

# Knowledge, Attitudes, and Barriers Towards Continuing Professional Development among Medical Laboratory Scientists at Saifee Hospital, Karachi

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## Abstract

### Objective:

Continuing Professional Development (CPD) ensures medical laboratory professionals remain updated with advancements in diagnostics, quality assurance, and safety standards. Despite its recognized importance, CPD engagement remains inconsistent in low-resource settings. This study assessed the knowledge, attitudes, and perceived barriers toward CPD among Medical Laboratory Scientists (MLS) at Saifee Hospital, Karachi.

### Method:

A descriptive cross-sectional study was conducted among 120 MLS at Saifee Hospital. Data were collected via a structured, self-administered questionnaire. The questionnaire evaluated demographic characteristics, CPD knowledge, participation, attitudes, and perceived challenges. Data were analyzed using SPSS version 26.0. Frequencies, percentages, and chi-square tests were applied;  $p < 0.05$  was considered significant.

### Result:

A total of 103 responses were analyzed (response rate: 85.8%). While 91.3% of respondents acknowledged CPD's importance, only 36.9% had attended a CPD activity in the past year. Lack of institutional sponsorship (79.6%), time constraints (65.0%), and absence of CPD policy (61.1%) were the most cited barriers. Positive attitudes were observed in 88.3% of participants, with 82.5% expressing willingness to attend CPD outside working hours.

### Conclusion:

Despite strong positive attitudes and adequate knowledge regarding CPD, actual participation remains limited due to institutional and

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operational challenges. Structured CPD frameworks and institutional support are urgently required.

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**Keywords:** *Continuing Professional Development, Medical Laboratory Scientists, Knowledge, Barriers, Pakistan.*

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## Introduction

Healthcare delivery systems increasingly demand quality diagnostic services guided by well-trained and continually updated laboratory professionals. Continuing Professional Development (CPD) refers to structured educational activities undertaken by health professionals to maintain and enhance competencies beyond initial training [1–3]. It is particularly vital for Medical Laboratory Scientists (MLS), who are responsible for critical diagnostic and monitoring services, and whose role directly impacts patient safety, diagnostic accuracy, and treatment outcomes [4,5]. Globally, CPD has been recognized as an essential element of lifelong learning. International professional councils and licensure bodies mandate CPD participation for license renewal, with models such as revalidation in the UK and mandatory point-based systems in Australia and Canada [6–8]. These frameworks ensure accountability and standardization of clinical practice. However, in many low- and middle-income countries (LMICs), CPD engagement remains voluntary and inconsistent, often hindered by lack of structured policies, financial support, and institutional frameworks [9–11]. In Pakistan, CPD is increasingly discussed in policy and professional circles, yet formalized structures are still emerging. While doctors and nurses are often the focus of CPD initiatives, the role of MLS has received limited attention, despite their centrality to diagnostic accuracy and patient management [8,12]. CPD for laboratory scientists is not only a matter of career progression but also a determinant of diagnostic quality, as errors in laboratory practices can propagate across the entire healthcare system [13]. International studies highlight that barriers to CPD include financial constraints, lack of time, and absence of relevant training opportunities [14,15]. Regional data from South Asia also indicate a need for context-specific CPD models that account for institutional resource limitations and high workloads [16]. In Nigeria and Kenya, for example, lack of institutional support has been repeatedly cited as a critical barrier to CPD engagement [19–21]. These lessons are relevant for Pakistan, where private hospitals like Saifee Hospital have the potential to act as models for structured CPD engagement. This study therefore investigates the knowledge, attitudes, participation trends, and barriers to CPD among MLS at Saifee Hospital, Karachi. By situating local findings within a global discourse on CPD, it aims to generate insights into how institutional support, policy frameworks, and professional

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motivation intersect to shape CPD participation. The findings may inform broader strategies for integrating CPD into the professional development of MLS in Pakistan, ensuring sustainable improvements in diagnostic services.

## Methods

### Study Design and Setting

A cross-sectional descriptive study was conducted at Saifee Hospital, Karachi, between February and April 2025. The hospital hosts a multidisciplinary diagnostic laboratory offering services in hematology, microbiology, clinical chemistry, histopathology, and molecular diagnostics.

### Population and Sampling

The study population included all practicing MLS employed at Saifee Hospital. Using a total enumeration method, 120 eligible staff were invited to participate. Of these, 103 completed the questionnaire (response rate: 85.8%).

### Data Collection Tool

A structured questionnaire was developed based on previous studies [12–15]. It included sections on Demographics, Knowledge and awareness of CPD, Attitudes toward CPD, Participation in CPD, Barriers and challenges. Responses were rated using binary (Yes/No), Likert scales, and multiple-choice formats.

### Data Analysis

Data were analyzed using SPSS version 26. Descriptive statistics (means, SDs, frequencies, percentages) summarized the data. Chi-square tests were used to determine associations between CPD participation and demographic factors. A  $p$ -value  $< 0.05$  was considered statistically significant.

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## Results

Table 1 shows that out of 103 participants, the majority were male (59.2%). More than half of the respondents were aged between 31 and 40 years (53.4%), followed by those above 40 years (25.2%). Regarding professional experience, most had 6–10 years (39.8%), while about one-third had more than 10 years (33.0%)

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**Table:1** Demographic Characteristics of Participants (N = 103)

Variable	Frequency (n)	Percentage (%)
<b>Gender</b>		
Male	61	59.2
Female	42	40.8
<b>Age (years)</b>		
20–30	22	21.4
31–40	55	53.4
>40	26	25.2
<b>Years of Experience</b>		
1–5 years	28	27.2
6–10 years	41	39.8
>10 years	34	33.0

Table 2 indicates high awareness levels, with almost all participants (98.1%) aware of the CPD concept, and 89.3% understanding its objectives. However, only 64.1% recognized its link to license renewal. Less than half (42.7%) had ever received a formal CPD orientation, suggesting gaps in institutional support.

**Table 2:** Knowledge of Continuing Professional Development (CPD) among Participants

Knowledge Item	Yes (%)	No (%)
Aware of CPD concept	98.1	1.9
Understands CPD objectives	89.3	10.7

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Knowledge Item	Yes (%)	No (%)
Knows CPD is linked to license renewal	64.1	35.9
Can identify examples of CPD activities	91.2	8.8
Ever received CPD training orientation	42.7	57.3

Table 3 shows that the majority of participants (63.1%) had not participated in any CPD activity during the past year. Among those who did, workshops were the most common format (36.9%), followed by online CPD (15.5%). Very few participants (4.9%) had the opportunity to attend international CPD programs, indicating limited access to global training opportunities.

**Table:3** Participation in CPD Activities in the Past 12 Months

CPD Activity	Frequency (n)	Percentage (%)
Attended at least one CPD workshop	38	36.9
Participated in online CPD	16	15.5
Attended international CPD	5	4.9
No CPD participation	65	63.1

Table 4 demonstrates overwhelmingly positive attitudes toward CPD. Over 90% of respondents agreed that CPD is essential for career development, while 82.5% expressed willingness to attend CPD sessions during weekends. Similarly, 88.3% agreed that CPD improves patient care, and 85.4% supported making CPD mandatory for MLS.

**Table4:** Attitudes Toward CPD among Participants

Statement	Agree (%)	Neutral (%)	Disagree (%)
CPD is essential for career development	91.3	7.8	1.0
Willing to attend CPD during weekends	82.5	12.6	4.9
CPD improves patient care and diagnostic performance	88.3	9.7	1.9

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Statement	Agree (%)	Neutral (%)	Disagree (%)
CPD participation should be mandatory for MLS	85.4	10.7	3.9

Table 5 identifies the main barriers to CPD participation. The most frequently reported barrier was lack of sponsorship (79.6%), followed by workload and time constraints (65.0%). More than 60% noted the absence of institutional CPD policy as a barrier. Irrelevant topics (36.9%) and lack of motivation (18.4%) were less commonly reported, but still notable obstacles.

**Table 5:** *Barriers to CPD Participation among Participants*

Barrier	Frequency (n)	Percentage (%)
Lack of sponsorship	82	79.6
Time constraints / workload	67	65.0
No institutional CPD policy	63	61.1
Irrelevant CPD topics offered	38	36.9
Lack of motivation	19	18.4

## Discussion

This study underscores the critical need to address institutional and structural deficiencies inhibiting CPD engagement among MLS at Saifee Hospital. While knowledge and attitudes toward CPD were found to be largely positive, actual participation remained below optimal levels—mirroring trends observed in similar LMIC settings <sup>[16–18]</sup>. The most significant barrier was lack of financial support, a challenge similarly reported in Nigeria, Kenya, and Bangladesh <sup>[19–21]</sup>. Even though CPD was acknowledged as essential, participation was hampered by operational demands, particularly workload and scheduling inflexibility. This indicates that CPD, while conceptually endorsed, remains practically inaccessible without institutional commitment <sup>[22,23]</sup>. These findings are consistent with international literature emphasizing the importance of organizational policy frameworks, leadership support, and integration of CPD within workplace routines <sup>[24–27]</sup>. Countries like the UK and Australia, where CPD is mandatory and embedded in licensure policies, have significantly higher participation rates <sup>[28–30]</sup>.

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## Conclusion

The findings reveal a substantial gap between awareness and practice of CPD among MLS at Saifee Hospital. Although most participants value CPD, lack of structural support remains a major hindrance. There is an urgent need for hospitals and regulatory bodies in Pakistan to establish formal CPD frameworks, provide sponsorship, and reduce logistical barriers.

## Author Contributions:

Ms Tehreem Shirazi verifies the full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis

**Concept and design:** Tehreem Shirazi

**Acquisition, analysis, or interpretation of data:** Tehreem Shirazi

**Drafting of the manuscript:** Tehreem Shirazi

**Critical review of the manuscript for important intellectual content:** Tehreem Shirazi

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