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Original article

Continuing education in pharmacy: A cross-sectional study exploring pharmacists' attitudes and perceptions

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ABSTRACT

Background: The pharmacy profession has changed enormously in the recent decades. Pharmacist role has been expanded beyond formulating and dispensing medications to include the provision of pharmaceutical care and public health services to patients. Patient-centred care requires sustained competency through improving pharmacist's knowledge, skills, and performance. Such improvements require pharmacist's involvement in continuing education activities although it is optional in Kuwait.
Objective: To explore pharmacists' attitudes towards continuing education in Kuwait, and to investigate the perceived barriers that hinder pharmacists from being involved in continuing education activities.
Setting.
All governmental hospitals and polyclinics and private pharmacies in all the five health regions of Kuwait (Capital, Hawalli, Ahmadai, Farwaniyah, and Jahra).
Method: A descriptive cross-sectional study conducted with full licensed pharmacists working in Kuwait. Pharmacists were asked to complete an adapted validated questionnaire composed of 14 items to measure their attitudes towards continuing education. In addition, it contains open-ended questions to obtain the type of learning activity undertaken by the pharmacists, and whether they have barriers that hinder them from being involved in continuing education.
Results: A total of 409 pharmacists completed the questionnaire. The participants had a median score of 44 (interquartile range = 41–47); good to excellent attitudes. Attitude scores were correlated with age and years of experience. Almost 70% of the participants had attended a continuing education activity within one year. The activity undertaken most by pharmacists was attending a seminar, compared to other activities. The main barriers to continuing education were lack of personal time (n = 383), lack of scientific databases and books (n = 187) and conferences are not regularly organized locally (n = 154).
Conclusion: Pharmacists in Kuwait have positive attitudes towards continuing education overall.

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☆ "This article describes the attitudes of pharmacists in Kuwait regarding continuing education in pharmacy. Perceptions and experiences of pharmacists working in both governmental and private sector were explored. Also, experiences of pharmacists working at different care levels (primary and secondary) were explored via a questionnaire and included. In Kuwait, there is no a mandatory system for pharmacists towards continuing education. This study leads to a unique illustration of pharmacists' perceptions towards continuing education, preferred type of CE and the barriers that they face towards being involved in CE activities. In conclusion, it has been reported that pharmacists showed positive attitudes towards CE but they did not engage in activities regularly due to some barriers. Such investigated barriers if addressed well and recognised by policy makers, will assist in helping pharmacists improving their knowledge and engaging in CE activities."

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However, there are many obstacles that avert pharmacists to practice continuing education. Further studies are required to explore how to overcome the reported barriers and provide more feasible and relevant continuing education to pharmacists.

1. Introduction

The pharmacy profession has changed enormously in the recent decades. Pharmacists' roles have been expanded beyond the dispensing of medications to involve providing pharmaceutical care and public health services to patients (Wiedenmayer et al., 2006; Lemay et al., 2018). Patient-centred care requires sustained competency through improving pharmacists' knowledge, skills, and performance (Biggs, 2003). Continuing Education (CE) is a broad concept that has many definitions. The Accreditation Council for Pharmacy Education defines CE as a structured educational activity designed or intended to support the continuing development of pharmacists to maintain and enhance their competence (Accreditation Council for Pharmacy Education, 2015). CE programs have different formats including live events, such as, lectures or workshops, and distance learning formats, such as, printed materials, audio-recording, and the internet (Driesen et al., 2008). In addition, there is a term called Continuing Professional Development (CPD). It is a self-directed, ongoing, systematic and outcomes-focused approach to lifelong learning that is applied into practice. CPD involves the process of active participation in formal and informal learning activities that assist in developing and maintaining competence, enhancing professional practice, and supporting achievement of career goals (Accreditation Council for Pharmacy Education, 2015). CE is an essential part of CPD, however, a shift from a focus on CE to CPD occurred in the pharmacy profession in the 1990s when the concept of CPD was promoted as a model to enhance CE for pharmacists in Canada, the United Kingdom (UK), and a number of other countries around the world (Schindel et al., 2012). However, it has been reported that majority of pharmacists preferred traditional CE as they found it more structured and provide specific learning outcomes (Austin et al., 2005).

Each country has developed its own system for the regulation of CE and CPD. CE has become mandatory with a definite amount of credits as a condition for the renewal of the pharmacist license in many countries, such as France and the United States (US). However, the UK and Canada follow a mandatory CPD approach (Driesen et al., 2007). In the Middle East, Jordan and Iran have mandatory CE systems. In Iran, CE has become mandatory since 1991, as pharmacists are required to obtain 25 h of CE every year for the purpose of license renewal (Ibrahim, 2012; Sarayani et al., 2012). Among the Arabian Gulf countries, Saudi Arabia and the United Arab Emirates (UAE) have mandatory CE systems. In the UAE, CE has been mandatory since 2009, in which pharmacists are required to complete 20 CE hours for re-licensure on an annual basis (Hasan, 2009; Ibrahim, 2012). In Kuwait, CE for pharmacists is not mandatory. However, there is the Kuwaiti Institute for Medical Specialties (KIMS), which organizes and administers programs, providing Continuing Medical Education (CME) to healthcare providers. KIMS was established in 1984 and aims to promote health and ensure high quality professionalism via education, training, and CPD. In addition, one of the achievements of KIMS is the Continuing Education and Professional Development (CEPD) centre. The CEPD centre follows the unified CPD regulations for healthcare professionals in the Gulf Cooperation Council (GCC) countries, which states that pharmacists are required to attend 125 h of CE credits over 5 years. To date, KIMS provides CE programs for physicians and dentists only (Biggs, 2003).

In Kuwait, there is one Faculty of Pharmacy, established in 1997, providing a 5-year bachelor degree and a 2-year add-on PharmD program. Since 2002, there have been approximately 30–40 students graduating every year. Clinical pharmacy is included as part of the curriculum with a focus on medication therapy management. The graduates then work in the Ministry of Health (MOH). The public healthcare system in Kuwait is divided into primary, secondary, and tertiary care. Primary care is delivered through ninety-seven general and specialised polyclinics around five healthcare regions. Secondary care is provided through six general hospitals, and tertiary care is delivered through fifteen specialised centres (MOH, 2014). There is also the private sector, which includes 459 pharmacies. To date, there are 4000 pharmacists registered in Kuwait Pharmaceutical Association. Unfortunately, in practice, the pharmacist's role is still limited to processing prescriptions, preparing formulations, and performing some administrative tasks. Clinical pharmacy activities are only based on individual pharmacists' initiatives with no or little support from the MOH (Lemay et al., 2018).

To our knowledge, published research regarding pharmacists' attitudes towards CE in Kuwait is lacking. No prior study has addressed pharmacists' preferences for the type of CE activity, and the barriers that hinder them from being involved in such activities. For effective CE, it is crucial that the programs are tailored to pharmacists' needs and preferences. For example, in Belgium, it has been found that pharmacists were divided into three groups in terms of their CE preferences (Driesen et al., 2008). One group preferred lectures and workshops, other group, particularly older men, preferred distance learning and were motivated by incentives. The last group, particularly women, did not like workshops and were more involved in lectures. Other results showed that majority of Massachusetts and Colorado pharmacists preferred live conferences (McConnell et al., 2010; Young, 2012). However, in the Middle East, pharmacists were more likely to use online courses than attending live CE activities due to work and family constraints (Sacre et al., 2019).

In addition, pharmacists worldwide have reported work and family constraints and uninteresting topics as barriers to participate in CE activities (Hanson et al., 2007; Ibrahim, 2012). However, although they reported similar barriers, pharmacists in developed countries such as US and Ireland showed higher participation rates in CE than those in developing countries (International Pharmaceutical Federation, 2014). This may affirm the importance of implementing a mandatory system for CE in the country. However, there are many different factors that could be related to higher participation rates such as age, gender and years of experience. In addition, the belief of pharmacists in their need to maintain their professional competency is essential (Bellanger and Shank, 2008). In the Middle East, pharmacists in still disbelieve in the importance of CE (Haughey et al., 2007; Sacre et al., 2019). Therefore, the aim of this study was to explore pharmacists' attitudes towards CE, identify their preferred method of CE, and investigate the perceived barriers that hinder them from being involved in CE activities.

2. Ethical approval

The study was approved by the Human Ethical Committee, Health Sciences Centre, Kuwait University, State of Kuwait.

Informed consent was obtained from all the participants prior to participation.

3. Materials and methods

3.1. Study design and population

A descriptive, cross-sectional survey of pharmacists' attitudes was conducted. Data was collected via self-administered questionnaires. Responses to the questionnaires allowed calculating the participants' scores to interpret the pharmacist's attitudes towards CE. Also, it allowed the pharmacists to talk freely about the barriers that might hinder them from undertaking CE activities via an open-ended question.

The study was conducted in Kuwait, a Middle-Eastern country with an area of 17820 km^2 and an approximate population of 3 065 850 individuals (Statistical Review, 2013). It was conducted during the period from February to June 2017. The study concerns pharmacists working in both the governmental and private sectors. Pharmacists working in hospitals, polyclinics and private pharmacies were included.

3.2. Sampling, recruitment and data collection procedures

All full licensed pharmacists working in governmental and private sectors in all the five health regions of Kuwait (Capital, Hawalli, Ahmadai, Farwaniyah, and Jahra) were eligible for this study. The study targeted pharmacists working at all care levels, e.g. hospitals, polyclinics, and private pharmacies. Accordingly, all eligible pharmacists were invited to participate during the data collection period. The exclusion criterion was refusing to consent to participate. Firstly, the researcher prepared a list of the available hospitals, polyclinics, and private pharmacies in each health region. Then, a sample of six governmental hospitals, 23 polyclinics, and 75 private pharmacies was selected using convenience sampling. The sample was selected at the level of the five healthcare regions of Kuwait (Fig. 1).

To identify the sample size, the researcher contacted Kuwait Pharmaceutical Association to obtain the total number of pharmacists registered in Kuwait; the estimated number was 4000 pharmacists. Number of pharmacists working in the governmental sector was 1164 pharmacists, with 646 pharmacists working in hospitals, and 518 pharmacists working in polyclinics (2014 estimate). A minimum of 2400 pharmacists was calculated by doubling the number of pharmacists working in the governmental sector and a maximum number of 8000 was calculated by doubling the approximate total number of pharmacists registered in Kuwait. By using raosoft sample size calculator, a minimum and a maximum sample size was calculated to be 332 and 367 respectively. Raosoft was used to calculate the target sample size; with a margin of error of 5% and a confidence interval of 95%, a minimum sample of 351 pharmacists was considered an acceptable sample size. We assumed a response rate of 80% and thus a larger sample of 439 should be approached. Convenience sampling was used to select the study sample.

The researchers then prepared a list of the settings that would be approached by each one. Two researchers had visited 34 settings and one visited 36. Then, each researcher prepared a list including the name of the setting and the date of visiting it (approximately eleven settings had been visited by each researcher per day). A total of 497 pharmacists were approached, all of whom responded directly, from which 409 agreed to participate (participation rate 82%). Around 18% of the approached pharmacists (n = 88) refused to participate. Most common reasons for non-participation were lack of time and interest. The pharmacists were approached by the researchers during their working hours in the pharmacy and were invited to participate. On approaching each pharmacy, the researchers briefly explained the purpose of the study to the pharmacist. Pharmacists were assured that their participation was voluntary, they could withdraw at any time without giving any explanation, and that their participation would have no impact on their career, as their responses would be anonymous and would not be communicated to a third party. To ensure reliability of the obtained data, the researchers introduced themselves as independent researchers who are separate from the MOH. Those agreeing to participate were given hard copies of the questionnaire at that time. Participants were instructed to answer the questionnaire and return it within two weeks to the pharmacy administration or secretary. At this point, the researchers explained to the participants that the aim of the study was to explore their attitudes towards CE and the barriers that hinder them from taking a part in CE activities, in order to propose improvements in CE activities. It was also clarified to the participants that there were no right or wrong answers and that their honest views were the primary interest of the study. Then, after two weeks of visiting each setting, each researcher had revisited the setting to collect completed questionnaires from the administration/secretary.

3.3. Study instrument

The basis of developing the study questionnaire was obtained from a validated survey that investigated physician orientation towards lifelong learning using the Jefferson Scale of Physician Lifelong Learning (JSPLL). Permission to use the JSPLL was obtained from the author, and the scale was slightly changed to be suitable for pharmacists. The questionnaire includes both closed- and open-ended questions, and is divided into four parts: (1) pharmacists' attitudes towards CE, (2) type/date of the last undertaken CE, (3) barriers to CE, and (4) demographic characteristics.

To obtain the validity of the questionnaire among the study sample, a pilot study of five questionnaires was carried out. Three questionnaires were collected from a polyclinic, and the other two were from a private pharmacy. Due to difficulties in understanding some of the English terminologies by some pharmacists, an Arabic translation of the questionnaire was conducted. The questionnaire was translated using the parallel blind technique. This method involves two translators independently translating into the target language and comparing the translations, looking for any discrepancies, and then agreeing on one version (Hambleton and Patsula, 1998). In addition, several minor changes were made to the questionnaire. Another pilot study of five questionnaires was also undertaken among five pharmacists, two were working in polyclinics and three working in private pharmacies. No further modifications to the questionnaire were made after the second pilot. Data from the two pilots were not included in the results. A description of the parts of the final version of the questionnaire is shown in Table 1. A copy of the questionnaire is attached in Appendix A.

3.4. Data analysis

Data analysis was preformed using Statistical Package for Social Sciences (SPSS), version 22. Data entry was performed directly into the SPSS and frequency tests were performed to identify any further errors. Responses were presented as frequency (percentages) and median (interquartile range). Statistical correlation (spearman's rank correlation), Mann-Whitney, and Kruskal-Willias H tests were used to assess if there were significant differences between respondents' characteristics and attitudes towards CE scores. Non-parametric tests were used for correlation and comparison because the data were not normally distributed (Shapiro

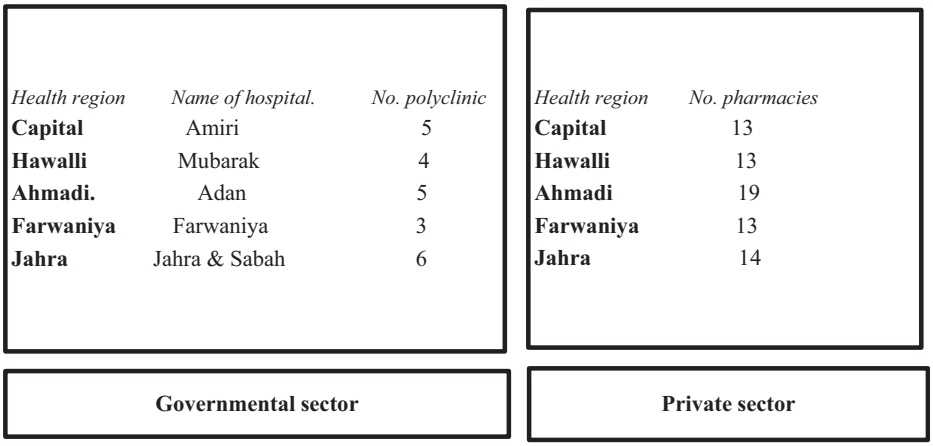

Fig. 1. The number of data collection sites (hospitals, polyclinics and private pharmacies) in each sector/health region.

Wilk's test $p < 0.05$). In order to obtain whether there were significant differences between the participants' characteristics regarding their responses to the CE activity or the CE barrier questions, chi-squire test was used.

4. Results

A total of 497 pharmacists were approached, from which 409 agreed to participate in the study; the participation rate was 82%. From the 409 pharmacists, 302 (74%) were working in the governmental sector; 205 (50%) from hospitals, and 97 (24%) from polyclinics. From the private sector, 107 (26%) of pharmacists took a part in the study. Table 2 shows the characteristics of the participants.

4.1. Attitudes towards continuing education scores

More than half of the participants 60% (n = 246) have good to excellent attitude scores towards CE; scores ranged from 43 to 56. While 39% (n = 160) have fair attitude scores; ranging from 29 to 42, and only 1% (n = 3) have poor attitude scores; ranging from 14 to 28 (Fig. 2). The median score was 44 (interquartile range = 41–47), and this is consistent with good attitude towards CE. The minimum score among the participants was 22, while the maximum score was 56. Table 3 shows the frequencies of the responses for each item of the scale [Part 1].

4.2. Type and date of the last undertaken CE activity

27% of pharmacists (n = 111) reported they had their last CE within one month, 29% (n = 120) had their last CE more than one year ago, and 24% (n = 99) had their last CE within one month to one year. Almost half of the pharmacists stated that the last CE activity they undertook was attending a seminar, followed by attending a conference, then reading a journal article. Since attending any type of CE activity is voluntary, this finding may indicate that seminars could be the most preferred activity among pharmacists. Another explanation could be that, because time constraints were reported to be a major barrier to CE, this is why attending a seminar was the most common form of CE, as conferences usually last a full day, and it is not always possible to access journal articles in full online. Table 4 shows the responses of participants to [Part 2] of the questionnaire, which was about the type and date of the last undertaken CE activity.

Table 1
A description of the parts of the final version of the JSPLL questionnaire that was used in this study.

Part 1 [Attitudes scores]	Includes 14 items. The participants indicate their answers (agreement) with each statement by circling their responses, which were graded on a 4-point Likert-scale (strongly disagree, disagree, agree, or strongly agree). Participants' responses were scored as 1, 2, 3, or 4, respectively. Participants had to answer at least 11 (80%) of 14 items; otherwise the form was regarded as incomplete and excluded from data analysis (in case of failing to answer ≤ 3 questions, missing values should be replaced with the mean score calculated from items completed by the other participants). Then, the total score was calculated from the sum of all items score. The lowest possible score range on the JSPLL is 14–28; indicating poor attitude towards CE, and the highest possible score range is 43–56; indicating good attitude towards CE, while fair attitude score ranges between 29 and 42.
Part 2 [Type/date of last CE]	Includes 4 questions about the type and date of the last CE activity, and whether the pharmacist received CME points or certificate for attending the CE activity.
Part 3 [Barriers towards CE]	Includes one question to determine the barriers towards CE that pharmacists face in their practice. A list of examples was provided in the question. This list was obtained from literature (Muliira et al., 2012).
Part 4 [Demographics]	Includes 11 questions about the demographic characteristics of the participants (age, gender, first language, marital status, qualification, practice site and department, years of experience, and nationality).

4.3. Barriers to continuing education

The main barrier to CE from the perspectives of pharmacists was lack of personal time reported by 66.5% of pharmacists (n = 272). This was followed by the lack of scientific databases and books, reported by 45.7% of pharmacists (n = 187), while 37.7% of pharmacists (n = 154) reported that irregularity in conference organisations is the main barrier to engage in CE activities. Table 4 shows the participants' responses to [Part 3] of the questionnaire, which asked about the barriers that prevent pharmacists from engaging in CE activities.

4.4. Factors associated with pharmacists' attitudes towards continuing education

There was a significant correlation between the scores of pharmacists' attitudes towards CE and years of experience *($p < 0.05$)*, age *($p < 0.05$)*, and high educational attainment; MPharm and Pharm D *($p < 0.01$)*. Older pharmacists with more experience and

Table 2
The characteristics of the participants (n = 409).

Characteristic	Classification	Number (%)
Age (years)	Median (minimum, maximum)	34 (22–63)
	21–29	98 (24)
	30–39	196 (47.9)
	40–49	57 (13.9)
	50+	31 (7.6)
	Missing data	27 (6.6)
Gender	Male	200 (49)
	Female	209 (51)
Native language	Arabic	381 (93)
	Others	28 (7)
Nationality	Kuwaiti	179 (44)
	Non-Kuwaiti	230 (56)
University	Kuwait University graduates	119 (29)
	Overseas Universities graduates	285 (69.7)
	Missing data	5 (1.3)
Qualification	Bachelor of Pharmacy	384 (93.9)
	Master of Pharmacy (MPharm)	15 (3.7)
	Doctor of Pharmacy (Pharm D)	9 (2.2)
	Missing data	1 (0.2)
Years of experience	<5 years	83 (20)
	5 to 10 years	156 (38)
	More than 10 years	170 (42)

higher level of education had more positive attitudes scores towards CE. Other factors such as gender, nationality, country of education and the sector of profession revealed no significant correlation with scores of pharmacists' attitudes towards CE.

5. Discussion

The current research examined the attitudes, perceptions, and barriers to CE in a sample of 409 pharmacists. This was conducted using open- and closed-ended questions, which were adapted from the JSPLL questionnaire (Hojat et al., 2003). In relation to attitudes, 60% of the sample adopted good to excellent attitudes towards CE, 39% had fair attitudes, and 1% had a poor attitude. More specifically, the majority of participants strongly agreed that life-long learning is a professional responsibility of all pharmacists, and that they would fall behind if they stopped learning about developments in pharmacy. However, the majority of participants did not routinely attend meetings of pharmacy organisations and did not read professional journals at least once every week. Considering their last CE, approximately one-third of the sample reported they had it within one month, another third had their last CE more than one year ago, and the last third had their last CE within one month to one year. The top five barriers towards CE as reported by pharmacists were related to the lack of personal time, scientific databases/books not being available, conferences not being regularly organised, and lack of motivation. There was a significant correlation between pharmacists' attitudes scores and years of experience, age, and high educational attainment; MPharm and Pharm D. This could be due to the fact that higher qualification reinforces the value of CE. Thus, pharmacists who attain higher education are more committed to learning than their counterparts with lower qualification (Brooks and Everett, 2008).

In the UK, where CPD is mandatory, it has been found that most pharmacists believed that CPD activities are important to improve their professional knowledge, skills, and attitudes. The actual participation of pharmacists in these activities was optimal (Mottram et al., 2002). The majority of pharmacists in that study agreed that they should be engaged in CPD, and around 90% had already undertaken such activities in the last 12 months. In addition, researchers in that study found that the participation of female pharmacists in the activities was statistically significantly higher than that of male pharmacists, with indirect learning to be undertaken more than direct learning. Similarly, Driesen et al. (2008) identified various issues that encourage and discourage pharmacists to participate in CE activities according to their gender. For example, it has been found that female pharmacists were more interested in attending lectures than male pharmacists, who had greater interest in distance learning.

Similar to barriers reported in the current study, researchers in different countries have also reported time constraints and lack of motivation to discourage pharmacists from participation in CE activities (Marriott et al., 2007; Poudel et al., 2017; Sacre et al., 2019). Poudel and colleagues have also expanded their research to examine factors that impact pharmacists' motivation to be involved in CE activities. The researchers reported improving knowledge followed by improving skills and keeping up to date in the latest information in the pharmacy field as factors that positively impacted pharmacists' motivation (Poudel et al., 2017). Similarly, Saade et al. (2018) found that the job restrictions associated with CE and lack of personal time and motivation were the major barriers in their sample of 525 pharmacists. In that study, motivation was significantly correlated to pharmacists' attitudes and significantly negatively correlated with barriers. Likewise with the present research findings, findings from Saade et al.'s study

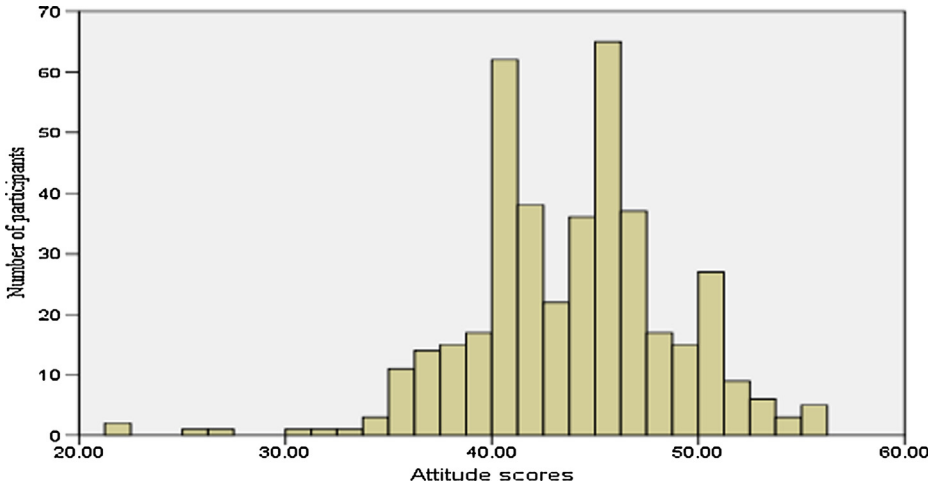

Fig. 2. The participants' attitude scores.

Table 3
The type and date of the last undertaken CE activity taken by the participants [Part 2 of the questionnaire].

Time of the last undertaken CE activity	Within 1 month	111
	1–6 months	54
	6 months-1 year	45
	More than 1 year	120
	Missing data	79
Type of the undertaken CE activity (n = 378)	Reading a journal article	No. pharmacists (%)
	Attending a seminar (n = 378)	**Yes** = 78 (20.6)
		No = 300 (79.4)
	Attending a conference (n = 378)	**Yes** = 223 (59)
		No = 155 (41)
		Yes = 155 (41)
		No = 223 (59)
Received CME points (n = 383)	Yes	144 (37.6)
	No	239 (62.4)
Received a certificate of attendance (n = 372)	Yes	172 (46.2)
	No	200 (53.8)

Table 4
Barriers that prevent pharmacists from engaging in CE activities [Part 3].

The barrier	Frequency of the response (%)
Lack of personal time	383 (99.5)
Scientific databases/books are not available	187 (45.7)
Conferences are not regularly organized	154 (37.7)
Lack of motivation	29 (7)
CME points are useless/ no CME points are added/ collecting CME points has no effect on job progress/ CME is not obligatory	24 (5.9)
Difficulty to take a leave from work to attend the CE activity/ lack of staff	15 (3.7)
Lack of announcement and advertising for CE activity in Kuwait	12 (2.9)
Cost of the CE activity	7 (1.7)
The importance of CE for pharmacists is neglected by policy makers	7 (1.7)
Lack of CE activity provided from the kupha and the faculty of pharmacy at Kuwait university.	5 (1.2)
The conducted CE activities are stressful/boring	4 (0.98)
Lack of distance learning methods	3 (0.73)
The conducted CE workshops are of low quality and topics are repetitive	2 (0.49)
Lack of a national protocol for assessing the pharmacist's knowledge	1 (0.24)
Lack of updated resources	1 (0.24)
Access to scientific journals is difficult	1 (0.24)

(2018) reported significant associations between attitudes and years of experience and age.

Consistently, other longitudinal research combined with qualitative interviews revealed pharmacists' main barriers to CE. These included work-related pressures, social life, lack of motivation, lack of financial resources, the restrictive nature of CPD, and age and experience (Laaksonen et al., 2009). In that study, some participants felt too old to learn new material and others felt they were experienced enough to not engage in CPD. Other researchers have also identified lack of resources and relevant learning opportunities, time constraints, and inaccessibility (location/distance) as major barriers to CE among pharmacists (Gelayee et al., 2018). Transportation, quality of learning material and the methods used to deliver CE have also been identified as barriers to CE (Marriott et al., 2007). In addition, the cost of CE activity acted as a significant barrier to CE among pharmacists who hold diplomas versus pharmacists with higher qualifications (Gelayee et al., 2018).

6. Strengths and limitations

This study explored attitudes towards CE of one of the most important healthcare providers in the multidisciplinary team, who could have a positive impact on patients' health outcomes. The study has also reported the different barriers that may discourage pharmacists from getting involved in CE activities. Therefore, addressing such barriers and finding appropriate solutions could result in proposing improvements in CE. Generally, this study fills a significant gap in the literature and provides valuable findings to policy makers in the field of pharmacy practice. It provided data from both primary and secondary healthcare levels, and from governmental and private health sectors, which ensured the generalizability of the results. Moreover, the use of open- and closed-ended questions allowed for definite and more developed responses to be collected.

The main limitation of this study is the use of the JSPLL instrument, which is mainly designed to measure attitudes of physicians in the US towards CE. Also, the questionnaire may have restricted participants' responses, for example, where options of answers were limited when asking participants about their CE preferences (e.g. reading a journal article, attending a conference or a seminar). Consequently, the findings could be limited in their scope due to this limitation. Furthermore, as this research collected data via self-report questionnaires, there may be an element of the participants responding in a way that is aimed at pleasing the researcher, so their responses may have potentially differed from their actual attitudes.

In addition, the fact that data was collected using convenience sampling may limit the generalizability of the findings. However, approaching the main five health regions in Kuwait ensured the generalizability of the results. This allowed the collection of data from different socio-cultural backgrounds and geographical areas (e.g. rural and urban), which ensured the coverage of different perspectives and experiences.

7. Implications for practice

The results of this study showed that pharmacists in Kuwait have positive attitudes towards CE, however, many barriers to engage in CE activities were reported. Policy makers should be aware about these barriers in order to find appropriate solutions that overcome the barriers and motivate pharmacists to improve their CE. In addition, to be in line with other countries that have a defined and compulsory CE systems, guidelines are required to

arrange a system for an obligatory CE for pharmacists in Kuwait by incorporating CE points in annual achievement reports, or applying them as a condition for the pharmacist license renewal. Also, providing pharmacists with a certificate or credit points for their participation in CE would be valuable. Lack of incentives is one of the major reasons for dropout from CE courses (Bonk, 2002).

Because lack of personal time and concern about conferences not being regularly created were reported as barriers to CE in this study, group seminars could be adopted for pharmacists, as they are less time consuming than attending a full-time course. Moreover, provided that a pharmacist is suitably qualified, online databases should be made more accessible to pharmacists, as this could encourage CE through additional reading from home, where less resources are required in terms of time and cost. Alternatively, although they are considered traditional teaching methods, lectures and workshops are found to be effective and preferred by the majority of pharmacists (Driesen et al., 2008).

8. Suggestions for future work

Future research could investigate the concept of implementing workplace learning into pharmacy job roles, as this would eliminate issues surrounding financial and accessibility concerns, and pharmacists' lack of personal time for CE. Research could also assess the role of peer-support in encouraging pharmacists to engage in CE (Austin et al., 2005). In addition, a study to investigate the most favourable and effective CE methods among pharmacists that legitimately improves their knowledge and skills could be conducted. However, because CPD is an approach of maintaining competence based on self-identified learning needs and goals; and has a greater potential to improve knowledge and skills of healthcare professionals than CE approach, future studies should be directed on investigating how to implement this approach. The CPD approach is ongoing as it is a cycle of reflect, plan, act, and evaluate, resulting in favourable outcomes, whereas CE is an isolated event that may result in no or poorly defined outcomes (McConnell et al., 2010).

9. Conclusion

CE is an essential component to maintain the competence of all healthcare professionals including pharmacists, in order to provide high quality services to patients and improve their health outcomes. To improve pharmacist involvement in CE activities, it is crucial to understand the attitudes of pharmacists towards CE and to determine the struggles that hinder them from joining CE activities. This is the first study exploring pharmacists' attitudes towards CE in Kuwait. The study showed that more than half of pharmacists have good to excellent attitudes towards CE. With increased age, more experience, and higher qualifications, pharmacists' attitudes towards CE are more positive. Despite having high scores in attitudes towards CE, pharmacists in this study were not regularly engaged in CE activities. Different barriers have been reported, for example, lack of personal time and lack of scientific databases and books were the most frequently reported barriers. Policy makers need to be aware about such barriers in order to help pharmacists improving their profession and participate in CE activities. Taking into consideration the results of this study, it might be advantageous to target young pharmacists who have less experience and lower qualifications.

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Appendix A. The final version of the questionnaire used in this study

Pharmacists' Attitudes Towards Continuing Education in Kuwait
Questionnaire
رأى الصيادلة تجاه التعليم المستمر في الكويت

PART 1: About your attitude towards continuing education:

Questions	Strongly disagree	Disagree	Agree	Strongly agree
1. Searching for the answer to a question is, in and by itself rewarding. البحث عن الإجابة على سؤال، بحد ذاته مكافأة.				
2. Life-long learning is a professional responsibility of all pharmacists. التعلم مدى الحياة مسؤولية مهنية لجميع الصيادلة.				
3. I enjoy reading articles in which issues of pharmacy are discussed. أنا أستمتع بقراءة المقالات التي تناقش فيها المسائل المتعلقة بالصيدلة.				
4. I routinely attend meetings of pharmacy organizations. أنا بشكل روتيني احضر اجتماعات المنظمات الصيدلية.				
5. I read professional journals at least once every week. أنا أقرأ المجلات المهنية مرة واحدة على الأقل كل أسبوع.				
6. I routinely search computer databases to find out about new developments in my specialty. أنا أبحث بشكل روتيني قواعد البيانات الحاسوبية للبحث عن اخر التطورات في مجال تخصصي.				
7. I believe that I would fall behind if I stopped learning about new developments in pharmacy. أعتقد أنه سوف تقل معرفتي إذا توقفت عن تعلم اخر التطورات الجديدة في مجال الصيدلة.				
8. One of the important goals of Faculty of Pharmacy is to develop students' life-long learning skills. أحد الأهداف الهامة لكلية الصيدلة هوتطوير مهارات التعلم مدى الحياة لدى الطلاب.				
9. Rapid changes in therapeutics require constant updating of knowledge and development of new professional skills. التغيرات السريعة في الأدوية تتطلب التحديث الدائم للمعرفة وتطوير المهارات المهنية الجديدة.				
10. I always make time for self-directed learning, even when I have a busy work schedule and other obligations. أنا دائما أخصص وقت للتعلم الذاتي، حتى عندما يكون لدي جدول أعمال مزدحم وغيرها من الالتزامات.				
11. I recognize my need to constantly acquire new professional knowledge. إنني أدرك حاجتي للحصول دائما على المعرفة المهنية الجديدة.				
12. I routinely attend continuing medical education programs to improve patient care. أنا أحضر بشكل روتيني برامج التعليم الطبي المستمر لأحسن من الرعاية الصحية للمرضى.				
13. I take every opportunity to gain new knowledge/skills that are important. أنا اغتنم كل فرصة للحصول على معرفة أو مهارة جديدة مهمة.				
14. My preferred approach in finding an answer to a question is to search the appropriate computer databases. طريقتي المفضلة للبحث عن اجابة لسؤال هي البحث في قاعدة المعلومات المناسبة في الكمبيوتر.				

Part 2: About the last continuing education activity you have undertaken:

(حول النشاط التعليمي المتسمر الأخير الذي قمت به)

15. When was the last time you undertook a continuing education activity? متى اخر مره التحقت بها في نشاط تعليمي مستمر؟

……

16. Describe this last continuing education activity you undertook: وصف النشاط التعليمي المستمر الأخير الذي قمت به.

□ Reading journal article قراءة مجلة علمية

(Please specify……)

□ Attending a seminar حضور ندوه(Please specify……)

□ Attending a conference حضور مؤتمر(Please specify…….....)

□ Other. (Please specify……)

17. Did you receive CME points: هل تلقيت نقاط في النشاط التعليمي المستمر

□ Yes □ No

18. Did you receive a certificate of attendance: هل تلقيت شهادة تقدير للحضور □ Yes □ No

PART 3: Barriers to continuing education: حواجز التعليم المستمر

19. In your opinion, what are the barriers to continuing education that you face?

(For example, heavy work-load, conferences are not regularly organized, scientific databases/books are not available)

من رأيك الشخصي، ما هي الحواجز للتعليم المستمر التي تواجهها؟ (امثلة، ضغط عمل كبير، عدم تنظيم المؤتمرات بانتظام، عدم توفر الكتب، عدم توفر قاعدة بيانات علمية)

…….....

…….....

…….....

…….....

Part 4 : Pharmacist demographics:

20. Your age [ ]

21. Gender

- ☐ Male
- ☐ Female

22. First Language: اللغة الأولية

- ☐ Arabic
- ☐ English
- ☐ Other_____

23. Marital status: (الحالة الاجتماعية)

- ☐ Single اعزب
- ☐ Married متزوج
- ☐ Divorced مطلق
- ☐ Widowed أرمل

24. Pharmacy Degree:شهادة الصيدلة

- ☐ Bachelor of Pharmacy (Bpharm)
- ☐ Doctor of Pharmacy (PharmD)
- ☐ Master of Pharmacy (MPharm)
- ☐ Others_____

25. Practice site:موقع العمل

- ☐ Government hospital المستشفيات الحكومية
- ☐ Polyclinics المستوصفات
- ☐ Private hospital المستشفيات الخاصة
- ☐ Community pharmacyالصيدليات الأهلية

26. Years of experience in pharmacy عدد سنوات العمل[ ]

27. Nationality:الجنسية

Appendix B. Pharmacists' attitudes towards continuing education [responses to Part 1]

Item	Response values				Median
	1	2	3	4	
1. Searching for the answer to a question is, in and by itself rewarding.	4	27	202	176	3
2. Life-long learning is a professional responsibility of all pharmacists.	5	5	133	266	4
3. I enjoy reading articles in which issues of pharmacy are discussed.	4	25	221	159	3
4. I routinely attend meeting of pharmacy organization. [A]	19	198	160	31	2
5. I read professional journals at least once every week. [A]	27	177	165	39	2
6. I routinely search computer databases to find out about new developments in my specialty.	15	102	202	90	3
7. I believe that I would fall behind if I stopped learning about new developments in pharmacy. [A]	5	24	138	241	4
8. One of the important goals of the faculty of pharmacy is to develop student's life-long learning skills.	13	37	180	179	3
9. Rapid changes in therapeutics require constant updating of knowledge and development of new professional skills. [A]	5	2	129	272	3
10. I always make time for self-directed learning, even when I have a busy work schedule and other obligations. [A]	57	211	130	10	3
11. I recognize my need to constantly acquire new professional knowledge. [A]	4	13	216	175	3
12. I routinely attend continuing medical education programs to improve patient care. [B]	19	169	179	40	3
13. I take every opportunity to gain new knowledge/ skills that are important. [A]	5	40	238	125	3
14. My preferred approach in finding an answer to a question is to search the appropriate computer databases.	6	42	198	163	3

1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree.
[A] One missing data.
[B] Two missing data.

Appendix C. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jsps.2020.05.008.

References

Accreditation Council for Pharmacy Education, 2015. Accreditation Standards for Continuing Pharmacy Education. Available at: https://www.acpe-accredit.org/

pdf/CPDGuidance%20ProfessionPharmacyJan2015.pdf [Accessed on 5 July 2019].
Austin, Z., Marini, A., Glover, N.M., Croteau, D., 2005. Continuous professional development: a qualitative study of pharmacists' attitudes, behaviors, and preferences in Ontario, Canada. Am. J. Pharm. Educ. 69 (1), 4.
Bellanger, R.A., Shank, T.C., 2008. Continuing professional development in Texas: survey of pharmacists' knowledge and attitudes. J. Am. Pharm. Assoc. 50, 368–374.
Biggs, D., 2003. Issues in continuing professional development for pharmacists. Bulletin of the Kuwait Institute for Medical Specialization 2, 55–58.
Bonk, C.J., 2002. Online training in an online world. Bloomington: CourseShare.com. Available at: http://www.publicationshare.com/docs/corp_survey.pdf [Accessed: 15 July 2019].
Brooks, R., Everett, G., 2008. The impact of higher education on lifelong learning. Int. J. Lifelong Educ. 27 (3), 239–254.
Driesen, A., Verbeke, K., Simoens, S., Laekeman, G., 2007. International trends in lifelong learning for pharmacists. Am. J. Pharm. Edu. 71 (3), 52.
Driesen, A., Simoens, S., Laekeman, G., 2008. Continuing education programs for pharmacists: No one size fits all. Pharmacy Education, 8.
Gelayee, D.A., Mekonnen, G.B., Birarra, M.K., 2018. Involvement of community pharmacists in continuing professional development (CPD): a baseline survey in Gondar, Northwest Ethiopia. Glob. Health 14 (1), 15.
Hasan, S., 2009. Continuing education needs assessment of pharmacists in the United Arab Emirates. Pharm. World Sci. 31 (6), 670.
Hambleton, R.K., Patsula, L., 1998. Adapting tests for use in multiple languages and cultures. Soc. Ind. Res. 45 (1), 153–171.
Hanson, A.L., Bruskiewitz, R.H., Demuth, J.E., 2007. Pharmacists' perceptions of facilitators and barriers to lifelong learning. Am. J. Pharm. Educ. 71 (4), 67.
Haughey, S.L., Hughes, C.M., Adair, C.G., Bell, H.M., 2007. Introducing a mandatory continuing professional development system: an evaluation of pharmacists' attitudes and experiences in Northern Ireland. Int. J. Pharm. Pract. 15 (3), 243–249.
Hojat, M., Nasca, T.J., Erdmann, J.B., Frisby, A.J., Veloski, J.J., Gonnella, J.S., 2003. An operational measure of physician lifelong learning: its development, components and preliminary psychometric data. Med. Teac. 25 (4), 433–437.
Ibrahim, O.H.M., 2012. Assessment of Egyptian pharmacists' attitude, behaviors, and preferences related to continuing education. Int. J. Clin. Pharm. 34 (2), 358–363.
International Pharmaceutical Federation – FIP. Continuing Professional Development/Continuing Education in Pharmacy: Global Report. The Hague, The Netherlands: International Pharmaceutical Federation. Available at:https://www.fip.org/files/fip/PharmacyEducation/CPD_CE_report/FIP_2014_Global_Report_CPD_CE_online_version.pdf. (accessed February 29, 2020).
Laaksonen, R., Duggan, C., Bates, I., 2009. Overcoming barriers to engagement in continuing professional development in community pharmacy: a longitudinal study. Pharm. J. 282 (7535), 44–48.
Lemay, J., Wahidi, M., Al-Taweel, D., Bayoud, T., Moreau, P., 2018. Clinical pharmacy in Kuwait: services provided, perceptions and barriers. Saudi Pharm J. 26 (4), 481–486.
Ministry of Health (MOH), 2014. Annual Health Report. Department of Health Information and Medical Records. Ministry of Health Kuwait.
Marriott, J.L., Duncan, G.J., Namara, K.P., 2007. Barriers to pharmacist participation in continuing education in Australia. Pharm. Edu., 7.
McConnell, K.J., Newlon, C.L., Delate, T., 2010. The impact of continuing professional development versus traditional continuing pharmacy education on pharmacy practice. Ann. Pharmacotherapy 44 (10), 1585–1595.
Mottram, D.R.P., Gangani, N., Al-Khamis, Y., 2002. Pharmacists' engagement in continuing education and attitudes towards continuing professional development. Pharm. J. 269 (7221), 618–622.
Muliira, J.K., Etyang, C., Muliira, R.S., Kizza, I.B., 2012. Nurses' orientation toward lifelong learning: a case study of Uganda's National Hospital. J. Continuing Educ. Nurs. 43 (2), 90–96.
Poudel, R.S., Piryani, R.M., Shrestha, S., Chaurasiya, R., Niure, B.P., 2017. Opinion of hospital pharmacy practitioners toward the Continuing Pharmacy Education program: a study from a tertiary care hospital in central Nepal. Integr. Pharm. Res. Pract. 6, 157.
Saade, S., Ghazala, F., Farhat, A., Hallit, S., 2018. Attitudes towards continuous professional development: a study of pharmacists in Lebanon. Pharm. Pract. (Granada) 16 (1).
Sarayani, A., Rashidian, A., Gholami, K., Torkamandi, H., Javadi, M., 2012. Efficacy of continuing education in improving pharmacists' competencies for providing weight management service: three-arm randomized controlled trial. J. Continuing Educ. Health Professions 32 (3), 163–173.
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. Pharm. Pract. 17 (3), 1545.
Schindel, T.J., Kehrer, J.P., Yuksel, N., Hughes, C.A., 2012. University-based continuing education for pharmacists. Am. J. Pharm. Educ. 76 (2), 20.
Statistical Review, ed 36. State of Kuwait: general statistics Bureau. (2013). Available from: https://www.e.gov.kw/sites/kgoenglish/Forms/StatisticalReview-2013.pdf. [Accessed July 30, 2019].
Wiedenmayer, K., Summers, R. S., Mackie, C. A., Gous, A., Everard, M., Tromp, D., W. H. Organization, 2006. Developing pharmacy practice: a focus on patient care: handbook. Available at: https://www.who.int/medicines/publications/WHO_PSM_PAR_2006.5.pdf [Accessed: 15 July 2019].
Young AM. A prescription for reframing continuing pharmacy education in Massachusetts: Northeastern University; 2012.