

Research Article

Assessment of Teaching Competency and Educational Needs among Medical Faculty Using Competency-Based Framework

Mariam Nasir¹, Shamaila Manzoor^{2*}, Amer Ali Khan³, Malya Amir⁴, Dur e Saman⁵, Momina Tahir⁶

¹MHPE Graduate, Khyber Medical University, Peshawar, Pakistan.

^{2*}Associate Professor, Department of Medical Education, AJK Medical Collage, Muzaffarabad, Pakistan.

³Assistant Professor, Department of Biochemistry, College of Medicine, Shaqra, Saudi Arabia.

⁴MHPE Scholar, Institute of Health Professions Education and Research (IHPER), Khyber Medical University, Peshawar, Pakistan.

^{5,6}Assistant Professor, Department of Medical Education, Women Dental College, Abbottabad, Pakistan.

Corresponding Author: Shamaila Manzoor

Associate Professor, Department of Medical Education, AJK Medical Collage, Muzaffarabad, Pakistan.

Email: shamaila.manzoor@gmail.com

Received: 27.05.2026, Revised: 08.08.2026, Accepted: 19.08.2026

ABSTRACT

Background: Teaching competency among medical faculty plays a central role in the quality of undergraduate medical education. In the context of competency-based medical education, faculty members are expected to exhibit competencies beyond "content delivery" such as assessment, feedback, mentoring, curriculum planning, educational technology and scholarly teaching.

Objective: To assess teaching competency and identify educational needs among medical faculty using a competency-based framework.

Methodology: A descriptive cross-sectional study was conducted at Women Medical College from June 2025 to December 2025. Involved 91 faculty members (basic and clinical departments). Competency in teaching was evaluated through eight domains in a structured 5-point Likert scale item-based questionnaire. The educational needs and preferred faculty-development methods were also documented. Data was analyzed with descriptive and inferential statistics and a p-value < 0.05 was considered as statistically significant.

Results: The overall mean teaching competency score was 3.55 ± 0.52 . Communication and learning environment showed the highest mean score (4.12 ± 0.55), followed by teaching and facilitation skills (3.98 ± 0.61). The lowest scores were observed for educational scholarship/research (2.96 ± 0.79), educational technology (3.18 ± 0.81), and curriculum and competency-based medical education knowledge (3.31 ± 0.75). Moderate competency was observed in 53.8% of participants, while 27.5% had high and 18.7% had low competency. Previous faculty-development training was significantly associated with higher competency scores ($p < 0.001$).

Conclusion: Medical faculty demonstrated moderate overall teaching competency, with notable educational needs in assessment, competency-based curriculum development, educational technology, and medical education research. Structured and continuous faculty-development programs should focus on these areas to strengthen teaching quality and support competency-based medical education.

Keywords: Teaching Competency, Medical Faculty, Faculty Development, Competency-Based Medical Education, Educational Needs, Medical Education.

INTRODUCTION

The overall quality of the medical education is closely linked to the competence of faculty members in charge of teaching, assessment, supervision, mentoring and implementation of the curriculum. Nowadays, medical teachers are no longer merely expected to be a subject matter expert but rather expected to demonstrate a wide range of educational skills that enable active learning, engagement of the learners, effective assessment and feedback,

professionalism, and continuous educational development. With an increasingly outcome-based orientation to medical education, the importance of faculty development to enhance these competencies is increasing (1-3).

Competency based medical education has moved away from the concept of time to one of acquiring clearly defined abilities and educational outcomes. This means that faculty need to be familiar with learning outcomes, competency frameworks, assessment principles

and processes, feedback, progression decisions, and learner-centered instructional approaches. The key to successful implementation, therefore, is the readiness of teachers. If competency-based principles are not part of their day-to-day experience, faculty may find the connection between teaching and expected outcomes challenging, as well as finding the right kind of assessment and feedback (4-6).

Competency in teaching is a multi-dimensional affair, consisting of instructional planning, facilitation of teaching, engagement of learners, communication, assessment, mentoring, understanding of curriculum, educational technology, and the study of education. The requirements for competence in these areas might differ depending on the amount of teaching experience, the academic designation, the prior educational training of the teacher, his or her departmental background, and the opportunities for faculty development. To be a proficient teacher in newer aspects of education like competency-based assessment, digital education, simulation and educational research, experienced faculty must build up the competency, but it is not necessary to have a lot of experience to be proficient (7, 8).

It is therefore necessary to identify the educational needs prior to designing faculty-development programs. Needs assessment is a process in which the institutions assess the parts of the curriculum where faculty members are confident and where they need more support. It also contributes to ensuring that training programs are relevant, focused and meet institutional and curricular needs. Assessment, feedback, curriculum planning, educational technology, mentoring, leadership, and research in health professions education are examples of common faculty-development needs in medical education.

Despite the increasing emphasis on competency-based medical education, locally generated evidence regarding the teaching competencies and educational needs of medical faculty remains limited in many institutions. Without such information, faculty-development programs may be designed without adequately addressing actual competency gaps. The present study was therefore conducted to assess teaching competency across major educational domains, determine the educational needs of faculty members, and examine the relationship between selected

faculty characteristics and overall teaching competency at Women Medical College.

METHODOLOGY

This descriptive cross-sectional study was conducted at Women Medical College from June 2025 to December 2025. The study was designed to assess the teaching competency of medical faculty members and to identify their educational and faculty-development needs using a competency-based framework. Faculty members from both basic sciences and clinical departments who were actively involved in undergraduate medical teaching during the study period were considered eligible. Faculty members who were on prolonged leave, not directly involved in teaching activities, or unwilling to participate were excluded. Ethical approval was obtained from the relevant institutional review committee before commencement of data collection, and written informed consent was obtained from all participants.

There were 91 medical faculty members included in the study. The sample group was selected up to sample size using non-probability consecutive sampling method. In order to represent different levels of academic experience, lecturers/demonstrators, assistant professors, associate professors and professors were approached as faculty members. Data on age, gender, department, academic designation, teaching experience and previous experience in faculty-development or medical-education training events were collected on a structured data collection form.

The competency of the teachers was assessed using a structured competency based questionnaire on major domains of the faculty teaching competency. The domains these covered were teaching planning and preparation, teaching and facilitation skills, assessment competency, feedback and mentoring, communication and maintaining an effective learning environment, and knowledge of curriculum and competency-based medical education, educational technology, and educational scholarship or research. All items were measured on a 5-point Likert scale with higher scores indicating higher perceived competence. The domain-specific mean scores were computed and an overall teaching competency score was obtained by taking the average of the responses for the competency items included. The overall competency was judged based on predetermined scores ranges

and was grouped into low, moderate and high levels for descriptive interpretation.

The educational needs were identified by asking faculty members to indicate their need for further professional development. These encompassed assessment methods, developing questions, competency-based medical education and curriculum development, use of educational technology, medical education research, feedback and mentoring, interactive teaching methods, small-group facilitation, student engagement, and educational leadership. Participants were also asked about their favorite methods of faculty development, including workshops, short courses, online learning modules, and mentoring and coaching. The questionnaire was checked for clarity and relevance of questions before being administered and participants were allowed adequate time on which to complete the questionnaire independently. The confidentiality and anonymity of responses were preserved during the study.

The Statistical Package for the Social Sciences (SPSS) was used to enter and analyse data. Continuous data like age and competency scores were reported as mean $\pm$ SD, and categorical data were reported as frequencies and percentages. Twenty-nine faculty characteristics were compared for mean competency scores. For comparisons between

two groups, the independent-samples t-test was employed and when more than two groups were compared, one-way analysis of variance (ANOVA) was used. If the assumptions of parametric testing were not met, then appropriate non-parametric alternatives were considered. The chi-square test or Fisher's exact test, as appropriate, were used to evaluate associations between categorical variables. A P-value of <0.05 was regarded as statistically significant at 95% confidence level.

RESULTS

Ninety-one medical faculty members participated in the study. The mean age of the participants was 41.8 ± 8.7 years, with the majority belonging to the 31–40-year age group (34.1%), followed by 41–50 years (31.9%). The distribution of the sample by sex was 54.9% male and 45.1% female. As far as academic designation was concerned, the assistant professors were the largest group (36.3%), followed by associate professors (25.3%), lecturers/demonstrators (22.0%) and professors (16.5%). The majority of participants (57.1%) was from clinical departments. The average teaching experience was about 9 years, and 59.3% of the faculty had participated in at least one formal faculty-development or medical-education training activity.

Table 1. Demographic and Professional Characteristics of Medical Faculty (N = 91)

Variable	n (%) / Mean $\pm$ SD
Age, years	41.8 $\pm$ 8.7
Age group	
≤30 years	11 (12.1)
31–40 years	31 (34.1)
41–50 years	29 (31.9)
>50 years	20 (22.0)
Gender	
Male	50 (54.9)
Female	41 (45.1)
Academic designation	
Lecturer/Demonstrator	20 (22.0)
Assistant Professor	33 (36.3)
Associate Professor	23 (25.3)
Professor	15 (16.5)
Department	
Basic sciences	39 (42.9)
Clinical sciences	52 (57.1)
Teaching experience	
<5 years	22 (24.2)
5–10 years	31 (34.1)
>10 years	38 (41.8)
Previous faculty-development training	54 (59.3)

No previous faculty-development training	37 (40.7)
--	-----------

Varying performance was observed when assessing teaching competency for each of the domains in the competency-based framework. Communication and maintenance of the learning environment (4.12 ± 0.55) were the best mean competency scores, followed by the teaching and facilitation skills (3.98 ± 0.61) and feedback and mentoring (3.74 ± 0.68). The faculty scores were relatively low in assessment

competency (3.49 ± 0.72), know-how of curriculum and competency-based education (CCE) (3.31 ± 0.75), and educational technology (3.18 ± 0.81). Medical education research (2.96 ± 0.79) had the lowest mean score. The overall teaching competency score was 3.55 ± 0.52 on the five-point competency scale.

Table 2. Teaching Competency Scores across Competency-Based Domains

Competency Domain	Mean $\pm$ SD	Rank
Communication and learning environment	4.12 ± 0.55	1
Teaching and facilitation skills	3.98 ± 0.61	2
Feedback and mentoring	3.74 ± 0.68	3
Teaching planning and preparation	3.69 ± 0.64	4
Assessment competency	3.49 ± 0.72	5
Curriculum and CBME knowledge	3.31 ± 0.75	6
Educational technology	3.18 ± 0.81	7
Educational scholarship/research	2.96 ± 0.79	8
Overall teaching competency	3.55 ± 0.52	—

Of all faculty members, 25 (27.5%) had a high competency in teaching, and 49 (53.8%) had a moderate competency in teaching when the overall competency score was categorized. 18.7% (17) of those who took part had a fairly

low competency level. Accordingly, over half of the faculty showed moderate competency which suggests a level of effectiveness in teaching but great need for formalised professional learning and development.

Table 3. Overall Level of Teaching Competency among Faculty

Competency level	n	%
Low competency	17	18.7
Moderate competency	49	53.8
High competency	25	27.5
Total	91	100.0

Faculty members came up with a number of suggestions where further educational training was needed. Assessment methods/assessment and development of questions was reported most (67.0%) and next was competency-based medical education/competency and curriculum development (62.6%). 58.2% said they needed to be trained in educational technology and

digital teaching tools, and 54.9% said they needed to be trained in medical education research and scholarship. Almost half of the respondents also cited a need for additional development in feedback and mentoring skills. The most popular faculty development method was workshops (61.5%).

Table 4. Educational and Faculty-Development Needs Reported By Medical Faculty

Educational need	n (%)
Assessment methods and question development	61 (67.0)
CBME and curriculum development	57 (62.6)
Educational technology/digital teaching	53 (58.2)
Medical education research and scholarship	50 (54.9)
Feedback and mentoring skills	45 (49.5)
Interactive teaching strategies	42 (46.2)
Student engagement and small-group facilitation	38 (41.8)
Educational leadership	35 (38.5)

Preferred faculty-development format	
Workshops	56 (61.5)
Short courses	16 (17.6)
Online modules	11 (12.1)
Mentoring/coaching programs	8 (8.8)

The results of the comparative analysis revealed that there was a significant positive correlation between the participation in the faculty-development training and the overall teaching competency. The mean competency score was 3.72 ± 0.46 for faculty who had received formal training, and 3.30 ± 0.50 for

faculty who had no previous training ($p < 0.001$). There was also a significant increase in competency scores for teaching experience ($p = 0.018$) and academic designation ($p = 0.026$). However, no statistically significant difference in competency was found, by gender ($p = 0.418$) or by department type ($p = 0.287$).

Table 5. Association of Faculty Characteristics with Overall Teaching Competency Score

Faculty characteristic	Mean competency score $\pm$ SD	p-value
Gender		
Male	3.59 ± 0.53	0.418
Female	3.50 ± 0.51	
Department		
Basic sciences	3.49 ± 0.54	0.287
Clinical sciences	3.60 ± 0.50	
Teaching experience		0.018
<5 years	3.32 ± 0.50	
5–10 years	3.54 ± 0.48	
>10 years	3.70 ± 0.51	
Previous faculty-development training		<0.001
Yes	3.72 ± 0.46	
No	3.30 ± 0.50	
Academic designation		0.026
Lecturer/Demonstrator	3.31 ± 0.51	
Assistant Professor	3.53 ± 0.49	
Associate Professor	3.68 ± 0.50	
Professor	3.76 ± 0.48	

Overall, it is found that the teaching competency of medical faculty generally has moderate level with the most good results in communication, teaching facilitation and effective learning environment. A bit lower performance was identified in educational scholarship, digital teaching, and competencies

in development of curriculum and assessment. Faculty-development exposure and teaching experience were significantly and positively related to competency, and the high frequencies of educational needs reported emphasized the need for ongoing and systematic faculty-development initiatives.

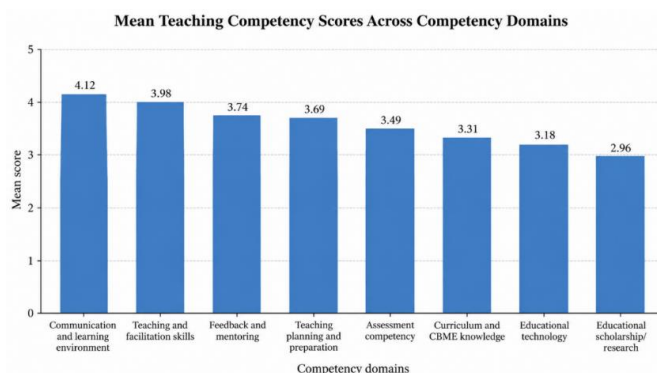


Figure 1. Mean Teaching Competency Scores Across Competency Domains Among Medical Faculty (N = 91).

The bar graph illustrates the mean scores of medical faculty across eight competency domains using a competency-based framework. The highest mean score was observed for communication and learning environment (4.12), followed by teaching and facilitation skills (3.98) and feedback and mentoring (3.74). Lower mean scores were noted for curriculum and CBME knowledge (3.31), educational technology (3.18), and educational scholarship/research (2.96), indicating these as the major areas of educational need.

DISCUSSION

The present study assessed teaching competency and educational needs among medical faculty using a competency-based framework and found that the overall level of teaching competency was predominantly moderate. More than half of the participants were categorized as having moderate competency, while approximately one-quarter demonstrated high competency. Among the individual domains, communication and maintenance of an effective learning environment achieved the highest mean score, followed by teaching and facilitation skills. These findings indicate that faculty members were relatively confident in their direct interaction with students and routine instructional responsibilities. Contemporary competency frameworks similarly emphasize that effective medical teachers require not only subject expertise but also communication, facilitation, assessment, curriculum, scholarship, and professional-development competencies (9-11).

One of the interesting results was the relatively poor scores in educational scholarship, educational technology and competency-based curriculum knowledge. The lowest mean score was in the educational scholarship/research category, indicating that the educational research methodology and scientific evaluation of educational practice may not be well known or well-practiced by many faculty members. The relatively low scores for competency-based medical education and digital teaching are equally noteworthy, as medical education increasingly moves toward competency- and outcomes-based approaches, it is important to deliberately structure faculty development around clearly defined faculty competencies, individual assessment, sequenced learning opportunities, coaching, and ongoing faculty growth, rather than as isolated training

activities. Studies reported that competency-based faculty development should be deliberately structured around clearly defined faculty competencies, individual assessment, sequenced learning opportunities, coaching, and ongoing faculty growth, rather than as isolated training activities. These observations suggest the importance of institutional faculty development programmes that go beyond simple teaching skills to curriculum design, educational technology, scholarship and competency assessment (12-15).

Education needs reported by the participants further support these competency gaps. Assessment techniques and the creation of questions was cited as the most common training need area followed by competency based medical education and competency based curriculum development, educational technology, and medical education research. In Pakistan, a similar study found that competency-based curricula, effective feedback, development of OSCE, and clinical supervision are areas of faculty development that are important for health professions educators. Similarly, a competency based medical education needs assessment showed that readiness to implement CBME, assessment tools, feedback and coaching were among the most important faculty-development priorities. The results of the present study were similar to those of other studies, indicating that literacy and competency-based curriculum implementation continue to be similar developmental needs in different medical education environments (16-18).

Another key finding is that prior to the faculty development activities, there was a significant correlation between the higher overall teaching competency. The mean competency scores for faculty who had received formal educational training were significantly higher than for faculty who had not received formal educational training. An increase in teaching experience and academic qualification was also correlated with greater competency. This connection could be a result of the cumulative benefits of repetition of teaching practice, mentoring, institutional duties, and increased experiences in educational activities over time. Research from faculty development, too, indicates that structured educational interventions can enhance observable teaching behavior. For instance, a structured curriculum designed to improve lecturing skills has resulted in improvements in classroom teaching after evaluation of a faculty-development program

that focused on this skill. Together, these results suggest that faculty competency is not innate but can be developed over time through ongoing faculty development (19, 20).

The results must still be viewed under certain restrictions, however. The study was done at one medical college with a small number of faculty (n = 91); the findings may not be generalizable to other medical colleges. Most of the competencies were measured on a self-reported basis, which could have led to some self-perception or social desirability effects on scores. The cross-sectional study also does not allow the establishment of a causal relationship between faculty-development exposure and educational competence. Further research in multiple centers should include objective evaluation including peer observation, student evaluations, teaching portfolios and performance-based evaluation. Long-term evaluation of targeted interventions in faculty development for sustained enhancement of specific competencies, such as educational scholarship, assessment, competency-based curricular development, and digital teaching, could also be explored in the context of longitudinal studies.

CONCLUSION

Medical faculty demonstrated an overall moderate level of teaching competency, with their strongest performance observed in communication, learning environment, and teaching facilitation. Comparatively weaker competencies were identified in educational scholarship, educational technology, curriculum development, and competency-based medical education. Assessment methods, CBME, educational technology, and medical education research emerged as the leading faculty-development needs. Previous participation in formal faculty-development activities, greater teaching experience, and higher academic designation were associated with better teaching competency. These findings support the establishment of structured, continuous, and needs-based faculty-development programs that specifically target identified competency gaps and promote ongoing professional growth among medical educators.

REFERENCES

1. Merriam SB, Vanderberg R, McNeil MA, Nikiforova T, Spagnoletti CL. A Robust Faculty Development Program for Medical Educators: A Decade of Experience. *Southern medical journal*. 2020;113(6):275-80 DOI: 10.14423/smj.0000000000001103.
2. Desai D, Sen S, Desai S, Desai R, Dash S. Assessment of online teaching as an adjunct to medical education in the backdrop of COVID-19 lockdown in a developing country - An online survey. *Indian journal of ophthalmology*. 2020;68(11):2399-403 DOI: 10.4103/ijo.IJO_2049_20.
3. Wolff M, Hammoud M, Santen S, Deiorio N, Fix M. Coaching in undergraduate medical education: a national survey. *Med Educ Online*. 2020;25(1):1699765 DOI: 10.1080/10872981.2019.1699765.
4. Im JH, Kim JW, Park WB, Han I, Lee SH, Shin JS, et al. Is it feasible and effective to provide faculty development programs online for clinical teachers? *Korean journal of medical education*. 2021;33(2):139-45 DOI: 10.3946/kjme.2021.195.
5. Vishwanathan K, Patel GM, Patel DJ. Medical faculty perception toward digital teaching methods during COVID-19 pandemic: Experience from India. *J Educ Health Promot*. 2021;10:95 DOI: 10.4103/jehp.jehp_805_20.
6. Sirianni G, Walcott S, Glover Takahashi S. Collective Wisdom in Faculty Development for Competency-Based Medical Education: A Needs Assessment and Survey. *MedEdPublish* (2016). 2021;10:152 DOI: 10.15694/mep.2021.000152.1.
7. Kiran F, Ayub R, Rauf A, Qamar K. Evaluating the impact of faculty development programme initiative: Are we really improving skills in MCQ writing? *J Pak Med Assoc*. 2021;71(10):2434-8 DOI: 10.47391/jpma.1207.
8. Heath JK, Davis JE, Dine CJ, Padmore JS. Faculty Development for Milestones and Clinical Competency Committees. *Journal of graduate medical education*. 2021;13(2 Suppl):127-31 DOI: 10.4300/jgme-d-20-00851.1.
9. Nair BR, Gilligan C, Jolly B. Measuring the Impact of a Faculty Development Program on Clinical Educators. *Adv Med Educ Pract*. 2022;13:129-36 DOI: 10.2147/amep.S347790.
10. Hanson ER, Gantwerker EA, Chang DA, Nagpal AS. To teach or not to teach? Assessing medical school faculty motivation to teach in the era of curriculum reform. *BMC medical*

- education. 2022;22(1):363 DOI: 10.1186/s12909-022-03416-5.
11. Constantinou C, Wijnen-Meijer M. Student evaluations of teaching and the development of a comprehensive measure of teaching effectiveness for medical schools. BMC medical education. 2022;22(1):113 DOI: 10.1186/s12909-022-03148-6.
12. Tulshian P, Gopal B, Kenyon T. Faculty Competencies: An Exploration of Feasibility and Acceptance. PRiMER (Leawood, Kan). 2022;6:32 DOI: 10.22454/PRiMER.2022.111657.
13. Kalynych C, Edwards L, West D, Snodgrass C, Zenni E. Tuesday's Teaching Tips-Evaluation and Feedback: A Spaced Education Strategy for Faculty Development. MedEdPORTAL : the journal of teaching and learning resources. 2022;18:11281 DOI: 10.15766/mep_2374-8265.11281.
14. Zehra T, Saeed S, Ali R, Sultan A, Hussain A. Needs assessment for faculty development in health professions education at a medical university in Karachi, Pakistan. J Pak Med Assoc. 2023;73(1):147-9 DOI: 10.47391/jpma.5229.
15. Ali SMH, Ahsen NF, Zil EAA. A triangulation model for assessment of change in classroom behavior of medical teachers participating in faculty development program on lecturing skills. Scottish medical journal. 2023;68(1):32-6 DOI: 10.1177/00369330221130766.
16. Zehra T, Tariq M, Rehman R, Zuberi RW. Basics of faculty-to-faculty mentoring: A process to identify support and challenges. PLoS One. 2023;18(6):e0287127 DOI: 10.1371/journal.pone.0287127.
17. Keshmiri F. The effect of the Educational Scholar Program as a longitudinal faculty development program on the capability of educators as scholars. BMC medical education. 2023;23(1):691 DOI: 10.1186/s12909-023-04682-7.
18. Kiran F, Ayub R, Rauf A, Zahoor A. Transforming professional identity of medical teachers in Pakistan by a certificate program in health professions education: a thematic analysis of reflective essays. 2024;Volume 10 - 2023DOI: 10.3389/fmed.2023.1323075.
19. Salajegheh M, Sandars J, Mirzazadeh A, Gandomkar R. Understanding the capacity development of faculty development programs: a sequential explanatory mixed methods study. BMC medical education. 2024;24(1):744 DOI: 10.1186/s12909-024-05715-5.
20. Katz G, Miloslavsky EM, Fernandes AD, Bolster MB. Enhancing Faculty Development Through Compiled Verbal Feedback on Clinical Teaching From Trainees. ACR open rheumatology. 2024;6(3):139-44 DOI: 10.1002/acr2.11638.