

## Community Pharmacists' Attitudes, Preferences and Barriers toward Continuing Pharmaceutical Education: A Cross Sectional Study in Jordan

Alaa Saadeh<sup>1\*</sup>, Anan S. Jarab<sup>1,2</sup>, Roa'a Jaradat<sup>3</sup>, Raneem Al Daqqa<sup>4</sup>

<sup>1</sup> Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Jordan.

<sup>2</sup> College of Pharmacy, Al Ain University, Abu Dhabi, United Arab Emirates.

<sup>3</sup> Department of Physiology and Pharmacology, Faculty of Medicine and Dentistry, University of Western Ontario, Canada.

<sup>4</sup> Department of Pharmaceutics, School of Pharmacy, Virginia Commonwealth University, USA.

### ABSTRACT

Community pharmacists' responsibilities are expanding to foster optimal patient-centered care, which dictates postgraduate continuous education to enhance their competency and ability to face job challenges. We employed a cross-sectional online questionnaire-based study to evaluate community pharmacists' attitudes towards continuous education, their preferred modes of program delivery, factors they consider before joining a program, their preferred topics to learn about, and potential perceived barriers against continuous education.

A total of 358 community pharmacists completed the questionnaire. The majority of them (86.9 %) were interested in continuous education. However, most pharmacists (70.1%) had never attended any continuous education activity before. The most preferred type of delivery was self-learning through the internet (44.2%). Program cost and location were the major factors considered before accepting any activity (96.9%, and 96.6%, respectively). Among diseases, infectious disease was the most interesting topic for community pharmacists (92.7%). Regarding pharmaceutical topics, they were mostly interested in learning pharmacology and pharmacotherapy (94.1%), whereas pregnant and nursing mothers was the most desired patient group to learn about (92.2%). Job constraints and lack of time were the most reported barriers (89.4% and 89.1%, respectively).

Community pharmacists' have positive attitudes towards continuous education. However, many obstacles restrain them from effective participation in it. We provided sufficient data for policy makers to consider in future planning for continuous education activities that meet the needs of today's pharmacists to advance their practice.

**Keywords:** Community pharmacists, Continuous Education, Attitudes, Preferences, Barriers.

### INTRODUCTION

The professional responsibilities of the community pharmacists have widely expanded in the recent years to be more patient focused via patient counselling, medication management, and preventive care practices[1]. Currently, pharmacists are recognized as professional

health advisors and patients visit pharmacies for a more holistic approach to receive care [2-4]. Community pharmacists should keep competent all the way through their career in addition to maintain, update, and develop their knowledge, skills and capabilities to adeptly perform their job responsibilities and duties [5, 6].

Continuous education (CE), is described by Accreditation Council for Pharmacy Education (ACPE) as "a structured educational activity designed or intended to support the ongoing development of pharmacists and/or pharmacy technicians to maintain and enhance their

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\*Corresponding author: Alaa Saadeh

[assadeh@just.edu.jo](mailto:assadeh@just.edu.jo)

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competence” in delivering patient-centred care, working as part of interprofessional teams, practicing evidence-based medicine, focusing on quality improvement, using information technology, and developing and maintaining safe and effective medication use processes” [7]. These regulations are adopted in the United States in addition to several countries worldwide, where CE programs are mandatory and prerequisite to pharmacy license renewal [8-11].

Several studies have examined pharmacists’ opinions and attitudes toward CE programs as well as barriers limiting pharmacists’ involvement in these programs. A study conducted in the US reported that pharmacists found CE is an effective tool in improving their knowledge, and multiple types of CE programs were helpful resources to fulfil their educational needs [12]. Another study in Nepal showed that community pharmacists were interested in the CE program, and they felt that these programs help improving their knowledge about different aspects in pharmacy practice [13]. Another study found that pharmacists in Egypt were enthusiastic towards CE activity, however, community pharmacists attended less CE events relative to hospital pharmacists [14]. Pharmacists in Kuwait reported lack of time as the main barrier for attending CE programs [15].

In Jordan, some CE activities are infrequently held by the continuous education committee affiliated with Jordan Pharmacist Association. Leaders in the pharmacy profession were interviewed in one study to express their views on matters associated with education, practice, and pharmacy curricula status; where they stressed the importance of CE programs [16]. They also supposed that CE courses should be considered an obligation for license renewal. Moreover, pharmacy leaders suggested that CE programs are the most appropriate method to achieve pharmacist’s competency in providing pharmaceutical care [16]. Moreover, an earlier study showed increased community pharmacists’ demand for more education and training to handle patients’ complaints in community

pharmacy and have authorized prescribing role in Jordan [17]. Another study that included all pharmacy practice settings in Jordan including hospital, community, academic, and industry showed that 63.5% of the pharmacists were interested in CE activities, but they reported cost and poor timing as perceived barriers for their participation in CE programs [18].

While there is established evidence that CE is effective, CE programs are still suboptimal in Jordan and do not encourage intentional participation. Therefore, it is imperative to grasp the attitudes of community pharmacists towards CE, their preferences, and obstacles that impede them from joining CE activities, to allow for structured CE planning that better suit community pharmacist’ needs. In this study we aimed to investigate community pharmacists’ attitudes, preferences and barriers towards continuing pharmaceutical education programs and activities in order to guide future events related to effectively implement these programs and activities.

## **METHODS**

### **Study Design and participants**

The current cross-sectional study adapted a questionnaire from earlier studies of similar purposes (4, 16, 17). The questionnaire was sent online to 400 licensed pharmacy graduates who work in the community pharmacy setting across different geographical districts of Jordan in the period from August through December 2021. Raosoft® calculator showed that a sample size of 360 pharmacists was needed for a confidence level of 95% and a 5% margin of error [19]. The study received ethical approval from the Institutional Review Board at Jordan University of Science and Technology (JUST) (Reference number 20200240).

### **Study instrument**

The first page of the survey included brief description of the study objectives and asked participants to confer their consent before filling the questionnaire. The survey

was divided into four parts; the first one included sociodemographic and practice characteristics including age, gender, marital status, highest degree obtained, university of graduation, number of years of practice, work schedule (full time vs. part time), geographical location of pharmacy, pharmacy type (single vs. chain), and role in pharmacy. The second part included questions to investigate pharmacists' preferences of CE programs. It started with asking pharmacists about their preferred method of conducting CE programs, their main criteria before joining a CE activity such as cost or topic of activity, and topics they would like to be included in CE such as diseases or specific patients' populations. Then, three closed questions assessed pharmacists' interest in CE programs, whether CE will improve their knowledge about medications, and their previous participation in CE programs. The third part investigated pharmacists' attitudes toward CE by requesting them to indicate if they agree or disagree with 5 statements about CE. The last part listed a variety of barriers which pharmacists may face to utilize CE programs. The survey was reviewed by the research team for face and content validity and modifications were made when appropriate. The questionnaire was also piloted on ten community pharmacists to ensure the clarity of the study

questionnaire. The Cronbach's alpha coefficient was 0.664 indicating good internal consistency and reliability of the study instrument.

#### **Statistical Analysis**

Statistical analysis was performed using SPSS (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp.). Descriptive statistics were displayed by count and percentage for categorical variables and median  $\pm$  interquartile range (IQR) for continuous variables. Univariate analyses were made using Chi-square test ( $\chi^2$  test) or univariate binary logistic regression according to the number of factors for the independent variable. Multivariable binary logistic regression was used to find predictors of previous attendance of CE activities, adjusting for potential covariates.

#### **RESULTS**

A total of 358 community pharmacists completed the survey with a response rate of 89.5%. The median age of the participants was 29 years (IQR: 27-34). Most participants (n=295, 82.4%) were female, in the age group from 23 to 29 (n=217, 60.6%), had Bachelor of Pharmacy (n=210, 58.7%), and with less than 5 years of experience (n= 210, 58.7%). Table 1 lists socio-demographic and practice characteristics of the study participants.

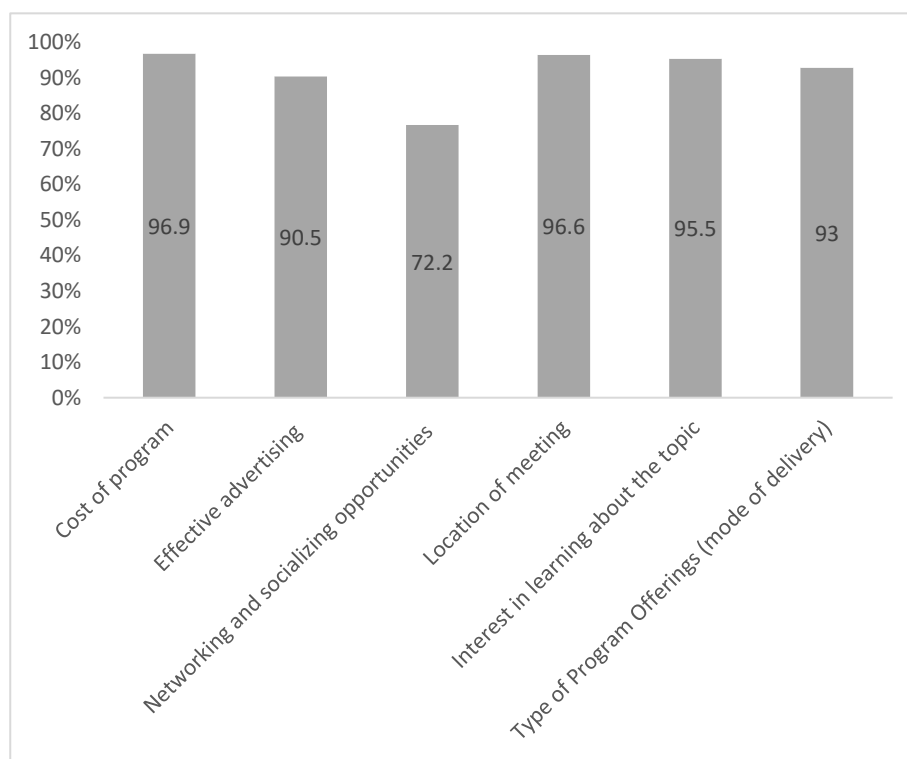
**Table 1: Socio-demographic and professional characteristics of participants (n=358).**

<b>Characteristic</b>	<b>Frequency (%)</b>
<b>Gender</b>	
Female	295 (82.4)
Male	63 (17.6)
<b>Age groups (years)</b>	
23-29	217 (60.6)
30-39	121 (33.8)
40-49	20 (5.6)
<b>Basic qualification in pharmacy</b>	
Bachelor of Pharmacy	210 (58.7)
Master of Pharmacy	30 (8.3)
Doctor of Pharmacy (PharmD)	118 (33)

Characteristic	Frequency (%)
<b>Years of work experience in the community pharmacy</b>	
<5	210 (58.7)
5-9	72 (20.1)
10-14	49 (13.7)
15-19	19 (5.3)
>=20	8 (2.2)
<b>Geographical area (Jordan)</b>	
North	177 (49.4)
Middle	104 (29.1)
South	77 (21.5)
<b>University of study</b>	
Governmental-Jordan	283 (79)
Private-Jordan	68 (19)
Outside Jordan	7 (2)
<b>Role in pharmacy</b>	
Owner	31 (8.7)
Supervisor	167 (46.6)
Pharmacist	160 (44.7)
<b>Type of pharmacy</b>	
Single	185 (51.7)
Chain	173 (48.3)
<b>Work schedule</b>	
Part time	42 (11.7)
Full time	316 (88.3)
<b>Marital status</b>	
Married	190 (53.1)
Other	168 (46.9)

Pharmacists selected self-learning through the internet as their preferred modality to attend CE (n=158, 44.2%), followed by attending lectures and workshops (n=140, 39.2%). Scientific journals and graduate studies were chosen by only 8.7% and 7.9% (n=31 and n=29) of the

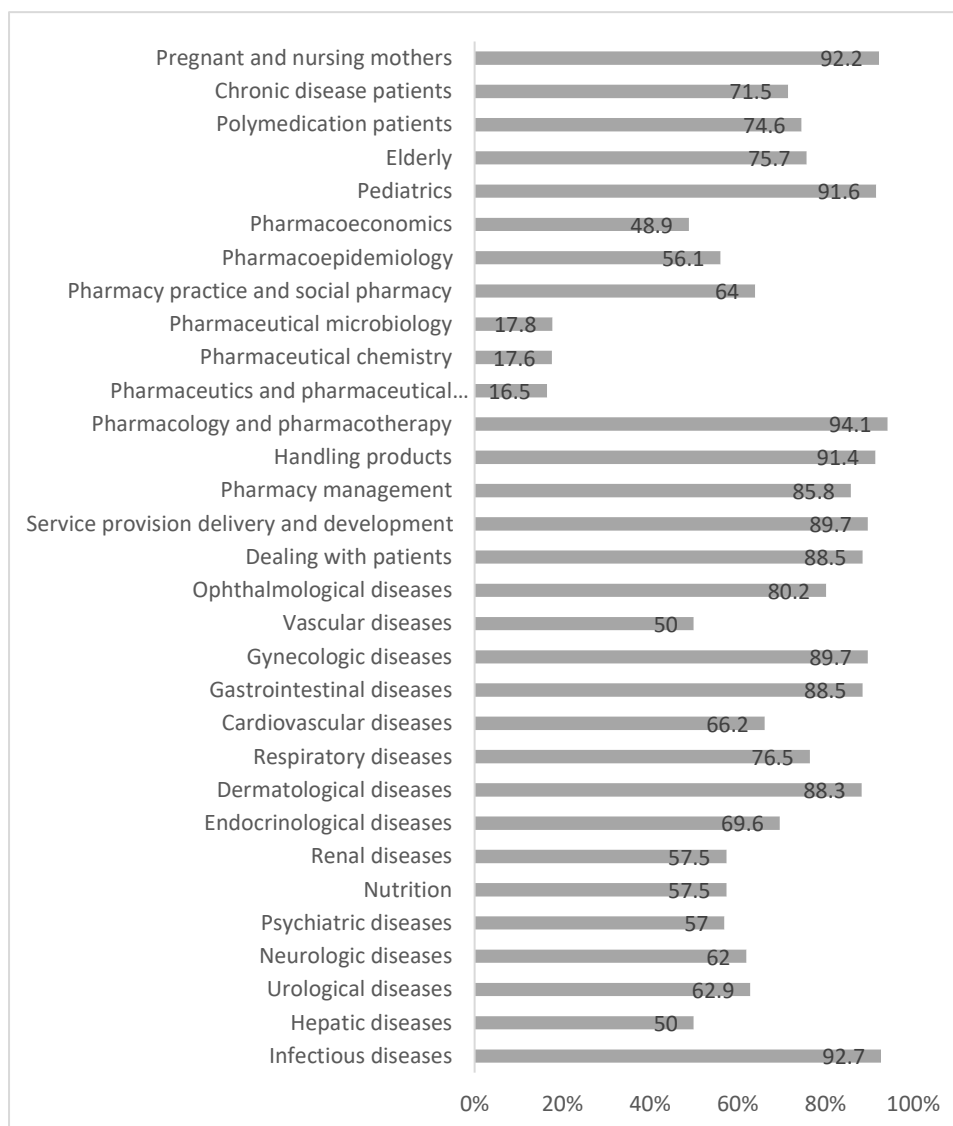
pharmacists respectively. Figure 1 represents criteria considered by pharmacists when selecting CE activity to join. Community pharmacists acknowledged that they mainly consider CE program cost (n=347, 96.9%) and its location (n=346, 96.6%).



**Figure 1: Factors affecting community pharmacists' choice of the CE program.**

As presented in Figure 2, infectious diseases (n= 332, 92.7%), followed by gynaecologic disorders (n=321, 89.7%), were the major diseases of interest for the participating pharmacists, while hepatic and vascular diseases were the least cited topics (n=179, 50%). In terms of community pharmacy topics, community pharmacists opted for handling products as their major interest (n= 327, 91.4%), whereas pharmacy management was the least popular option of community pharmacists (n=307, 85.8%). Pharmacology and pharmacotherapy were ranked as the

top pharmaceutical topic of interest for community pharmacists (n=337, 94.1%). On the other hand, pharmaceutical chemistry and microbiology were the least desirable topics (n=63, 17.7%). Regarding patients' population, most pharmacists were interested to work on pregnant and nursing mothers (n=330, 92.2%), followed by paediatric patients (n=328, 91.6%). Chronic disease patients were the least selected patients' group (n= 256, 71.5%).



**Figure 2: Preferred CE topics reported by community pharmacists.**

Most of the participants (n=311, 86.9 %) reported their interest in attending CE activities and the majority of them (n=326, 91.1%) believed that CE programs are helpful in improving their knowledge about medications. However,

only 29.9% (n=107) of the participants have previously attended CE programs. Most pharmacists agreed that CE improves their performance (n=314, 87.7%) and career prospects (n=276, 77.1%). Detailed community pharmacist's view about CE are shown in Table 2.

**Table2: Community pharmacist’s views about CE (n=358)**

Statements	Frequency of the response (%)		
	Agree	Neutral	Disagree
Improves my performance in my current role	314 (87.7)	34 (9.5)	10 (2.8)
Enhances status of the profession with other health care professionals	312 (87.2)	42 (11.7)	4 (1.1)
Enhance my career prospects	276 (77.1)	43 (12)	39 (10.9)
Enhances status of the profession with the public	311 (86.9)	42 (11.7)	5 (1.4)
I see no benefits from CE	31 (8.7)	33 (9.2)	294 (82.1)

A shown in Table 3, univariate analysis showed that attendance of CE activities was significantly associated with older age (41-50 years), 5-9, 15-19 and >= 20 years of experience, holding master’s degree, marital status, and being the owner of the pharmacy (P<0.05) (Table 3). After

conducting multivariable analysis, holding master’s degree (OR: 9.160, 95% CI: 3.656-22.950, p value=<0.0001), was the only significant predictor of CE attendance after adjustment for other variables (Table 3).

**Table 3: Univariate and multivariable analysis of predictors of community pharmacists’ previous CE attendance (n=358).**

Characteristic	CE attendance, n (%)		Univariate analysis	Univariate analysis	Multivariable analysis	Multivariable analysis
	Yes	No	p value	OR (95% CI)	p value	OR (95% CI)
	107 (29.9)	251 (70.1)	-	-	-	-
<b>Qualification</b>						
Bachelor	57 (53.3)	153 (61)	Ref <sup>c</sup>	Ref	Ref	Ref
PharmD <sup>a</sup>	29 (27.1)	89 (35.5)	0.612	0.875 (0.521-1.468)	0.388	1.303 (0.715-2.376)
MSc <sup>b</sup>	21 (19.6)	9 (3.5)	0.0001*	6.263 (2.709-14.479)	0.000*	9.160 (3.656-22.950)
<b>Years of experience</b>						
<5	47 (44)	163 (65)	Ref	Ref	Ref	Ref
5-9	31 (29)	41 (16.3)	0.001*	2.622 (1.486-4.629)	0.125	2.001 (0.825-4.856)
10-14	12 (11.2)	37 (14.7)	0.751	1.125 (0.543-2.328)	0.719	0.776 (0.195-3.091)
15-19	10 (9.3)	9 (3.6)	0.006*	3.853 (1.480-10.036)	0.337	2.425 (0.397-14.818)
>=20	7 (6.5)	1 (0.4)	0.003*	24.277 (2.913-202.306)	0.222	10.574 (0.239-467.435)
<b>Role in pharmacy</b>						
Pharmacist	39 (36.4)	121 (48.2)	Ref	Ref	Ref	Ref
Supervisor pharmacist	54 (50.5)	113 (45)	0.112	1.483 (0.913-2.408)	0.444	1.252 (0.704-2.225)
Owner	14 (13.1)	17 (6.8)	0.021*	2.555 (1.155-5.653)	0.515	0.667 (0.198-2.253)
<b>Marital status</b>						
Other	35 (32.7)	133 (53)	Ref	Ref	Ref	Ref
Married	72 (67.3)	118 (47)	0.001*	2.319 (1.444-3.724)	0.212	1.453 (0.808-2.612)

Characteristic	CE attendance, n (%)		Univariate analysis	Univariate analysis	Multivariable analysis	Multivariable analysis
	Yes	No	p value	OR (95% CI)	p value	OR (95% CI)
<b>Age</b>						
23-30	59 (55.1)	176 (70.1)	Ref	Ref	Ref	Ref
31-35	22 (20.6)	43 (17.1)	0.162	1.526 (0.844-2.760)	0.627	1.289 (0.463-3.590)
36-40	17 (15.9)	30 (12)	0.121	1.690 (0.870-3.284)	0.300	2.131 (0.509-8.923)
>=41	9 (8.4)	2 (0.8)	0.001*	13.424 (2.820-63.899)	0.314	4.225 (0.218-81.979)

a: PharmD, Doctor of Pharmacy degree; b: MSc, master's degree; c: Ref, reference group

\* Statistically significant differences (p value < 0.05).

Perceived barriers limiting pharmacists' participation in CE programs are shown in Table 4. Job constraints (n=320, 89.4%) and lack of time (n=319, 89.1%) were the most reported barriers, followed by the accessibility

(location/distance) issues of group learning activities (n=313, 87.5%). Only few of the participants (n= 36, 10.1%) stated that feeling of not belonging to the profession is the barrier for not seeking to attend CE activities.

**Table 4: Perceived barriers that prevent community pharmacists from participating in CE activities (n=358).**

Item	Frequency of the response (%)		
	Agree	Neutral	Disagree
Uninteresting subjects or topics	125 (34.9)	126 (35.2)	107 (29.9)
Lack of quality learning activities	294 (82.1)	50 (14)	14 (3.9)
Subjects/topics too specialized	49 (13.7)	175 (48.9)	134 (37.4)
Family constraints (e.g. spouse, children)	221 (61.7)	100 (28)	37 (10.3)
Lack of appropriate learning opportunities	294 (82.1)	50 (14)	14 (3.9)
CE is not a priority for me	45 (12.6)	32 (8.9)	281 (78.5)
Cost of participation	237 (66.2)	81 (22.6)	40 (11.2)
Lack of time	319 (89.1)	30 (8.4)	9 (2.5)
Job constraints	320 (89.4)	27 (7.5)	11 (3.1)
Accessibility (location/distance) of group learning activities	313 (87.5)	27 (7.5)	18 (5)
Feeling not belonging to the career	36 (10.1)	20 (5.6)	302 (84.3)

## DISCUSSION

Community pharmacists are easily accessible members of the healthcare team who should keep competent to provide optimal health services for patients through CE. An earlier study evaluated the needs, barriers, and motivations of pharmacists to provide continuous education in Jordan [20]. However, the current study has

exclusively evaluated community pharmacists' attitudes, preferences, and barriers to provide CE. Moreover, because pharmacists are an essential and most easily accessible part in healthcare systems, more than one study is needed to investigate pharmacists' preferences and barriers regarding CE.

Consistent with the current trends, community



pharmacists preferred the online self-learning activities in the present study. This is similar to a Lebanese study which found that the majority of pharmacists enrolled in CE system believed that online courses are easier to do and they have used them at least once [9]. Moreover, online CE programs were found to be the most frequently used among a sample of Texan pharmacists for their latest CE reporting period [8]. Another study in Kuwait found that seminar attendance was the most cited CE activity by pharmacists, whereas reading a journal article was least cited [15]. This may be attributed to lack of access to full journal article and difficulty of interpreting article results and applying them in practice. Community pharmacists' preference of online CE programs matches their reported barriers of job constraints and lack of time because they offer the flexibility compared with other CE program modes; where they may be finished anywhere, with no travel requirements.

The cost of CE program and its location were the most important factors considered by participants before joining CE activity in this study. The limited salaries of community pharmacists as well as lack of employer's reimbursement for any cost they afford for joining CE programs could justify this finding. Interest in learning about the topic was also an important factor considered by the majority of the participants in the current study before attending a CE activity. Scope of programs was the first criterion considered by participants in a Texan study when selecting CE program, followed by location of the meetings. Most of the participants in the latter study also indicated that cost of CE programs is a significant criterion when selecting CE programs[8].

Results showed that community pharmacists prefer to learn more about pharmacotherapy,, infectious and gynaecologic diseases, and specific patients' groups such as pregnant and nursing mothers as well as paediatric patients'. This can be attributed to community pharmacists' growing job responsibilities which include their fundamental contribution to patient care.

Accessibility of community pharmacists enable most consumers to visit a pharmacy for health advice which is available on demand[21]. Some countries indeed have legitimized community pharmacist prescribing role, which positively affected patient care and treatment outcomes[17]. A Lebanese study showed that pharmacists preferred treatment guidelines followed by medication therapy management as CE topics of interest[9]. Innovations in disease management was the most desirable topic of Malaysian community pharmacist[22].

Most community pharmacists in this study were interested in CE and believed it would improve their knowledge and practice. This finding is consistent with previous research in other countries [14, 15, 20, 23, 24], where participants have shown their enthusiasm about CE. However, only few of the surveyed community pharmacists have previously attended CE activity, particularly older pharmacists with higher qualification, which is similar to an earlier Kuwaiti study finding. [15].

Consistent with research findings in Egypt and Malaysia [14, 22], lack of community pharmacists' attendance for CE was primarily attributed to job constraints and lack of time; where most community pharmacists work 8 hours a day and 6 days per week. Lack of time was also a major barrier reported by community pharmacists in Kuwait[15]. In another English study, community pharmacists stated that working for late hours, far locations, and lack of reimbursement were the major obstacles limiting their participation in CE activities [25]. Likewise, work obligations were reported as a barrier by more than half of the Lebanese pharmacists [9]. Lack of appropriate learning opportunities in Lebanon was cited as a barrier by large number of participants. These findings reveal the urgent need to examine and adjust working circumstances of community pharmacists to allow for promoting and implementations of CE programs that fit them and boost their educational needs effectively. A previous study in Jordan found that community pharmacists are less satisfied with their jobs compared

with hospital pharmacist, which may be attributed to long working hours including weekends with no overtime reimbursement, discouraging work circumstances such as lack of advancement opportunities and poor relationship with physician[26]. Comparable reasons were responsible for job dissatisfaction among American community pharmacists as well[27], where they reported workload, management-related issues, and work/life balance as their top reasons. To overcome some of these challenges, an adequate number of pharmacists and pharmacists' assistants should be employed at each community pharmacy, with more flexible working hours. An earlier study suggested numerous interventions to improve pharmacy practice in the developing countries, including clear distinction between the roles and responsibilities of different pharmacists categories of (a graduate vs assistant pharmacist) and disallowing physicians from dispensing medicines[28]. Moreover, salaries of community pharmacists need to be appropriate to their workload.

Limitations in this study included the collection of responses through self-reported online questionnaires, thus participants may have responded in a way that is different

from their actual attitudes. Also, the online survey has limited accessibility in some participants such as those who have limited internet access particularly in older age groups.

### **CONCLUSION**

Although most of the community pharmacists were interested in CE, only few of them attended CE programs. Job restrictions and lack of time were the most common barriers to attend CE programs. Reducing working hours and allowing more flexible working time and distribution of job duties on a larger number of pharmacists and assistants in the community pharmacy should be considered by health policy makers to enhance pharmacists' participation in CE programs and hence their ability to provide the optimal health services in community pharmacy setting.

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## مواقف صيادلة المجتمع وتفضيلاتهم ومواقفهم تجاه التعليم الصيدلاني المستمر: دراسة مقطعية في الأردن

آلاء سعادة<sup>1\*</sup>، عنان جراب<sup>1</sup>،<sup>2</sup>، رؤى جرادات<sup>3</sup>، رنيم الدقة<sup>4</sup>

<sup>1</sup> قسم الصيدلة السريرية، كلية الصيدلة، جامعة العلوم والتكنولوجيا الأردنية، الأردن.

<sup>2</sup> كلية الصيدلة، جامعة العين، الإمارات العربية المتحدة.

<sup>3</sup> قسم علم وظائف الأعضاء وعلم العقاقير، كلية الطب وطب الأسنان، جامعة ويسترن أونتاريو، كندا.

<sup>4</sup> قسم العلوم الصيدلانية، كلية الصيدلة، جامعة فيرجينيا كومولث، أمريكا.

### ملخص

تتوسع مسؤوليات صيادلة المجتمع لتشمل تعزيز الرعاية المثلى للمريض، مما يستوجب التعليم المستمر بعد التخرج لتعزيز كفاءتهم وقدرتهم على مواجهة تحديات العمل. في هذا البحث استخدمنا دراسة مقطعية عبر الإنترنت قائمة على الاستبيان لتقييم مواقف صيادلة المجتمع تجاه برامج التعليم المستمر، والطرق المفضلة لعقدته، والعوامل التي يأخذونها في الاعتبار قبل الانضمام إليه، والموضوعات التي يرغبون بالتعلم عنها، والمعوقات المحتملة التي تحول دون التعليم المستمر. أكمل ما مجموعه 358 صيدلانيا من المجتمع المحلي الاستبيان وكان غالبيتهم يرغبون بالتعليم المستمر. ومع ذلك، فإن معظمهم لم يسبق لهم حضور أي نشاط تعليم مستمر من قبل. وأظهرت نتائج البحث أن أغلب المشاركين يفضلون التعلم الذاتي عبر الإنترنت وأن تكلفة البرنامج وموقعه من العوامل الرئيسية التي يأخذها صيادلة المجتمع في الاعتبار قبل المشاركة في أية أنشطة للتعليم المستمر. وكشف البحث أيضا أن الأمراض المعدية هي الموضوع الأكثر أهمية للصيادلة في المجتمع بالإضافة إلى علم الادوية والعلاج الدوائي وعلاج الأمهات الحوامل والمرضعات. أما عن المعوقات فإن قيود العمل وضيق الوقت هي أكثر العقبات التي تمنع المشاركة في التعليم المستمر حسب ما أشار إليه الصيادلة المشاركون بالبحث. أخيرا فإن صيادلة المجتمع لديهم مواقف إيجابية تجاه التعليم المستمر. ومع ذلك، فإن هناك عقبات كثيرة تمنعهم من المشاركة الفعالة فيها. لقد قدمنا في هذا البحث بيانات كافية لصانعي القرار للنظر فيها عند التخطيط المستقبلي لأنشطة التعليم المستمر التي تلبي احتياجات الصيادلة اليوم للنهوض بممارسة الصيدلة.

الكلمات الدالة: صيادلة المجتمع، التعليم المستمر، المواقف، التفضيلات، العوائق.

\* المؤلف المراسل: آلاء سعادة

[assadeh@just.edu.jo](mailto:assadeh@just.edu.jo)

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