Original Article

The Foundation Module Under The Microscope: Analyzing Student Feedback in a Pilot Study

Sana Akhlaq[1]

[1] *Physiology Department, Gujranwala Medical College*

Article Info

Corresponding Author
Sana Akhlaq
Department of Physiology, Gujranwala Medical College, Gujranwala-Pakistan
Email:sanaasim83@gmail.com

Date Received:
03rd April, 2025
Date Revised:
10th September, 2025
Date Accepted:
08th January, 2026

This article may be cited as:
Akhlaq S. The foundation module under the microscope: analyzing student feedback in a pilot study. J Postgrad Med Inst. 2026;40(1):27-36. http://doi.org/10.54079/jpmi.40.1.3741

Abstract

Objective: To evaluate first-year medical students' perceptions of the Foundation Module within the Integrated Modular Curriculum (IMC) at Gujranwala Medical College and to compare it with the traditional subject-based system.

Methodology: A quasi-experimental study was conducted from February 10 to December 12, 2024, using a standardized 55-item questionnaire adapted from the Student Course Evaluation Questionnaire. Convenience sampling was employed, and 101 first-year MBBS students who completed the Foundation Module (February–May 2024) participated. The survey assessed module objectives, workload, teaching strategies, learning environment, resources, and discipline-specific delivery. An additional questionnaire with 8 yes/no items and one open-ended question captured students' views on reverting to a traditional curriculum. Data were analyzed for reliability using Cronbach's alpha.

Results: The module was positively perceived overall. Clear objectives were reported by 46.6% of students, while 29.9% expressed dissatisfaction with workload and organization. Active participation was acknowledged by 73.5% of respondents. Learning resources and practical sessions received positive ratings of 66.4% and 74.8%, respectively. Discipline-specific evaluations revealed highest satisfaction in Physiology (82.2–87.4%) and Pharmacology (87.7–88.4%), moderate satisfaction in Behavioral Sciences, Biochemistry, Community Medicine, and Pathology, and lowest in Anatomy (40.2–44.1%). Regarding curriculum preference, 65% favored the integrated system over the traditional curriculum. Reliability analysis indicated good internal consistency (Cronbach's alpha 0.75–0.95).

Conclusion: The Foundation Module offers an effective platform for integrated medical education, promoting engagement, comprehension, and skill development. Challenges include workload, pacing, feedback, and discipline-specific disparities, particularly in Anatomy.

Keywords: Integrated Modular Curriculum, Foundation Module, Undergraduate Medical Education, Student Perceptions, Pakistan

Introduction

The Foundation Module, the entry point of the Integrated Modular Curriculum (IMC), supports first-year medical students in transitioning from premedical education to undergraduate training by combining biomedical sciences with professionalism, ethics, research, and self-directed learning (SDL). Implemented in February 2023 by the University of Health Sciences (UHS) across Punjab, it replaced the traditional subject-based model, long criticized for rote learning, poor clinical correlation, and limited long-term retention.[1] National experience indicates generally positive student responses in colleges such as Khyber Girls Medical College, Peshawar,[2] King Edward Medical University (KEMU),[3] University Medical and Dental College, Faisalabad,[4] Foundation University Medical College,[5] Rashid Latif Medical College, Azra Naheed Medical College,[6] Islamic International Medical College, Rawalpindi,[7] and Azad Jammu & Kashmir Medical College, Muzaffarabad, AJK,[8] although concerns regarding workload, pace, and feedback persist. Integration of basic and clinical sciences has been a long-standing goal of medical education, reinforced by global policy frameworks. The 1988 Edinburgh Declaration, issued by the World Federation for Medical Education, emphasized that medical education should address "the defined needs of the society in which [they are] situated.[9] These global frameworks support the rationale for integrated curricula like the Foundation Module, which combine biomedical, social, and behavioral sciences to produce socially accountable physicians.

Despite these benefits, several challenges hinder effective implementation. Faculty resistance—driven by concerns over workload, identity, and content reduction—remains significant, compounded by poor communication, limited interdisciplinary collaboration, and misaligned assessments.[10] Administrative resistance, resource limitations, and financial constraints, particularly in establishing problem-based learning environments, further complicate adoption.[11] Integrated curricula can also increase student stress due to intensive workloads and frequent assessments, while faculty worry about gaps in essential knowledge and insufficient teamwork. Effective modular systems, however, can mitigate these issues by framing assessments as learning opportunities, providing continuous feedback, and actively engaging students in monitoring their own progress.[12]

While editorials have highlighted the promise of spiral curricula, early clinical exposure, and PERLs (Professionalism, Ethics, Research, and Leadership skills), empirical evidence on student perceptions of the Foundation Module is limited.[13] This study addresses that gap by systematically evaluating the Foundation module (from 20th February,2024 to 8th May, 2024) at Gujranwala Medical College, examining student views on objectives, workload, organization, teaching strategies, and discipline-specific delivery. The secondary objective of this study is to conduct a thematic analysis comparing the traditional subject-based curriculum with the integrated modular system, in order to identify strengths, weaknesses, and areas for improvement from both student and faculty perspectives.

Methodology

Study Design: This quasi- designed study was conducted in the Department of Physiology, Gujranwala Medical College, Pakistan.

Study Setting and Duration: The study was carried out at Physiology Department Gujranwala Medical College, Pakistan. from February 10, 2024, to December 12, 2024.

Sampling Technique and Study Population: A standardized questionnaire was used to collect data from first-year MBBS students. Convenience sampling technique was used and sample size was determined using Raosoft's sample size calculator14 with a 5% margin of error, which indicated a required sample of 92 students.

Data Collection: Data were collected using a questionnaire adapted from the Student Course Evaluation Questionnaire.2 This 55-item instrument included both multiple-choice and Likert-scale questions, addressing various dimensions such as teaching methods, learning environment, student engagement, and perceptions of the integrated curriculum. All first-year MBBS students who had completed the Foundation Module, held from the last week of February to first week of May 2024, were invited to participate in the study. Data Collection was conducted at the conclusion of Foundation module in May 2024 to ensure that student perceptions and experiences were captured while the module content was still recent and to minimize the risk of recall bias. The process of obtaining the institutional ethical approval letter was delayed due to administrative reasons; however, formal approval was secured prior to data analysis. All participants were fully informed about the objectives of the study, assured of confidentiality, and provided written informed consent before participation. An additional questionnaire comprising 8 yes/no questions was administered to gather direct responses, alongside an open-ended question designed to capture students in depth perspective on a potential reversion to traditional curriculum module on August 22,2024. To ensure the validity of responses, only students who completed the questionnaire in its entirety were included. The exclusion criteria encompassed students who failed to fully complete the questionnaire and those who withdrew their consent during the study period, as their incomplete participation could compromise data integrity.

J Postgrad Med Inst 2026;40(1):27-36.
http://doi.org/10.54079/jpmi.40.1.3741

Results

A total of 101 first-year MBBS students participated in the survey, with a gender distribution of 60% female and 40% male. Among them, 30% were day scholars and 70% resided in hostels. The data were found to be non-normally distributed.

Students' perceptions of the Foundation Module showed several notable patterns. Almost half of the students (46.6%) reported that the module objectives were clear, although nearly one-third (29.9%) expressed dissatisfaction, citing concerns about workload and the organization of materials. Active participation was a prominent strength, as 73.5% of respondents acknowledged contributing effectively, while only 7.6% indicated limited engagement. The learning environment was considered conducive by 57.8% of students, but 27.3% highlighted shortcomings, particularly related to the structure of the module and limited encouragement for active participation.

Learning resources were positively rated by 66.4% of students, who found the materials relevant and useful. However, concerns regarding library facilities were common, with 42.1% of students providing negative feedback in this area. None of the participants utilized the website resources, as the portal was inactive during the study period. Regarding quality of delivery, 58.8% agreed that the module stimulated their interest, although 27.8% expressed dissatisfaction, mainly due to issues with the pace of teaching, clarity of concepts, and the provision of feedback. Tutorials and practical sessions were more favorably received, with practical sessions in particular achieving a 74.8% positive response, reflecting their effectiveness in addressing queries and providing resources.

Discipline-specific feedback demonstrated clear variation. Physiology received the strongest evaluations, with 82.2% of students reporting that lectures were comprehensible, 83.4% agreeing that the material was well organized, and 87.4% acknowledging instructors' responsiveness. Pharmacology also achieved high ratings, with 87.7% of respondents considering the material well organized and 88.4% appreciating the instructors' responsiveness. Behavioral Sciences was evaluated positively, with 72.3% of students finding lectures understandable and 83% affirming instructor regularity.

By contrast, Anatomy emerged as the least favorably evaluated discipline, as only 40.2% of students agreed that they understood the lectures and 44.1% considered the material well organized. Moderate levels of satisfaction were noted in Biochemistry and Community Medicine, where 51.9% and 55.4% of students, respectively, found the lectures comprehensible. Pathology demonstrated similar trends, with 52.4% of respondents acknowledging lecture comprehension and 58.4% reporting instructor responsiveness. Medical Education showed mixed perceptions, with 52.4% of students finding the lectures understandable but fewer than half (49.5%) considering the material well organized. Overall, Physiology and Pharmacology emerged as the most positively evaluated disciplines, followed by Behavioral Sciences, whereas Anatomy consistently received the lowest ratings in terms of lecture comprehension and material organization.

The percentage of frequency of all responses are revealed in Table 1. Additionally, the Cronbach's Alpha based on standardized 61 items was 0.95, which demonstrates that standardizing the items enhances the scale's reliability. Overall, these findings confirm that the scale is reliable and suitable for further analysis in the study. All the details are expressed in Fig1 and Fig2.

When asked about reverting to a traditional curriculum, 119 responses got validated in which 25% students preferred it for its simplicity, while 10 had no opinion due to lack of experience. However, 65% supported the integrated system, praising its holistic approach, improved clinical correlations, and student-centered learning. Many felt the traditional system lacked cohesion and was less efficient for modern medical education. Some students shared their deep thoughts as such "I feel that reverting to traditional education in MBBS instead of an integrated modular system would be a step backward. Here's why: 1. Lack of cohesion: Traditional education often focuses on individual subjects, whereas an integrated modular system combines related topics, providing a more comprehensive understanding. 2. Insufficient clinical correlation: Traditional education may not provide enough opportunities for clinical correlation, which is essential for medical students to apply theoretical knowledge in practical settings. 3. Inefficient use of time: Traditional education can lead to unnecessary repetition and a slower pace, whereas modular systems allow for a more streamlined and efficient learning process. 4. Limited student-centered approach: Traditional education often follows a teacher-centered approach, whereas modular systems prioritize student-centered learning, encouraging active participation and self-directed learning. 5. Inadequate preparation for modern healthcare: Traditional education may not adequately prepare students for the complexities of modern healthcare, which requires an integrated understanding of various disciplines and collaborative work. In contrast, an integrated modular system offers a more holistic, student-centered, and efficient approach to medical education, better preparing students for the challenges of modern healthcare." Another one commented," Integrated is a better way of teaching instead of just teaching subjects without any connection between them". The responses are displayed in Fig 3.

The reliability analysis of the scale yields a Cronbach's Alpha of 0.75, indicating a good level of internal consistency among the seven items assessed. This value

suggests that the items effectively measure the same underlying construct.

Table 1. Questions for qualitative components of research

Sr. No	Item #	Strongly Disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly Agree n (%)
1	The module objectives were clear	1.9	16.3	5.8	66.3	9.6
2	The Module workload was manageable	11.5	36.5	10.6	35.6	5.8
3	The Module was well organized (e.g. timely access to materials, notification of changes, etc.)	10.7	31.1	10.7	40.8	6.8
4	Approximate level of your own attendance during the whole Module	1.9	0	7.8	58.3	32
5	I participated actively in the Module	1	3.9	15.7	58.8	20.6
Learning Environment and Teaching Methods						
6	I think the Module was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.)	11.4	22.9	13.3	47.6	4.8
7	The learning and teaching methods encouraged participation.	8.8	29.4	16.7	39.2	5.9
8	The overall environment in the class was conducive to learning.	8.7	19.4	11.7	53.4	6.8
9	Classrooms were satisfactory	4.9	13.7	11.8	56.9	12.7
Learning Resources						
10	Learning materials (Lesson Plans, Module Notes etc.) were relevant and useful.	4.9	17.6	6.9	56.9	13.7
11	Recommended reading Books etc. were relevant and appropriate	8.7	7.8	14.6	59.2	9.7
12	The provision of learning resources in the library was adequate and appropriate	39.2	2.9	17.6	32.4	7.8
Quality of Delivery						
13	The Module stimulated my interest and thought on the subject area	9.8	20.6	10.8	54.9	3.9
14	The pace of the Module was appropriate	13.7	36.3	12.7	35.3	2
15	Ideas and concepts were presented clearly	10.9	24.8	24.8	36.6	3
16	The method of assessment were reasonable	18.6	25.5	12.7	40.2	2.9
17	Feedback on assessment was timely	18.6	18.6	16.7	42.2	3.9
18	Feedback on assessment was helpful	15.7	25.5	23.5	29.4	5.9
Additional Core Questions regarding Anatomy						
19	I understood the lectures	18.6	28.4	12.7	36.3	3.9
20	The material was well organized and presented	15.7	30.4	10.8	39.2	3.9
21	The instructors were responsive to student needs and problems	12.6	19.4	13.6	45.6	8.7

J Postgrad Med Inst 2026;40(1):27-36.
http://doi.org/10.54079/jpmi.40.1.3741

22	Had the instructors been regular throughout the module	15.5	31.1	12.6	35.9	4.9
Additional Core Questions regarding Physiology						
23	I understood the lectures	3	5.9	8.9	60.4	21.8
24	The material was well organized and presented	2	5.9	8.8	61.8	21.6
25	The instructors were responsive to student needs and problems	1.9	3.9	6.8	63.1	24.3
26	Had the instructors been regular throughout the module	2.9	4.9	6.9	58.8	26.5
Additional Core Questions regarding Biochemistry						
27	I understood the lectures	8.8	23.5	15.7	43.1	8.8
28	The material was well organized and presented	6.9	18.6	17.6	48	8
29	The instructors were responsive to student needs and problems	6.9	16.7	14.7	48	13.7
30	Had the instructors been regular throughout the module	7.8	16.7	8.8	51	15.7
Additional Core Questions regarding Community Medicine						
31	I understood the lectures	7.9	21.8	14.9	46.5	8.9
32	The material was well organized and presented	5	22.8	11.9	50.5	9.9
33	The instructors were responsive to student needs and problems	6.9	18.6	9.8	56.9	7.8
34	Had the instructors been regular throughout the module	6.9	16.7	9.8	55.9	10.8
Additional Core Questions regarding Pathology						
35	I understood the lectures	6.8	25.2	15.5	46.6	5.8
36	The material was well organized and presented	4.9	27.5	11.8	50	5.9
37	The instructors were responsive to student needs and problems	4	20.8	16.8	50.5	7.9
38	Had the instructors been regular throughout the module	4	18	12	56	10
Additional Core Questions regarding Pharmacology						
39	I understood the lectures	6.1	6.1	63.3	23.5	1
40	The material was well organized and presented	5.2	4.1	62.9	26.8	1
41	The instructors were responsive to student needs and problems	4.2	6.3	64.2	24.2	1.1
42	Had the instructors been regular throughout the module	4.1	6.2	62.9	25.8	1
Additional Core Questions regarding Behavioral Sciences						
43	I understood the lectures	5.9	15.8	5.9	51.5	20.8
44	The material was well organized and presented	4	14	10	55	17
45	The instructors were responsive to student needs and problems	3	8	6	73	10
46	Had the instructors been regular throughout the module	3	8.9	6.9	70.3	10.9

Additional Core Questions regarding Medical Education						
47	I understood the lectures	7.9	21.8	17.8	45.5	6.9
48	The material was well organized and presented	7.1	17.2	26.3	42.4	7.1
49	The instructors were responsive to student needs and problems	3.1	21.4	22.4	45.9	7.1
50	The instructors were responsive to student needs and problems	5	19	20	49	7
Additional Core Questions regarding Tutorial /Other teaching strategies if any (reflective portfolios/SGDs/PBLs/CBLs/Peer Mentorship)						
51	The material in tutorial/sessions was useful	4.9	17.6	7.8	63.7	5.9
52	I was happy with the amount of work needed for tutorials/session	8.9	17.8	12.9	56.4	4
53	The instructors / tutor/mentor dealt effectively with my problems	9.9	19.8	20.8	44.6	5
Additional Core Questions regarding Practical						
54	The material in the practical was useful	3.9	12.6	8.7	69.9	4.9
55	The demonstrators dealt effectively with my problems	5	18.8	9.9	60.4	5.9

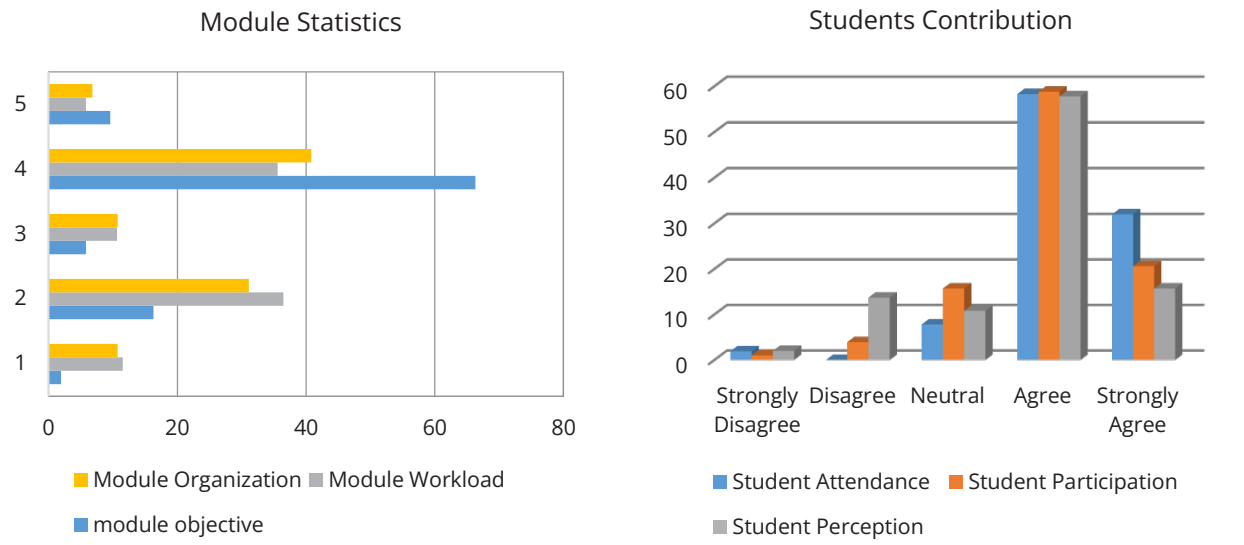

Figure 1: Student satisfaction with foundation module objectives, organization, and workload.

Discussion

This study examines first-year medical students' perceptions of the Foundation Module within the Integrated Modular System (IMS) at Gujranwala Medical College, contributing to the understanding of modular teaching in Pakistan. Global medical education systems vary in effectiveness, with traditional knowledge-focused approaches prevailing in Asia and innovative, practice-oriented approaches in Western countries. Implementing features of the Canadian system—early clinical exposure, small-group learning, and continuous assessment—could enhance practical competencies and accelerate learning outcomes in Pakistani medical students.[15]

Our findings highlight both the opportunities and challenges of the Foundation Module within the integrated curriculum. Students endorsed the module objectives and valued practical sessions, particularly in Physiology and Pharmacology, reflecting the intended benefits

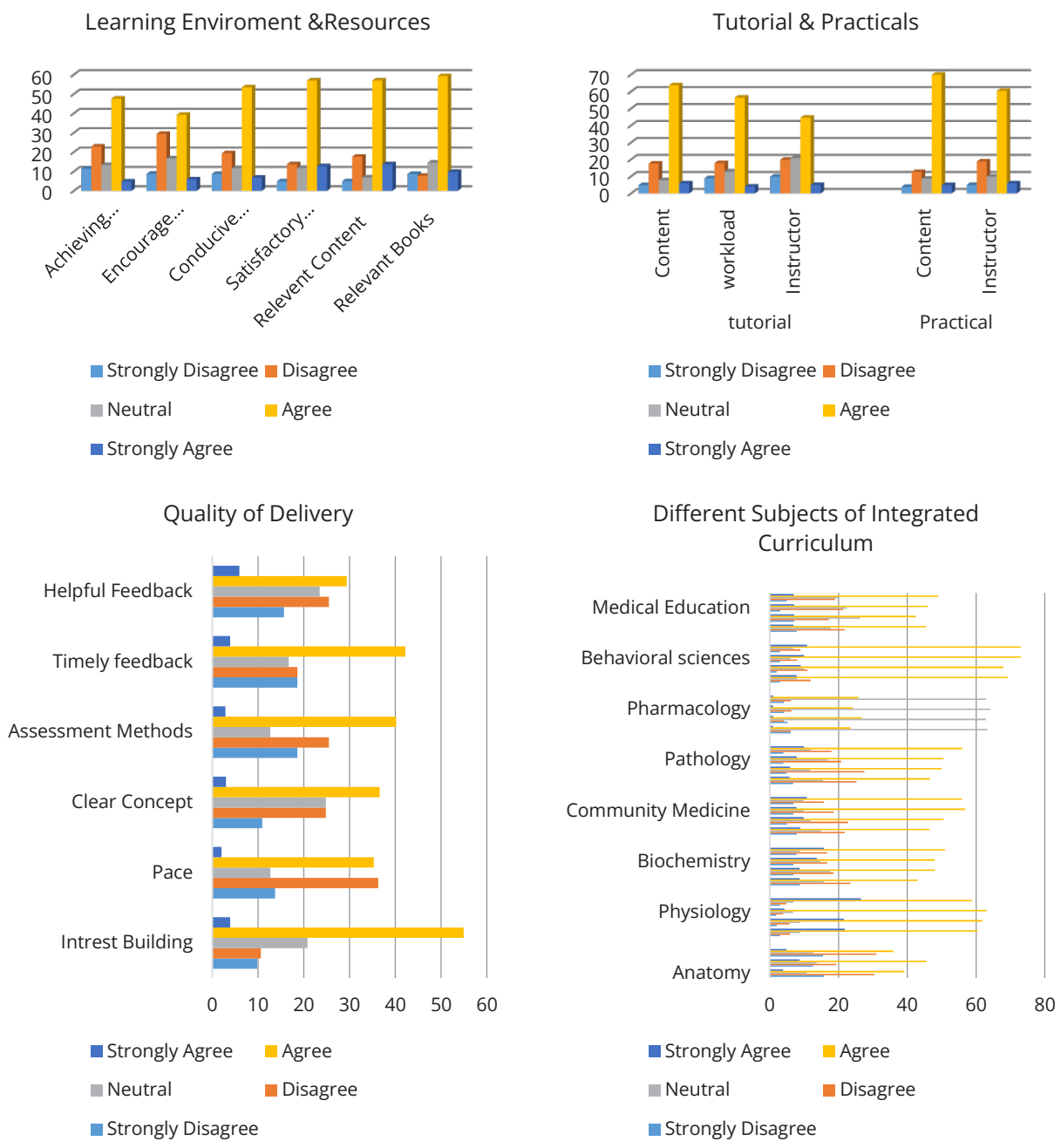

Figure 2: Frequencies of responses regarding objectives, contribution, learning environment, resources, tutorials, practical, and quality of delivery.

of IMC in fostering engagement and comprehension. These results align with editorial claims that integration enhances comprehension, creativity, and affective development through spiral revisits and learner-centered approaches.[16] However, student concerns regarding workload, fast pacing, and limited feedback mirror broader challenges identified in recent critiques, including inadequate faculty training, deficient infrastructure, and the absence of robust monitoring mechanisms.[17]

While the UHS framework emphasizes PERLs, spiral learning, and multiple teaching modalities (PBL, CBL, SDL), our results suggest that the effectiveness of these innovations depends on careful implementation. The lack of active digital resources and weak organizational structure reported by students reflects the infrastructural deficits highlighted at policy level. Moreover, discipline-specific variation—such as weaker ratings in

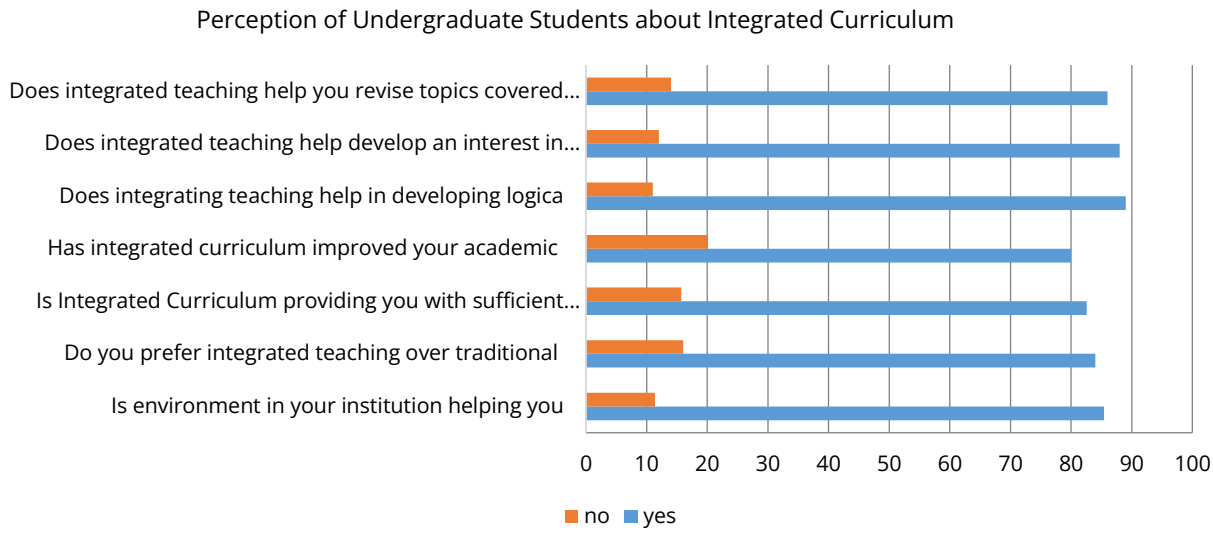

Figure 3: Perception of Undergraduate Student about Integrated Curriculum

Anatomy—illustrates how superficial or uneven integration risks undermining intra-subject coherence, a concern shared by subject experts in the national debate. Importantly, our results are consistent with evidence from a private medical college in Lahore, where students rated small-group discussions and PBL as the most beneficial teaching strategies, enhancing communication, problem-solving, and critical thinking. This convergence suggests that interactive, student-centered methodologies are central to the success of integrated curricula across both public and private institutions. Addressing the remaining challenges requires not discarding the integrated approach but refining it through workload calibration, resource activation (library, portals), structured faculty development, and timely feedback loops. Together, these findings position the Foundation Module as a viable and valuable platform for integration, provided that ongoing reforms heed both faculty concerns and student feedback.[2]

In our study, 65% of students favored the integrated modular system over the traditional curriculum, appreciating its holistic approach and improved clinical correlations. Similarly, at Foundation University Medical College, students trained under the integrated curriculum achieved an overall performance of 97.0%, compared with 85.2% in the conventional system, indicating a significant improvement (P = 0.002). Both studies highlight that integrated curriculum enhance engagement, comprehension, and practical competence, with our findings reflecting high satisfaction in practical sessions (74.8% positive), comparable to FUMC's superior performance in both theoretical and practical examinations.5 Interestingly, only 11.2% of first-year students at IIMC strongly disagreed that assessments reflected objectives, and 44% agreed that the module content captivated their interest. Similar to our findings, IIMC students reported dissatisfaction with time management and integration of theory and practicals, highlighting persistent challenges in module organization.[7]

The lower ratings for Anatomy may reflect limited analytical engagement in lectures. Introducing reasoning-focused modules, as shown in cranial nerve education, could enhance understanding and reduce learning disparities in challenging subjects.[18]

Medical Education sessions emphasizing PERLs (Professionalism, Ethics, Research, and Leadership Skills) showed mixed perceptions in our cohort, with 52.4% of students finding lectures understandable but only 49.5% considering the material well organized. This mirrors observations from national and institutional evaluations, where core PERLs topics are appreciated but delivery and structure remain areas for improvement.[19] Similarly, integrative case-based modules, such as Scientific Knowledge Integrated in Patient Presentations (SKIPPs), have been shown to improve clinical reasoning and foundational understanding, supporting the benefit of applied, interactive learning in early medical education.[20]

Despite these benefits, challenges persist. Students reported concerns regarding workload, fast pacing, limited feedback, and weak organizational structure—issues echoed in critiques of integrated curricula internationally, where inadequate faculty training, insufficient infrastructure, and absence of robust monitoring mechanisms hindered effective implementation.[1] In Pakistan, similar concerns have been reported at Islamic International Medical College,[7] and Foundation University Medical College,[5] emphasizing the importance of context-specific strategies.

J Postgrad Med Inst 2026;40(1):27-36.
http://doi.org/10.54079/jpmi.40.1.3741

Faculty feedback from institutions such as Rabigh Medical College, King Abdul Aziz University highlights a mixed perspective: while some prefer traditional systems for lower stress and better balance between theory and practice, others recognize IMS as a holistic platform linking basic and clinical sciences, consistent with our findings.[21] Structured faculty training programs, as implemented at Bahria University, have demonstrated that continuous faculty development is essential for effective integration of PBL and CBL and for addressing student concerns regarding module organization (47.6% positive) and delivery pace.[22]

Based on both national and international evidence, medical curricula should proactively incorporate emerging topics such as nutrition[23] and climate-conscious healthcare[24] early in undergraduate training. Integrating these subjects through interactive, student-centered modules can address existing gaps, enhance relevance to societal health needs, and better prepare future physicians to manage evolving clinical and public health challenges.

The limitations of this study are important to acknowledge as they provide context for interpreting the findings and highlight areas for future research. A relatively small sample size, reliance on self-reported data, cross sectional design, factors outside the study's scope, such as personal stressors and external commitments, may also confound the results. Lastly, the study did not evaluate the effectiveness of faculty training within the Integrated Modular System, which could significantly influence student engagement and satisfaction.

Conclusion

The Foundation Module within the Integrated Modular System at Gujranwala Medical College provides a viable and effective platform for early undergraduate medical education, fostering student engagement, comprehension, and practical skill development. Students particularly valued practical sessions in Physiology and Pharmacology, as well as the holistic, student-centered approach of the integrated curriculum. However, challenges remain, including workload management, pacing, feedback, discipline-specific disparities (notably in Anatomy), and limited digital resource utilization.

References

1. Iqbal T. A critical review of University of Health Sciences integrated modular curriculum for MBBS. Pak J Physiol. 2023;19(2):1-2. doi: 10.69656/pjp.v19i2.1563.
2. Mahsood N, Khan NA, Ahsan A, Aziz S, Ali I. Medical student's feedback on foundation module of integrated curriculum at public sector medical college: a pilot study. J Med Sci. 2019;27:90.
3. Wajid R, Asher A, Tariq J. Perception of undergraduate medical students about integrated modular curriculum and factors affecting. Pak J Med Health Sci. 2022;16:63. doi: 10.53350/pjmhs2216763.
4. Fatima U, Naz M, Zafar H, Fatima A, Khan RR. Student's perception about modular teaching and various instructional strategies in the subject of obstetrics and gynecology. Prof Med J. 2020;27:40-45. doi: 10.29309/TPMJ/2019.27.01.3162.
5. Abbas S, Sadiq N, Zehra T, Ullah I, Adeeb H. Comparison of performance of undergraduate medical students trained in conventional and integrated curriculums. Int J Acad Med. 2022;8(2):109-115. doi: 10.4103/ijam.ijam_112_21.
6. Ijaz A, Saleem A, Qamar H, Qureshi SH. Effect of integrated sessions of anatomy and physiology on academic performance. Med Forum Mon. 2024;35(7).
7. Rahim A, Iqbal K. Parameters assessed for quality and management of modular system by the students of first and second year MBBS. Khyber Med Univ J. 2013;5(2):86-90.
8. Ijaz M, Jamil B, Asim N, Khan Y, Riaz S. Exploring the perceptions of undergraduate medical students and faculty regarding their engagement in integrated curriculum development in Azad Jammu & Kashmir Medical College Muzaffarabad. J Ayub Med Coll Abbottabad. 2024;36(1). doi: 10.55519/JAMC-01-12982.
9. Schrewe B, Hepburn CM. Educating for optimal health outcomes: training physicians to be system-level advocates. Can Med Educ J. 2025. doi: 10.36834/cmej.79844.
10. Hafeez A, Jamil B, Khan AF. Roadblocks to integration: faculty's perspective on transition from traditional to integrated medical curriculum. Pak J Med Sci. 2021;37(3):788. doi: 10.12669/pjms.37.3.3217.
11. Atta IS, El-Hag MA, Shafek SI, Al-Ghamdi HS, Al-Ghamdi TH. Drawbacks in the implementation of an integrated medical curriculum at medical schools and their potential solutions. Educ Med J. 2020;12(1). doi: 10.21315/eimj2020.12.1.4.
12. Rahman S. Transition from traditional curriculum to modular curriculum: possible challenges. J Gandhara Med Dent Sci. 2022;9(3). doi: 10.37762/jgmds.9-3.328.
13. Self-directed learning module and assessment on learning of national health programme by medical undergraduates: a mixed methods evaluation. Indian J Community Med. 2023;48(3):465-470. doi: 10.4103/ijcm.ijcm_520_22.
14. Raosoft Inc. Sample size calculator [Internet]. Available from: http://www.raosoft.com/samplesize.html
15. Raza A, Hussain N. Problems and challenges of future medical education: current state and development prospects. Futurity Educ. 2022;2(3):37-49. doi: 10.57125/FED/2022.10.11.32.
16. Ajmal A, Manzoor I. Shift of traditional curriculum to integrated curriculum: a drastic step by University of Health Sciences Lahore. J Ayub Med Dent Coll. 2023;5(1):1-3. doi: 10.51127/JAMDCV5I1editorial.
17. Nicolaou N, Nicolaou C, Nicolaou P, Nicolaides P, Papageorgiou A. Development of a leadership and management module for the undergraduate medical curriculum. BMC Med Educ. 2024;24(1):1310. doi: 10.1186/s12909-024-06004-x.
18. Loomis M, Quinones-Rodriguez JI, Wackerly R, Spears KB, Loomis T. Integrating clinical reasoning into medical students' first weeks of education improves understanding of cranial nerve anatomy. Cureus. 2024;16(10):e70889.

doi: 10.7759/cureus.70889.

19. Velusami D, Dongre AR, Kagne RN. Evaluation of one-month foundation course for first year undergraduate students at a medical college in Puducherry, India. J Adv Med Educ Prof. 2020;8(4):165-171. doi: 10.30476/jamp.2020.86857.1272.
20. Schmidt M, Pinney B, Canby C, Vargus A, Pille M. An early-curricular team learning activity to foster integration of biochemical concepts and clinical sciences in undergraduate medical education. Biochem Mol Biol Educ. 2024;52(3):340-347. doi: 10.1002/bmb.21821.
21. Waqar T, Khaliq T. Integrated-modular system for undergraduate medical students: faculty's perception. Pak Armed Forces Med J. 2019;69:465-471.
22. Rehman R, Rubab Z, Usmani A, Rehan J. Steps towards implementation of modular hybrid system at Bahria University Medical & Dental College. J Postgrad Med Inst. 2014;28(1).
23. Chen P, Alexander SM, Baute Penry V. Nutrition module: addressing the nutrition education gap in undergraduate medical curricula via a novel approach. Med Sci Educ. 2024;34(6):1361-1367. doi: 10.1007/s40670-024-02114-9.
24. Gupta D, Shantharam L, MacDonald BK. Sustainable healthcare in medical education: survey of the student perspectives at a UK medical school. BMC Med Educ. 2022;22(1):689. doi: 10.1186/s12909-022-03737-5.

Authors' Contribution Statement

SA contributed to the conception, design, acquisition, analysis, interpretation of data, drafting of the manuscript, critical review of the manuscript, and final approval of the version to be published. All authors are accountable for their work and ensure the accuracy and integrity of the study.

Conflict of Interest

Authors declared no conflict of interest

Grant Support and Financial Disclosure

None

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.