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Original Article

Student Perceptions of the Revised RGUHS Biochemistry Examination pattern: A Cross- Sectional Study among First-Year MBBS Learners

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ABSTRACT

The Rajiv Gandhi University of Health Sciences (RGUHS) recently introduced a revised pattern for the Biochemistry examination for first-year MBBS students with emphasis on competency- based medical education (CBME). This study assessed student perceptions of the new exam pattern, which includes a long essay, reasoning-based short answers, applied short notes, and scenario-based MCQs. A cross-sectional questionnaire-based survey was conducted among 99 first-year MBBS students at S R Patil Medical College. The mean age was 19 years; 46 were male and 54 female, and 96% reported ≥75% attendance. All participants appeared for the exam and were fully aware of the revised pattern.

Most students (68%) perceived the long essay as conceptually challenging, while 90% felt it aided comprehensive revision. Reasoning questions were highly appreciated, with 87% agreeing they improved conceptual understanding and 97% stating they enhanced logical and clinical thinking. Applied questions were seen as clinically relevant by 87% of respondents, although 48% reported time-management challenges. Scenario-based MCQs were considered effective in testing clinical reasoning (87%) and more difficult than traditional MCQs (96%). Increased exam-related stress was reported by 90% of students, and an equal proportion modified their study strategies due to the new pattern. Despite this, 90% believed the format supported long- term learning.

Overall, the revised pattern was positively received and aligns well with CBME objectives. Time management and stress reduction strategies may help optimize student performance and satisfaction.

Keywords*: RGUHS pattern, biochemistry assessment, competency-based medical education*

INTRODUCTION

Assessment strategies play a pivotal role in influencing how medical students learn, organize information, and develop clinical reasoning abilities. With the introduction of Competency- Based Medical Education (CBME) in India, there has been a paradigm shift from traditional rote-based examinations toward assessment formats that emphasize conceptual understanding and application of knowledge in clinical contexts. This shift aligns with global recommendations advocating for structured, transparent, and competency-driven evaluations in medical training [1] To support this transition, the Rajiv Gandhi University of Health Sciences (RGUHS) recently revised the Biochemistry examination pattern for first-year MBBS students. The new structure includes a long essay, reasoning-based short answers, applied short notes, and

scenario-based MCQs—formats intended to assess higher-order cognitive skills as outlined in CBME guidelines [2]. Such tools are known to strengthen analytical thinking, clinical correlation, and decision- making—competencies essential for the Indian Medical Graduate [3].

Previous studies have highlighted the need for valid, blueprint-based assessments and standardized student feedback mechanisms to improve teaching–learning processes [4]. However, most published literature examines CBME implementation broadly, with limited research focusing specifically on student perceptions of the revised RGUHS examination pattern**,** especially in foundational subjects like Biochemistry. Evidence addressing how first-year students adapt to reasoning-based and application-oriented questions remains sparse in the Indian MBBS context [5].

Therefore, this study was undertaken to address this gap by evaluating first-year MBBS students' perceptions of the revised RGUHS Biochemistry examination pattern. The study aims to assess student understanding of the new blueprint, determine the perceived difficulty and effectiveness of its components, and generate evidence to guide faculty and policymakers in refining assessment strategies.

Materials and Methods

This descriptive, cross-sectional study was conducted among first-year MBBS students at S R Patil Medical College, Hospital & Research Center, Badagandi, Karnataka, India, following the completion of the Biochemistry examination conducted under the revised RGUHS assessment pattern. All first-year MBBS students who appeared for the examination were invited to participate, and a total of 99 students provided written informed consent and completed the study questionnaire. Participation was voluntary, and no incentives were offered.

A convenience sampling method was employed to recruit participants during scheduled academic hours. Students were included if they were enrolled in the first-year MBBS course, had appeared for the Biochemistry examination, and were willing to provide written informed consent. Students who were absent for the examination, unwilling to participate, or submitted incomplete questionnaires were excluded from the study.

Data were collected using a structured, pre-validated questionnaire developed according to established psychometric guidelines [6]. The questionnaire comprised four sections. Section A captured demographic characteristics, Section B assessed awareness and understanding of the revised RGUHS exam pattern, Section C evaluated perceptions of each exam component using a five-point Likert scale ranging from strongly agree to strongly disagree, and Section D included open-ended questions to obtain qualitative reflections and suggestions. The questionnaire was pilot-tested prior to administration to ensure clarity and reliability.

The questionnaire was distributed to participants in classrooms after explaining the study objectives and obtaining informed consent. Participants completed the forms anonymously under the supervision of the research team to ensure completeness and accuracy.

Quantitative data were entered into Microsoft Excel and analyzed using descriptive statistics, including frequencies, percentages, means, and standard deviations. Qualitative responses from open-ended questions were analyzed using a thematic analysis approach to identify common ideas and perceptions among students.

Ethical approval was obtained from the Institutional Ethics Committee of S R Patil Medical College prior to the initiation of the study. Written informed consent was obtained from all participants. No personal identifiers were collected, and all data were kept confidential. The study posed no risk to participants and did not receive any external funding.

Table1 . Demographic Characteristics of the Participants (N = 99).

Variable	**Category**	**Frequency (n)**	**Percentage (%)**
Age (years)	Mean ± SD	19 ±	—
Gender	Male	45	45.5
	Female	64	64.5
Appeared for exam	Yes	99	100
Attendance ≥75%	Yes	96	97
	No	3	3

Table 2. Awareness of New Examination Pattern

Item	Response	uency (n)	entage (%)
Awareness of revised pattern	Yes	99	100
	No	0	0

Table 3. Perception of Long Essay Questions

Statement	SA (%)	A (%)	N (%)	D (%)	SD (%)
Conceptually challenging	21	47	19	10	2
Helped revise topics thoroughly	22	68	6	2	1
Time sufficient	38	48	10	2	1

Table 4. Perception of Reasoning Questions.

Statement	SA (%)	A (%)	N (%)	D (%)	SD (%)
Helped understand concepts	34	53	11	1	0
Encouraged logical/clinical thinking	47	50	1	1	0
Found confusing	3	8	30	34	24

Table 5. Perception of Applied Questions

Statement	SA (%)	A (%)	N (%)	D (%)	SD (%)
Linked biochemistry to clinical practice	53	34	10	2	0
Well prepared	50	46	2	1	0
Time management difficult	14	34	12	15	24

Table 6. Perception of Scenario-Based MCQs

Statement	SA (%)	A (%)	N (%)	D (%)	SD (%)
Tested clinical understanding	53	34	10	2	0
More difficult than regular MCQs	50	46	2	1	0
Practicing MCQs improved performance	34	15	2	5	34

Table 7. Exam Stress and Learning

Statement	SA (%)	A (%)	N (%)	D (%)	SD (%)
More exam-related stress	69	21	1	6	2
Changed study method	65	25	5	2	2
Supports long-term learning	69	21	1	6	2

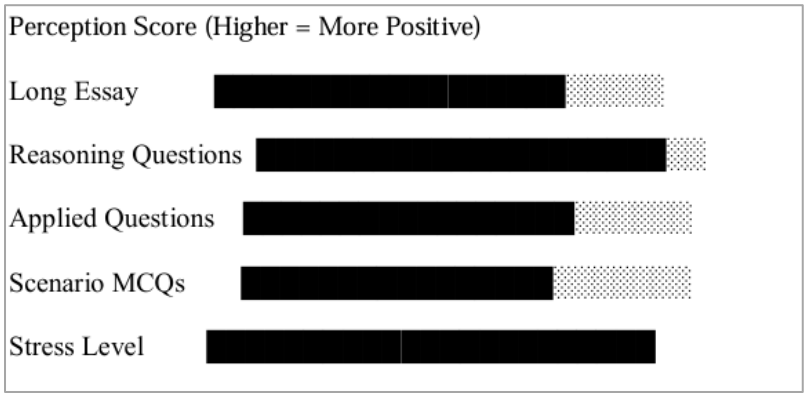

Figure 1. Distribution of Student Perception towards Each Exam Component

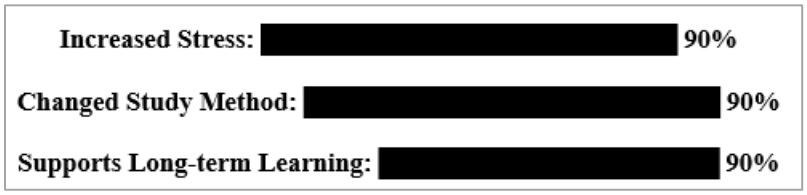

Figure 2. Stress and Learning Adaptation Responses

DISCUSSION

The shift to CBME-based assessment is intended to promote deeper understanding and clinical application. Students in this study responded positively to the revised RGUHS exam pattern. Long essays and reasoning questions were particularly valued for enhancing conceptual clarity and clinical reasoning, aligning with findings from Sharma et al[7]. Applied questions and scenario-based MCQs were effective in integrating clinical contexts with theoretical knowledge. However, many students struggled with time management, similar to issues noted in earlier CBME-focused evaluations [8]. Increased stress levels indicate the need for improved orientation and formative assessments to help students adapt to the new format.

Overall, the results support continued use of the revised pattern while suggesting refinements such as practice sessions and time-management training.

CONCLUSION

The revised RGUHS Biochemistry exam pattern was well received by first-year MBBS students. They perceived it as promoting conceptual clarity, clinical integration, and long-term retention. Despite increased stress and time constraints, students appreciated the shift away from rote memorization. Continuous orientation and structured formative assessments may enhance its effectiveness.

Limitations: Single-center study, Convenience sampling may limit generalize ability and Self-reported data may include subjective bias

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