BAU Journal - Creative Sustainable Development

Volume 3 | Issue 1
ISSN: 2664-9446

Article 8

November 2021

# EVALUATION OF THE EFFECTIVENESS OF CONTINUING PROFESSIONAL DEVELOPMENT IN THE PHARMACEUTICAL WORKPLACE: A CROSS-SECTIONAL STUDY IN LEBANON

Georges Hatem
*University of Porto, Lebanese University, Lebanon*, georges.r.hatem@gmail.com

Mathijs Goossens
*Centre for cancer detection, Lebanon*, mathieu.goossens@uzbrussel.be

Diana Ghanem
*Lebanese University, Lebanon*, diana_ghanem@wvi.org

Roula Bou Assi
*Lebanese University, Lebanon*, roulabouassi@gmail.com



Continuing Professional Development, Pharmacists, Learning, patient, professional

# EVALUATION OF THE EFFECTIVENESS OF CONTINUING PROFESSIONAL DEVELOPMENT IN THE PHARMACEUTICAL WORKPLACE: A CROSS-SECTIONAL STUDY IN LEBANON


## Abstract

The objective of this study is to evaluate the effectiveness of Continuous Professional Development in the pharmaceutical workplace and the direct impact on the pharmacists' personal and professional progression and to assess their perceptions toward various CPD methods and their incorporation into this recent learning pathway. Methods: A cross-sectional descriptive study was conducted in Lebanon within three months from July 2017 till September 2017 using a survey as a tool. Overall 142 participants were conveniently selected frequency matching national government estimates of pharmacists' work location and gender . Results: Among the respondents, 38.7% reported that they have learnt through CD/DVD, 57.7% pharmacists attended a conference and 43.7% reported that they took advantage of the E-learning modules provided by the Order of pharmacists in Lebanon. An improvement in practical skills (64.1%) and knowledge acquisition were outlined. The majority considered that the programs modules should be provided and audited by colleges. Conclusion: Understanding the pharmacists' needs help in providing structured modules to enhance the pharmacy practice and encouraging the incorporation of pharmacists from different areas of work by having multiple options of CPD.



## Keywords

Continuing Professional Development, Pharmacists, Learning, patient, professional

# 1. INTRODUCTION

The Accreditation Council for Pharmacy Education define continuing education (CE) as structured learning activities to maintain and support the continuous development of pharmacists and to enhance professional competence and knowledge (ACPE, 2007). In the pharmaceutical field, CE exist in many forms such as workshops, lectures, conferences and online or written programs and is requisite by many governments for the renewal and preservation of the pharmacists' licensures (Wong, 2018; Vlasses, 2006). Despite the conventional approaches to CE, a more recent and prevalent model for continuous professional development (CPD) is based on a learning cycle that encloses five key elements for the learning activity (International pharmaceutical federation, 2002). These learning elements include reflection, organizing, acting (learning), assessing, and recording (ACPE, 2014). Moreover, CPD is a lifetime professional learning that should be outcome-focused to ensure its effectiveness allowing learners to acquire new competencies independently from educational institutions (Somantri 2021; Rezak, 2021).

Currently, the International Pharmaceutical Federation encourages pharmaceutical organizations in the world to (i) provide opportunities to CPD program for pharmacists, (ii) establish quality assurance systems to maintain the modules quality and (iii) motivate the pharmacists to be involved and participate in these programs by developing a personal learning plan (Al-Haqan, 2021; Anderson, 2021). CE as a single procedure is not sufficient to inquire the lifelong learning outcome. However, the implementation of CPD in different countries around the world is becoming extensive in correlation with the pharmaceutical innovations (Khamis, 2020).

Barriers to CPD are numerous. They include time constraints, lack of assets, of inspiration, framework and technical problems, assistance and encouragement complications, and lack of clarity and understanding of the CPD process (Cunningham, 2020; Donyai, 2011). Other barriers like cost, absence of program's accreditation and uninteresting topics were reported in the literature (Chan, 2021; Kaprawi, 2021). Despite these challenges, pharmacists worldwide tend to have comparable perceptions towards CPD reflected by their desire to improve their knowledge in the pharmaceutical care and improve the outcome on their professional career in particular and the wellbeing of the society in general (Tran, 2014).

In Lebanon, the concept of CPD in the pharmaceutical workplace is not common. In 2014, the law 190 was implemented. It became mandatory for all registered pharmacists to complete 15 CE credits per year in the form of online courses, conferences and congresses provided free of charge by the order of pharmacists in Lebanon (Sacre, H, 2019). Some companies emphasize on the importance of continuing education by motivating the pharmacists to attend different conferences and trainings in relationship with the scope of the company. The performance development of talented employees in multinational companies is directly affected by the globalization and the updated process of education in the aim of a long term evolution and a higher market revenue (TOMČÍKOVÁ, 2020). Understanding barriers to CPD learning may help identify potential ways for an effective development in the pharmaceutical workplace. Additionally, identifying the best method to learn may help in the concerned organization' judgment for the best fitting strategy in implementing CPD programs. Effective CPD engages both learning and reflecting practice needs which is facilitated when professionals are able to determine their own learning needs. What makes effective CPD? Accordingly, the objective of this study is to (i) evaluate the effectiveness of CPD in the pharmaceutical workplace and the direct impact on the pharmacists' personal and professional progression and (ii) assessment of their perceptions toward various CPD methods and their incorporation into this recent learning pathway.

# 2. RESEARCH METHODOLOGY

## 2.1 Study Design

A cross-sectional descriptive study was conducted in Lebanon within three months from July 2017 till September 2017. Data was collected from five distinct governorates (Beirut, Mount Lebanon, South, North and Beqaa) through face-to-face interview method.

## 2.2 Study Sample

A non-probability sample was frequency matched to national government estimates of pharmacists' work location, gender and sector of employment (Alameddine, 2019). The sample size was calculated using "Epi-info" program in correspondence with the following equation:

$$\mathbf{n = (Z1-\alpha/2)\,(1-p)\,/d^2}$$

Where Z1-α/2= 1.96 at 95% confidence interval, p is the expected proportion of outcome in the sample deriving from previous studies, d is the precision (8% marginal error).

This resulted in 142 pharmacists conveniently targeted by visiting their site of work: different hospitals to address medical representatives, different companies to address managers and in private community pharmacies. Participants were included if they accept to participate in the study after explaining its objectives and receiving ethical consideration for informed consent. They were informed that their participation is voluntary and anonym. An initial sample evaluation was performed after having 75 answers and the rest of the study sample was approached in correlation with the national estimates of 2016.

### 2.3 Study Instrument

The study instrument is a survey developed after an in-depth review of the relevant literature. It is based on a validated survey (Schostaka, 2016). It was piloted on 15 pharmacists. Minor changes were made to avoid unclear items. The survey included structured close ended questions and was divided into three parts:

Part I: Basic demographics of the pharmacists was collected including gender, age, work location, certificate, period of practice and work position: in community pharmacists entry-level position included assistant pharmacists versus managers and pharmacy owners while in companies medical representatives were considered working in an entry-level position.

Part II: CPD effectiveness was evaluated by asking statements related to: (i) the programs attended in the past year including educational CDs/DVDs, conference attendance, drug companies' materials, e-learning modules provided by the order of pharmacists in Lebanon and Web conferences; (ii) the impact of these programs on their professional career including changes in their soft skills and practical improvement including a positive change in their attitude, better practice, patient and self-satisfaction and knowledge acquisition. In this part, the correlation between CPD programs done and the gender of the pharmacists was evaluated to recognize their preference and to have a more narrowed targeted modules and as a result a better outcome. Furthermore, the association between the impact of CPD programs on their professional career and the gender of the sample was assessed to acknowledge who perceive the best positive outcome from the programs in the aim of evolving the modules in relationship with the pharmacists needs.

Part III: Pharmacists' perception towards CPD in general was assessed by asking positive statements concerning the effectiveness of the courses and whether they think CPD is a chore, bureaucratic, enjoyable, and essential for patients' safety and the development of their profession. They were asked as well if the programs are unnecessary and threatening. Additionally, they were asked about the entity responsible of providing the curriculum (colleges, employers, governments, self-directed or based on patients' needs). Finally, their perception towards who should assure the quality of CPD programs was assessed by choosing one of these options: colleges, deaneries, local providers and special societies. A bivariate analysis associating the responsible of providing CPD programs and the type of the pharmacists' certificate was performed to evaluate whether respondents with higher educational degrees rely more on the academic institutions to access continuous education versus a practical experience acquired from the workplace for pharmacists with a bachelor degree.

## 3. STATISTICAL ANALYSIS

The data statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS) version 23. Descriptive statistics were used to investigate the demographic characteristics of the participants. Frequencies and percentages were used to outline all the characteristics. Bivariate analysis was conducted to test the association between the pharmacists' demographics and variables related to the effectiveness and their perception toward CPD by using Fisher exact test with significant differences for a p-value less than 0.05. To calculate the mean from 5 points Likert-scale mode, we scored each point for 1: Strongly disagree (1), Disagree (2), Neutral (3), Agree (4), strongly agree (5). After quantifying the answers we used the equation: **Mean** = {Sum of Observation} ÷ {Total numbers of Observations}.

# 4. RESULTS

## 4.1 Demographic Characteristics of Study Participants

In total, 193 pharmacists were contacted, and 142 (73.6%) agreed to participate. Table 1 compares the work location, gender and the sector of employment of the sample with the national database of the ministry of public health of 2016. The majority of the sample was located in Mount Lebanon (48.6%) and Beirut (27.5%) and the sample includes 37.3% males and 62.7% females. The sector of employment was conveniently matched including 65.4% of community pharmacists and 34.6% working in pharmaceutical companies.

Table 1: Comparison between the study sample demographics and the ministry of public health data in 2016 including gender, location and sector of employment.

| Variable (N) | Frequency in the study sample | Percentage (%) | Ministry statistics in 2016 | Percentage (%) |
|---|---|---|---|---|
| **Gender** (142) | | | | |
| **Male** | 53 | 37.3 | 3337 | 37.7 |
| **Female** | 89 | 62.7 | 5518 | 62.3 |
| **Governorate** (142) | | | | |
| **Beirut** | 39 | 27.5 | 1537 | 17.4 |
| **Mount Lebanon** | 69 | 48.6 | 4297 | 48.5 |
| **North** | 13 | 9.2 | 1011 | 11.4 |
| **South** | 11 | 7.7 | 746 | 8.4 |
| **Beqaa** | 10 | 7 | 876 | 9.9 |
| **Nabatieh** | - | - | 387 | 4.4 |
| **Sector of employment** (142) | | | | |
| **Community** | 93 | 65.4 | 4113 | 63.4 |
| **Companies** | 49 | 34.6 | 1557 | 24 |
| **Hospital** | - | - | 328 | 5 |
| **Academic** | - | - | 248 | 3.8 |
| **Others** | - | - | 240 | 3.7 |

Table 2 summarizes the distribution of the other demographic characteristics of the pharmacists including age, type and source of certificate and years of practice. The study sample included 56.3% aged less than 25 years (56.3%) with an almost 20% lying in each of the other different age groups. The majority were Lebanese University graduates (85, 62.5%) and almost 26% from private universities. Answers were affected by the specialty of the pharmacists. In decreasing order of participation, 60 pharmacists (42.3%) hold a bachelor degree, 32 PharmD (22.5%), 39 with a master degree (27.5%) and less than 8% with a PhD. Moreover, 68.3 % of the respondents has less than 5 years of practicing experience and only 10.6% have more than 15 years of experience.

Table 2: Distribution of the basic demographic characteristics of the pharmacists

| Variable (N) | | Frequency (n) | Percentage (%) |
|---|---|---|---|
| **Age (Years)** (142) | Less than 25 | 80 | 56.3 |
| | 25-35 | 30 | 21.1 |
| | More than 35 | 32 | 22.5 |
| **Type of certificate** (142) | Bachelor degree | 60 | 42.3 |
| | PharmD | 32 | 22.5 |
| | Masters | 39 | 27.5 |
| | PhD | 11 | 7.7 |
| **Source of certificate** (136) | Lebanese University | 85 | 62.5 |
| | Private Universities | 35 | 25.7 |
| | Outside Lebanon | 16 | 11.8 |
| **Years of Practice (Years)** (142) | Less than 5 | 97 | 68.3 |
| | 5-9 | 25 | 17.6 |
| | 10-14 | 5 | 3.5 |
| | More than 15 | 15 | 10.6 |

Respondents regrouped community pharmacists as well as pharmacists working in different companies. The sample was distributed according to the pharmacists' work position differentiating between those working in an entry-level position and managers. In community pharmacies, 44.1% worked as assistant pharmacists while 21.3% were managers. On the other side, 19.9% worked as medical representatives in pharmaceutical companies versus almost 15% of managers (Figure 1).

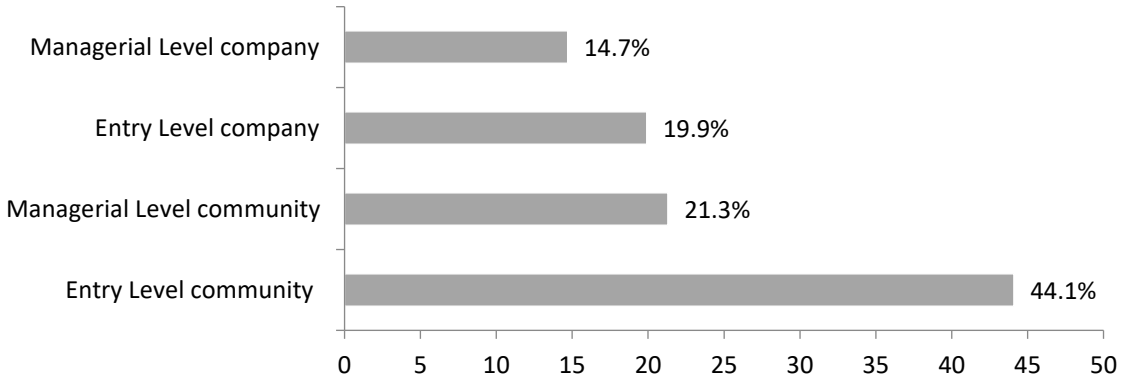


Fig.1: .Distribution of work position of pharmacists

## 4.2 Assessment of the Effectiveness Of CPD In The Pharmaceutical Workplace

Finding of questions related to the programs done in the last 12 months are represented in Table 3. Among the respondents, 55 (38.7%) reported that they have learnt through educational CDs/DVDs, 82 pharmacists (57.7%) attended a conference and 62 (43.7%) reported that they took advantage of the E-learning modules provided by the order of pharmacists in Lebanon.

Table 3: Pharmacists' different CPD programs done in the past year

| What CPD have you done in the past 12 months? | | Frequency (n) | Percentage (%) |
|---|---|---|---|
| **Educational CDs/DVDs** | Yes | 55 | 38.7 |
| | No | 87 | 61.3 |
| **Conference attendance** | Yes | 82 | 57.7 |
| | No | 60 | 42.3 |
| **Drug companies materials/ events** | Yes | 67 | 47.2 |
| | No | 75 | 52.8 |
| **E Learning modules** | Yes | 62 | 43.7 |
| | No | 80 | 56.3 |
| **Web conferencing** | Yes | 34 | 23.1 |
| | No | 108 | 76.9 |

On the other side, Table 3 represents the impact of these programs on respondents' professional career and their reflection on their attitude and improvement in their personal and scientific skills. An overall positive impact was reported where almost 68% of pharmacists agreed that CPD changed their attitude and their practice respectively. An improvement in practical skills (64.1%) and knowledge acquisition were outlined. In addition, 79.6% showed satisfaction toward CPD modules that they have done in the last year.

Table 4: Different ways that the CPD was successful/ worthwhile/ inspirational

| | | Frequency (n) | Percentage (%) |
|---|---|---|---|
| **Positive change in attitude** | **Strongly Disagree** | --- | --- |
| | **Disagree** | --- | --- |
| | **Neutral/Don't know** | 27 | 19 |
| | **Agree** | 96 | 67.6 |
| | **Strongly agree** | 10 | 7 |
| **Better practice** | **Strongly Disagree** | --- | --- |
| | **Disagree** | 3 | 2.1 |
| | **Neutral/Don't know** | 15 | 10.6 |
| | **Agree** | 97 | 68.3 |
| | **Strongly agree** | 18 | 12.7 |
| **Improved practical skills** | **Strongly Disagree** | --- | --- |
| | **Disagree** | 2 | 1.4 |
| | **Neutral/Don't know** | 14 | 9.9 |
| | **Agree** | 91 | 64.1 |
| | **Strongly agree** | 32 | 22.5 |
| **Knowledge acquisition** | **Strongly Disagree** | --- | --- |
| | **Disagree** | --- | --- |
| | **Neutral/Don't know** | 9 | 6.3 |
| | **Agree** | 93 | 65.5 |
| | **Strongly agree** | 31 | 21.8 |
| **Learner satisfaction** | **Strongly Disagree** | --- | --- |
| | **Disagree** | 3 | 2.1 |
| | **Neutral/Don't know** | 17 | 12 |
| | **Agree** | 89 | 62.7 |
| | **Strongly agree** | 24 | 16.9 |
| **Higher patient satisfaction** | **Strongly Disagree** | 3 | 2.1 |
| | **Disagree** | --- | --- |
| | **Neutral/Don't know** | 28 | 19.7 |
| | **Agree** | 81 | 57 |
| | **Strongly agree** | 21 | 14.8 |

Bivariate analysis associating between the gender of the study sample and CPD activities attended inr the last 12 months is displayed in Table 5. This analysis showed that 30.2% of male reported that they have learnt through educational CDs/DVDs compared to 43.8% of female pharmacists (p=0.107). Interestingly, 81.1% of male respondents reported that they have attended a conference compared to less than 44% of females (p<0.001). Additionally, 32.1% of male pharmacists participated in a web conference versus 19.1% of females (p=0.080).

Table 5: Association between continuous professional education modules done and the gender of pharmacists

| What CPD have you done in the past 12 months? | | Percentage (%) | p-value |
|---|---|---|---|
| **Educational CDs/DVDs** | Male | 30.2 | 0.107 |
| | Female | 43.8 | |
| **Conference attendance** | Male | 81.1 | **<0.001** |
| | Female | 43.8 | |
| **Drug companies materials/ events** | Male | 45.3 | 0.726 |
| | Female | 48.3 | |
| **E Learning modules** | Male | 52.8 | 0.089 |
| | Female | 38.2 | |
| **Web conferencing** | Male | 32.1 | 0.080 |
| | Female | 19.1 | |

On the other hand, when comparing means between male and female respondents with their perceptions about in what ways was the CPD successful, worthwhile, and inspirational it was interesting to note that both male and female have positive perceptions for CPD. However, a higher mean for male regarding patient satisfaction, learner satisfaction, knowledge acquisition was noted versus a lower mean for positive change in attitude and improved practical skills (Figure 2).

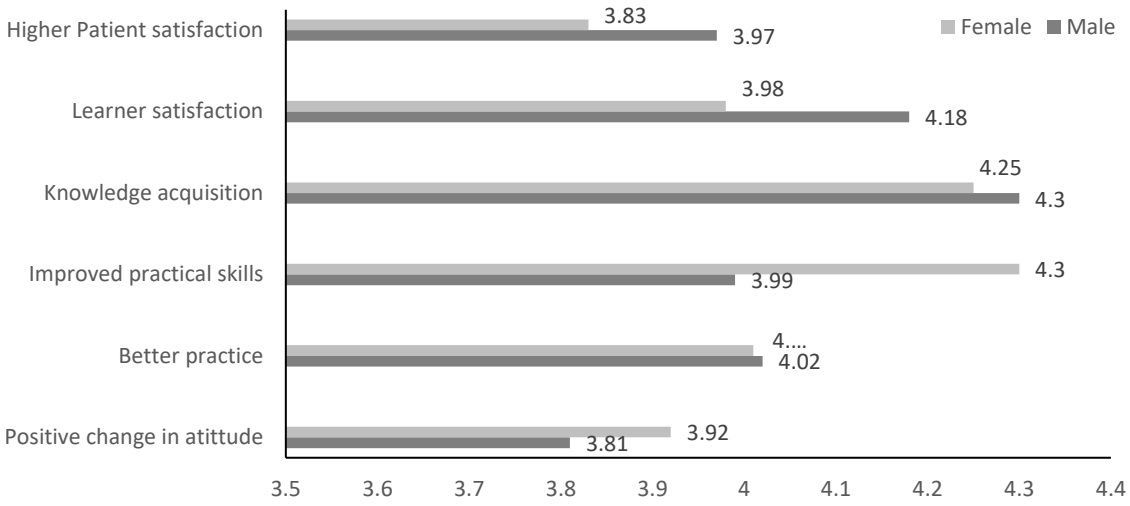


Fig.1: Association between gender of pharmacists and the impact of continuous professional development

### 4.3 Assessment of the Pharmacists' Perception towards CPD Programs

Respondents were asked about their perception concerning who should handle the responsibility of providing CPD curriculum and assuring its quality. It was noted that 35.9% of respondents considered that it should be self-directed compared to 44.4% and 57% who highlighted the role of employers and colleges respectively while only 12% considered that it should be provided depending on the patients' needs (Figure 3a). In addition, Fifty seven percent of pharmacists reported that colleges and faculties should provide it compared to only 28.2% of respondents who reported that special societies should take this responsibility (Figure 3b).

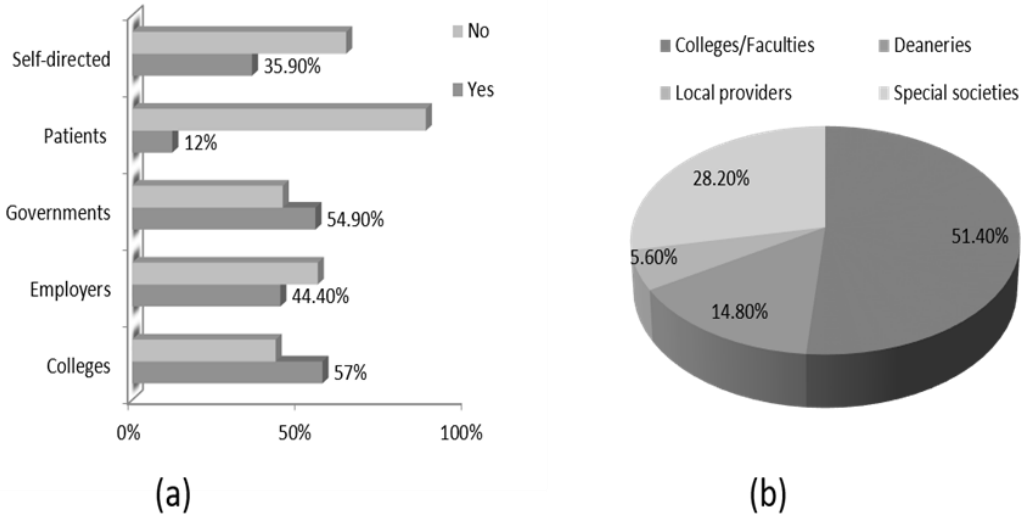


Fig.3: Assessment of pharmacists' perception towards: (a) Who should be responsible in providing CPD programs and (b) assuring the quality of the modules

Moreover, Table 6 summarize the respondents' perception toward CPD. Surprisingly, only 40.1% of the sample agreed that it is a core and 26.1% consider it bureaucratic. On the other side, 70.4% of pharmacists consider it enjoyable and 52.1% reported that the programs are rewarding. However, a negative perception was noted where 23.9% agreed that CPD modules are threatening and almost 24% consider them unnecessary.

Table 6: Pharmacists perception about CPD

| | | Frequency (n) | Percentage (%) |
|---|---|---|---|
| **A chore** | | | |
| | **Strongly Disagree** | 9 | 6.3 |
| | **Disagree** | 8 | 5.6 |
| | **Neutral/Don't know** | 51 | 35.9 |
| | **Agree** | 57 | 40.1 |
| | **Strongly agree** | 14 | 9.9 |
| **Bureaucratic** | | 12 | 8.5 |
| | **Strongly Disagree** | | |
| | **Disagree** | 19 | 13.4 |
| | **Neutral/Don't know** | 63 | 44.4 |
| | **Agree** | 37 | 26.1 |
| | **Strongly agree** | 5 | 3.5 |
| **Enjoyable** | | | |
| | **Strongly Disagree** | --- | --- |
| | **Disagree** | 10 | 7 |
| | **Neutral/Don't know** | 16 | 11.3 |
| | **Agree** | 100 | 70.4 |
| | **Strongly agree** | 10 | 7 |
| **Essential part of the profession** | | | |
| | **Strongly Disagree** | --- | --- |
| | **Disagree** | 8 | 5.6 |
| | **Neutral/Don't know** | 6 | 4.2 |
| | **Agree** | 87 | 61.3 |
| | **Strongly agree** | 41 | 28.9 |
| **Necessary for patient safety** | | | |
| | **Strongly Disagree** | --- | --- |
| | **Disagree** | --- | --- |
| | **Neutral/Don't know** | 15 | 10.6 |
| | **Agree** | 74 | 52.1 |
| | **Strongly agree** | 53 | 37.3 |
| **Rewarding** | | | |
| | **Strongly Disagree** | --- | --- |
| | **Disagree** | 19 | 13.4 |
| | **Neutral/Don't know** | 25 | 17.6 |
| | **Agree** | 74 | 52.1 |
| | **Strongly agree** | 24 | 16.9 |
| **Threatening** | | | |
| | **Strongly Disagree** | 14 | 9.9 |
| | **Disagree** | 39 | 27.5 |
| | **Neutral/Don't know** | 55 | 38.7 |
| | **Agree** | 34 | 23.9 |
| | **Strongly agree** | --- | --- |
| **Unnecessary** | | | |
| | **Strongly Disagree** | 20 | 14.1 |
| | **Disagree** | 43 | 30.3 |
| | **Neutral/Don't know** | 52 | 36.6 |
| | **Agree** | 27 | 19 |
| | **Strongly agree** | --- | --- |

Table 7: Association between pharmacists' perception toward CPD providers and the type of their certificate

| Question | | Yes | No | p-value |
|---|---|---|---|---|
| **Colleges** | | | | |
| | **Pharmacy** | 55% | 45% | **0.021** |
| | **PharmD** | 46.9% | 53.1% | |
| | **Masters** | 56.4% | 43.6% | |
| | **PhD** | 100% | --- | |
| **Employers** | | | | |
| | **Pharmacy** | 41.7% | 58.3% | |
| | **PharmD** | 37.5% | 62.5% | 0.529 |
| | **Masters** | 53.8% | 46.2% | |
| | **PhD** | 45.5% | 54.5% | |
| **Governments** | | | | |
| | **Pharmacy** | 58.3% | 41.7% | |
| | **PharmD** | 62.5% | 37.5% | **0.002** |
| | **Masters** | 59% | 41% | |
| | **PhD** | --- | 100% | |
| **Patients** | | | | |
| | **Pharmacy** | 8.3% | 91.7% | |
| | **PharmD** | 9.4% | 90.6% | 0.071 |
| | **Masters** | 23.1% | 76.9% | |
| | **PhD** | --- | 100% | |
| **Self-directed** | | | | |
| | **Pharmacy** | 26.7% | 73.3% | |
| | **PharmD** | 37.5% | 62.5% | 0.085 |
| | **Masters** | 51.3% | 48.7% | |
| | **PhD** | 27.3% | 64.1% | |

The association between the pharmacists' perception concerning the responsible of the CPD curriculum and the type of their certificate is presented in Table 7. A significant difference was reported where 55% of respondents with a bachelor degree considered that it should be provided by colleges compared to 46.9% and 100% of those with a PharmD and a PhD respectively (p=0.021). Additionally, it was interesting to note that almost 60% of pharmacy, PharmD and masters handlers highlighted the role of governments on providing the CPD curriculum versus none of respondents with a PhD (p=0.002).

## 5. DISCUSSION

An overall positive attitude and perception toward CPD programs and their importance was reported in this study. Pharmacists were aware of the different type of programs. Finding of this study addressed some inequality in the access of the program between males and females despite the positive impact of CPD on both professional progression and soft skills acquisition. Moreover, it highlighted the trust in colleges and the government in implementing it.

The majority of pharmacists who participated in this survey indicated a high percentage for conference attendance, drug companies' material as a CPD activity undertaken in the past year. This finding is consistent with previous studies (Aldosari, 2020; Zoriah, 2012). It can be explained that pharmacists valorize the importance of professional networking and interpersonal professional exchange (Ikenwlto, 2014). This result has a strong relationship with the gender of pharmacist were men attend more conference than women ($p<0.001$). Therefore, the need to establish an adequate CPD system to encourage more female pharmacists to engage in the continual education must take place. As for example, a professional agreement should be done to specify the best timing for these conferences to help overcome the work-life balance and encourage the participation of all pharmacy practitioners for the best outcome. E-learning had become a popular method of CPD after the COVID-19 pandemic, while face-to-face courses and webinars were limited due to social distancing. Therefore, to ensure the homogenous access to CPD to all pharmacists, limitations to web

conferencing should be addressed to take advantage of the pandemic in developing an efficient method of learning preventing risks associated with attendance and providing the programs easier and flexible.

Nearly all participants agreed that CPD can make positive change where 67.6% considered a positive change in attitude and change in practice are the benefits of CPD and 62.7% showed satisfaction. This result is in contrast with other studies (Jill, 2015; Udoh, 2021). Additionally, learners' competencies should be evolving and reflecting on the innovation in the pharmaceutical field by incorporating modern services and projects directly affecting the professional improvement. Education and training have positive impact on the pharmacists' attitude and skills in the workplace (Kansanaho, 2003). However, when comparing means we can see that more men have positive perceptions regarding patient outcome and satisfaction even though we can note a higher female rate for knowledge acquisition and improvement in practical skills. Those results show contradiction where more men reflect their CPD on their outcome which make them more satisfied and that reflect the Lebanese pharmaceutical market case where more male pharmacists are in managerial position even though female have showed improvement in knowledge and practical skills.

An average of 90 % of pharmacists considered CPD as an essential part of the professional career. This is an encouraging result and shows that even without CPD being mandatory, pharmacists' value its importance to maintain their professional competencies. However, it is essential to note that a small number of the respondents did not see the benefit of CPD. This attitude needs to change by providing more narrowed topics in the programs in correlation with the pharmacist need for learning. CPD should support innovation, creativity, and flexibility, alongside expertise (Steenhof, Naomi. 2020).

All healthcare stakeholders including policy maker, the government, pharmacists, physicians and quality assurance agencies should adapt CPD and training as a continuum (Owen, 2020). This study reported that 57% of respondents emphasize the role of colleges, almost 55% for governments and 44.9% consider employers should be responsible for the quality of CPD provision. This result reflect the importance to enhance the role of colleges to provide a quality-based CPD programs since most of pharmacists showed trust in colleges and can't rely on their own direction (35.9%). College/Faculty CPD modules should be accessible to all the pharmacists, at a low cost and in a way encouraging inter-professional communication, Colleges/Faculties should be accountant in preserving the quality of the program by a random auditing of the participants' activities (Baumgartner, 2020). A forum for pharmacists where they can provide the topics they encounter in their profession must take place to encourage the programs makers to address these topics. In addition, most recently, shortage of medication linked to the pandemic and the economic crisis due to the devaluation of the Lebanese currency made it harder to afford such programs.

The study has some limitations where the generalization of the findings is affected by the low response rate. It was carried out in 2017 and mostly included young pharmacists. Since then, the Lebanese economic crisis and Covid-19 pandemic has limited the availability of conferences and congresses and focused more on the online version of continuous education. However, we believe that this study is valuable, in understanding the effect of CPD in the Lebanese workplace and tailoring new programs basing on their perception and need. Future studies testing the reflection of the programs on participants' performance and the sustainability of their CPD attendance could take place. Finally, findings from this study will inform nation-wide CPD strategies to address the importance of a tailored continuous education programs to improve the pharmacy profession.

## 6. CONCLUSION

Pharmacists in Lebanon are aware of the importance of CPD in their professional life. They highlighted the role of colleges and the order of pharmacists in providing efficient access to learning and preserving an up-to-date high quality content of the material provided. CPD is an essential part in the pharmaceutical professional career. Programs should be accredited by the ministry of public health to preserve their quality based on the guidelines criteria to ensure their transparency and accountability. Understanding the pharmacists' needs help in providing structured modules to enhance the pharmacy practice and encouraging the incorporation of pharmacists from different areas of work by having multiple options of CPD. Finally, pharmacists must choose in which programs they want to invest their money and time to achieve CPD.

**REFERENCES**


- Accreditation Council for Pharmacy Education – ACPE. (2007) Definition of Continuing Education for the Profession of Pharmacy.
- Wong, B. T. M., Li, K. C., Wong, B. Y. Y., & Yau, J. S. W. (2018, January). The e-learning trends for continuing professional development in the accountancy profession in Hong Kong. In *International Conference on Technology in Education* (pp. 258-266). Springer, Singapore.
- Vlasses, P.H. (2006) Pharmacy continuing education: 40 years ago to now. *Annals of Pharmacotherapy*. Oct; 40(10):1854-6.
- International Pharmaceutical Federation - FIP. (2002) FIP Statement of Professional Standards Continuing Professional Development. The Hague, The Netherlands: *International Pharmaceutical Federation* (online).
- Accreditation Council for Pharmacy Education - ACPE. (2014) Continuing Professional Development (on-line).
- Cecep Somantri, Harris Iskandar (2021). The Impact of CPD in Teaching, and the Role of Principal in Promoting CPD: A Literature Review. Advances in Social Science, *Education and Humanities Research*, volume 526
- E. V. Rezak and E. M. Vikhtenko (2021). "Digital Technologies for Continuing Education Using Foreign Language Learning," 2021 *1st International Conference on Technology Enhanced Learning in Higher Education (TELE*), pp. 68-70
- Asmaa Al-Haqan, Felicity Smith, Ian Bates (2021) Using a global systematic framework tool to guide the advancement of the pharmacy workforce education and training on a national level *Research in Social and Administrative Pharmacy*. Volume 17, Issue 6, P 1101-1109
- -Claire Anderson**,** (2021) A global view of continuing professional development. *The pharmaceutical journal.* Retrieved from www.pharmaceutical-journal.com
- Khamis, S., Abdi, A.M. & Basgut, B. (2020) Preparing lifelong learners for delivering pharmaceutical care in an ever-changing world: a study of pharmacy students. *BMC Med Educ* 20**,** 502
- David E. Cunningham, Sarah Luty, Anna Alexander, Vicki Waqa & Leon Zlotos (2020) The future of CPD for general practitioners, registered pharmacy staff and general practice nurses in Scotland qualitative responses from a national survey, *Education for Primary Care*, 31:1, 7-14.
- Donyai, P (2011) British pharmacy professionals' beliefs and participation in continuing professional development: a review of the literature. *International Journal of Pharmacy Practice*, Oct; 19(5): 290-317.
- Amy Chan, Rula Darwish, Saba Shamim, Zaheer-Ud-Din Babar (2021).Pharmacy practice and continuing professional development in low and middle income countries (LMICs),*Academic Press*, P 187-205.
- Kaprawi, N., Rasi, R. Z., Spöttl, G., Ismail, A., & Razzaly, W. (2021). Malaysian Apprenticeship Implementation: Issues and Challenges Towards Effective Employers Engagement. *Journal of Technical Education and Training*, 13(3), 213-224.
- Tran, D., (2014) How Pharmacy Can Learn from the International Literature on Health Professions' Requirements for Continuing Professional Development (CPD). *American Journal of Pharmacy Education.*
- -Sacre, H., Tawil, S., Hallit, S., Sili, G., & Salameh, P. (2019). Mandatory continuing education for pharmacists in a developing country: Assessment of a three-year cycle. *Pharmacy practice*, 17(3)
- Ľuba TOMČÍKOVÁ. (2020) Education and Development of Talented Employees in Relation to the Performance of Multinational Organizations with Regard to Globalization. *Journal of Applied Economic Sciences (JAES)*
- Alameddine, M., Bou Karroum, K. & Hijazi, M. (2019) Upscaling the pharmacy profession in Lebanon: workforce distribution and key improvement opportunities. *Hum Resour Health* 17**,** 47
- Jill Schostaka, Mike Davisb , Jacky Hansonc , John Schostakd, Tony Browne (2016). The Effectiveness of Continuing Professional Development.College of emergency medicine
- Hailah Aldosari, Zahra Alsairafi, Salah Waheedi, (2020) Continuing education in pharmacy: A cross-sectional study exploring pharmacists' attitudes and perceptions, *Saudi Pharmaceutical Journal*,*Volume* 28, Issue 7Pages 803-813

- Zoriah Aziz, (2012) Continuing Professional Development: Views and barriers Toward Participation among Malaysian Pharmacists. *EJSBS;* 4:713-726.
- Ikenwlto (2014). Perceived need and Barriers to Continuing Professional Development among doctors. *J Health Policy*, 117: 195-202.
- Jill Schostaka (2015) The Effectiveness of Continuing Professional Development.Academy of Medical Royal Colleges. Retrieved December 13, 2015.
- Arit Udoh, Andreia Bruno-Tomé, Desak Ketut Ernawati, Kirsten Galbraith, Ian Bates,(2021) The effectiveness and impact on performance of pharmacy-related competency development frameworks: *A systematic review and meta-analysis,Research in Social and Administrative Pharmacy*,Volume 17, Issue 10,p 1685-1696
- Bell, H. M. (2001). Perceptions of CPD within the pharmacy profession. *International Journal of Pharmacy Practice*, 9, 55.
- Kansanaho H, Pietilä K, Airaksinen M. (2003) Can a long-term continuing education course in patient counselling promote a change in the practice of Finnish community pharmacists? *Int J Pharm Pract;* 11(3):153–160.
- Steenhof, Naomi. 2020. "Adaptive Expertise in Continuing Pharmacy Professional Development" *Pharmacy* 8, no. 1: 21.
- Owen, James A., Jann B. Skelton, and Lucinda L. Maine (2020). "Advancing the Adoption of Continuing Professional Development (CPD) in the United States" Pharmacy 8, no. 3: 157.
- Baumgartner, Jennifer, Catriona Bradley, Bronwyn Clark, Colleen Janes, Elizabeth Johnstone, Michael Rouse, and Arthur Whetstone. (2020). "Global Forum on Quality Assurance in CE/CPD: Assuring Quality across Boundaries" *Pharmacy* 8, no. 3: 114.