RESEARCH ARTICLE OPEN ACCESS

Needs Assessment of Outcome Based Undergraduate Competency Framework for the MBBS Program at Rawalpindi Medical University

Arsalan M. Mughal[1,*], Muhammad Umar[2], Aqsa Naseer[3]

[1]*Department of Anatomy, MHPE Program, Rawalpindi Medical University, Rawalpindi, Punjab, Pakistan*

[2]*Rawalpindi Medical University, Rawalpindi, Pakistan*

[3]*Department of Gastroenterology, Holy Family Hospital, Rawalpindi, Punjab, Pakistan*

ARTICLE HISTORY

Received: August 1, 2025
Revised: November 25, 2025
Accepted: November 28, 2025

Citation: Mughal AM, Umar M, Naseer A. Needs assessment of outcome based undergraduate competency framework for the mbbs program at rawalpindi medical university. Acad Res. 2025; 2(2): 92-97.

DOI: https://doi.org/10.70349/ar.v2i2.39

Abstract

***Objective*:** To conduct a needs assessment of competency framework for MBBS at Rawalpindi Medical University that matches local context and international standards.

***Methods*:** A working group reviewed global and regional competency models and drafted initial domains. For these quantitative needs assessment survey, we developed a Google Forms survey and sent to 115 faculty and administrators. Seventy-five responded between January 15 and February 15, 2024. Responses were analysed in Google Forms and results were shared in Board of Deans meetings for approval and development of framework.

***Results*:** The respondents rated Patient Care, Knowledgeable, Teamwork, Patient Safety and Infection Control as the most important competencies. Critical Thinker, Professional, Skilful, Leadership and Professionalism, Interpersonal Communication Skills, Research Skills and Evidence-Based Medicine were rated as competencies of secondary importance. Community Health Promoter, Role Model and Scholar were rated as least important competencies. Based on this, the framework was finalised with seven core competences Patient Care Deliverer; Ethical and Professional Practitioner; Team Worker and Communicator; Community Health Promoter; Quality and Safety Practitioner; Scholar and Lifelong Learner; and Digital and Artificial Intelligence Literate and 28 secondary competences.

***Conclusion*:** This framework integrates traditional and modern competencies using faculty feedback and literature evidence. It will guide curriculum revision, teaching methods, and assessment at RMU to prepare graduates for Pakistan's health challenges.

Keywords: Competency based education, curriculum development, medical education, Pakistan, digital health, artificial intelligence, patient safety, professionalism.

1. INTRODUCTION

Juvenile The current MBBS curriculum lacks a comprehensive competency framework which meets national and international standards [1]. Many undergraduate medical programmes focus on learning objectives but they do not always guarantee that students can perform in real patient situations due to lack of practical clinical skills [2, 3]. We decided to move from traditional objective based to competency based medical education, which defines clear skills and attitudes that students must show before moving forward [4, 5].

Global competency frameworks like the AAMC's entrustable professional activities and the GMC's Outcomes for Graduates were studied to gather a western perspective. In local frameworks, the Indian Medical Graduate framework describes roles from clinician to lifelong learner [6], and Pakistan's Seven Star Doctor model gives basic guidance [7] but does not cover digital health or patient safety in detail. We intended to develop a framework that matches our university's mission of training ethical, research minded, and socially

*Address correspondence to this author at the Department of Anatomy, MHPE Program, Rawalpindi Medical University, Rawalpindi, Punjab, Pakistan; E-mail: arsalanmanzoor@gmail.com

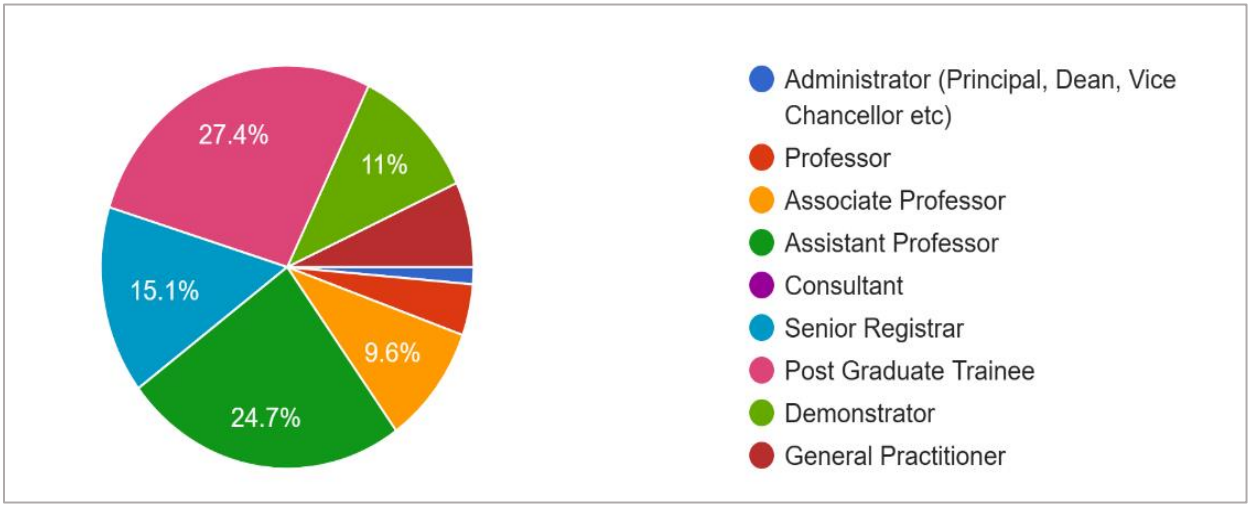

Figure 1: Designation of respondents.

responsible doctors, is aligned with local and international frameworks and develops doctors which are ready for tomorrow's workplace [2].

2. MATERIALS AND METHODS

Guided by the directives of the university's Curriculum Committee, a diverse working group was constituted, comprising medical educationists and faculty from both basic and clinical sciences of Rawalpindi Medical University. This group reviewed well established international and regional competency frameworks and juxtaposed them with evolving local healthcare needs. An initial list of relevant competencies was curated, including patient care, professionalism, teamwork, interpersonal communication, technical skilfulness, practice based learning, critical thinking, knowledge application, community health promotion, leadership, role modeling, and scholarship from international competency frameworks such as American Association of Medical Collges (AAMC), Canadian medical Council (CanMeds), Accreditation Council for Graduate Medical Education (ACGME), General Medical Council (GMC); regional frameworks such as Indain National Medical Commission's (NMC) Competency-Based Medical Education (CBME) framework; and local frameworks such as PMDC's Seven Star Doctor. Soft Skills such as leadership, professionalism, research and modern competencies such as digital literacy and artificial intelligence were included in this list.

To gather stakeholder input, a structured online survey was developed using Google Forms and importance of each competency was marked on a four point Likert scale from very unimportant to very important. The survey tool was reviewed and validated by the Curriculum Committee and ethical approval was taken via letter L-1/7409/RMU. Informed consent was obtained from all participants. The survey was distributed through RMU's official email lists and WhatsApp faculty groups to 115 administrators and faculty members (Basic and Clinical Sciences) of Rawalpindi Medical University. Sample size was calculated using Open Epi with a 5% confidence limit and 80% confidence level which was 68. Data collection spanned from January 15 to February 15, 2024, using convenience sampling. Respondent data were anonymized and automatically aggregated by Google Forms. Frequencies and percentages were used to prioritise competencies. The findings were subsequently deliberated in Board of Deans meetings, where consensus-based decisions led to final adoption of the RMU Undergraduate Competency Framework.

3. RESULTS

MAS Out of 115 invited participants, 75 faculty members and administrators responded (65.2% response rate). Respondents included one administrator, three professors, seven associate professors, eighteen assistant professors, eleven senior registrars, twenty postgraduate trainees, eight demonstrators, and five general practitioners (Fig. **1**).

Faculty rated competency being very important as follows: Patient Care (80%), Knowledgeable (77%), Teamwork (70%), Patient Safety and Infection Control (70%), Critical Thinker (69%), Professional (69%), Skillful (59%), Leadership and Professionalism (59%), Interpersonal Communication Skills (55%), Research Skills and Evidence-Based Medicine (50%), Community Health Promoter (37%), Role Model (36%), Scholar (31%) (Table **1**).

To the open ended question "What new/additional skills do you think should be taught to our future doctors?"

Table 1: Faculty rated importance of competencies.

Competency	Importance (%)			
	Very Unimportant	**Unimportant**	**Important**	**Very Important**
Patient Care	0	0	20	80
Knowledgeable	0	0	23	77
Teamwork	0	4	26	70
Patient Safety and Infection Control	0	3	27	70
Critical Thinker	0	3	28	69
Professional	0	3	28	69
Skillful	7	6	28	59
Leadership	0	5	36	59
Interpersonal Communication Skills	2	5	38	55
Evidence-Based Medicine	0	9	41	50
Community Health Promoter	5	10	48	37
Role Model	4	16	44	36
Scholar	0	14	55	31

most respondents recommended artificial intelligence, medical ethics and digital literacy.

Discussion in the Board of Deans concluded that the framework should include all competencies but their weightage in the curriculum should be according to their reported importance. The final framework comprises seven core domains Patient Care Deliverer; Ethical and Professional Practitioner; Team Worker and Communicator; Community Health Promoter; Quality and Safety Practitioner; Scholar and Lifelong Learner; and Digital and Artificial Intelligence Literate encompassing 28 sub competencies (Fig. **2**).

4. DISCUSSION

Creating a competency framework that is suited to Rawalpindi Medical University required finding a balance between global standards and local circumstances[8]. International models are helpful but sometimes ignore issues like limited resources, local disease patterns, and cultural factors in Pakistan [9]. We combined ideas from the various models with suggestions from our faculty, so the framework fulfils national and international needs [10].

New skills like digital health and artificial intelligence are becoming important. Studies in our region show that many graduates have little formal training in these areas, leaving them unprepared [11]. By including a special domain for Digital and AI Literacy, we want students to learn about health informatics, virtual patient simulations, and responsible use of digital tools [12]. This supports our efforts to improve health technology and makes sure our graduates can use these tools well [13].

Our method of involving many stakeholders helped make the framework credible and practical [14]. Earlier attempts at changing curricula in Pakistan often faced challenges when key groups were not involved [15]. At RMU, we included faculty from different departments, curriculum experts, and administrators. This gave everyone a sense of ownership and made the final framework easier to accept. Surveys and discussions in the Board of Deans ensured that decisions were clear and supported by leadership.

We also wanted the framework to be logical and organised focusing on areas such as community health, patient safety and digital literacy. By arranging the skills into core and sub competencies makes it easier for curriculum designers, faculty members and students to practically use this framework [15].

This study has a few limitations that should be considered. Although we received responses from a good number of faculty and administrators, the overall

Figure 2: RMU undergraduate competency framework.

response rate was still limited, which may have affected the diversity of viewpoints. Also, since this was conducted at a single medical university, the findings might not fully reflect the context of other institutions in Pakistan, where curriculum structures and priorities may differ. The study mainly focused on participants' perceptions and did not include outcome-based or performance-related data.

For future work, we recommend engaging multiple institutions across different provinces and including voices of students, graduates, and curriculum experts. It will also be important to test the practical use of this competency framework during curriculum implementation and gather regular feedback to keep it aligned with changing needs in healthcare and medical education.

5. CONCLUSION

Though this needs assessment survey, a contextually relevant competency framework was developed for MBBS program at Rawalpindi Medical University. It highlighted the key competencies expected from medical graduates by faculty with strong emphasis on patient care, professionalism, communication, and teamwork.

There was also clear support for integrating soft skills, research, digital literacy and artificial intelligence into the curriculum. Although this study is limited to a single institute with a moderate sample size, these insights can guide curriculum reforms to produce graduates better suited to the local healthcare context and future challenges. Future work should include piloting and validation in other medical colleges across Pakistan.

ETHICAL APPROVAL AND CONSENT TO PARTICIPATE

The study was approved by Rawalpindi Medical University (RMU), with the approval letter reference number L-1/7409/RMU.

Informed consent was obtained from all the participants.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

FUNDING

No external funding received for the study.

ACKNOWLEDGEMENTS

None.

AUTHOR CONTRIBUTIONS

AMM: Conception, study design, and data analysis.

MU: Conception, study design, and manuscript review.

AN: Conception, study design, and manuscript review.

REFERENCES

[1] Abdullah MA, Shaikh BT. Revisiting the MBBS curriculum: strengthening public health education in Pakistan. Gomal J Med Sci. 2024; 22(1): 81-4.

[2] Ahmad S, Inam S, Mirza TI, Zaman S, Ghassan A, Nishat M. Integrated medical curriculum in pakistani educational environment its merits and demerits. Pak J Med Health Sci. 2023; 17(03): 498-500. https://doi.org/10.53350/pjmhs2023173498

[3] Farooq Z, Imran A, Imran N. Preparing for the future of healthcare: digital health literacy among medical students in Lahore, Pakistan. Pak J Med Sci 2024; 40(1): 69-75. https://doi.org/10.12669/pjms.40.1.8711

[4] Qamar R, Khan MR, Ahmed M. Competency based postgraduate medical education as an institutional initiative in a low middle income country: program directors' perceptions of early implementation. BMC Med Educ. 2025; 25: 912. https://doi.org/10.1186/s12909-025-07065-2

[5] Riaz Q, Khan MR, Ahmed M. Competency-based postgraduate medical education as an institutional initiative in a low-middle-income country: program directors' perceptions of early implementation. BMC Medical Education. 2025; 25(1): 912. https://doi.org/10.1186/s12909-025-07065-2

[6] Iyengar KP, Jain VK, Sakthivel P, Malhotra N, Ish P. Competency-based novel medical curriculum in India. Postgrad Med J. 2022; 98(e3): e185-6. https://doi.org/10.1136/postgradmedj-2020-139690

[7] Wajid G, Baig L, Ali SK, Mahboob U, Sethi A, Khan RA. The role of Pakistan Medical & Dental Council in steering undergraduate medical curriculum reforms in Pakistan. Khyber Med Univ J. 2024; 16(4): 275-8.

[8] Giuliani M, Martimianakis MA, Broadhurst M, Papadakos J, Fazelzad R, Driessen EW, Frambach J. Motivations for and challenges in the development of global medical curricula: a scoping review. Acad Med. 2021; 96(3): 449-59. https://doi.org/10.1097/ACM.0000000000003383

[9] Hosseini A, Ghasemi E, Nasrabadi AN, Sayadi L. Strategies to improve hidden curriculum in nursing and medical education: a scoping review. BMC Med Educ. 2023; 23(1): 658. https://doi.org/10.1186/s12909-023-04652-z

[10] Burney AA, Burney IA, Dherwani K. Integrated curriculum in medical schools in Pakistan–what? why? when? and how much. Ann King Edward Med Univ. 2024; 30(4): 433-9.https://doi.org/10.21649/akemu.v30i4.5618

[11] Saaiq M, Khan RA, Yasmeen R. Digital teaching: Developing a structured digital teaching competency framework for medical teachers. Medical Teacher. 2024; 46(10): 1362-8. https://doi.org/10.1080/0142159X.2024.2308782

[12] Khurana MP, Raaschou-Pedersen DE, Kurtzhals J, Bardram JE, Ostrowski SR, Bundgaard JS. Digital health competencies in medical school education: a scoping review and Delphi method study. BMC Med Educ. 2022; 22: 129. https://doi.org/10.1186/s12909-022-03163-7

[13] Jimenez G, Spinazze P, Matchar D, Huat GK, van der Kleij RM, Chavannes NH, Car J. Digital health competencies for primary healthcare professionals: a scoping review. Int J Med Inform. 2020; 143: 104260. https://doi.org/10.1016/j.ijmedinf.2020.104260

[14] Foster K. Involving stakeholders in re-imagining a medical curriculum. Asia Pac Scholar. 2023; 8(1): 43. https://doi.org/10.29060/TAPS.2023-8-1/SC2807

[15] Ryan MS, Blood AD, Park YS, Farnan JM. Competency-based frameworks in medical school education programs: a thematic analysis of the academic medicine snapshots, 2020. Acad Med. 2022; 97(11S): S63-70. https://doi.org/10.1097/ACM.0000000000004912