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Effect of continuous professional development program on health educators' knowledge and satisfaction at major tertiary hospital: Quazi experimental study

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Abstract

Objective: This study aims to examine the effect of Continuous Professional Development (CPD) Program on health educators' knowledge and satisfaction at one of the major tertiary hospitals, KSA.

Method: A quasi-experimental design was used in this study. All health educators were included in this study (n=25). CPD program included 16 lectures related to their specialty. Knowledge of participants was assessed after each lecture through standard posttest, while satisfaction of participants was assessed at the end of the program through valid and reliable tool including satisfaction about four domains (program, presenter, evaluation method, and overall satisfaction).

Results: The average knowledge score across 16 CPD lectures was 79.8%, indicating a high level of knowledge acquisition. The one-sample t-test indicated that average scores of participants were significantly different from and higher than 70% as minimum acceptable score in posttest ($t = 4.73$, p value = 0.000074). No significant effect for demographic variables especially gender (male, and female) and educational level (Bachelor's and Master's degree holders) was found on knowledge scores ($U = 48.5$, and $p = 0.656$), and ($U = 68.0$, and $p = 0.234$). The average satisfaction score was 3.83. By using one-sample t-test to compare the average satisfaction score to a neutral value midpoint, average satisfaction score was significantly higher than the neutral value ($t = 4.88$, and p value = 0.00005), indicating positive effect of the program on participants' satisfaction. By using Friedman test there was no statistically significant difference between the mean satisfaction scores across the satisfaction domains (program, presenter, evaluation method, overall satisfaction), ($\chi^2 (3) = 2.64$, and $p = 0.45$).

Conclusion: CPD activities has positive effect on both knowledge and satisfaction levels among health educators. These results emphasize the need for continuous investment in structured CPD programs tailored to health care providers especially health educators' needs. Enhancing CPD delivery methods and content relevance can further improve educational outcomes and healthcare quality.

Keywords: Continuous Professional Development (CPD), health educators, knowledge, satisfaction

Introduction

CPD is the process by which health professionals uphold, expand, and enhance their knowledge, skill, and competence to develop and maintain the professional and personal attributes required to succeed in their field of work [1]. All health professionals must regularly participate in continuing education to maintain, update, and improve their knowledge, skills, and performance. Therefore, for nearly 25 years, educators and professional associations have taken an interest in the effects of CPD activities on clinical performance [2]. The British Medical Training Association conducted a study in the year 2022 to evaluate the impact of CPD programs in hospitals across the United Kingdom. The results indicated that health educators who regularly participated in CPD activities experienced significant improvements in their knowledge and professional skills [3]. These advancements contributed directly to higher standards of healthcare service delivery.

This study helps in underscoring the value of CPD in enhancing health educators' performance, and aims to examine the effect of CPD on the level of knowledge and satisfaction among health educators at Prince Sultan Military Medical City, KSA. The findings of this study will provide decision makers and director of departments with recommendations to improve (CPD) services, which at the end will lead to positive quality

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of patient care and satisfaction.

The main variables of the study include Continuing Professional Development which was defined as the systematic maintenance, improvement, continuous acquisition, and reinforcement of lifelong knowledge, skills, and competencies among health professionals [4]. In this study, CPD was defined as the series of lectures (CPD schedule for health educators) at PSMMC in the year 2024. Knowledge was defined as the understanding of or information about a subject that you get by experience or study, either known by one person or by people generally [5]. In this study level of knowledge was measured by assessing health educators' level of knowledge after CPD activity by using posttest. Satisfaction internationally defined as pleasant feeling that you get when you receive something you wanted, or when you have done something you wanted to do [6]. In our study level of satisfaction was measured by evaluation of health educators for the presenters and the activities of CPD using valid and reliable tool.

The main hypothesis of this study concluded that participation in the CPD program has a significant positive effect on the level of knowledge and satisfaction of health educators.

By reviewing related literature, studies have shown that employees who engage in CPD feel more confident and valued, which contributes to higher job satisfaction [7]. Also, employees perceive CPD as a form of recognition, which increases motivation and morale [8]. Furthermore, the improvement in knowledge retention suggests that CPD is not only beneficial for individual growth but also for organizational learning and performance.

Moreover, CPD has a direct effect on knowledge retention and application. Kolb's experiential learning theory (1984) suggests that when employees actively engage in reflective practice and learning, knowledge becomes internalized and applicable. Participation in CPD has also been linked to improved job performance and innovation [9].

In the United Arab Emirates, researchers evaluated the implementation and impact of a practice-based, interdisciplinary educational program and found that CPD activities contributed not only to individual learning but also to improved teamwork and interprofessional communication among staff members [10]. Other studies have examined the effect of digital transformation in specialized hospitals, indicating that while new technologies can enhance performance, they also create challenges in terms of training and adaptation, making CPD critical to supporting staff during transitions into new technologies [12]. Literature suggests that CPD participation is associated with increased job satisfaction, greater confidence, and a sense of professional recognition, all of which contribute to improved healthcare outcomes [6, 8]. International comparisons further enrich this understanding: studies from the United Kingdom and Australia emphasize the importance of structured, well-designed CPD programs in enhancing professional skills [14], while Canadian research has drawn attention to the need for CPD initiatives that prioritize educator satisfaction and resource availability [15]. These findings collectively highlight that CPD is not a uniform process, but one shaped by local needs and systemic factors [16].

Method: Quasi experimental design was used. This study was conducted at health education department at Prince Sultan Military Medical City (PSMMC) which is a tertiary hospital in Riyadh city, KSA. 25 health educators participated in this study, from multi nationalities and holding bachelor's and master's degree in health education, nursing, public health and related specialties.

The CPD program was held in the years 2024 - 2025, health educators answered posttest assessing their level of knowledge to the CPD content at the end of each CPD educational activity or lecture. The post-test was multiple choice questions electronically derived directly from the CPD materials. In addition, satisfaction was measured using an electronic evaluation form consisting of 30 items that assessed different aspects of the program. The evaluation covered four main domains: program (e.g. clarity of goals and relevance of content), presenter (e.g. knowledge of the topic, body language, confidence), evaluation methods (e.g. whether the assessment was based on measurable objectives), and overall satisfaction. Content validity of the tools was reviewed by 10 expert employees of CPD program. The tool demonstrated excellent internal consistency with Cronbach's alpha of 0.991. Ethical approval number was obtained to conduct this study and before the recruitment of participants commenced. Consent form was obtained from all participants.

Results

Table 1: Demographic characteristics of the study participants (N= 25)

Demographics	Percentage
Male	16%
Female	84%
Bachelor's Degree	76%
Masters' Degree	24%

Distribution of the study participants by gender and position variables is shown in Table 1. A total of 25 educators were included in the current study; 21 participants were females (84%) and 4 were males (16%). Regarding the educational background, 20 participants (80%) held a bachelor's degree, while 5 participants (20%) held a master's degree.

Table 2: Knowledge average scores (N= 16 lectures)

Number of Lecture	Average participants' Score in Posttest
1	87
2	87.30
3	86.60
4	70.50
5	87.70
6	76.40
7	60
8	92
9	82
10	93.80
11	87.70
12	66.20
13	71.10
14	71.70
15	80
16	84.20
Average Score	79.8

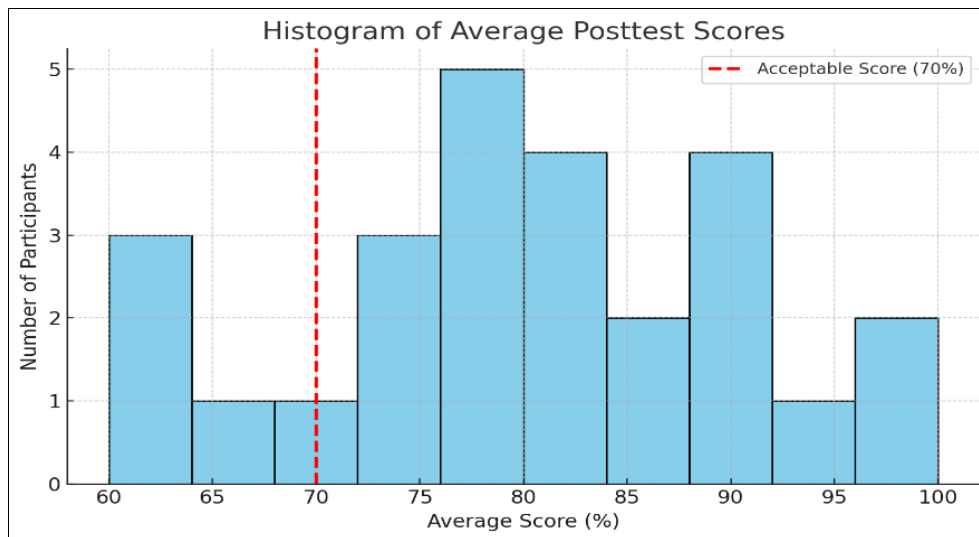


Fig 1: Histogram of average posttest scores

Table 2 and figure 1 present an overview of the knowledge performance of 25 participants across 16 educational lectures. The participants achieved an average total score of 79.8%. This suggests a generally strong understanding of the materials covered in lectures. Female participants achieved a slightly higher average total score of (80.1%), compared to (78.4%) for male participants.

Regarding educational background, bachelor's holders had an average score of (79.5%), and master's holders averaged (80.6%). The one-sample t-test was used in comparing the average scores in 16 lectures to the acceptable score of 70% as minimum acceptable score in posttest, the result was: t-

statistic = 4.73, and p-value = 0.000074. This means that average scores of participants are significantly different from and higher than 70%. The Mann-Whitney U test was used to compare average knowledge scores between males and females, results was $U = 48.5$, and $p = 0.656$, indicating no statistically significant difference in average scores between males and females. With using the same test to compare average scores between Bachelor's and Master's degree holders, the result was $U = 68.0$, and $p = 0.234$, indicating also no statistically significant difference in average scores between Bachelor's and Master's degree holders.

Table 3: Satisfaction level of the study participants (N= 25)

Number of Subject	Average Satisfaction Score
1	5
2	3.53
3	4.93
4	4.766
5	5
6	2.83
7	3.6
8	5
9	4
10	2.5
11	5
12	5
13	3.03
14	4
15	3.33
16	4.63
17	3.43
18	3.13
19	2.03
20	3.766
21	3.63
22	2.93
23	5
24	2.63
25	4.3
Average	3.83

Table 3 summarize the average satisfaction score for each participant. The average satisfaction score for all

participants was 3.83 out of 5.

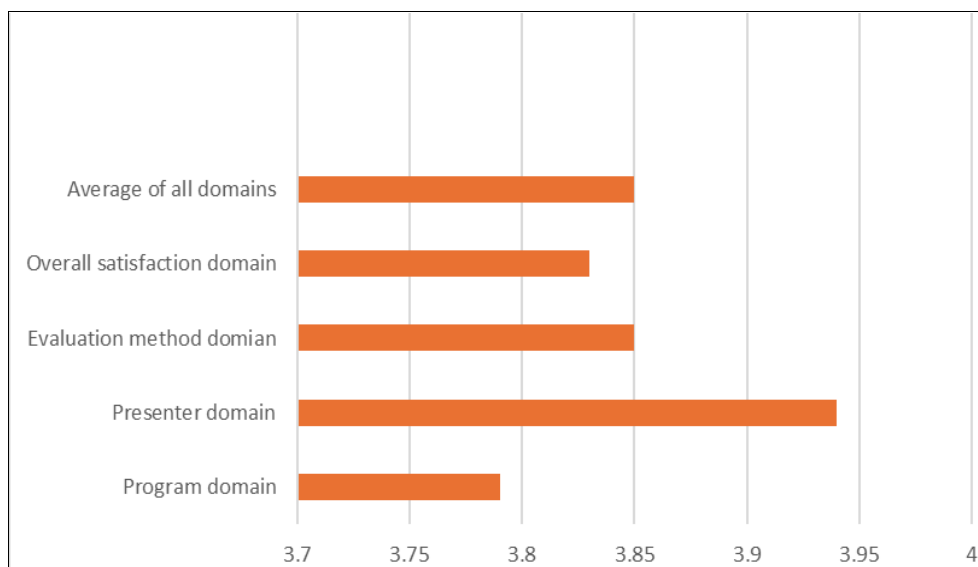


Fig 2: Average satisfaction by domain

In figure 2 and 3, the overall of study participants reported a satisfaction level of 3.83 out of 5 as average of all four domains including program domain with average of 3.79, presenter domain with an average of 3.94, evaluation domain with average of 3.85, and overall domain with an average of 3.83. To check the average satisfaction scores compared to a neutral value midpoint (3 on a 5-point scale), a one-sample t-test was used, t-statistic was = 4.88, and p-value = 0.00005. This means the average satisfaction score is

significantly higher than 3, the neutral value on a 5-point scale, and there is a significant positive effect of the program on participants' satisfaction.

To check if there are significant differences among domain scores, Friedman test was used. The result was $\chi^2(3) = 2.64$, and $p = 0.45$, indicating that there is no statistically significant difference between the mean satisfaction scores across the domains (Program, Presenter, Evaluation, Overall).



Fig 3: Satisfaction score by domain

Discussion

The results indicate a high level of knowledge acquisition following CPD activities, with an average knowledge score of 79.8% across all lectures. This outcome is consistent with prior research conducted, where regular participation in CPD led to significant improvements in professional competencies and content mastery [3]. Lectures 10 and 8 received the highest knowledge scores (93.8% and 92%, respectively), possibly due to well-structured content or more engaging delivery. According to Kolb's experiential learning theory, learning becomes internalized when individuals engage in active and reflective processes [9]. The

post-test design of this study may have encouraged immediate application of knowledge, reinforcing the learning experience. Gender and education-level differences were minor, with females and master's degree holders scoring slightly higher. No statistically significant difference in average scores between males and females, and Bachelor's and Master's degree holders, suggesting that CPD had a broadly positive impact across different participant groups.

The overall satisfaction level was 3.83 out of 5, with the presenter domain scoring the highest among the four domains (3.94). This indicates that participants generally

found the sessions useful and appreciated the presenters' knowledge and delivery style. Similar findings were observed by Goulet et al., who linked high satisfaction levels in CPD to presenter effectiveness and practical applicability of the content ^[15]. Nevertheless, some variability in satisfaction scores was observed, with a few participants rating their experiences as low as 2.0. This may reflect differences in topic relevance, delivery quality, or personal learning preferences. Previous Saudi-based research has identified such disparities, often linking job satisfaction to professional experience and expectations ^[11]. The results of this study are consistent with global literature emphasizing the positive effects of CPD on professional performance, morale, and knowledge retention ^[1, 2, 7]. In particular, CPD is known to enhance employee motivation and recognition, which can lead to improved performance and reduced turnover ^[8]. In interdisciplinary healthcare settings, CPD has also been linked to enhanced teamwork and communication, especially when content is practice-based and interactive ^[10]. Educational institutions and hospital systems in countries such as Canada, the UK, and Australia have all documented similar trends, underlining the universal importance of CPD in healthcare ^[14, 15]. Moreover, the results align with regional comparisons showing variability in CPD structure and accreditation standards between the Gulf and European countries, further highlighting the importance of context-specific program design ^[16].

Implications and Recommendation:

These findings reinforce the importance of maintaining and investing in structured CPD programs. The strong knowledge outcomes and moderate-to-high satisfaction levels indicate that CPD not only enhances educator competencies but can also positively influence the overall quality of healthcare education delivery. To maximize impact, CPD content should be periodically reviewed and tailored based on participant feedback and performance data.

Limitations

The small sample size (N=25) and absence of pre-test data limit the ability to measure exact knowledge gain. Future research should employ a pre- and post-assessment design, consider qualitative methods for deeper insights into satisfaction, and expand the study population to include other departments or hospitals for broader applicability.

Conclusion

In summary, this study affirms that CPD programs significantly enhance the knowledge and satisfaction of health educators. These findings support existing international evidence and emphasize the critical role of CPD in continuous quality improvement within healthcare education. Hospital administrators are encouraged to expand CPD offerings and monitor their effectiveness to ensure ongoing professional growth and excellence in patient care.

Conflict of Interest

Not available

Financial Support

Not available

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