

# Knowledge, Attitudes, and Barriers Towards Continuing Professional Development among Medical Laboratory Scientists at a Tertiary care Hospital, Karachi.

Tehreem Shirazi<sup>1</sup> 

<sup>1</sup>Research Officer, Caring Hands Laboratory, Karachi, Pakistan.

## Abstract

### Objective:

Continuing Professional Development (CPD) helps the medical laboratory professionals in assuring that their requirements and demands are up to date with the latest advancements in various areas. Despite the importance, literature shows inconsistency in application. This study has assessed the knowledge, attitudes, and perceived barriers toward CPD among Medical Laboratory Scientists (MLS) at a tertiary care Hospital of Karachi.

### Material and Methods:

It was a descriptive cross-sectional study. 120 participants were included. Data was gathered using a self-administered questionnaire that evaluated the demographics, knowledge regarding CPD, willing to participation, challenges and attitudes. Data was analyzed using SPSS version 28. P value less than  $< 0.05$  was considered significant.

### Results:

Out of 120, 103 responses were checked which showed the response rate of 85.8%. 91.3% acknowledged the importance of CPD, 26.9% had attended activity related to CPD during past year. 79.6% mentioned the lack of sponsorship from institution, while 65% mentioned time lacking and 61.1% were in absence of CPD policy. Positive attitudes had been observed in 88.3% of subjects, with 82.5% interested to attend CPD.

### Conclusion:

Positive attitudes and good knowledge has been shown regarding CPD. Despite of the adequate knowledge, participation remains limited due to multiple barriers. The formation of frame works and institutional support has been recommended.

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**Corresponding Author:**

Tehreem Shirazi  
tehreem\_naz@hotmail.com

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## Introduction

There has been increased demand for high quality services in health care especially diagnostics. This demand also requires the professionals to be well-trained up to date to the latest techniques. Continuing Professional Development (CPD) defines as the activities which educates different professionals in their respective field to improve their skills and competencies <sup>[1-3]</sup>. It is essential for the scientists in medical laboratory to become a part of this as they are involved with critical diagnostic and monitoring services, thus the role impacts the patients directly <sup>[4,5]</sup>. CPD is now recognizable as the important element for lifelong learning worldwide. Multiple International councils and licensing bodies recommend CPD participations and make it compulsory in order to renew the license like United Kingdom, Australia and Canada on the basis of point-based system <sup>[6-8]</sup>. Such frameworks help in ensuring the accountability and standardizing the clinical practice. Despite of this CPD engagement remains inconsistent and lacking in many low- and middle-income countries which may be due to different barriers and challenges <sup>[9-11]</sup>. In Pakistan, CPD has been one of the most discussed topic recently in policy making and professional environments. There are many programs being introduced yet the formalized structures are still missing. It has also been noticed that this discussion is limited to doctors and nurses while role of MLS receives limited attention despite their importance in diagnosis making and patient management overall <sup>[8,12]</sup>. CPD is not only a progression of career but a determinant of quality care and reduction of error in laboratory practices <sup>[13]</sup>. The barriers to CPD might be the financial constraints, lack of time and absence of relevant training opportunities <sup>[14,15]</sup>. Local data from south asia also points the need for CPD model specific to context <sup>[16]</sup>. Lack of support from institute has also been cited repeatedly in Nigeria and Kenya <sup>[19-21]</sup>. Such reports are relevant to Pakistan as well where every private hospital has the potential to conduct these training. Therefore this study investigate the knowledge, attitudes and barriers to CPD among MLS at tertiary care hospital, Karachi.

## Methods

### Study Design and Setting

It was a cross-sectional descriptive study conducted between February and April 2025 at a local tertiary care hospital.

### Population and Sampling

The study population included all practicing MLS. 120 participants were invited to participate using open epi 3.0 out of which 103 completed the questionnaire (response rate: 85.8%).

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## Data Collection Tool

Structured questionnaire was taken from previous literature <sup>[12–15]</sup>. Sections were based on the demographical data and knowledge, attitude, barriers and challenges. Responses were recorded using binary (Yes/No) and Likert scales.

## Data Analysis

Data has been analyzed using SPSS version 28. Descriptive statistics .i.e. mean, SD and frequency percentages were shown and chi square was used for association.

## Results

Table 1 shows that out of 103 participants, 59.2% were male. 53.4% were averaged aged between 31 and 40 years, followed by those above 40 years (25.2%). Regarding professional experience, 39.8% had 6–10 years, 33.% had more than 10 years.

**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 shows high awareness levels, 98.1% were aware of the CPD concept, and 89.3% understanding its objectives. 64.1% recognized its importance to to license renewal. 42.7% had received a formal CPD orientation, suggesting gaps in institutional support.

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**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
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 63.1% never participated in any CPD activity during the past year. 36.9% were part of any workshop, followed by online CPD (15.5%). 4.9% attended 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.

**Table 4:** 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

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Statement	Agree (%)	Neutral (%)	Disagree (%)
CPD improves patient care and diagnostic performance	88.3	9.7	1.9
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 shows that there is a need to address the barriers and deficiencies structural and institutional in nature suppressing the growth and CPD engagement among MLS. Data showed significant knowledge and attitude towards CPD but actual participation is still lacking due to many factors <sup>[16–18]</sup>. The most common factor was the lack of finance which is in line with the study conducted in Nigeria, Kenya, and Bangladesh <sup>[19–21]</sup>. Results proved that CPD had been acknowledged by the participants as important but the participations was obstructed due to work load and time lacking which is also shown in other studies as well <sup>[22,23]</sup>. These findings are also parallel with international literature emphasizing the importance of policies of organization 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>.

## Conclusion

Findings reveal a notable gap between awareness and practice of CPD among MLS which calls for utmost attention. Although participants lacking structural support is the major problem in **Open Access**. This is an open access article distributed under the terms of the CC-BY License.

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progression of such programs. There is a need for hospitals and concerned regulatory bodies to establish formal frameworks and schedules in order to enhance training session among MLS.

#### 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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