

Original Research Article

Factors affecting the quality of postgraduate medical education in Pakistan – residents' perspective

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ABSTRACT

Background: Postgraduate medical education (PGME) plays a crucial role in healthcare workforce development. In developing countries like Pakistan, PGME has seen significant advancements, particularly through institutions such as the College of Physicians and Surgeons. However, challenges persist in ensuring high-quality training. This study aims to explore factors affecting the quality of PGME, including pre-training support, training structure, research opportunities, soft skills development, and workplace environment.

Methods: A cross-sectional survey was conducted among 116 postgraduate residents from various hospitals in Punjab, Pakistan. Data was collected using a structured questionnaire, analyzing demographics, training structure, research opportunities, soft skills, and workplace support. Descriptive and inferential statistical analyses were performed, with a chi-square test used to identify significant associations.

Results: The study revealed inadequate pre-training support, with only 19.8% of residents receiving academic or assessment regulations before training. Dissatisfaction with the training structure was prevalent, particularly regarding trainer-to-trainee ratios and feedback mechanisms. A lack of integration of research opportunities within training was noted, with 40% of residents reporting insufficient skills. While 66% reported positive impacts on medical knowledge, soft skills development was inadequately addressed. Significant concerns regarding workplace social support, including gender discrimination and inadequate facilities, were highlighted. Statistically significant associations were found between specialty and factors such as pre-training support, soft skills, and workplace support ($p < 0.05$).

Conclusions: The findings emphasize the need for systematic improvements in PGME, particularly in pre-training orientation, mentorship, structured research opportunities, and workplace culture. Addressing these issues through targeted interventions can enhance the training experience and outcomes for postgraduate residents in Pakistan.

Keywords: Medical education, Postgraduate education, Quality of education

INTRODUCTION

Postgraduate medical education (PGME) is a cornerstone of clinical expertise, requiring the interplay of a supportive working environment, structured training programs, a manageable workload, and effective mentorship. Studies consistently show that the quality of PGME directly impacts clinical competency, patient outcomes, and

professional satisfaction.¹ An effective PGME system enhances advanced knowledge acquisition, technical skills, critical thinking, and adherence to lifelong learning principles.²

However, satisfaction among residents varies significantly, with work-life balance often cited as a major challenge. A study conducted in Pakistan reported that

59% of residents identified work-life imbalance as a primary concern.³ Globally, there are similar concerns; for instance, a US-based survey found that 54% of residents experienced burnout during their training, which negatively influenced their performance.⁴ Furthermore, reports have widely documented discrepancies between residents' expectations and actual training experiences, with dissatisfaction rates exceeding 40% in some programs.⁵ This dissatisfaction stems from factors such as inadequate mentorship, insufficient feedback, and limited access to resources.⁶

Despite the critical importance of PGME, research on factors affecting its quality in Pakistan is sparse. Existing studies only focus on single institutions or specialties, limiting the generalizability of findings.⁷ For example, Saaiq et al reported that only 47.52% of residents had regular meetings with their supervisors, a key determinant of training quality.⁸

Addressing these gaps requires comprehensive, multicenter studies that explore the diverse challenges faced by PGME residents across the country. This cross-sectional study investigates the factors affecting postgraduate medical education in Punjab, providing insights for improving training environments and resident well-being.

Objective

This study aims to evaluate key factors influencing the quality of PGME in Pakistan. It focuses on pre-training support, training structure, research integration, soft skills development, and workplace environment to identify areas needing improvement for enhanced resident training and well-being.

METHODS

This study employed a cross-sectional design and was conducted in different teaching hospitals across Punjab offering accredited fellowship training in general surgery and medicine. The target population included resident doctors (both genders) in their first to fourth years of training. We excluded, house officers, nursing staff and residents who were unwilling to participate.

A sample size of 116 was calculated using OpenEpi software using a confidence level of 95%, and a 5% margin of error. Participants were selected using convenient sampling techniques. Data was collected from May 2024 to January 2025.

Data was collected using a revised questionnaire based on earlier studies. It focused on five main factors that affect the quality of PGME: support and resources before training, the organization and relevance of the training program, the development of professional skills, training in soft skills and leadership, and social and emotional support in the workplace. Responses were recorded on a

Likert scale ranging from strongly agree (1) to strongly disagree (5).

Prior to data collection, participants were briefed on the study objectives and confidentiality was assured. Cronbach's alpha was calculated to ensure internal consistency ($\alpha=0.78$). Data analysis used simple statistics and chi-square tests to look at how variables are related. We considered a p value of less than 0.05 to be significant. Analysis was conducted using statistical package for the social sciences (SPSS) version 30.

RESULTS

The descriptive analysis of 116 responses revealed following details given in Table 1.

Table 1: Demographic values.

Variables	Percentage
Age (years)	
25-30	34.5
31-35	60.3
36-40	5.2
41-45	0.0
Above 45	0.0
Gender	
Male	56.0
Female	44.0
Specialty	
Allied Medicine	33.6
Allied Surgery	28.4
Anesthesia	1.8
Medicine	13.8
Paediatrics	1.8
Pathology	1.7
Radiology	2.6
Surgery	13.8
Orthopedics	2.6
Residency year	
Completed	54.3
Fifth year	6.0
Fourth year	11.2
Third year	2.6
Second year	18.1
First year	7.8

We also conducted inferential analysis in addition to descriptive analysis. A Chi-square test was run to find the relationship between the specialty and the factors affecting the quality of postgraduate education. P value <0.05 was considered statistically significant.

We found a significant relationship between specialty and pre-training support and resource availability (p value <0.001). A significant association was also observed between specialty and soft skills and leadership development (p value <0.001). Furthermore, a noteworthy

relationship was also found between specialty and workplace social and emotional support (p value <0.01).

However, we found no significant relationship between specialty and relevance and the structure of the training program (p value=0.440) nor between specialty and the training's impact on professional competency (p value=0.080).

Also, there was no important link found between the factors that influence the quality of postgraduate education and demographic details like gender, teaching hospital, city, and year of residency. Chi-square tests performed for these demographic factors indicated no significant differences across the groups (p>0.05).

Table 2: Postgraduate residents' perspective about pre-training support and resource availability.

Statements	Yes (%)	No (%)
Before starting your training, did you receive any copy of the academic or assessment regulations	23 (19.8)	93 (80.2)
Before starting your training, did you receive the logbook?	35 (30.2)	81 (69.8)
Did you attend any orientation session about how to use this logbook?	13 (11.2)	103 (88.8)
Before starting your training, were you informed by the management team/coordinator/s about the program?	32 (27.6)	84 (72.4)
Have you participated in the design – review – update – development of this training program?	17 (14.7)	99 (85.3)
Have you been involved/or you know one of your colleagues in the evaluation of this training program?	27 (23.3)	89 (76.7)
Have you been asked to give feedback to your trainers (consultants) regarding his performance in (teaching – research – supervision – counselling – service delivery)?	30 (25.9)	86 (74.1)

Table 3: Postgraduate residents' perception about relevance and structure of training program.

Statements	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
Number of trainers	4 (3.4)	25 (21.6)	37 (31.9)	33 (28.4)	17 (14.7)
Trainers (consultants)/trainee (registrars) ratio	5 (4.3)	25 (21.6)	19 (16.4)	46 (39.7)	21 (18.1)
Information and communication technology such electronic library and internet services	8 (6.9)	18 (15.5)	8 (6.9)	48 (41.4)	34 (29.3)
Opportunity to conduct research	6 (5.2)	20 (17.2)	17 (14.7)	40 (34.5)	33 (28.4)
Research methodology courses that have been conducted were helpful	5 (4.3)	37 (31.9)	37 (31.9)	24 (20.70)	13 (11.2)
Communication skills courses that have been conducted were helpful	10 (8.6)	45 (38.8)	39 (33.6)	12 (10.3)	10 (8.6)
Professionalism courses that have been conducted were helpful	6 (5.2)	34 (29.3)	42 (36.2)	21 (18.1)	13 (11.2)

Table 4: Postgraduate residents' perception about the training impact on professional competency.

Statements	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
Patient care	18 (15.5)	50 (43.1)	23 (19.8)	18 (15.5)	7 (6.0)
Medical knowledge	13 (11.2)	66 (56.9)	19 (16.4)	14 (12.1)	4 (3.4)
Interpersonal and communication skills	10 (8.6)	33 (28.4)	42 (36.2)	21 (18.1)	10 (8.6)
Professionalism	12 (10.3)	33 (28.4)	35 (30.2)	21 (18.1)	15 (12.9)
Practice-based learning and improvement	15 (12.9)	54 (46.6)	24 (20.7)	14 (12.1)	9 (7.8)
System-based practice	13 (11.2)	28 (24.1)	34 (29.3)	28 (24.1)	13 (11.2)

Table 5: Postgraduate residents' perception about the soft skills and leadership development.

Statements	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
The program helped me to be a medical expert	9 (7.8)	57 (49.1)	32 (27.6)	10 (8.6)	8 (6.9)

Continued.

Statements	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
The program helped me to be a communicator	5 (4.3)	38 (32.8)	45 (38.8)	22 (19.0)	6 (5.2)
The program helped me to be a collaborator	6 (5.2)	35 (30.2)	40 (34.5)	27 (23.3)	8 (6.9)
The program helped me to be a leader	8 (6.9)	30 (25.9)	31 (26.7)	28 (24.1)	19 (16.4)
The program helped me to be a health advocate	8 (6.9)	50 (43.1)	26 (22.4)	20 (17.2)	12 (10.3)
The program helped me to be a scholar	4 (3.4)	22 (19.1)	34 (29.3)	37 (31.9)	19 (16.4)
The program helped me to be a professional	8 (6.9)	49 (42.2)	37 (31.9)	12 (10.3)	10 (8.6)

Table 6: Perception of postgraduate student about workplace social and emotional support.

Statements	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
There is gender discrimination in this unit	11 (9.5)	34 (29.3)	21 (18.1)	35 (30.2)	15 (12.9)
I have good collaboration with other doctors in my grade	16 (13.8)	75 (64.7)	16 (13.8)	5 (4.3)	4 (3.4)
I have suitable access to careers advice	5 (4.3)	32 (27.6)	22 (19.0)	34 (29.3)	23 (19.8)
This hospital has good quality accommodation for doctors, especially when on call	9 (7.8)	16 (13.8)	12 (10.3)	28 (24.1)	51 (44.0)
I feel physically safe within the hospital environment	15 (12.9)	23 (19.8)	18 (15.5)	30 (25.9)	30 (25.9)
There is a no-blame culture in this unit	7 (6.0)	16 (13.8)	15 (12.9)	35 (30.2)	43 (37.1)
There are adequate catering facilities when I am on call	12 (10.3)	13 (11.2)	7 (6.0)	45 (38.8)	39 (33.6)

DISCUSSION

PGME ventured late into the developing countries and has developed slowly compared to the developed world. The establishment of institutes like the College of Physicians and Surgeons has achieved enormous success in providing standardized healthcare specialist education and training over the past few decades.⁹ However, there is still much room for improvement, as demonstrated by our study.

The results show that most residents did not get enough support before training, highlighting a big problem in how they were initially prepared. Ayana et al found that 55.7% of respondents reported that induction and orientation training improved their job satisfaction.¹⁰ This highlights the significance of such guidance programs.

Many residents are unhappy with how their training programs are organized. This is similar to a study by Khan et al, where only 46.5% of public sector postgraduate students felt that their program was well-structured. Similarly, negative trends of satisfaction have been noted in a recent survey done with surgical trainees in the UK, where 198 metrics of satisfaction were analyzed, out of which 83 (42%) were found to have statistically significant negative trends ($p < 0.05$).¹¹ Numerous studies have shown that mentorship plays a crucial role in enhancing trainee satisfaction. Yoon et al demonstrated that while 98% of respondents considered mentorship as important to their success, 62% expressed some level of dissatisfaction with the level of mentorship received.¹² In our study, a large number of residents (39%) expressed dissatisfaction with

the trainer-to-trainee ratio, underscoring the need for improved supervision and mentorship. Similarly, different aspects of supervision also had a significant impact on the overall job satisfaction of the residents, as shown by van der Wal et al. Job satisfaction Improved because of good leadership ($p=0.017$), following clear instructions ($p=0.008$), and open communication ($p=0.008$). However, it decreased when decisions were made together ($p=0.007$). Alam et al showed that 41.3% of participants felt that monitoring/evaluation was not available for their residency program.¹³ 74.1% of participants in our study said that they were not asked to provide feedback regarding their supervisors. Standardized feedback mechanisms can help maintain a high standard of supervision, make an informed decision while choosing a supervisor, and aid in appraisals and revalidations of the supervisors.¹⁴

Despite the availability of research and skills courses, many residents (40%) reported a lack of opportunities and skills to conduct effective research, which was also demonstrated by similar previous studies. This disconnect between the availability of resources and their utilization emphasizes the need for better integration of research opportunities within the training structure.

Residents displayed an overall positive perception of the impact of their training on clinical competency. 50% of the participants reported that their training enhanced effective patient care, and 66% agreed with an increase in medical knowledge, as demonstrated in literature.^{15,16} This indicates that, despite multiple challenges, the clinical training component effectively meets its primary objective of enhancing professional competency.

The responses regarding the development of soft skills were scattered and predominantly neutral, reflecting a lack of structured teaching in this domain. These skills, also referred to as emotional intelligence, are essential for a holistic professional identity.¹⁷ Research shows that emotional intelligence and soft skills are important for success in many areas. They help with teamwork, build better relationships with patients and professionals, reduce the chances of legal issues, improve decision-making and diagnoses in stressful situations, and encourage patients to follow treatment plans.¹⁸ Incorporating dedicated modules or workshops on soft skills into the training curriculum could significantly enhance residents' ability to cope with healthcare challenges of the 21st century.¹⁹

The perception of workplace social support revealed significant concerns, including gender discrimination, inadequate accommodation, and a blame culture.²⁰ Gender discrimination, in particular, calls for urgent attention, as it not only affects morale but also undermines equity and inclusivity in the workplace.²⁰

Mutual collaborations among residents was reported as a positive aspect (75%), indicating the presence of peer support. However, the dominance of paramedics, inadequate catering facilities, and insufficient accommodation were frequently highlighted as areas requiring improvement. Addressing these issues through targeted policy interventions and fostering a supportive workplace culture is essential to improving the overall training environment and resident satisfaction.

Limitations

This study has several limitations that should be acknowledged. Firstly, the use of convenience sampling introduces potential sampling bias, as participants were not randomly selected, which may affect the representativeness of the findings. Additionally, a significant proportion of the respondents were from Lahore, creating an urban-centric dataset that may not accurately reflect the experiences of postgraduate residents from other cities or rural areas of Punjab. Consequently, the generalizability of the results is limited. The cross-sectional design of the study further restricts its ability to determine causality or track changes over time. Moreover, the reliance on self-reported data raises concerns about the accuracy of responses due to possible recall errors or social desirability bias.

Another limitation is the exclusion of other key stakeholders such as supervisors, administrators, and policymakers, which restricts the study's scope in understanding institutional and systemic factors. The research also lacks a longitudinal follow-up, preventing insights into the long-term effects of the issues identified. Lastly, the possibility of institutional bias cannot be overlooked, as some medical institutions were more represented than others, potentially influencing the overall findings.

CONCLUSION

This study highlights critical areas for improvement in PGME in Pakistan, particularly in pre-training support, training structure, research opportunities, soft skills development, and workplace environment. The findings underscore the need for systematic enhancements to ensure high-quality training. Specifically, there is a requirement for robust pre-training orientation programs and improved mentorship through better trainer-to-trainee ratios. Additionally, integrating structured research opportunities into the curriculum can address the reported lack of skills among residents. Enhancing workplace culture by addressing issues like gender discrimination and improving facilities is also essential.

By implementing targeted interventions to address these challenges, PGME programs can significantly enhance the training experience and outcomes for postgraduate residents in Pakistan. This not only benefits individual trainees but also contributes to strengthening the healthcare workforce nationally. The study's recommendations align with broader challenges faced by developing countries in providing effective PGME due to resource constraints and inadequate infrastructure. Addressing these gaps will be crucial for achieving sustainable improvements in healthcare delivery across Pakistan.

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REFERENCES

1. Flaherty GT, Connolly R, O'Brien T. Measurement of the postgraduate educational environment of junior doctors training in medicine at an Irish university teaching hospital. *Ir J Med Sci*. 2016;185(3):565-71.
2. Fishbain D, Danon YL, Nissanzholz-Gannot R. Accreditation systems for postgraduate medical education: a comparison of five countries. *Adv Health Sci Educ Theory Pract*. 2019;24(3):503-24.
3. Alam L, Khan J, Alam M, Faraid V, Ajmal F, Bahadur L. Residents' perspective on the quality of postgraduate training programs in Pakistan – the good, the bad and the ugly. *Pak J Med Sci*. 2021;37(7):1819-25.
4. Shanafelt TD, Hasan O, Dyrbye LN, Sinsky C, Satele D, Sloan J, et al. Changes in burnout and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014. *Mayo Clin Proc*. 2015;90(12):1600-13.
5. Li SS, Herrick NL, Deshpande RR, Cronin BJ, Reid CM, Brandel MG, et al. The impact of residents on patient satisfaction. *Ann Plast Surg*. 2018;80(5 Suppl 5):S247-50.
6. Biedma-Velázquez L, Serrano-Del-Rosal R, García-De-Diego JM, Cerrillo-Vidal JA, Biedma-Velázquez L, Velázquez V, et al. Dissatisfaction with residency:

a discrepancy between preferences and expectations. *Med Teach*. 2012;34(11):e772-8.

7. Saaq M, Zaman KU. Residents' perceptions of their working conditions during residency training at PIMS. *J Coll Physicians Surg Pak*. 2010;20(6):400-4.
8. Khan AA, Shaikh S, Ahmed Z, Zafar M, Anjum MU, Tahir A, et al. Quality of postgraduate medical training in public and private tertiary care hospitals of Karachi. *J Postgrad Med Inst*. 2014;28(1).
9. van der Wal MA, Schönrock-Adema J, Scheele F, Schripsema NR, Jaarsma DC, Cohen-Schotanus J. Supervisor leadership in relation to resident job satisfaction. *BMC Med Educ*. 2016;16(1):68.
10. Sisay SA, Ayana TA, Feyera GB. Induction and orientation practices and perceived effect on health workforce performance and satisfaction in public hospitals of Ilubabour Zone, Oromia Regional State, Southwest Ethiopia, 2018: a facility-based cross-sectional study design. *medRxiv*. 2020;20165001.
11. McDonald TN, Lindsay T. Surgical trainee experiences from 2013 to 2023 within the United Kingdom as reported by the General Medical Council National Training Survey. *Surgeon*. 2024;22(2):74-9.
12. Yoon JY, Appleton T, Cecchini MJ, Correa RJ, Ram VD, Wang X, et al. It begins with the right supervisor: importance of mentorship and clinician-investigator trainee satisfaction levels in Canada. *Clin Invest Med*. 2013;36(6):E269-76.
13. Christopher JH, Wheeler M, Fletcher P. Watching the watchmen: an evaluation of educational supervision in a busy district general hospital. *Postgrad Med J*. 2020;96(1142):777-9.
14. Kramer AM, Zuithoff JJ, Jansen LH, Tan HC, Grol R, van der Vleuten CP. Growth of self-perceived clinical competence in postgraduate training for general practice and its relation to potentially influencing factors. *Adv Health Sci Educ Theory Pract*. 2007;12(2):135-45.
15. Luo C, Zhang M, Yang Y, Tung TH. Self-perceived knowledge, attitude, and practice of evidence-based medicine before and after training among healthcare workers in Taizhou, China. *BMC Med Educ*. 2024;24:700.
16. McCallin A, Bamford A. Interdisciplinary teamwork: is the influence of emotional intelligence fully appreciated? *J Nurs Manag*. 2007;15(4):386-91.
17. Weng HC, Chen HC, Chen HJ, Lu K, Hung SY. Doctors' emotional intelligence and the patient-doctor relationship. *Med Educ*. 2008;42(7):703-11.
18. Mendelson RA. Reduce risk of malpractice suits by forging patient relationships. *AAP News*. 2003;22(6):260.
19. Nooryan K, Gasparyan K, Sharif K, Zoladl M. Controlling anxiety in physicians and nurses working in intensive care units using emotional intelligence items as an anxiety management tool in Iran. *Int J Gen Med*. 2012;5:5-10.
20. Terry DL, Terry CP, Trabold A, Nanda MA. Exploring the impact of gender bias among medical trainees. *PRiMER*. 2024;8:3.

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