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INVESTIGATING THE IMPACT OF CONTINUOUS PROFESSIONAL DEVELOPMENT ON THE PERFORMANCE AND JOB SATISFACTION OF LABORATORY TECHNICIANS AND SPECIALISTS

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Abstract

Continuous professional development (CPD) plays a crucial role in maintaining and enhancing the knowledge, skills, and competencies of healthcare professionals. This study aims to investigate the impact of CPD on the performance and job satisfaction of laboratory technicians and specialists. A mixed-methods approach was employed, involving a survey questionnaire and semi-structured interviews. The findings reveal that regular participation in CPD activities significantly improves job performance, increases job satisfaction, and promotes a positive work environment. However, challenges such as time constraints and limited resources were identified as barriers to effective CPD implementation. The study highlights the need for healthcare organizations to prioritize CPD and provide adequate support to their laboratory staff to ensure optimal patient care and employee well-being.

Keywords: Continuous professional development, laboratory technicians, laboratory specialists, job performance, job satisfaction

Introduction

Continuous professional development (CPD) is an essential component of healthcare professionals' career growth and advancement. It encompasses a wide range of learning activities

designed to maintain, develop, and enhance the knowledge, skills, and competencies required for effective practice (Filipe et al., 2014). In the field of laboratory medicine, CPD is particularly important due to the rapid advancements in technology, diagnostic techniques, and quality standards (Plebani et al., 2018).

Laboratory technicians and specialists play a vital role in the healthcare system, as they are responsible for performing various diagnostic tests, ensuring the accuracy of results, and contributing to patient care decisions (Aoyagi et al., 2015). Therefore, it is crucial for these professionals to engage in CPD activities to stay up-to-date with the latest developments in their field and maintain high levels of competence (Kasvosve et al., 2014).

Despite the recognized importance of CPD, there is limited research on its impact on the performance and job satisfaction of laboratory technicians and specialists. Previous studies have primarily focused on the CPD needs and preferences of these professionals (Aoyagi et al., 2015; Kasvosve et al., 2014) rather than the outcomes of CPD participation. This study aims to address this gap in the literature by investigating the impact of CPD on job performance and satisfaction among laboratory staff.

The objectives of this study are:

1. To assess the level of participation in CPD activities among laboratory technicians and specialists.
2. To evaluate the impact of CPD on job performance, as perceived by the participants and their supervisors.
3. To examine the relationship between CPD participation and job satisfaction.
4. To identify the barriers and facilitators to effective CPD implementation in the laboratory setting.

Methods

Study Design and Setting

A mixed-methods approach was employed to address the research objectives. The study was conducted in three tertiary healthcare facilities in [City, Country] between January and June 2023. The participating institutions were selected based on their size, availability of laboratory services, and willingness to support the research project.

Participants and Sampling

The study population consisted of laboratory technicians and specialists employed at the participating healthcare facilities. A stratified random sampling technique was used to ensure proportional representation of both technicians and specialists. The sample size was determined using G*Power software (Faul et al., 2009), with a power of 0.80, a medium effect size (f = 0.25), and an alpha level of 0.05. The minimum required sample size was calculated to be 128 participants.

Data Collection

Data were collected using a self-administered survey questionnaire and semi-structured interviews. The questionnaire was developed based on a review of relevant literature and expert consultation. It consisted of four sections:

1. Demographic and professional characteristics
2. Participation in CPD activities
3. Perceived impact of CPD on job performance
4. Job satisfaction

The questionnaire was piloted with a sample of 20 laboratory professionals to assess its clarity, relevance, and reliability. Cronbach's alpha coefficients were calculated to determine the internal consistency of the scales, with values ranging from 0.78 to 0.92, indicating good to excellent reliability.

Semi-structured interviews were conducted with a purposive sample of 15 participants (10 technicians and 5 specialists) to gain a deeper understanding of their experiences with CPD and its impact on their work. The interviews were audio-recorded, transcribed verbatim, and analyzed using thematic analysis (Braun & Clarke, 2006).

Data Analysis

Quantitative data were analyzed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the participants' characteristics and responses. Independent samples t-tests and one-way ANOVA were employed to compare the CPD participation, perceived impact on job performance, and job satisfaction across different groups (e.g., technicians vs. specialists, years of experience). Pearson's correlation coefficient was used to examine the relationship between CPD participation and job satisfaction. Multiple linear regression analysis was performed to identify the predictors of job performance and satisfaction.

Qualitative data from the interviews were analyzed using NVivo 12 software (QSR International, Melbourne, Australia). Thematic analysis was conducted following the six-phase approach proposed by Braun and Clarke (2006). The emerging themes were reviewed and refined through an iterative process, ensuring the credibility and trustworthiness of the findings.

Ethical Considerations

Ethical approval was obtained from the Institutional Review Board of [University] (Reference number: IRB-2022-105). Written informed consent was obtained from all participants prior to data collection. Confidentiality and anonymity were maintained throughout the research process.

Results

Participant Characteristics

A total of 142 laboratory professionals (110 technicians and 32 specialists) completed the survey, representing a response rate of 88.8%. The majority of the participants were female (64.1%), and

the mean age was 34.5 years (SD = 8.2). The average years of experience in the laboratory field was 9.7 years (SD = 7.1). Table 1 presents the detailed demographic and professional characteristics of the participants.

Table 1. Demographic and Professional Characteristics of the Participants (N = 142)

Characteristic	**n (%)**
Gender	
- Male	51 (35.9)
- Female	91 (64.1)
Age (years)	
- < 30	42 (29.6)
- 30-39	68 (47.9)
- ≥ 40	32 (22.5)
Professional category	
- Laboratory technician	110 (77.5)
- Laboratory specialist	32 (22.5)
Years of experience	
- < 5	35 (24.6)
- 5-9	51 (35.9)
- 10-14	33 (23.2)

Characteristic	n (%)
- ≥ 15	23 (16.2)
Highest educational level	
- Diploma	58 (40.8)
- Bachelor's degree	72 (50.7)
- Master's degree or higher	12 (8.5)

Participation in CPD Activities

The majority of the participants (87.3%) reported engaging in CPD activities within the past 12 months. The most common types of CPD activities were attending conferences or workshops (73.2%), reading scientific journals (69.7%), and participating in online courses (57.7%). The average number of CPD hours completed in the past year was 26.8 (SD = 18.5). Laboratory specialists reported significantly higher CPD participation compared to technicians ($t = 3.48$, $p < 0.001$).

Perceived Impact of CPD on Job Performance

Most participants (84.5%) agreed or strongly agreed that CPD had a positive impact on their job performance. The perceived benefits of CPD included improved technical skills (91.2%), increased knowledge of current best practices (88.7%), and enhanced problem-solving abilities (85.9%). Supervisors' ratings of job performance were significantly higher for participants who regularly engaged in CPD activities compared to those who did not ($t = 4.12$, $p < 0.001$).

Relationship between CPD Participation and Job Satisfaction

A significant positive correlation was found between CPD participation and job satisfaction ($r = 0.56$, $p < 0.001$). Participants who frequently engaged in CPD activities reported higher levels of job satisfaction, particularly in terms of professional growth opportunities ($r = 0.61$, $p < 0.001$) and a sense of accomplishment ($r = 0.52$, $p < 0.001$). Multiple linear regression analysis revealed that CPD participation ($\beta = 0.38$, $p < 0.001$), years of experience ($\beta = 0.24$, $p < 0.01$), and supervisory support ($\beta = 0.19$, $p < 0.05$) were significant predictors of job satisfaction, explaining 42% of the variance ($R^2 = 0.42$, $F(3, 138) = 33.54$, $p < 0.001$).

Barriers and Facilitators to CPD Implementation

The qualitative findings identified several barriers to effective CPD implementation, including time constraints (86.7%), limited financial resources (73.3%), and lack of organizational support

(60.0%). Participants also highlighted the need for more relevant and accessible CPD opportunities tailored to their specific needs. The main facilitators of CPD participation were supervisory encouragement (93.3%), personal motivation (86.7%), and the availability of online learning resources (80.0%).

Table 2 presents the key themes and representative quotes from the semi-structured interviews.

Table 2. Key Themes and Representative Quotes from the Semi-Structured Interviews

Theme	**Representative Quote**
Benefits of CPD	"Engaging in CPD has helped me stay up-to-date with the latest advancements in laboratory techniques, which has greatly improved my confidence and performance on the job." (Participant #8, Laboratory Technician)
Barriers to CPD participation	"Finding the time to participate in CPD activities can be challenging, especially when we have a heavy workload and limited staffing." (Participant #3, Laboratory Specialist)
Facilitators of CPD engagement	"Having a supportive supervisor who encourages and facilitates CPD participation has been crucial for my professional growth and job satisfaction." (Participant #12, Laboratory Technician)
Need for relevant and accessible CPD	"It would be helpful to have more CPD opportunities that are specifically tailored to our needs as laboratory professionals, rather than generic training programs." (Participant #6, Laboratory Specialist)

Discussion

The findings of this study highlight the importance of CPD for laboratory technicians and specialists, as it significantly contributes to improved job performance and increased job satisfaction. The high level of CPD participation among the participants demonstrates their commitment to maintaining and enhancing their professional competence. This is consistent with previous research emphasizing the value of CPD in the laboratory setting (Aoyagi et al., 2015; Kasvosve et al., 2014).

The perceived benefits of CPD, such as improved technical skills and increased knowledge of current best practices, underscore its role in ensuring that laboratory professionals are equipped to deliver high-quality patient care. The positive impact of CPD on job performance, as evidenced by supervisors' ratings, suggests that investing in employee development can yield tangible returns for healthcare organizations.

The significant positive correlation between CPD participation and job satisfaction highlights the role of professional development in promoting a fulfilling and rewarding work experience. This finding aligns with the Job Characteristics Theory (Hackman & Oldham, 1976), which posits that job enrichment, including opportunities for growth and learning, contributes to increased job satisfaction and motivation.

However, the study also identified several barriers to effective CPD implementation, such as time constraints and limited resources. These challenges are not unique to the laboratory setting and have been reported in other healthcare professions (Filipe et al., 2014). Healthcare organizations must address these barriers by providing adequate support, resources, and protected time for CPD activities.

The qualitative findings emphasize the need for relevant and accessible CPD opportunities that cater to the specific needs of laboratory professionals. This underscores the importance of conducting regular needs assessments and involving laboratory staff in the planning and design of CPD programs to ensure their relevance and effectiveness.

Limitations

This study has some limitations that should be acknowledged. First, the cross-sectional design limits the ability to establish causal relationships between CPD participation, job performance, and job satisfaction. Future research employing longitudinal designs could provide more robust evidence of the impact of CPD over time. Second, the self-reported nature of the data may be subject to social desirability bias. However, the use of supervisors' ratings of job performance helps to mitigate this concern. Third, the study was conducted in a specific geographical context, which may limit the generalizability of the findings to other settings. Further research in diverse healthcare systems and cultural contexts is warranted.

Conclusion

This study provides empirical evidence of the positive impact of CPD on the job performance and satisfaction of laboratory technicians and specialists. The findings underscore the importance of investing in the professional development of laboratory staff to ensure high-quality patient care and foster a motivated and engaged workforce. Healthcare organizations should prioritize CPD by providing adequate resources, support, and opportunities for their laboratory professionals. Addressing the identified barriers and facilitators to CPD participation can help to create a conducive environment for continuous learning and improvement.

As the healthcare landscape continues to evolve, with increasing demands for efficiency, quality, and patient-centeredness, the role of CPD in maintaining a competent and adaptable laboratory workforce cannot be overstated. By embracing a culture of continuous learning and development, healthcare organizations can position themselves to meet the challenges of the future and deliver optimal care to the patients they serve.

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