IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 15, Issue 2 Ver. IV (Feb. 2016), PP 44-48
www.iosrjournals.org

Change In Teaching-Learning Strategy Can Produce A 'Basic' Doctor

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Abstract: *The greatest concern expressed is that the medical curriculum is not in tune with the health needs of the society. There is overemphasis on the acquisition of knowledge as against development of skills and attitudes, lack of integrated approach to teaching-learning, outmoded assessment system that lacks validity, reliability and transparency. The objective of the study isto evaluate the effectiveness of the Case-Based Integrated Teaching (C-BIT) Model.This was a prospective study, carried out for undergraduate medical students at a Deemed University from Feb 2011 to July 2013. Ten C-BIT sessions were conducted for the students posted for clinical teaching in Department of Surgery.The evaluation strategy included:(a) Concept Map (b) Short Answer Questions (c) Case Presentations (d)Overall Performance.The difference in the scores obtained for formulation of the Concept Map, case presentations and overall performance in C-BIT and traditional teaching groups was highly significant,but for Short Answer Questions was not statistically significant.Case-Based Integrated Teaching improves the correlation of clinical and basic medical sciences in medical education, thereby increasing learner's interest and efficacy by providing an early clinical experience for undergraduate students. This model will help us to have the much needed 'Basic' doctor having a holistic approach to health care.*

Keywords: *C-BIT; Basic doctor; traditional teaching*

I. Introduction

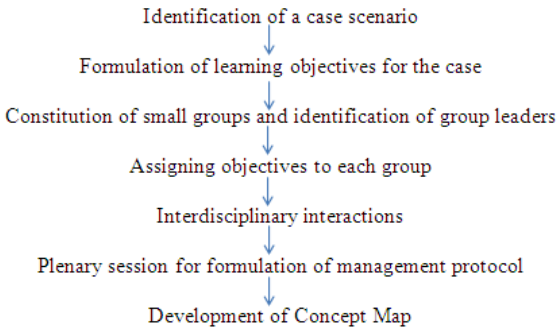
The basic objective of medical education in the country is to educate the students regarding health, which includes physical, mental, social and spiritual wellbeing. However, the greatest concern expressed is that the medical curriculum is not in tune with the health needs of the society. There is overemphasis on the acquisition of knowledge as against development of skills and attitudes, lack of integrated approach to teaching-learning, outmoded assessment system that lacks validity, reliability and transparency.[1,2] The traditional didactic lectures are criticized as 'spoon-feeding' and being overloaded with information that may not be relevant. Tutorials can be effective only if the students are prepared for the concerned topic. [3] The National Health Policy 2002, suggested a need-based, skill-oriented syllabus, with a more significant component of practical training.[4]Currently, the academic framework is consistent with the traditional approach and not in tune with modern developments and paradigm shifts in the teaching-learning process. Internship is just a formality, without any monitoring system and lack of formal assessment of students on completion of internship.[5] Medical Education in India remains a process of training "the doctors of tomorrow with today's curriculum and yesterday's teaching-learning methods".[6]

Objective

To evaluate the effectiveness of the Case-Based Integrated Teaching (C-BIT) Model.

II. Materials And Methods

This was a prospective study, carried out for undergraduate medical students at a Deemed University from Feb 2011 to July 2013. The study was approved by the Institute Ethics Committee. There were 2 groups of students: Group A: Case-Based Integrated Teaching (164 students) and Group B: Traditional Teaching (164 students). The C-BIT sessions were conducted for the students posted for clinical teaching in Department of Surgery.



Two C-BIT sessions were conducted in each semester (Total of 10 sessions). The evaluation strategy included: (a) Concept Map (b) Short Answer Questions (c) Case Presentations (d)Overall Performance. The findings were analyzed using appropriate statistical tests.

III. Results

- A total of 10 C-BIT sessions (2 in each semester) were conducted from February 2011 to July 2013.
- 328 students were included in the study (Group A: 164 students; Group B: 164 students).

Table 1: Participants

Sr. No.	Period	C-BIT (Group A)	Traditional Teaching (Group B)
1	Feb 2011 to July 2011	33	33
2	Aug 2011 to Jan 2012	33	33
3	Feb 2012 to July 2012	31	31
4	Aug 2012 to Jan 2013	32	32
5	Feb 2013 to July 2013	35	35
	TOTAL	**164**	**164**

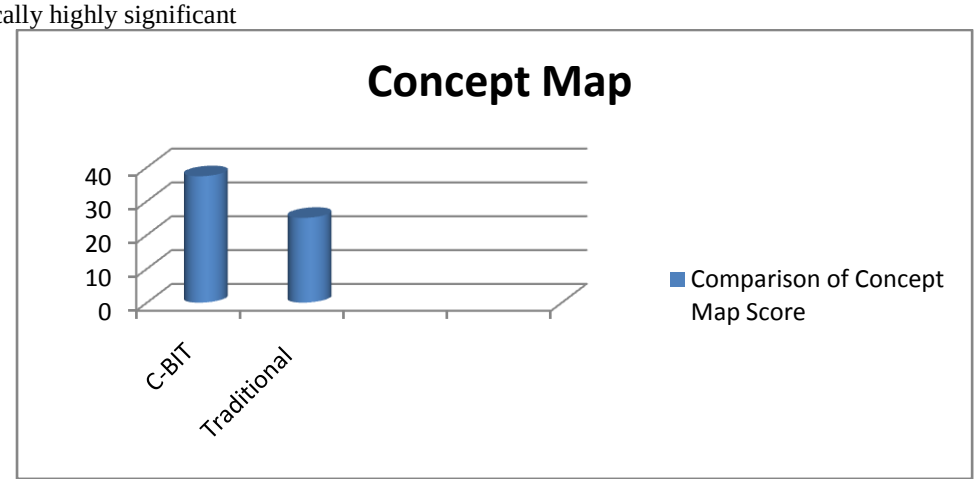
Table 2 : C-BIT Sessions

Sr. No.	Period	Session	Topic
1	Feb 2011 to July 2011	(1) (2)	Hernia Cholelithiasis
2	Aug 2011 to Jan 2012	(3) (4)	Oral Malignancy Blunt Trauma Chest
3	Feb 2012 to July 2012	(5) (6)	Hydrocele Varicose Veins
4	Aug 2012 to Jan 2013	(7) (8)	Acute Appendicitis Urinary Retention
5	Feb 2013 to July 2013	(9) (10)	Gastro-Oesophageal Reflux Disease Renal Calculus

Table 3: Comparison of Concept Map Scores in C-BIT and traditional teachinggroups

	C-BIT Mean±SD	Traditional Mean±SD	MW Test Z Value	P Value
Concept Map Score	37.36±3.17	25.05±3.49	15.38	<0.0001

Statistically highly significant

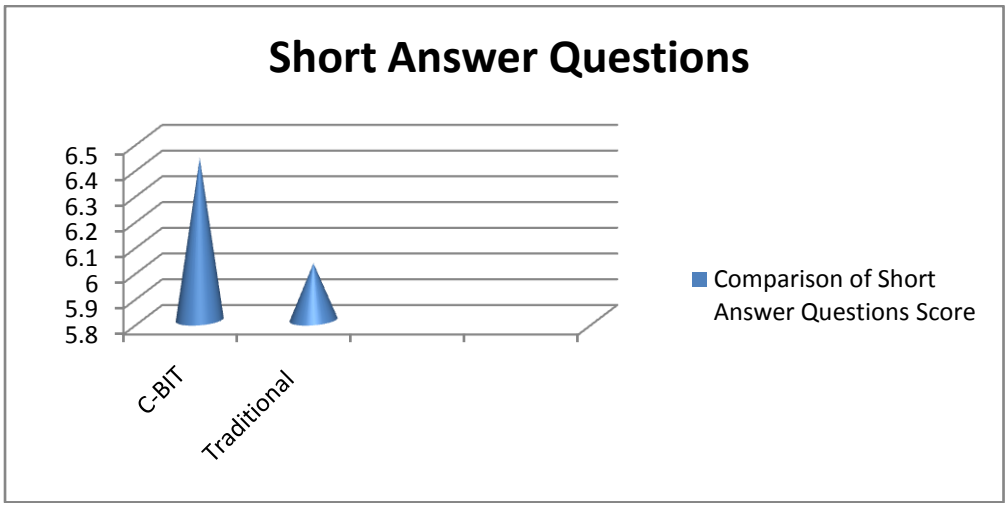


The difference in the scores obtained for formulation of the Concept Map in C-BIT and traditional teaching groups was highly significant, indicating that the C-BIT approach helps in the development of a logical analytical solution to a clinical problem.

Table 4: Comparison of Short Answer Questions Scores in C-BIT and traditional teaching groups

	C-BIT Mean±SD	Traditional Mean±SD	MW Test Z Value	P Value
Short Answer Questions Score	6.43± 3.10	6.02±1.29	0.40	>0.05

Statistically not significant

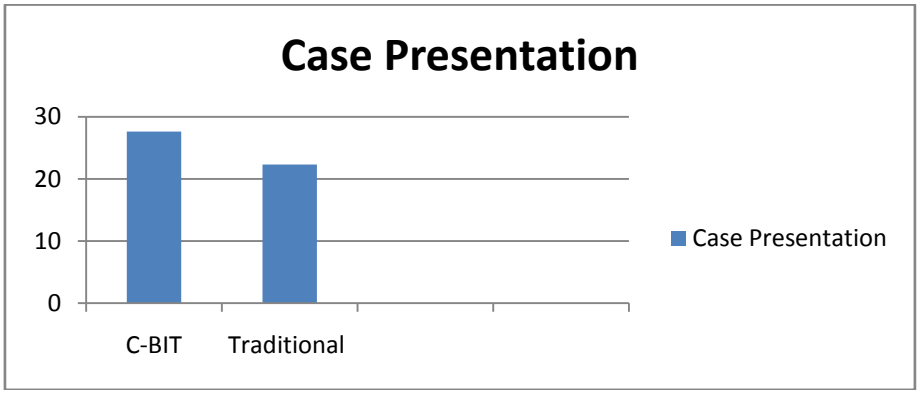


The difference in the marks obtained for Short Answer Questions in the C-BIT and traditional teaching groups was not statistically significant.

Table 5: Comparison of Case presentation scores in C-BIT and traditional teaching groups

	C-BIT Mean±SD	Traditional Mean±SD	MW Test Z Value	P Value
Case Presentation Score	27.64±2.56	22.31±3.29	12.49	<0.0001

Statistically highly significant

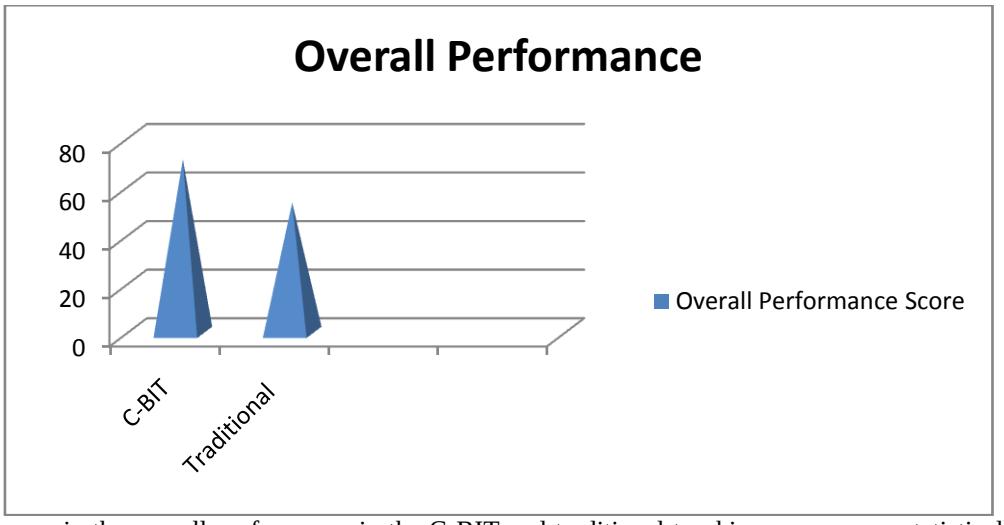


The difference in the scores obtained for the case presentations in the C-BIT and traditional teaching groups was statistically highly significant, indicating that the C-BIT approach improves logical thinking and helps to arrive at a differential diagnosis with a scientific rationale.

Table 6: Comparison of overall performance scores in C-BIT and traditional teaching groups

	C-BIT Mean±SD	Traditional Mean±SD	MW Test Z Value	P Value
Overall Performance Score	71.29±4	53.45±5.34	15.27	<0.0001

Statistically highly significant



The difference in the overall performance in the C-BIT and traditional teaching groups was statistically highly significant.

IV. Discussion

Medical education basically aims at producing medical personnel having sound clinical competencies and a community orientation, together with proficient communication skills. A student-centric approach will make the teaching- learning experience more enjoyable and the subsequent use of knowledge base more effective. Identification of core competencies for the curriculum and promotion of interdisciplinary interactions is the need of the hour. Age-old teaching method is the classroom didactic lecture with chalk and blackboard. This type of teaching now appears out-dated and puts the student at a lower pedestal without inculcating creative thinking. Traditional teaching in medical education provides piecemeal information in watertight compartments. Knowledge learnt in isolation is rapidly forgotten. System-wise integration with a case-oriented approach will help a student to understand better and correlate in context of real time situations.[7]

Case-Based Integrated Teaching (C-BIT) was first developed at Taipei Medical University. It is a series of teaching manuals centred on core patients with major diseases that combine knowledge from various disciplines. Faculty can regulate their curricula, and integrate a C-BIT 'case' into their teaching method , where it can be coordinated with small group discussions and didactic classes. The students can address an integral picture of the whole patient instead of separate views of diseased organs.[8]

Case-based teaching in medical education was first applied by Anatomy department of a medical school in Newfoundland.[9] It is a total pedagogical approach to education that focuses on helping students develop self-directed learning skills. Students use 'triggers' from the problem case or scenario to define their own learning objectives. Subsequently, they do independent, self-directed learning before returning to the group to discuss and refine their acquired knowledge. Currently, the Barrow's model is followed.[10]Case-based learning facilitates greater understanding and integration of basic and clinical sciences. It improves retention and recall of information, encourages and strengthens hypothetico - deductive reasoning.[11]

Newman [12] indicated that the problem-based approach to teaching employs more productive approaches to study and brings about greater satisfaction amongst students. Chan *et al*[8]advocated that C-BIT can be used to improve the curriculum integration, minimize the duplication in the teaching material and enhance communication through coordination of meetings among faculty members of different departments. In the study by Jamkar*et al*[11], the students exposed to C-BIT showed statistically significant results in performance evaluated by Short Answer Questions and Concept Map evaluations. Our study had similar results, with case presentation also being incorporated for evaluation.

There have been a number of studies in medical education regarding the benefits of team-based learning in an integrative curriculum.[13]Norman and Schmidt[14] found that students taught with case- based learning curricula were superior in knowledge retention, but inferior in overall knowledge and competence, when compared with students taught by traditional curricula. Vernon and Blake[15]concluded that case- based approach reflected a better approach and class attendance of students. Nandi *et al*[16]report that students exposed to case-based learning find their course more enjoyable and demonstrated better interpersonal skills compared with traditionally trained students. The Medical Council of India has stressed upon the need for 'integration'. It is now necessary that all Universities adopt and implement appropriate curricular reforms at the earliest.

V. Conclusion

Case-Based Integrated Teaching improves the correlation of clinical and basic medical sciences in medical education, thereby increasing learner's interest and efficacy by providing an early clinical experience for undergraduate students. This model will help us to have the much needed 'Basic' doctor having a holistic approach to health care.

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