Open Access

Original

Barriers to Continuing Medical Education Among Doctors in Tertiary Care Hospitals of Pakistan: a Descriptive Cross-Sectional Study

Amna Ahmed, Mehwish Abbas*, Saba Khurshid,**

Pakistan Military Academy Hospital, Kakul, Abbottabad Pakistan, *Department of Dental, Armed Forces Institute of Dentistry, Rawalpindi/National University of Medical Sciences (NUMS) Pakistan, **National University of Medical Sciences (NUMS) Rawalpindi Pakistan

ABSTRACT

Objective: To assess the barriers to Continuing Medical Education (CME) among doctors in tertiary care hospitals of Pakistan.
Study Design: Cross-sectional study.
Place and Duration of Study: Public and private tertiary care hospitals of Rawalpindi and Islamabad, Pakistan, from Feb 2025 to Apr 2025.
Methodology: This study was conducted on doctors working in tertiary care hospitals of Rawalpindi and Islamabad using a structured, self-administered questionnaire. A total of 417 responses were collected through online and paper-based surveys.
Results: Out of 417 respondents, only 43.2% had attended a CME activity in the past year. The primary barriers identified were lack of time due to heavy workload (63%), high cost of participation (34%), and limited local access to CME programs (26%). To address time constraints, the most preferred solution was integrating CME into work hours (42.9%), followed by shorter or flexible sessions (29%) and online programs (25.4%). For financial barriers, employer-sponsored programs (33.3%), lower registration fees (27.6%), and free online options (27.3%) were the top recommendations. Workshops and hands-on training were the most favored CME formats (59%), and opinions on mandatory CME for license renewal were nearly evenly split.
Conclusion: CME participation among doctors is hindered primarily by time and financial constraints. Institutional support through work-integrated CME, financial assistance, and flexible delivery formats can significantly enhance participation. Policy-level interventions are needed to ensure equitable access and sustained professional development.

Keywords: Continuing, Education, Medical, Physicians.

How to Cite This Article: *Ahmed A, Abbass M, Khurshid S. Barriers to Continuing Medical Education Among Doctors in Tertiary Care Hospitals of Pakistan: a Descriptive Cross-Sectional Study. Pak Armed Forces Med J 2025; 75(4): S1027-S1032. DOI: https://doi.org/10.51253/pafmj.v75i4.13492*

INTRODUCTION

Continuing Medical Education (CME) is a core aspect of professional development, ensuring that doctors stay current with the latest medical knowledge, innovations, and treatment protocols.[1] Well-designed CME interventions can lead to meaningful changes in clinical practice, particularly when aligned with real-world healthcare challenges.[2]

In Pakistan, where the healthcare system faces a high disease burden, a rapidly growing population, and complex patient needs, CME is especially vital.[3] Many physicians struggle with CPD after formal training, citing limited guidance, feedback, and competing clinical demands.[4] The explosion of medical information demands that CME evolve into a more adaptive, tech-integrated model that supports lifelong learning and prepares physicians for a data-driven future.[5]

A major role of CME is to bridge the gap between research and practice.[6] As evidence-based care becomes central to modern medicine, concerns remain about CME's effectiveness in changing clinical behavior.[7] A well-regulated CME system can foster professionalism, ensure current medical knowledge, and enhance care quality.[8] In response, global initiatives increasingly stress structured, evidence-based, and interactive learning methods.[9] Effective CME must go beyond information delivery to strengthen clinical judgment and decision-making.[9] While CME has been widely studied in Western settings, there is limited data from developing countries.[3] In Pakistan, this gap is particularly noticeable, with no recent studies in the last five years exploring barriers to CME participation among doctors. This lack of evidence makes it difficult to evaluate existing CME initiatives and identify areas for improvement. Therefore, the present study aims to address this gap by exploring the challenges and

Correspondence: Dr Amna Ahmed, Pakistan Military Academy Hospital, Kakul, Abbottabad Pakistan
Received: 15 May 2025; revision received: 11 Jul 2025; accepted: 11 Aug 2025

barriers faced by medical professionals in accessing and participating in CME. The findings will provide valuable insights for enhancing continuing education practices in Pakistan

METHODOLOGY

This cross-sectional study was conducted in both public and private tertiary care hospitals located in Rawalpindi and Islamabad, Pakistan, between February and April 2025. Ethical approval was obtained from the Institutional Ethical Committee (Ref: 595-AAA-ERC-AFPGMI dated 25 March, 2025). The sample size was calculated using the WHO sample size calculator, based on a 95% confidence level, a 5% margin of error, and population proportion of 50%. Due to unavailability of exact population proportion of our study sample, the study adopted the default proportion value recommended by the sample size calculator. The required sample size was 386; however, a total of 417 responses were collected to ensure a good response rate.

Inclusion Criteria: Doctors with at least one year of clinical experience who were actively practicing in tertiary care hospitals in Rawalpindi and Islamabad were included in the study.

Exclusion Criteria: Doctors not involved in direct patient care or those working in non-tertiary settings (e.g., primary or secondary care) were excluded.

A convenience sampling technique was employed to recruit participants. Data were collected using a structured, self-administered questionnaire, adapted from a study by Neate Sandra L. *et al*., (2008).[10] The questionnaire was distributed in both paper and online formats and comprised four sections. The first section collected demographic information, including age, gender, years of practice, and work setting. The second section focused on participants' awareness of and attitudes toward Continuing Medical Education (CME). The third section assessed the perceived importance of CME for professional development, while the fourth section explored barriers to participation, suggested solutions, and preferred CME formats. Data were analyzed using SPSS version 27. Descriptive statistics, including frequencies and percentages, were used to summarize the data.

RESULTS

A total of 417 doctors working in tertiary care hospitals of Rawalpindi and Islamabad participated in the study. The socio-demographic characteristics of the respondents are presented in Table-I. Among them, 273(65.5%) were aged between 25–35 years, followed by 53(12.7%) aged 36–45 years, 52(12.5%) aged 46–55 years, and 39(9.4%) above 55 years. Male doctors accounted for 238(57.1%) of the respondents, while 179(42.9%) were female.

In terms of clinical experience, 177(42.4%) had less than 5 years of practice, 138(33.1%) had 5–10 years, 77(18.5%) had 11–20 years, and 25(6.0%) had more than 20 years of experience. A total of 332 participants (79.6%) worked in public hospitals, while 85(20.4%) were employed in private hospitals.

Regarding educational qualifications, 251(60.2%) held an MBBS degree and 45(10.8%) had a BDS degree. Among postgraduate qualifications, 96(23.0%) had FCPS, 11(2.6%) had MCPS, 7(1.7%) held a diploma, and 7(1.7%) reported other qualifications (see Table-I). Furthermore, among the respondents, only 180(43.2%) had attended a CME activity in the past 12 months, while 237(56.8%) had not participated in any during the same period, as illustrated in Table-I.

Table-I: Socio-Demographic Profile of Respondents (n=417)

Variables	f (%)
Age	
25-35	273(65.5)
36-45	53(12.7)
46-55	52(12.5)
More than 55 years	39(9.4)
Gender	
Male	238(57.1)
Female	179(42.9)
Years of Practice	
Less than 5 years	177(42.4)
5-10 years	138(33.1)
11-20 years	77(18.5)
More than 20 years	25(6.0)
Work Setting	
Public Hospital	332(79.6)
Private Hospital	85(20.4)
Highest Medical Qualification	
MBBS	251(60.2)
BDS	45(10.8)
Diploma	07(1.7)
FCPS	96(23.0)
MCPS	11(2.6)
Others	7(1.7)
Participation in CME activities in the last 12 months	
Yes	180(43.2%)
No	237(56.8%)

Note: *MBBS = Bachelor of Medicine & Bachelor of Surgery; BDS = Bachelor of Dental Surgery; FCPS = Fellow of College of Physicians & Surgeons; MCPS = Member of College of Physicians & Surgeons*

This indicates a significant gap in ongoing medical education among physicians, which could potentially hinder their professional development and compromise the quality of patient care.

Despite low participation, attitudes towards CME were largely positive. Figure-1 illustrates that 296 respondents (71.0%) considered CME to be "very important" for professional development. Additionally, 82(19.7%) rated it as "somewhat important," 20(4.8%) were neutral, 15(3.6%) considered it "not very important," and only 4(1.0%) deemed it "not important at all."

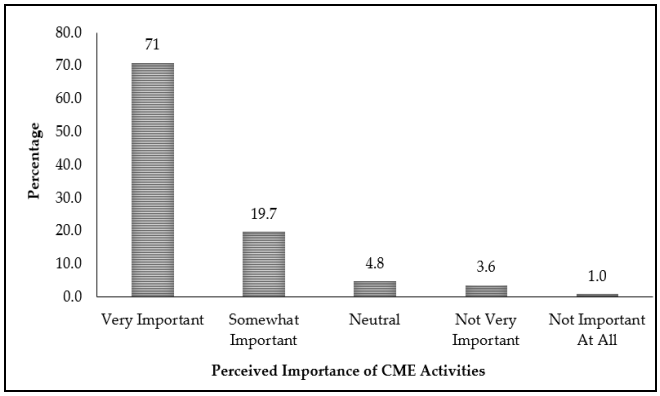

Figure-1: Perceived Importance of CME Activities (n=417)

The study also examined the barriers to participation in Continuing Medical Education (CME), as shown in Figure-2. The most frequently reported barrier was lack of time due to workload, cited by 263 respondents (63%). This was followed by the high cost of CME programs, reported by 142 participants (34%). Limited access to CME opportunities was noted by 108 respondents (26%), while 84 individuals (20%) pointed to family or personal commitments. Lack of motivation was cited by 75 respondents (18%), and 71 participants (17%) indicated that inconvenient scheduling posed a challenge. Additionally, 63 respondents (15%) mentioned the absence of incentives or mandatory requirements as a deterrent, and 54 individuals (13%) identified resistance from senior staff. A small number, 4 respondents (1%), cited other miscellaneous reasons.

To address time-related barriers, 179 respondents (42.9%) suggested integrating CME into regular work hours. Other suggestions included shorter or more flexible sessions (121, 29%), online CME programs (106, 25.4%), and peer discussions (11, 2.6%) as shown in Figure 3. In response to financial constraints, 139 participants (33.3%) proposed employer-sponsored CME programs. Additional recommendations included reducing registration fees by 115(27.6%), offering free online CME options by 114(27.3%), and government subsidies by 49(11.8%) as demonstrated in Figure-3.

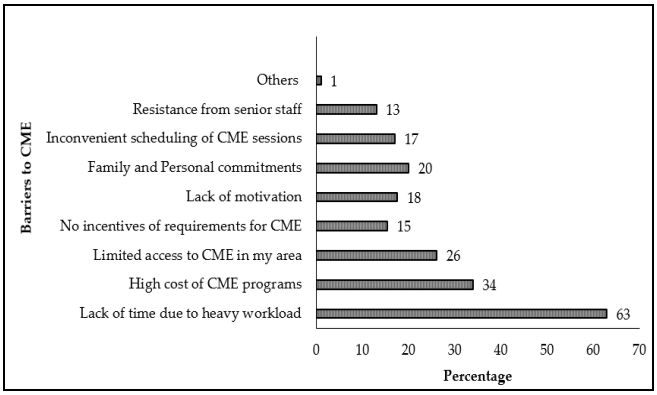

Figure-2: Major barriers to CME Participation (n=417)

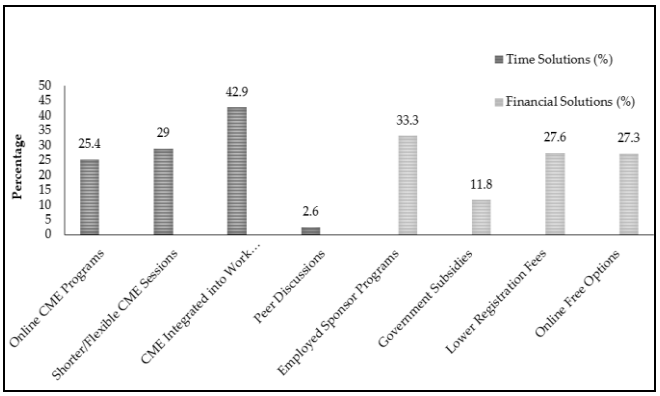

Figure-3: Solutions to Time and Financial Constraints as Barriers to CME Activities (n=417)

Regarding preferred CME formats, 246 respondents (59%) favored workshops, conferences, and hands-on training. Online courses such as webinars and e-learning were preferred by 155 (37.1%), while 84 (20.1%) chose self-study through books and research articles, as depicted in Figure-4.

Finally, opinions were divided on the implementation of mandatory CME for license renewal. While 218 respondents (52.3%) supported the idea, 199(47.7%) opposed the idea, indicating that although many recognize its value, concerns remain about feasibility and enforcement.

DISCUSSION

This study aimed to assess the barriers to Continuing Medical Education (CME) among doctors working in tertiary care hospitals in Rawalpindi and Islamabad. The findings highlight significant challenges to CME participation, with lack of time due to heavy workload (63%), financial constraints (34%), and limited access to CME (26%) emerging as the most

prominent barriers. These results align with international research. For instance, a study conducted in the United States identified time and financial constraints as major obstacles to professional development. However, unlike our setting, most U.S. physicians reported completing professional development activities during personal time and did not face significant challenges in earning CME credits.[11] This suggests that while workload is a universal issue, the presence of structured institutional support in the U.S. helps mitigate its effects. In contrast, the lack of employer incentives and limited institutional access in Pakistan amplifies participation challenges.

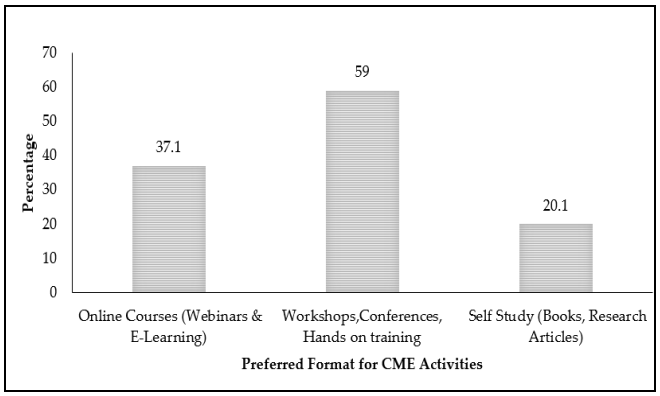

Figure-4: Preferred Formats for CME Activities (n=417)

Our findings on time constraints closely mirror those of a Danish study, where 67% of physicians identified workload as a key barrier, comparable to the 63% reported in our study.[12] Financial limitations also emerged as a major concern, with 34% of doctors citing the high cost of CME activities. This is consistent with a study from Sindh, Pakistan, which reported that both cost and lack of study leave significantly hindered CME participation.[13] In contrast, findings from a Kaiser Permanente survey in the U.S. indicated that while location and accessibility were primary issues, financial constraints were secondary.[14] This discrepancy likely reflects differences in employer-funded CME programs and government support, underscoring the need for policy interventions in Pakistan to make CME more affordable and accessible.

Further support for our findings comes from a study conducted in Australia, which reported similar barriers among hospital-based prevocational doctors. That study identified lack of time (85%) and clinical responsibilities (65%) as the most common issues. Resistance from registrars (13%) and consultants (10%) was also noted as an obstacle to CME participation.[10] These parallels emphasize the global nature of CME challenges, though the extent and context differ across healthcare systems.

A recent study conducted in the United States further explored physician preferences between in-person and virtual CME delivery.[15] The findings showed that those attending in person prioritized opportunities for travel and networking, while virtual participants highlighted COVID-19 concerns, convenience, and reduced travel costs. Notably, 91% of in-person attendees indicated they would choose that format again, compared to only 65% of virtual attendees. While this research focused on preference rather than access, it complements the present study by underscoring the importance of offering flexible, hybrid CME options.

In a broader regional context, a mixed-methods assessment of CME/CPD systems across the Middle East and North Africa revealed wide variability in system maturity, from absent or underdeveloped frameworks to robust, well-regulated models. Countries with more mature CME systems demonstrated higher physician awareness, stronger independence from pharmaceutical industry influence, and greater engagement in professional education.[16] Although the maturity of these systems had less effect on physicians' perception of CME value or preferred formats, consistent standards and regulatory mechanisms were clearly associated with more effective CME engagement. These insights highlight the importance of developing structured, nationally regulated CME frameworks in Pakistan to bridge current gaps and improve access, quality, and accountability in professional development.

Regarding the mandatory nature of CME, our study revealed a nearly even divide, with 52.3% of participants supporting it and 47.7% opposing it. This result is comparable to Shah *et al*., findings, where 53.6% of physicians favored mandatory CME, albeit with reservations about its feasibility.[13] Similarly, a study in Georgia noted that while physicians acknowledged the importance of CME, past experiences with mandatory programs were criticized for inefficiency and excessive bureaucracy.[17] These findings suggest that while mandatory CME can potentially increase participation, its implementation must be carefully planned to avoid placing undue administrative and financial burdens on healthcare professionals.

A study from Jordan also reported similar barriers to CME participation.[18] Despite the introduction of mandatory re-licensure laws in 2018, physicians in Jordan continued to face significant challenges, including staff shortages, high workloads, limited funding, lack of time, and cost-related issues. Interestingly, personal motivation and career advancement were cited as the strongest drivers for CME engagement. These motivators reinforce the need to align CME incentives with professional growth opportunities.

In terms of preferred CME formats, the growing interest in online CME formats, preferred by 30% of our respondents, mirrors a global trend toward digital learning solutions, as noted by Cook *et al*.[11] This shift highlights the importance of integrating flexible, tech-enabled formats into future CME planning.

Participants also proposed practical solutions to improve CME access. Suggestions included workplace-integrated CME sessions (42.9%), shorter and more flexible formats (29%), and online programs (25.4%). These ideas align with recommendations from the Danish study, which emphasized tailoring CME delivery to meet physicians' time and accessibility constraints.[12] Financial solutions, such as free online courses (27.3%), employer-sponsored programs (33.3%), and reduced registration fees (27.6%), were also widely supported, indicating that cost-effective approaches could significantly enhance CME participation in Pakistan.

In summary, this study confirms that workload, financial pressures, and limited access remain the main barriers to CME engagement among physicians in tertiary care settings. While these challenges are consistent with findings from other countries, our results underscore the urgent need for localized strategies that address the specific constraints faced by Pakistani doctors. Future initiatives should focus on policy-driven support, employer-backed financial incentives, and digitally integrated CME formats to ensure greater accessibility and participation without further burdening the already stretched healthcare workforce.

LIMITATIONS OF STUDY

This study, while providing important insights into the barriers to Continuing Medical Education (CME) among doctors in Pakistan, has several limitations. Firstly, the descriptive cross-sectional design limits the ability to draw causal inferences about the relationship between identified barriers and CME participation. Secondly, the sample size, although relatively large (n=417), was restricted to tertiary care hospitals in Rawalpindi and Islamabad. This may limit the generalizability of the findings to other cities, rural settings, and non-tertiary healthcare facilities. Lastly, the study did not include qualitative data, which could have provided a deeper understanding of personal, institutional, and systemic barriers to CME participation.

CONCLUSION

This study highlights key barriers to Continuing Medical Education (CME) participation among doctors in Pakistani tertiary care hospitals, with time constraints, financial limitations, and limited access being the main challenges. Despite these obstacles, physicians recognize CME's critical role in professional development and patient care. To enhance engagement, institutions should integrate CME into working hours and adopt flexible formats that accommodate clinical schedules. Financial barriers can be addressed through employer-sponsored programs, reduced fees, and free online CME options. Policymakers should link CME to career advancement while ensuring support systems prevent undue burden on healthcare professionals. CME activities should be interactive and tailored to physicians' learning preferences.

Conflict of Interest: None.

Funding Source: None.

Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

AA & MA: Data acquisition, data analysis, critical review, approval of the final version to be published.

SK: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

REFERENCES

1. Fox RD, Bennett NL. Continuing medical education: Learning and change—Implications for continuing medical education. BMJ 1998; 316(7129): 466–468. https://doi.org/10.1136/bmj.316.7129.466
2. Reis T, Faria I, Serra H, Xavier M. Barriers and facilitators to implementing a continuing medical education intervention in a primary health care setting. BMC Health Serv Res 2022; 22(1): 1–9. https://doi.org/10.1186/s12913-022-08019-w
3. Vakani FS, Demirkol A, Uebel K, Balasooriya C. CME providers' experiences and practices in Pakistan: a case study. BMC Med Educ 2024; 24(1): 1–9. https://doi.org/10.1186/s12909-024-05201-y
4. Allen LM, Balmer D, Varpio L. Physicians' lifelong learning journeys: A narrative analysis of continuing professional development struggles. *Med Educ* 2024; 58(5): 481–491. https://doi.org/10.1111/medu.15375

5. Cutrer WB, Spickard WA III, Triola MM, Allen BL, Spell N III, Herrine SK, et al. Exploiting the power of information in medical education. Med Teach 2021; 43(sup2): S17–S24. https://doi.org/10.1080/0142159X.2021.1925234
6. Felch WC, Scanlon DM. Bridging the gap between research and practice: the role of continuing medical education. *JAMA* 1997 Jan 8; 277(2): 155–156.
7. Cantillon P, Jones R. Does continuing medical education in general practice make a difference? BMJ. 1999 May 8; 318(7193): 1276. https://doi.org/10.1136/bmj.318.7193.1276
8. Safdar A, Jamal S, Khan MA, Ahmed G. Continuing Professional Development (CPD) Pak Armed Forces Med J 2010; 60(3).
9. Abrahamson S, Baron J, Elstein AS, Hammond WP, Holzman GB, Marlow B, et al. Continuing medical education for life: eight principles. *Acad Med*. 1999 Dec; 74(12): 1288–1294. https://doi.org/10.1097/00001888-199912000-00008
10. Neate SL, Dent AW, Weiland TJ, Farish S, Jolly B, Crotty BC et al. Barriers to continuing medical education in Australian prevocational doctors. *Aust Health Rev*. 2008; 32(2): 292–300. https://doi.org/10.1071/ah080292
11. Cook DA, Blachman MJ, Price DW, West CP, Berger RA, Wittich CM. Professional development perceptions and practices among U.S. physicians: A cross-specialty national survey. Acad Med 2017; 92(9): 1335–1345. https://doi.org/10.1097/ACM.0000000000001624
12. Ibsen H, Ahrenfeldt LJ, Lykkegaard J, Søndergaard J, Švab I, Kjaer NK et al. Barriers for continuous medical education: a cross-sectional questionnaire study among Danish GPs. BJGP Open 2024; 8(1): 1–9. https://doi.org/10.3399/BJGPO.2023.0228
13. Shah N, Soomro M, Musharraf M, Shaikh S. Mixed method survey to assess the problems and propose solutions for implementation of CME/CPD in Sindh, Pakistan. Pak J Med Sci 2019; 35(2): 555–560. https://doi.org/10.12669/pjms.35.2.243
14. Price DW, Overton CC, Duncan JP, Wamsley DA, Havens C, Steinbruegge J, et al. Results of the first national Kaiser Permanente continuing medical education needs assessment survey. *Perm J* 2002; 6(3): 16–24. https://doi.org/10.7812/TPP/02.990
15. Mueller MR, Croghan IT, Schroeder DR, Bhuiyan MN, Ganesh R, Mohabbat AB et al. Physician preferences for online and in-person continuing medical education: a cross-sectional study. BMC Med Educ 2024; 24(1): 1142. https://doi.org/10.1186/s12909-024-06046-1
16. Sherman L, Aboulsoud S, Chappell K. An overview of continuing medical education/continuing professional development systems in the Middle East and North Africa: A mixed methods assessment. J CME 2024; 13(1). https://doi.org/10.1080/28338073.2024.2435737
17. Ruadze E, Cherkezishvili E, Roma E, Walsh K, Gabunia T, Gamkrelidze A et al. Multistakeholder perspectives on the strengthening and embedding of mandatory continuing medical education in Georgia: a qualitative study. BMJ Open 2024; 14(1): e067123. https://doi.org/10.1136/bmjopen-2021-052686
18. Younes NA, AbuAlRub R, Alshraideh H, Abu-Helalah MA, Alhamss S, Qanno' O et al. Engagement of Jordanian physicians in continuous professional development: current practices, motivation, and barriers. Int J Gen Med 2019; 12: 475–83. https://doi.org/10.2147/IJGM.S232248