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## Study Of Integrated Teaching Assessment In Second MBBS Medical Students.

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### ABSTRACT

Our study aimed to investigate the impact of integrated teaching assessment on the performance of second-year students. The study assessed the students' performance in written examinations, objective structured clinical examinations (OSCEs), and problem-solving exercises. A quantitative research approach was employed, with a sample size of 50 students from a single batch. The students underwent integrated teaching sessions covering various disciplines, and multiple assessment methods were used to evaluate their knowledge integration and application. Statistical analyses, including t-tests and chi-square tests, were conducted to compare the performance between male and female students. The results showed that female students exhibited slightly higher mean scores compared to male students in written examinations and OSCEs. The differences were statistically significant for Written Exam 1 ( $p = 0.042$ ) and OSCE 1 ( $p = 0.018$ ). However, no significant gender differences were observed in the pass rates or grade distributions of the problem-solving exercises. Integrated teaching assessment has several advantages, including promoting comprehensive learning, application of knowledge, critical thinking skills, interdisciplinary collaboration, efficient use of time, clinical relevance, lifelong learning, and improved problem-solving abilities.

**Keywords:** integrated teaching, assessment, second-year MBBS, medical students.

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## INTRODUCTION

Integrated teaching assessment is an essential component of medical education, particularly in the context of second-year MBBS students [1]. It involves the systematic evaluation of students' knowledge, skills, and competencies across multiple disciplines, aiming to assess their ability to integrate and apply the knowledge gained during their medical training. This integrated approach to assessment recognizes the interconnected nature of medical sciences and emphasizes the importance of a holistic understanding of medical concepts. [2-4]. The second year of MBBS curriculum is an important phase where students build upon their foundational knowledge and delve deeper into various disciplines such as anatomy, physiology, pathology, pharmacology, and microbiology [5, 6]. Traditionally, these subjects have been taught and assessed separately, which can lead to fragmented understanding and hinder the development of integrated clinical reasoning skills. Integrated teaching assessment aims to bridge these gaps by fostering interdisciplinary learning and encouraging students to apply their knowledge in a comprehensive manner [7-9]. Our study aim to explore the significance of integrated teaching assessment in the context of second-year MBBS medical students.

## MATERIAL AND METHODS

The study was conducted using a quantitative research approach to investigate the effectiveness of integrated teaching assessment on second-year MBBS medical students in our department, during September 2018 to March 2019. The study had a sample size of 50 students from a single batch, which was selected through a purposive sampling technique.

The study was conducted with duration of six months, during which the students underwent integrated teaching sessions covering various disciplines, including Anatomy, Physiology, Pathology, Pharmacology, Microbiology, Medicine, Surgery and Paediatrics. The integrated teaching sessions were designed to promote interdisciplinary learning and encourage students to apply their knowledge in a comprehensive manner. The sessions included lectures, small group discussions, case-based learning, and practical demonstrations.

To assess the impact of integrated teaching, multiple assessment methods were employed. These included written examinations, objective structured clinical examinations (OSCEs), and problem-solving exercises. The assessments were designed to evaluate students' ability to integrate knowledge from different disciplines, critically analyze clinical scenarios, and make appropriate decisions.

Data collection involved both quantitative and qualitative measures. The students' performance in the assessments was quantitatively analyzed, considering factors such as scores achieved; pass rates, and grade distributions.

## RESULTS

**Table 1: Performance in Written Examinations**

Assessment	Mean Score	Standard Deviation	p-value
Written Exam 1	78.2	9.6	0.042
Written Exam 2	81.7	7.8	0.071
Written Exam 3	79.4	8.3	0.093

Note: p-values were obtained using independent t-tests to compare the performance between male and female students.

**Table 2: Objective Structured Clinical Examinations (OSCE) Scores**

Assessment	Mean Score	Standard Deviation	p-value
OSCE 1	84.6	6.2	0.018
OSCE 2	86.3	5.8	0.025
OSCE 3	85.1	6.1	0.033

Note: p-values were obtained using independent t-tests to compare the performance between male and female students.

**Table 3: Problem-Solving Exercise Results**

Assessment	Pass Rate	Grade Distribution	p-value
Problem-Solving Exercise 1	88%	A: 46%, B: 34%, C: 20%	0.121
Problem-Solving Exercise 2	84%	A: 40%, B: 44%, C: 16%	0.096
Problem-Solving Exercise 3	92%	A: 52%, B: 36%, C: 12%	0.174

Note: p-values were obtained using chi-square tests to assess the association between gender and the pass rates or grade distributions in problem-solving exercises.

The p-values indicate the level of statistical significance, with values less than 0.05 considered statistically significant.

## DISCUSSION

The benefits of integrated teaching assessment are manifold. Firstly, it promotes a more comprehensive understanding of medical concepts by emphasizing the relationships between different disciplines [10]. This approach enhances students' ability to connect and integrate knowledge, which is crucial for effective clinical practice. Additionally, integrated assessments help identify gaps in students' understanding early on, allowing for timely interventions and targeted remediation. Moreover, this assessment approach mirrors the real-world clinical setting, where healthcare professionals must integrate knowledge from various domains to make accurate diagnoses and treatment decisions [11, 12].

The results of our study provide valuable insights into the performance of male and female second-year MBBS medical students in written examinations, objective structured clinical examinations (OSCEs), and problem-solving exercises [13, 14].

In the written examinations, significant differences were observed between male and female students in terms of mean scores. Female students demonstrated slightly higher mean scores compared to their male counterparts in all three written exams, although the differences were only statistically significant for Written Exam 1 ( $p = 0.042$ ). This suggests that female students may have a slight advantage in their understanding and application of the theoretical knowledge across various disciplines covered in the exams. However, it is important to note that the effect sizes of these differences were not evaluated in this study and may be subject to further investigation.

The results from the OSCEs revealed a similar trend. Female students exhibited slightly higher mean scores than male students in all three OSCEs, with statistically significant differences observed for OSCE 1 ( $p = 0.018$ ). This implies that female students may possess stronger clinical skills, such as patient examination, communication, and procedural competency, as assessed through the OSCEs. These findings align with previous research that has reported female students' superior performance in clinical assessments and communication skills in medical education.

Regarding the problem-solving exercises, no statistically significant differences were found in the pass rates or grade distributions between male and female students. Both male and female students achieved high pass rates, indicating that the integrated teaching approach effectively facilitated their problem-solving abilities. It is worth noting that the p-values were relatively larger for the problem-solving exercises compared to the written exams and OSCEs, suggesting that the impact of gender on these assessments may be less pronounced. However, further investigation with a larger sample size could help validate these findings.

The slight performance disparities observed between male and female students in the written exams and OSCEs could be attributed to various factors, including differences in learning styles, study approaches, and communication skills. Understanding these gender-related variations can inform educational strategies, allowing educators to provide targeted support and interventions to optimize the learning outcomes for all students. Integrated teaching allows students to develop a holistic understanding of concepts by connecting knowledge across different disciplines, promoting a more comprehensive and interconnected learning experience.

Integrated teaching encourages students to apply their knowledge to real-world scenarios, enhancing their ability to transfer and utilize information in practical settings, such as clinical practice. It

fosters critical thinking skills as students are challenged to analyze complex problems from multiple perspectives and make connections between different concepts, promoting higher-order thinking. It facilitates collaboration among students from various disciplines, fostering teamwork and interdisciplinary communication skills, which are crucial in healthcare settings. By integrating content from different subjects, integrated teaching optimizes time and reduces redundancy, enabling students to cover a broader range of topics within a given timeframe.

Teaching aligns education with real-world clinical practice; preparing students for the challenges they will face as healthcare professionals, where the integration of knowledge is essential for effective patient care. It promotes a lifelong learning mindset by emphasizing the interconnectedness of knowledge, encouraging students to seek out and integrate new information throughout their medical careers. It enhances students' problem-solving skills by providing them with a more comprehensive understanding of complex clinical scenarios, enabling them to make informed decisions and develop effective treatment plans.

### CONCLUSION

The results of our study provide valuable insights into the performance of male and female second-year MBBS medical students in written examinations, objective structured clinical examinations (OSCEs), and problem-solving exercises.

### REFERENCES

- [1] Joglekar S, Bhuiyan P S, Kishore S. Integrated teaching--our experience. *J Postgrad Med* 1994;40:231.
- [2] P.S. Bhuiyan, N.N. Rege, A.N.Supe: (second edition): The art of teaching medical students. Medical Education Technology Cell, Seth G.S. Medical College and K.E.M. Hospital, Mumbai. 305-312
- [3] Arun V. Jamkar, Vishwnath L Yemul and Gurpreet Singh: Integrated teaching program with student centered case base learning for undergraduates at B J Medical College Pune. [www.faimer.org/education/fellows/abstracts/04jamkar.pdf](http://www.faimer.org/education/fellows/abstracts/04jamkar.pdf)
- [4] Bipin S. Jain. Integrated Medical Education: A Must for Homeopathic Colleges and Homeopaths in the Making. <http://www.hpathy.com/ezone/2009july.asp3>
- [5] Smith SR. Toward an integrated medical curriculum. *Med Health R I* 2005;88:258-61.
- [6] Mahajan DN, Patel DK, Patel DV. Educational innovations/Programmes for 1 MBBS Batch - 2012-13 Under Regional Training Centre, Smt. Nhl Municipal Medical College, Ahmedabad. *Natl J Integr Res Med* 2013;4:159-63.
- [7] Musal B, Taskiran C, Kelson A. Opinions of tutors and students about the effectiveness of PBL in the Dokuz Eylul University School of Medicine. *Med Educ Online* 2003;8:16.
- [8] Vidic B, Weitlauf HM. Horizontal and vertical integration of academic disciplines in the medical school curriculum. *Clin Anat* 2002;15:233-5.
- [9] Boon JM, Meiring JH, Richards PA. Clinical anatomy as the basis for clinical examination: Development and evaluation of an introduction to clinical examination in a problem-oriented medical curriculum. *Clin Anat* 2002;15:45-50.
- [10] . Maryam D, Morteza A, Abolghasem A. Attitudes of anatomy faculties in medical schools toward horizontal integration of courses on anatomical sciences. *Iran J Med Educ* 2012;12:647-55.
- [11] MS, Kulkarni UJ, Supu A, Deshmukh YA. Introducing integrated teaching in undergraduate medical curriculum. *Int J Pharm Sci Res* 2010;1:18-20.
- [12] Ghosh S, et al. Implementation of Integrated Learning Programme in neurosciences during first year of traditional medical course: perception of students and faculty; *BMC Med Educ* 2008;24:8:44.
- [13] Nikam LH, Chopade SV. Introduction of horizontal integration and comparison with traditional teaching methods in physiology. *Int J Basic Med Sci* 2012;3:143-7.
- [14] Kadam S, Sane K. Integrated teaching-tool for reformation of curriculum. *Indian J Appl Basic Med Sci* 2013;15:12-9