

Original article

“PERCEPTION ON INTEGRATED TEACHING APPROACH IN MEDICAL EDUCATION AMONG UNDERGRADUATE MEDICAL STUDENTS”

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Background: Integrated teaching among undergraduate medical students is an educational approach that combines various disciplines of medicine, into a cohesive curriculum. This approach fosters critical thinking, problem-solving skills, and prepares students for the complexities of healthcare practice. **Aim and Objective:** To study the perception on Integrated teaching approach in medical education among undergraduate medical students and to compare Integrated teaching over traditional classroom teaching. **Materials and Methods :** A cross-sectional study was undertaken employing a self-administered, semi-structured questionnaire, which underwent standardization through testing with 50 medical students. Following Ethical Clearance from the Institutional Ethical Committee, the questionnaire was formatted into Google Forms and distributed among medical students via social media platforms. The study spanned from February 15, 2023 to May 15, 2023. Participant responses were recorded for subsequent analysis, with a total of 454 students contributing to the study. The research aimed to explore various facets, including participants' demographic profiles, perceptions of the Integrated Teaching (IT) approach, suggestions for enhancing IT, and alternative teaching methodologies. **Results:** This study involved 454 participants, with a gender distribution: 202 males (44.5%) and 252 females (55.5%). The average age of the participants was 21.5 years, with a standard deviation of 1.5 years. Regarding academic year distribution, 26.44% were in their 1st year, 24.89% in their 3rd year, 24.45% in their 2nd year, and 24.22% in their 4th year. Regarding perception on Integrated Teaching (IT), 83.7% of participants held favourable views towards Integrated Teaching (IT) methodologies, more than half, 63.9% preferred it over traditional teaching methods, while 36.1% did not. The preference for Integrated Teaching was consistent across genders, with 44.82% of males and 55.18% of females, and this difference was not statistically significant ($p < 0.848$). Furthermore, a significant portion of participants expressed a desire to enhance Integrated Teaching. This included increasing the frequency of topics and classes related to Integrated Teaching. Additionally, participants recommended incorporating various teaching methods alongside Integrated Teaching, such as seminars (68.9% of respondents), group discussions (55.7%), and interactive sessions (45%). **Conclusion:** Overall, the study underscores the importance of considering student

preferences and suggestions in the design and implementation of educational methods, particularly in promoting effective learning experiences through Integrated Teaching. Further research and exploration in this area could provide valuable insights for educational practitioners and policymakers.

Keywords: Integrated teaching , Perception , Medical Students

INTRODUCTION

Integration refers to the organization of teaching materials to connect or unify subjects typically taught separately in academic courses or departments. In the past, integration occurred naturally due to the limited number of universities and students in the medical field. During that time, direct contact with faculty members facilitated comprehensive discussions ranging from anatomical to therapeutic aspects at the bedside.

However, with the increasing intake of medical students each academic year and the establishment of medical universities and specialized departments in every medical college, teaching and learning activities have become fragmented (1). Faculty members are now heavily involved in research activities and publications, as their designation and salary often depend on the quantity of publications and their h-index scores rather than the quality of teaching.(2)

The lack of integration in teaching adversely affects the quality of education and students' empathy towards patients. This discourages students from learning and applying their knowledge in practice. To address these issues, the National Medical Commission (NMC) in India implemented the Competency-Based Medical Education (CBME) curriculum in August 2019 (3). This curriculum emphasizes the use of an integrated teaching approach to integrate topics vertically or horizontally across different phases of the curriculum, facilitating a clearer and easier understanding of concepts.

Integrated teaching fosters stronger bonds between students and teachers and promotes the integration and linkage of learning across disciplines. Horizontal integration (within phases) aims to eliminate redundancy and promote interconnectedness within phases, while vertical integration (across phases) emphasizes the practical application of basic science concepts in earlier phases and builds upon prior knowledge in later phases.

Considering these factors, the present study aims to investigate the perception of integrated teaching approaches in medical education among undergraduate medical students.

OBJECTIVE:

- 1) To study the perception on Integrated teaching approach in medical education among undergraduate medical students
- 2) To compare Integrated teaching over traditional classroom teaching

MATERIALS AND METHODS:

A Cross - sectional study was conducted among undergraduates (UG) MBBS students of a tertiary level teaching Institute in North Karnataka from February 15, 2023 to May 15, 2023. Study participants included MBBS Phase I,II,III Part-I & II students. A Universal sampling method was employed to select study participants. A self-administered, semi structured questionnaire which was standardized with a sample of 50 students, was used for data collection. Following Institutional Ethical Clearance, the questionnaire was converted into Google Forms and distributed to medical students through social media platforms. Students who gave consent for the study after reading information sheets were given access to fill the questionnaire. Exclusion criteria were applied to students who were not willing to participate. The questionnaire includes the following sections

- A. Demographic profile of the study participants
- B. Perceptions of Integrated Teaching (IT) approach
- C. Suggestions for enhancing IT approach and Alternative teaching methodologies

To collect data on perceptions of the Integrated Teaching (IT) approach, Likert scale questionnaires were utilized. For gathering suggestions to enhance the IT approach and explore alternative teaching methodologies, respondents were prompted to select appropriate options using a tick-box format. Subsequently, the collected data was inputted into Microsoft Excel and analysed using a combination of Google Forms, Microsoft Excel, and SPSS (trial version 26.0). Statistical analysis included calculating percentages for qualitative data and determining mean values \pm standard deviation (SD) for quantitative data. To examine the association between variables, the Pearson Chi-square test was employed.

RESULTS: In our study, there were 454 participants, with 202 (44.5%) being male and 252 (55.5%) females. The mean age of the participants was 21.5 years, with a standard deviation of 1.5 years.

Out of 454 students, 120 (26.44%) were in their 1st year, followed by 113 (24.89%) in their 3rd year and 111 (24.45%) in their 2nd year and 110 (24.22%) in their 4th year

Perceptions of Integrated Teaching (IT) approach

Perceptions of the Integrated Teaching (IT) approach were evaluated using a Likert scale. On average, more than two-thirds (>65%) of the 454 participants expressed a favourable perception of Integrated Teaching. Details are provided in Table 1.

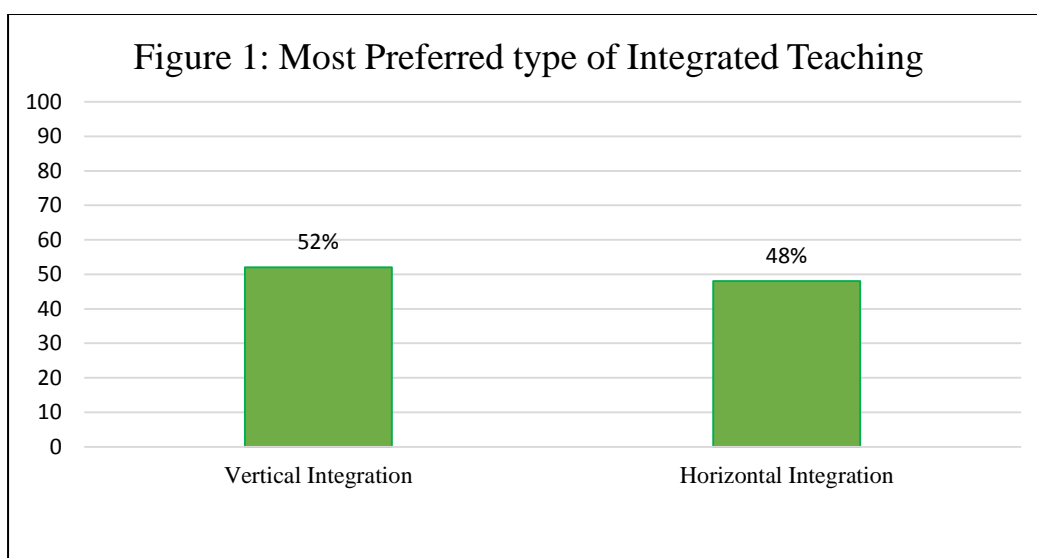
Table 1: Perception on Integrated teaching approach among study participants

Particulars (n=454)	Strongly agree	Agree	Neutral	Disagree
	n (%)	n (%)	n (%)	n (%)
Integrated lecture module provides better understanding of subject and learning skills.	180 (39.6)	140 (30.9)	79 (17.4)	55 (12.1)
Integrated teaching reduces the amount	154	156	110	34 (7.5)

of time needed for study when compared to lectures.	(33.9)	(34.4)	(24.2)	
Integrated teaching improves the performance in exams.	152 (33.5)	180 (39.6)	88 (19.4)	34 (7.5)
There was an actual integration of the given topics between departments	108 (23.8)	195 (43.0)	84 (18.5)	67 (14.7)
The topics discussed during integrated sessions were relevant.	112 (24.7)	202 (44.5)	80 (17.6)	60 (13.2)
Integrated teaching should have allotted more time for each topic.	180 (39.6)	140 (30.9)	78 (17.2)	56 (12.3)
Integrated teaching should have more interactive sessions	187 (41.2)	142 (31.3)	85 (18.7)	40 (8.8)
Integrated teaching should include laboratory and clinical exercises.	111 (24.4)	232 (51.1)	84 (18.6)	27 (5.9)
Integrated teaching should be in the form of case discussions with emphasis on differential diagnosis, approach, and management.	98 (21.6)	246 (54.2)	65 (14.3)	45 (9.9)
Integration of topics related to same semester is preferred over integration of topics from 1st to final MBBS.	187 (41.2)	139 (30.6)	79 (17.4)	49 (10.8)
Integrated teaching can be regularly incorporated in the routine curriculum.	222 (48.9)	148 (32.7)	45 (9.9)	39 (8.5)

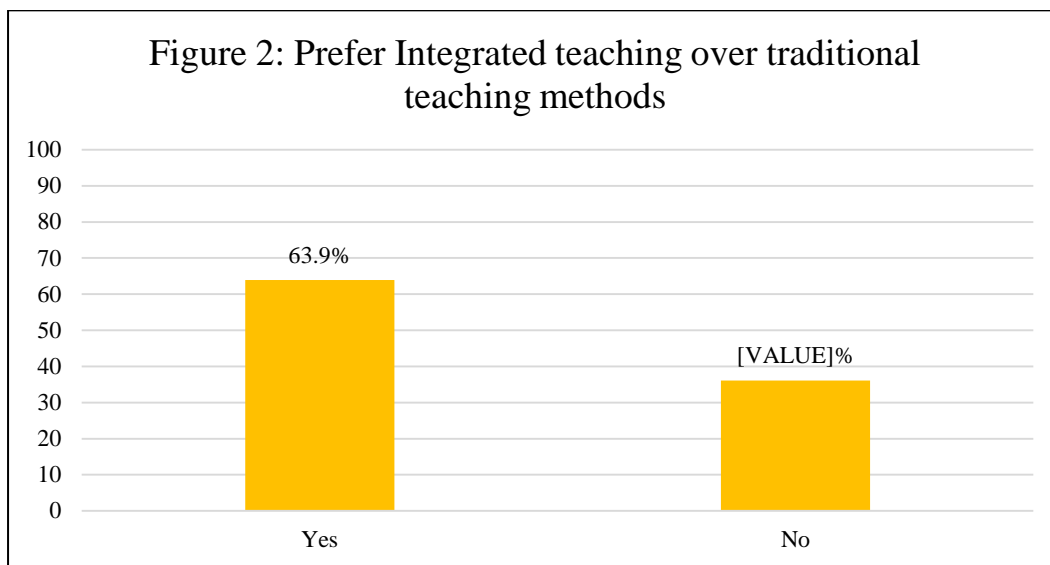
When queried about the most preferred type of Integrated Teaching (IT), 52% expressed a preference for Vertical Integration, while 48% favoured Horizontal Integration . (Figure 1)

Figure 1: Preference on type of Integrated teaching among study participants



Among the study participants, 290 (63.9%) preferred Integrated teaching over traditional teaching while 164 (36.1%) did not (Figure:1).Among them, 130 (44.82%) males and 160 (55.18%) females preferred Integrated teaching over traditional teaching methods and this association using Chi-square test was not found to be statistically significant ($p < 0.848$) (Figure 2)

Figure 2: Preference on Integrated teaching over traditional teaching methods among study participants



Overall perception on IT approach among the study participants was assessed. Out of 454 students surveyed: 282 students (62.11%) strongly agreed, 98 (21.68%) agreed, 35 (7.74%) were neutral, 39 (8.63%) disagreed with the effectiveness of the Integrated Teaching (IT) approach.

(Table: 2)

Table 2: Overall Participant Perception on Integrated Teaching

Overall Perception	Participants (n=454)	Total (%)
Strongly agree	282	62.11%
Agree	98	21.59%
Neutral	35	7.70%
Disagree	39	8.60%
Total	454	100%

Suggestions for enhancing Integrated teaching (IT)

Approximately two-thirds (>65%) of the 454 participants, on average, indicated a desire to enhance Integrated Teaching (IT) by increasing the frequency of topics and classes. They recommended initiating with fundamental topics integrated into theoretical subjects and emphasized the importance of displaying topics well in advance with a structured schedule.

Additionally, more than half (>50%) of the participants, on average, proposed integrating IT throughout all terms of the MBBS curriculum, excluding exam preparation periods. They highlighted the benefits of group discussions, comprehensive coverage of important topics, and conducting tests and vivas after each IT session. Furthermore, they suggested presenting IT topics as seminars to encourage student engagement through questioning. However, about 20% of the participants recommended discontinuing IT altogether.

Alternative teaching methods suggested apart from Integrated teaching

Most respondents, as indicated by multiple responses, recommended incorporating additional teaching methods apart from Integrated Teaching (IT). Specifically, 68.9% suggested conducting seminars, 55.7% group discussions, and 45% favoured interactive sessions.

DISCUSSION:

Integrated teaching is indeed a cornerstone of modern medical education, and its benefits extend far beyond the classroom. By weaving together diverse disciplines, medical schools empower students to become well-rounded healthcare professionals equipped to navigate the complexities of contemporary healthcare systems.(4) This approach fosters not only academic excellence but also cultivates the skills and attitudes necessary for delivering high-quality, patient-centered care in an ever-evolving healthcare landscape in a country such as India, where medical education and health care holds significant importance(6). This study aimed to study the perception of the integrated teaching approach in medical education among undergraduate medical students.

In a study conducted by Rabia Wajid et al in KEMU, Lahore, (7) to explore undergraduate medical students' perceptions of an integrated modular curriculum, 88% favoured this approach over traditional methods. In contrast, our study found that 290 students (63.9%) preferred integrated teaching over traditional instruction. In our study, 52% of participants expressed a preference for Vertical Integration as the most preferred type of Integrated Teaching (IT), while 48% favored Horizontal Integration. Conversely, in a study conducted by Kalpana Kumari et al (5) at M.S. Ramaiah Medical College, Bangalore, 51.7% of the students preferred horizontal to vertical integrated teaching.

In a study carried out by Divyasree Neeli et al. at Andhra Medical College, Visakhapatnam, focusing on the perceptions of undergraduate students regarding Integrated Teaching in medical education, 79.6% expressed positive perceptions toward IT. In contrast, in our study, 83.7% exhibited positive perceptions toward IT.(2)

The research findings indicated that undergraduate students find integrated teaching beneficial for improving their understanding of various subjects. They expressed a desire to enhance Integrated Teaching (IT) by increasing the frequency of topics and classes, integrating IT across all terms of the MBBS curriculum, ensuring comprehensive coverage of key subjects, and conducting tests, vivas following each IT session. Students recommended incorporating seminars, group discussions, and interactive sessions into IT.

Limitations: This study is being conducted in one tertiary-level teaching institution, which makes generalizability difficult; however, the transferability of results remains feasible.

CONCLUSION: The emerging concept of integrated teaching has demonstrated its superiority and effectiveness as a teaching-learning method. Therefore, it is imperative to frequently introduce this approach into the medical curriculum starting from the first year of the course. This integration requires thorough planning and meticulous selection of topics within the allotted timeframe to prevent students from being overwhelmed. Further research and exploration in Integrated Teaching (IT) could indeed offer valuable insights for educational practitioners and policymakers.

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