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Original Research Article

Integrated teaching in medical education: undergraduate student's perception

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ABSTRACT

Background: Integrated teaching is an effective teaching method for the undergraduate medical students to achieve good knowledge and skills. The aim of this study was to evaluate the effectiveness of vertical integrated teaching.
Method: Vertical integrated teaching was conducted on the topic "Nephrotic syndrome" for 2nd MBBS (5th semester) students. Departments which participated in the session were from Physiology, Biochemistry, Pathology and General Medicine. Faculty from each department was allotted 20 minutes for their topic. After completion of all the topics students were given feedback forms. The opinions were tabulated and analysed.
Results: Most of the students opined that integrated teaching is useful in gaining knowledge (Understanding, concept clarity and better performance in exams) (79.7%) as well as skill-based learning (Workshops, laboratory, clinical exercises and case discussion) (84.4%).
Conclusion: The study showed that undergraduate students agreed that integrated teaching is useful for them in gaining knowledge as well as skill.

Key words: Effectiveness, Integrated Teaching, Vertical

INTRODUCTION

Subject specific learning with appropriate alignment increases the competency of a medical graduate. Here comes the importance of integration.[1] Integration is defined as organisation of teaching matter to interrelate or unify subjects frequently taught in separate academic courses or departments.[2] There is a need to teach the students by correlating the various subjects to create interest and promote active learning.[3] Before the era of mega universities in health profession due to limited number of students there was direct contact with the professor and complete discussion starting from anatomical aspects to therapeutic aspects were done at the bedside. This was a natural source of integration. As the strength of the students increased, with appearance of super specialists the learning became fragmented. Teachers engage in research activities, paper publications for their future resulting in disorganised training of undergraduate students of medicine. Reputation of the teacher depends on the number of publications rather than the quality of undergraduate or postgraduate training. In practice the outcome of nonintegrated teaching is lack of human feelings towards the patients. Drawbacks with present system of learning in undergraduate medical curriculum are unnecessary repetition, disjointed

approach to teaching and hence the subject as a whole is never grasped. This discourages students from learning and they get disinterested in applying the knowledge achieved into practice.[4] Hence, the need to reintroduce integrated approach of teaching for better learning and increasing the bond between students and teachers. Integration can be done in the following ways: horizontal integration means that departments in the same phase integrate and in vertical integration departments in different phases integrate.[5] There are many advantages of integrated teaching which includes logical order of presentation of important health problems, avoids repetition and better utilisation of teachers. However, there are some limitations, mainly it is teacher-oriented method of teaching than student oriented. In the present study an attempt was made to evaluate the student's point of view regarding integrated teaching. The aims of the study was to analyse students feedback regarding the views about integrated teaching and didactic lectures and to analyse students feedback for modifying the teaching methods and to evaluate the effectiveness of integrated teaching.

METHODS

An Institution based study was carried out at a Government tertiary care teaching Institute at Visakhapatnam. The undergraduate MBBS students of 5th semester participated in the study in the month of October 2017. The assigned faculty planned vertical integrated teaching on the topic "Nephrotic Syndrome". The departments which participated in the study were from Physiology, Biochemistry, Pathology and General medicine. The topics on which the session was conducted were Physiology of Kidney by Physiology department, Biochemical changes in Nephrotic syndrome by Biochemistry department, Pathogenesis of Nephrotic syndrome by Pathology department and Management of Nephrotic syndrome by General Medicine Department. Each session was given 20 minutes time. The teaching method commonly adopted was power point presentation and interactive sessions. One hundred and twenty-eight students participated in the study. After completion of all the topics students were given feedback forms. The feedback questions were framed keeping in mind the usefulness of integration, the understanding, appreciation and application of the gained knowledge to health and disease. A total of 15 questions was given and their opinions were recorded as strongly agree, agree, disagree and neutral. The opinions were tabulated and analysed (Annexure 1).

RESULTS

Out of 128 2nd MBBS students participated in the study majority 77 (60.2%) are girls and 51 (39.8%) are boys (Table 1). Majority of the boys (80.4%) (Table 2) and girls (79.2%) (Table 3) agreed that integrated teaching is useful for them. Few boys (5.9%) and girls (6.5%) disagreed.

Table 1: Distribution of students.

	Number of students	Percentage
Girls	77	60.2%
Boys	51	39.8%
Total	128	100%

Table 2: Average perception of integrated teaching-boys (51).

Perception	Number of boys	Percentage
Strongly agree	10	19.6%
Agree	31	60.8%
Neutral	7	13.7%
Disagree	3	5.9%
Total	51	100%

Table 3: Average perception of integrated teaching-girls (77).

Perception	Number of girls	Percentage
Strongly agree	16	20.8%
Agree	45	58.4%
Neutral	11	14.3%
Disagree	5	6.5%
Total	77	100%

Ninety two percent of students agreed that integrated lecture module provides better understanding of subject and learning skills. Four percent disagreed. Four percent have neutral opinion. Eighty six percent of students agreed that it enhances students intellectual curiosity. Two percent of students disagreed the same. Ninety four percent of students agreed that it gives concept clarity. Ninety one percent of students agreed that it gives knowledge and skills that are helpful in clinical practice. Eighty seven percent of students agreed that it helps in better retaining of the subject. Eighty one percent of students agreed that integrated teaching is preferred over traditional teaching. Sixty nine percent of students agreed for regular incorporation integrated teaching in routine curriculum. Ten percent of the students disagreed the same. Many students agreed to have more interactive sessions (77%), more workshops (75%) and laboratory and clinical exercises (90%) in integrated teaching. Seventy eight percent of students agreed that it is more useful for university exams. Sixty one percent of students agreed to have more time allotted for each topic. Sixteen percent of students disagreed the same. Seventy percent of students preferred horizontal integration than vertical integration.

Fourteen percent of students preferred vertical integration. Eighty seven percent of students agreed that it should be in the form of case discussions with emphasis on differential diagnosis, approach and management. Seventy five percent of students agreed that it reduces the amount of time needed for study (Table 4) (strongly agree and agree are put together as agreed).

Table 4: Question wise perception of students.

Questions	Strongly agree	Agree	Neutral	Disagree
Integrated lecture module provides better understanding of subject and learning skills.	42 (32.8%)	76 (59.4%)	6 (4.7%)	4 (3.1%)
It enhances students intellectual curiosity.	28 (21.9%)	83 (64.8%)	14 (10.9%)	(2.4%)
It gives concept clarity.	42 (32.8%)	79 (61.7%)	7 (5.5%)	(0%)
It gives knowledge and skills that are helpful in clinical practice.	42 (32.8%)	75 (58.6%)	9 (7%)	2 (1.6%)
It helps in better retaining of the subject.	36 (28.1%)	76 (59.4%)	14 (10.9%)	2 (1.6%)
Integrated teaching is preferred over traditional teaching.	29 (22.7%)	75 (58.6%)	16 (12.5%)	8 (6.2%)
Integrated teaching can be regularly incorporated in the routine curriculum.	24 (18.8%)	66 (51.6%)	25 (19.5%)	13 (10.1%)
Integrated teaching should have more interactive sessions.	26 (20.3%)	72 (56.3%)	21 (16.4%)	9 (7%)
Integrated teaching should include more workshops.	21 (16.4%)	75 (58.6%)	25 (19.5%)	7 (5.5%)
Integrated teaching should include laboratory and clinical exercises.	44 (34.4%)	71 (55.5%)	9 (7%)	4 (3.1%)
Integrated teaching is more useful for university exams.	25 (19.5%)	75 (58.6%)	24 (18.8%)	4 (3.1%)
Integrated teaching should have allotted more time for each topic.	18 (14.1%)	60 (46.9%)	30 (23.4%)	20 (15.6%)
Integration of topics related to same semester is preferred over integration of topics from 1st to final MBBS.	40 (31.2%)	50 (39.1%)	20 (15.6%)	18 (14.1%)
Integrated teaching should be in the form of case discussions with emphasis on differential diagnosis, approach and management.	45 (35.2%)	67 (52.3%)	12 (9.4%)	4 (3.1%)
Integrated teaching reduces the amount of time needed for study when compared to lectures.	32 (25%)	63 (49%)	26 (20.7%)	7 (5.3%)

Table 5: Overall perception of students regarding vertical integrated teaching.

	Strongly agree +agree	Neutral	Disagree
Understanding, concept clarity and better performance in exams	102 (79.7%)	18 (14%)	8 (6.3%)
Workshops, laboratory, clinical exercises and case discussions	108 (84.4%)	15 (11.8%)	5 (3.8%)

Most of the students opined that integrated teaching is useful in gaining knowledge (Understanding, concept clarity and better performance in exams) (79.7%) as well as skill based learning (Workshops, laboratory, clinical exercises and case discussion) (84.4%) (Table 5).

DISCUSSION

The aim of education in medical curriculum is to help students to assimilate knowledge and skills in different disciplines and apply rightly for the benefit of the patients and society as a whole. The current system of education follows a building principle to achieve this end. Fragmented approach of teaching is the sole disadvantage in the present system of education. This disjointed learning creates disinterest among the students and knowledge gained is not put into practice.[6] The disadvantages of such a system are unnecessary repetition, confusion in students mind leading to failure of grasping the subject of medicine as a whole. Curriculum integration therefore evolved as an important strategy in medical education.[7] Integrated teaching is an innovative feasible education program to meet the current demands of training medical students. This kind of education provides an opportunity for the medical students to assimilate biomedical science into their clinical practice. By teaching basic sciences in the higher semesters when the students clinical reasoning and the analytical skills are more mature, students can get more meaningful understanding of the pathophysiology of the disease.[8] The present integrated teaching program on "Nephrotic syndrome" is an attempt to introduce vertical integration. In the present study we found that the students agreed that integrated teaching is a good method of teaching when compared to didactic method. This method got a positive response, seventy seven percent of students felt it is interesting even though thirteen percent of students felt it was boring and monotonous. Seventy percent of students felt that horizontal integration is better than vertical integration. Seventy nine percent of students felt that integrated teaching helps in having clear concept of the topic with better understanding, less

fragmentation, reduces repetition and less time consuming. The above observation were similar to other studies in literature.[5,9,10-13] In the studies by Kalpana Kumari MK et al, Lohitshwa R et al, Kate M et al, felt that it was time consuming.[14-16]. In the study by Shilpa K et al 11.11% students felt integrated teaching is boring and 50% felt that it is time consuming.[17] Ismail S et al, opined that lecture class is age old method of teaching, conveying facts with data is one way communication and make students passive learners.18Small group learning with a facilitator which transforms knowledge into practical situation should be incorporated more in integrated teaching. This method triggers from the problem case learning to problem solving and critical learning. In the present study workshops, laboratory, clinical exercises and case discussions were preferred in 84.4% of students over lecturing method. In the present study the suggestions offered by students were to give more time for each speaker and give some break time to concentrate more on all topics.

CONCLUSION

The study showed that undergraduate students are interested in integrated teaching as it is useful for them in better learning of a given topic. Students wanted more workshops and practical classes than lectures in integrated teaching.

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Annexure 1: Questionnaire- Tick against proper option.

Sr. no.	Question	Strongly agree	Agree	Neutral	Disagree
1.	Integrated lecture module provides better understanding of subject and learning skills.				
2.	It enhances student's intellectual curiosity.				
3.	It gives concept clarity.				
4.	It gives knowledge and skills that are helpful in clinical practice.				
5.	It helps in better retaining of the subject.				
6.	Integrated teaching is preferred over traditional teaching.				
7.	Integrated teaching can be regularly incorporated in the routine curriculum.				
8.	Integrated teaching should have more interactive sessions.				
9.	Integrated teaching should include more workshops.				
10.	Integrated teaching should include laboratory and clinical exercises.				
11.	Integrated teaching is more useful for university exams.				
12.	Integrated teaching should have allotted more time for each topic.				
13.	Integration of topics related to same semester is preferred over integration of topics from 1st to final MBBS.				
14.	Integrated teaching should be in the form of case discussions with emphasis on differential diagnosis, approach and management.				
15.	Integrated teaching reduces the amount of time needed for study when compared to lectures.				