated Teaching Method as an effective tool for teaching by demonstrating significantly higher scores in the post test scores in both the groups as compared to their pre- test scores.

There was a significant rise in the Post-test scores in both the groups which establishes an improved learning outcome. Thus there is an urgent need for adopting Integrated Practice teaching for enhanced learning.

Similar results were shown by R Doraiswamy et al in their study on the effectiveness of integrated teaching. They concluded that the marks obtained by students after integrated method were found to be higher than the marks obtained after conventional teaching and this difference was found to be statistically significant ($P < 0.0001$). The integrated teaching was found to be an effective method of teaching⁵. Similar conclusions were drawn by Behera et al in their study on evaluation on impact on integrated teaching. They concluded that integrated method of teaching needs to be implemented in the medical education curriculum for better understanding and best outcome which is need of the hour.⁶

The post test scores in the group taught by the faculties was not significantly higher than the group taught by the students could be due to the fact that

the methods of Integrated Practice teaching was similar.

CONCLUSIONS

The faculties of all the departments of the institute were sensitized to Integrated Practice as an effective method of teaching through a workshop. This resulted in developing a structured format of Integrated Practice teaching on PEM. This, when tested on the undergraduate medical students, was found to have a positive effect on learning outcomes. The significant rise in the Post-test scores in both the groups establishes the need for adopting Integrated Practice teaching for better learning outcomes.

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