Community Pharmacists' Attitudes Toward the Implementation of Good Pharmacy Practice Guidelines in Jordan: A Cross-Sectional Survey

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ABSTRACT

Good Pharmacy Practice (GPP) guidelines have been adopted in many countries around the globe to improve the quality of services. However, there is a lack of evidence regarding the extent to which community pharmacists (CPs) adhere to the implementation of GPP guidelines, as reported in the literature. This study aimed to assess CPs' attitudes toward the implementation of GPP guidelines in Jordan. A probabilistic stratified random sampling approach was used to recruit eligible CPs. A validated Good Pharmacy Practice among Community Pharmacists (GPP-CP) questionnaire was administered to evaluate participants' attitudes toward GPP implementation. A total of 241 participants completed the GPP-CP questionnaire (response rate: 68.1%). Of these, 65.1% were females, and 91.7% reported having knowledge about GPP. The study findings demonstrated that good knowledge of GPP significantly influenced CPs' attitudes toward adherence to the profession's essentials and requirements (φc = 0.16, P = 0.047), administrative professional performance (φc = 0.20, P = 0.015), and patient counseling practices (φc = 0.22, P = 0.003). Among participants, the lowest level of agreement (52.3%) was reported regarding the documentation process of dispensed medications to patients. This study highlights the imperative need for establishing structured indicators to monitor the implementation of GPP in community pharmacy settings. Documentation of pharmaceutical care should also be prioritized. Educational programs and workshops are recommended to enhance pharmacists' practice in community settings. However, since these research findings on pharmacists' attitudes were gathered from Jordanian respondents within Arab society, they may not be generalizable to pharmacists in non-Arab societies where GPP guidelines could differ.

Keywords: Social and administrative sciences, community settings, pharmacy practice, Good Pharmacy Practice, cross-sectional.

INTRODUCTION

Community pharmacists (CPs) are the primary contact point for people to fulfill their daily healthcare needs (1). In recent years, the role of CPs has expanded from dispensing and compounding medications to embracing patient-centered services (2-5). To adapt the growing health needs of people, CPs should enforce their structured knowledge of medications-related issues (for example, safety, efficacy, and monitoring outcomes) to provide optimal pharmaceutical care (6). In addition, CPs should ensure the appropriate delivery of pharmaceutical care services (7). National and international health practice standards and guidelines play an integral role in the best delivery of pharmaceutical care (8,9). The development of community pharmacy standards has been the subject of much research in social health science (10-12). In 1992, the World Health Organization (WHO) and the

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International Pharmaceutical Federation (FIP) developed the Good Pharmacy Practice (GPP) (13), an international standards for pharmacy profession aimed at guiding pharmacists on specific roles, functions, and activities to respond to the health needs of the people through optimal, evidence-based care in line with the mission of pharmacy practice in the new era (14).

Many countries including Jordan have adopted the international GPP guidelines by WHO/FIP in the development of their national guidelines (12). A wide range of services provided by a CP were reported in many studies (15-27). For example, improvement in lipid, blood glucose and blood pressure levels were reported in 59 diabetic patients in the United Kingdom following the application of pharmaceutical care model (i.e., drug therapy problems identification and patients' education about their hypoglycemic agents) by CPs (15). However, only few studies assessed CPs' attitude toward implementation of GPP guidelines in providing the pharmaceutical care services (28-32) or evaluated CPs ' familiarity with GPP elements (33) have been conducted. This study aimed to understand pharmacists' attitudes toward implementation of GPP guidelines in routine practice in community settings.

METHODS

Design

This cross-sectional survey study consisted of two phases; firstly, the data collection tool was developed and validated. Secondly, the validated Good Pharmacy Practice among Community Pharmacists (GPP-CP) questionnaire was administered (online and paper-based) to eligible participants between June and August 2023.

Participants and settings

Eligible participants included in this study were pharmacists who have a minimum qualification of BSc. in Pharmacy or Doctor of Pharmacy, were working in a community pharmacy and were able to consent. This study was conducted in community pharmacies in Jordan, either pharmacist-owned (independent pharmacy) or within pharmacy chains.

Data collection and sampling

The psychometric properties of the GPP-CP questionnaire indicate the questionnaire had good reliability based on the results from both the Cronbach's alpha (0.932) and composite reliability (0.972) tests, demonstrating a high level of internal consistency for the questionnaire. The GPP-CP questionnaire included two sections. The first section included sociodemographic and general information of pharmacists' knowledge about the GPP. The second section consists of 33 attitudinal items organized into five themes. The themes are profession's essentials and requirements (five items), organization management (eight items), administrative professional performance (five items), prescription management (seven items) and patient education (eight items). The sample size had been estimated based on sample size estimation for a finite population (N). The following formula was used for the calculation of sample size (n) considering population size from the Jordanian Pharmacists Association (JPA) website, 95% confidence interval (z = 1.96) and 5% margin of error (e = 0.05) (Equation 1).

$$Sample\ size\ (n) = \left[\frac{\left(\frac{z^2 p(1-p)}{e^2}\right) N}{\left(\frac{z^2 p(1-p)}{e^2}\right) + (N-1)} \right] \quad (Equation\ 1)$$

Where:

n = Required sample size

N = Population size

z = Z-score (based on confidence level)

p = Estimated proportion of population

e = Margin of error

The number of community pharmacies was determined from the JPA website, which stated that 4437 CPs were distributed through Jordan until the mid of January 2023. It was estimated that each community pharmacy should

have a minimum of one pharmacist. Thus, the population size of CPs was estimated to be 4437. Therefore, the required sample size was chosen to be 354.

A probabilistic stratified random sampling approach (34) was applied to identify community pharmacies for inclusion in this study. The researcher, AB, contacted potential participants, introduced herself, provided a brief description of the study, and confirmed the eligibility and willingness of the community pharmacists (CPs) to participate. On the day of the face-to-face administration of the hard copy of the GPP-CP questionnaire, participants were given time to review the consent form and provide written informed consent before completing the questionnaire. For those who preferred to complete the GPP-CP questionnaire electronically via email, telephone, Microsoft Teams, Skype, or WhatsApp, a weblink to the online version of the questionnaire—including online consent—was sent.

Statistical analysis

All data were coded and entered into a customized database developed using IBM SPSS® V28.0 (IBM, New York, USA) for statistical analysis. Descriptive statistics were reported for participant characteristics (e.g., age, gender, and type of pharmacy) as well as for responses to the questionnaire items (i.e., Likert scale responses). To evaluate pharmacists' attitudes toward Good Pharmacy Practice (GPP) in community settings, respondents indicated their level of agreement or disagreement on a five-point Likert scale: "Strongly agree," "Agree," "Neutral," "Disagree," and "Strongly disagree," scored from 5 to 1, respectively. Based on the number of questions within each theme, the total possible scores were: 25 points for the "Profession's Essentials and Requirements" and "Administrative Professional Performance" themes, 35 points for the "Prescription Management" theme, and 40 points for the "Organization Management" and "Patient Counselling" themes. The overall attitude level was categorized according to Bloom's cut-off point reference (35,36), as a "positive attitude" if the score was 80–100% (20– 25 points for profession's essentials and requirements and administrative professional performance themes; 28-35 points for prescription management theme and 32-40 points for organization management and patient counselling themes), "neutral attitude" if the score was 60– 79% (15–19.9 points for profession's essentials and requirements and administrative professional performance themes; 21-27.9 points for prescription management theme and 24-31.9 points for organization management and patient counselling themes) and "negative attitude" if the score was less than 60% (< 15 points for profession's essentials and requirements and administrative professional performance themes; < 21 points for prescription management theme and < 24 points for organization management and patient counselling themes). The Kolmogorov-Smirnov test was used to assess variables' normality of distribution. To identify association between participant's demographics and participants' level of attitude toward GPP within each theme, Pearson Chi-square or Fischer's Exact test as appropriate was used at $p<0.05$. To determine the strength of these associations, Cramer's v (φc) test was used. The strength of associations was interpreted as follows: a (φc) value of "1" indicated a complete association, ">0.25" represented a very strong association, ">0.15" indicated a strong association, ">0.1" suggested a moderate association, and ">0.05" implied a weak association, while "0" denoted no association (37).

Ethical approvals

Ethical approval was obtained for this study from the Hashemite University Institutional Review Board (reference number: 17/4/2022/2023) on 15th January 2023. Electronic or written informed consent was obtained from all participants.

RESULTS

Demographics

A total of 241 participants completed the GPP-CP questionnaire (response rate of 68.1%). The sample consisted of 34.9% (n=157) males and 65.1% females (n=84). Regarding the age of pharmacy building, pharmacies with less than 10 years, accounted for 61.8% (n=149) of the total sample. Just over three quarters

(75.5%, n=182) of participants worked in independent pharmacies. Chain pharmacies represented a smaller proportion of the sample, constituting 24.5% (n=59). The minority of participated pharmacies were located near hospitals, accounting for 9.5% (n=23). The majority of participated pharmacies have an employee's area (90%, n=217) whereas less than three-quarters (73%, n=176) have a counseling area (Table 1).

Table 1. Demographics and community pharmacy related information (n=241)

Variable	Categories	Frequency	Percent
Participant's age	21-25 years	65	27.0
	26-30 years	80	33.2
	31-35 years	46	19.1
	36-40 years	14	5.8
	41-45 years	17	7.1
	46-50 years	7	2.9
	More than 50 years	12	5.0
Participant's gender	Male	84	34.9
	Female	157	65.1
Age of pharmacy building	Less than 5 years	87	36.1
	5-9 years	62	25.7
	10-14 years	45	18.7
	15 years or more	47	19.5
Type of pharmacy	Independent pharmacy	182	75.5
	Chain pharmacy	59	24.5
Pharmacy's location	Near hospital	23	9.5
	Near medical center	76	31.5
	No hospital or medical center	87	36.1
	Near private doctor clinic	55	22.8
Presence of counselling area in the pharmacy	Yes	176	73.0
	No	65	27.0
Presence of an employee's area in the pharmacy	Yes	217	90.0
	No	2	10.0

In terms of familiarity with GPP, 91.7% (n=221) of participants indicated their knowledge of GPP. Less than half of the participants (43.6%, n=105) reported attending workshops about GPP, whereas 56.4% (n=136) indicated they had not participated in any. Furthermore, the data highlight the nearly equal division between those who actively participated in research and continuing education courses and those who did not (Table 2).

Table 2. Knowledge about GPP (n=241)

Variable	Categories	Frequency	Percent
Having knowledge about GPP	Yes	221	91.7
	No	20	8.3
Workshops about the GPP	Yes	105	43.6
	No	136	56.4
Participate in research and continuing education courses	Yes	119	49.4
	No	122	50.6
GPP, Good Pharmacy Practice			

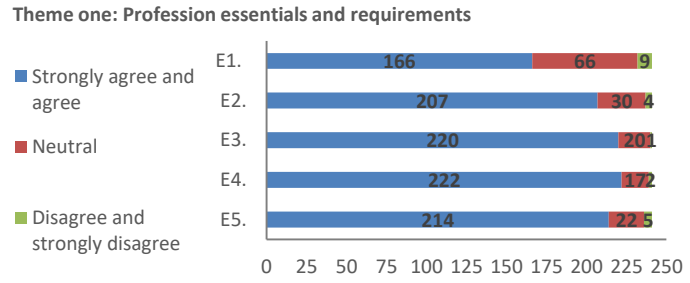
Responses to the GPP-CP questionnaire items

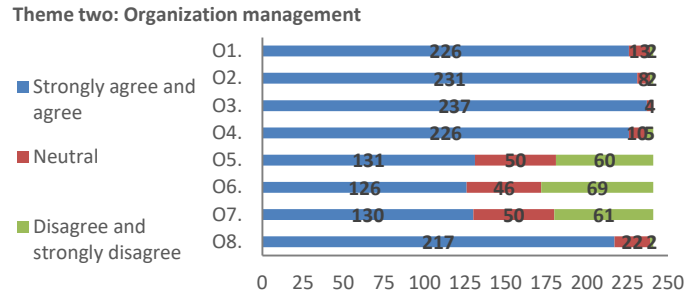
Figure 1 presents the participants' responses to statements categorized into five themes: profession's essentials and requirements, organization management, administrative

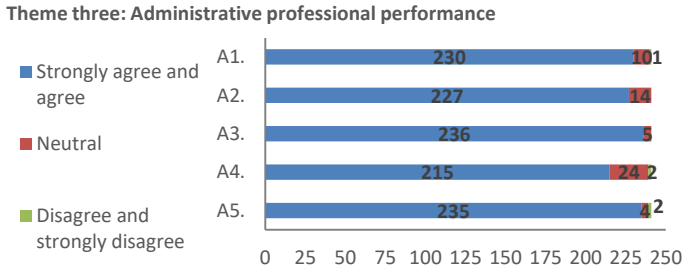
professional performance, prescription management and patient counselling. It is noteworthy that a majority of participants agreed with almost all the questions, with the highest percentage being associated with the statement *" O3. The pharmacy has the necessary equipment to store medicines (e.g., refrigerator)"* (organization management) at 98.3% (n=237). This was closely trailed by *" A3. I ensure that medicines and other pharmaceutical products are provided from reliable sources and ensure their availability in the pharmacy store consistently"* (administrative professional performance) at 97.9% (n=236). Interestingly, almost all statements received zero to less than 4% of responses indicating disagreement, except for three statements within the organization management theme. These statements were *" O5. The pharmacy has systems for documenting possible side effects that may occur with healthcare seekers"* with 24.9% (n=60) of participants indicating disagreement, closely followed by the statement *" O7. The pharmacy has documentation systems for patient profile and therapeutic interventions"* with 25.3% (n=61) disagreement. The statement *" O6. The medication dispensed to the patient is recorded and the patient's drug data is constantly updated"* has a slightly higher percentage of 28.6% (n=61) disagreement (Figure 1).

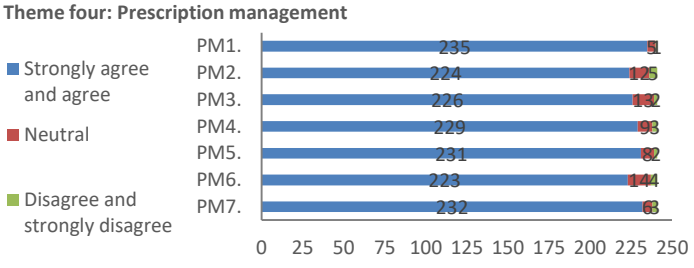
Participants' attitude

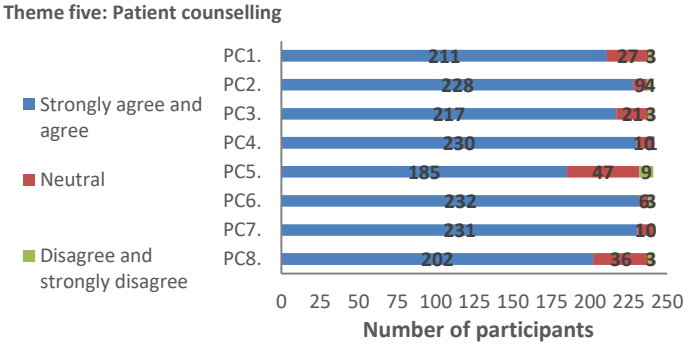
A higher mean score of each theme in the GPP-CP questionnaire indicates a good level of attitude of CPs toward implementation of GPP guidelines. As shown in Table 3 below, more than fifty of participants had a positive attitude toward all themes included in the GPP-CP questionnaire. The vast majority (94.6%, n=228) were seen toward the administrative professional performance theme and the lowest proportion (66.0%, n=159) were seen toward the organization management theme. However, zero to 1.2% of participants had a negative attitude toward each theme included in the GPP-CP questionnaire. Participants have good compliance with the national professional obligations of the law to permit pharmacists to work in community settings, such as familiarization with the code of ethics, legislations, and regulations that enhance implementation of GPP in community pharmacy settings (Profession's essentials and requirements). More than three-quarters (78.8%, n=190) of participants adhered positively to these guidelines, whereas only 0.8% (n=2) had a negative attitude toward compliance with the national law and regulations (Table 3). Just below two-thirds (66.0%, n=159) of participants showed a positive fulfillment of GPP's requirement in managing their community pharmacies' facilities and resources (Organization management). For example, consideration of product's storage conditions, provision of Standard Operating Procedures and documentation systems for patients' data and medical prescriptions. Others either had a negative (0.8%, n=2) or neutral attitude (33.2%, n=80) toward the fulfilment of management requirements in the community pharmacy (Table 3). Regarding the administrative professional performance, the majority of participants (94.6%, n=228) showed a positive attitude regarding good communication and consideration of coworkers' ideas and skills and purchasing pharmaceutical products from reliable sources to ensure the quality of medicines. Further, the use of distinct files to keep the dispensed prescriptions and the invoices of purchased medicines, in which the documents are arranged according to the dates and for the period specified by the laws (Table 3). More than ninety percent of participants (92.5%, n=223) showed a positive level of adherence to the component of GPP in medical prescription management. Before dispensing the prescription medications, they ensure that each medication in the prescription is administered to the right patient, at the right time, in the right dose, by the right route, and that there is no duplication. Only 1.2% (n=3) of participants had a negative attitude toward prescription management (Table 3). Patient counselling was perceived to be an integral part of GPP according to the mean score of this theme (35.8± 4.1). Just below ninety percent (88.8%, n=214) of participated CPs tend positively to engage with patients and educate them about their medications and lifestyle. They also follow up with the patient to ensure the treatment appropriateness (Table 3).











KEY OF ITEMS DESCRIPTION

Theme one: Profession essentials and requirements

E1. I am familiar with all national laws and regulations of the pharmacy profession.

E2. I apply all national laws and regulations of the pharmacy profession.

E3. I adhere to the national code of ethics and apply it in routine practice.

E4. It is my responsibility to inform the patient and health care providers (pharmacists and/or doctors) of any circumstances that may delay the provision of treatment.

E5. I know my rights, duties, and professional responsibilities of a pharmacist towards pharmaceutical care seekers according to the national laws and regulations.

Theme two: Organization management

O1. The pharmacy has decent appearance and good hygiene.

O2. The storage conditions of each product are considered as stated on the product packaging or its internal leaflet.

O3. The pharmacy has the necessary equipment to store medicines (e.g., refrigerator).

O4. Pharmacy Standard Operating Systems (SOPs) are available at the pharmacy.

O5. The pharmacy has systems for documenting possible side effects that may occur with health care seekers.

O6. The medication dispensed to the patient is recorded and the patient's drug data is constantly updated.

O7. The pharmacy has documentation systems for patient profile and therapeutic interventions.

O8. All documents and prescriptions are kept until destroyed by the inspecting pharmacists.

Theme three: Administrative professional performance

A1. In the communication with the pharmacy staff, I respect their opinion and decisions.

A2. Attention is given to what staff raise and respond to their ideas.

A3. I ensure that medicines and other pharmaceutical products are provided from reliable sources and ensure their availability in the pharmacy store consistently.

A4. The prescriptions that are dispensed and the invoices of medicines and other pharmaceutical products are kept in a special file in which the documents are arranged according to the dates and for the period specified by the laws.

A5. I do not deal with agents that provide medicine or other pharmaceutical products that are counterfeit or smuggled.

Theme four: Prescription management

PM1. Regarding the prescription, I check its clarity and the identity of the prescriber who wrote it.

PM2. I re-check the conformity between the label on the dispensed medicine and the prescription information (dose, frequency, duration of treatment) and that the correct medicine has been dispensed to the correct patient.

PM3. I review the medications included in the prescription to ensure that the patient's complaint matches the indications of the prescribed medications.

PM4. I review the medications included in the prescription to ensure that there is no duplication of medications.

PM5. I review the prescribed medications to ensure that the dosage form is appropriate for the patient.

PM6. In case of doubt about the prescription, or if I have a recommendation on the medicine, dosage, or alternative, I refer to the prescriber to check.

PM7. I do not dispense forged and illegal prescriptions and return them to the patient.

Theme five: Patient counselling

PC1. I check with the patients their lifestyle, dietary habits, allergy to food or medicine, smoking, alcohol intake to ensure there is no interferences with prescribed medications.

PC2. I give information to patients about the form and content of their medications.

PC3. I explain to patients the proper storage conditions of their medications.

PC4. I explain to patients the instructions of how to take their medications, correct dose, route, frequency and when to stop their using these medications (i.e., duration of treatment).

PC5. I review laboratory tests, if patients bring them with the prescription and educate patients about monitoring.

PC6. I explain any information I deem necessary to patients.

PC7. I make sure that patients understand the information by asking them to explain what they understood in their own languages.

PC8. I follow up the patient to ensure that the treatment results are achieved or to suggest the necessary modifications to the treatment plan if the wanted outcome is not achieved.

Table 3. The level of attitude of community pharmacists toward the five themes of the GPP-CP questionnaire

Theme	level of attitude	Score	N (%)
Profession's essentials and requirements	Positive	20-25	190 (78.8)
	Neutral	15-19.9	49 (20.3)
	Negative	<15	2 (0.8)
Minimum score =13; maximum score =25; mean score =21.5; SD =2.9.			
Organization management	Positive	32-40	159 (66.0)
	Neutral	24-31.9	80 (33.2)
	Negative	<24	2 (0.8)
Minimum score =23; maximum score =40; mean score =33.8; SD =4.5.			
Administrative professional performance	Positive	20-25	228 (94.6)
	Neutral	15-19.9	13 (5.4)
	Negative	<15	0 (0)
Minimum score =20; maximum score =35; mean score =32.4; SD =3.4.			
Prescription management	Positive	28-35	223 (92.5)
	Neutral	21-27.9	15 (6.2)
	Negative	<21	3 (1.2)
Minimum score =20; maximum score =35; mean score =32.4; SD =3.4.			
Patient counselling	Positive	32-40	214 (88.8)
	Neutral	24-31.9	26 (10.8)
	Negative	<24	1 (0.4)
Minimum score =18; maximum score =40; mean score =35.8; SD =4.1.			
The overall level of attitude was categorized using bloom's cut-off point, as a "positive attitude" if the score was 80–100% (20– 25 points for profession essentials and requirements and administrative professional performance themes ; 28-35 points for prescription management theme and 32-40 points for organization management and patient counselling themes), "neutral attitude" if the score was 60– 79% (15–19.9 points for profession essentials and requirements and administrative professional performance themes; 21-27.9 points for prescription management theme and 24-31.9 points for organization management and patient counselling themes) and "negative attitude" if the score was less than 60% (< 15 points for profession essentials and requirements and administrative professional performance themes; < 21 points for prescription management theme and < 24 points for organization management and patient counselling themes).			

Determinants of CPs' attitude

Participant's age, type of pharmacy and pharmacy's location did not statistically influence any level of participants' attitude toward implementation of GPP guidelines (P>0.05). The highest impact was seen for the determinant "knowledge about the GPP" which have strong and significant association with the positive attitudes of the majority of participants toward the profession's essentials and requirements (n=177 (73.4%); φc=0.16; P=0.047), administrative professional performance (n=212 (88%); φc=0.20, P=0.015), and patient counselling practices (n=198 (82.2%); φc=0.22, P=0.003); Tables 4, 6 and 8, respectively. Also, female participants were strongly and significantly perceived to be more responsible for administrative professional performance (φc=0.17, P=0.010; Table 6) and prescription management (φc=0.23, P=0.001; Table 7) than male participants. Statistically significant influences were seen

for GPP-related workshops attendance and research participation on participants' attitudes toward their adherence to the pharmacy profession's essentials and requirements (*P*=0.026 and 0.013, respectively; Table 4). Further, participants who attended GPP-related workshops had a positive attitude toward prescription management than others who did not attend (*P*=0.026; Table 7). The presence of counselling area within the community pharmacy influences the positive attitude of participants toward organizational issues of the community pharmacy (*P*=0.021; Table 5) while the presence of employee's area influences the positive attitude of participants toward patient counselling practice (*P*=0.010; Table 8).

Table 4. Determinants that are associated with the pharmacists' attitude toward the implementation of GPP guidelines in community settings (Theme: Profession's essentials and requirements) (n=241)

		Level of attitude			X^2	*P*-value	Cramer's phi (φc)
Variable	**Category**	**Positive**	**Neutral**	**Negative**			
Participant's age	21-25 years	52	12	1	8.20	0.769	0.13
		21.6%	5.0%	0.4%			
	26-30 years	63	16	1			
		26.1%	6.6%	0.4%			
	31-35 years	38	8	0			
		15.8%	3.3%	0 %			
	36-40 years	8	6	0			
		3.3%	2.5%	0 %			
	41-45 years	12	5	0			
		5%	2.1%	0 %			
	46-50 years	6	1	0			
		2.5%	0.4%	0 %			
	More than 50 years	11	1	0			
		4.6%	0.4%	0 %			
Participant gender	Male	64	19	1	0.65	0.723	0.05
		26.6%	7.9%	0.4%			
	Female	126	30	1			
		52.3%	12.4%	0.4%			
Pharmacy type	Independent pharmacy	147	34	1	2.10	0.358	0.09
		61%	14.1%	0.4%			
	Chain pharmacy	43	15	1			
		17.8%	6.2%	0.4%			
Location	Near hospital	17	6	0	7.50	0.279	0.13
		7.1%	2.5%	0 %			
	Near medical center	62	14	0			
		25.7%	5.8%	0 %			
	No hospital or medical center	69	18	0			
		28.6%	7.5%	0 %			
	Near private doctor clinic	42	11	2			
		17.4%	4.6%	0.8%			
Counselling area	Yes	138	36	2	0.76	0.684	0.06
		57.3%	14.9%	0.8%			
	No	52	13	0			
		21.65	5.4%	0 %			
Employee's area	Yes	175	40	2	5.00	0.083	0.14

		Level of attitude			X^2	*P*-value	Cramer's phi (φc)
Variable	**Category**	**Positive**	**Neutral**	**Negative**			
		72.6%	16.6%	0.8%			
	No	15	9	0			
		6.2%	3.7%	0 %			
knowledge about GPP	Yes	177	43	1	6.10	**0.047**	0.16
		73.4%	17.8%	0.4%			
	No	13	6	1			
		5.4%	2.5%	0.4%			
GPP related workshops	Yes	91	13	1	7.27	**0.026**	0.17
		37.8%	5.4%	0.4%			
	No	99	36	1			
		41.1%	14.9%	0.4%			
Research	Yes	103	15	1	8.68	**0.013**	0.19
		42.7%	6.2%	0.4%			
	No	87	34	1			
		36.1%	14.1%	0.4%			
GPP, Good Pharmacy Practice; *Fischer's Exact test was used for the analysis.							

Table 5. Determinants that are associated with the pharmacists' attitude toward the implementation of GPP guidelines in community settings (Theme: Organization management) (n=241)

		Level of attitude			X^2	*P*-value	Cramer's phi (φc)
Variable	**Category**	**Positive**	**Neutral**	**Negative**			
Participant's age	21-25 years	48	16	1	10.8	0.543	0.05
		19.9%	6.6%	0.4%			
	26-30 years	54	25	1			
		22.4%	10.4%	0.4%			
	31-35 years	31	15	0			
		12.9%	6.2%	0%			
	36-40 years	8	6	0			
		3.3%	2.5%	0%			
	41-45 years	10	7	0			
		4.1%	2.9%	0%			
	46-50 years	4	3	0			
		1.7%	1.2%	0%			
	More than 50 years	4	8	0			
		1.7%	3.3%	0%			
Participant gender	Male	58	25	1	0.84	0.656	0.06
		24.1%	10.4%	0.4%			
	Female	101	55	1			
		41.9%	22.8%	0.4%			
Pharmacy type	Independent pharmacy	122	58	2	1.12	0.557	0.07
		50.6%	24.1%	0.8%			
	Chain pharmacy	37	22	0			
		15.4%	9.1%	0%			

Variable	Category	Level of attitude			X^2	*P*-value	Cramer's phi (φc)
		Positive	Neutral	Negative			
Location	Near hospital	15	8	0	5.80	0.447	0.11
		6.2%	3.3%	0%			
	Near medical center	56	19	1			
		23.2%	7.9%	0.4%			
	No hospital or medical center	57	29	1			
		23.7%	12%	0.4%			
	Near private doctor clinic	31	24	0			
		12.9%	10%	0%			
Counselling area	Yes	122	54	0	7.76	**0.021**	0.18
		50.6%	22.4%	0%			
	No	37	26	2			
		15.4%	10.8%	0.8%			
Employee's area	Yes	145	71	1	3.96	0.138	0.13
		60.2%	29.5%	0.4%			
	No	14	9	1			
		5.8%	3.7%	0.4%			
knowledge about GPP	Yes	148	71	2	1.50	0.474	0.08
		61.4%	29.5%	0.8%			
	No	11	9	0			
		4.6%	3.7%	0%			
GPP related workshops	Yes	75	29	1	2.62	0.270	0.10
		31.1%	12%	0.4%			
	No	84	51	1			
		34.9%	21.2%	0.4%			
Research	Yes	83	34	2	4.10	0.131	0.13
		34.4%	14.1%	0.8%			
	No	76	46	0			
		31.5%	19.1%	0%			

GPP, Good Pharmacy Practice; *Fischer's Exact test was used for the analysis.

Table 6. Determinants that are associated with the pharmacists' attitude toward the implementation of GPP guidelines in community settings (Theme: Administrative professional performance) (n=241)

		Level of attitude			X^2	*P*-value	Cramer's phi (φc)
Variable	**Category**	**Positive**	**Neutral**	**Negative**			
Participant's age	21-25 years	62	3	0	0.96	0.986	0.06
		25.7%	1.2%	0%			
	26-30 years	75	5	0			
		31.1%	2.1%	0%			
	31-35 years	44	2	0			
		18.3%	0.8%	0%			
	36-40 years	13	1	0			
		5.4%	0.4%	0%			
	41-45 years	16	1	0			
		6.6%	0.4%	0%			
	46-50 years	7	0	0			
		2.9%	0%	0%			
	More than 50 years	11	1	0			
		4.6%	0.4%	0%			
Participant gender	Male	75	9	0	7.15	**0.010***	0.17
		31.1%	3.7%	0%			
	Female	153	4	0			
		63.5%	1.7%	0%			
Pharmacy type	Independent pharmacy	172	10	0	0.02	0.602*	0.01
		71.4%	4.1%	0%			
	Chain pharmacy	56	3	0			
		23.2%	1.2%	0%			
Location	Near hospital	21	2	0	2.01	0.570	0.09
		8.7%	0.8%	0%			
	Near medical center	74	2	0			
		30.7%	0.8%	0%			
	No hospital or medical center	81	6	0			
		33.6%	2.5%	0%			
	Near private doctor clinic	52	3	0			
		21.6%	1.2%	0%			
Counselling area	Yes	166	10	0	0.12	0.517*	0.02
		68.9%	4.1%	0%			
	No	62	3	0			
		25.7%	1.2%	0%			
Employee's area	Yes	207	10	0	2.06	0.127*	0.11
		85.9%	4.1%	0%			

Variable	Category	Level of attitude			X^2	*P*-value	Cramer's phi (φc)
		Positive	Neutral	Negative			
	No	21	3	0			
		8.7%	1.2%	0%			
knowledge about GPP	Yes	212	9	0	9.12	**0.015***	0.20
		88%	3.7%	0%			
	No	16	4	0			
		6.6%	1.7%	0%			
GPP related workshops	Yes	100	5	0	0.15	0.467*	0.03
		41.5%	2.1%	0%			
	No	128	8	0			
		53.1%	3.3%	0%			
Research	Yes	115	4	0	1.90	0.137*	0.09
		47.7%	1.7%	0%			
	No	113	9	0			
		46.9%	3.7%	0%			

GPP, Good Pharmacy Practice; *Fischer's Exact test was used for the analysis.

Table 7. Determinants that are associated with the pharmacists' attitude toward the implementation of GPP guidelines in community settings (Theme: Prescription management) (n=241)

Variable	Category	Level of attitude			X^2	*P*-value	Cramer's phi (φc)
		Positive	Neutral	Negative			
Participant's age	21-25 years	58	6	1	9.21	0.685	0.14
		24.1%	2.5%	0.4%			
	26-30 years	76	4	0			
		31.5%	1.7%	0%			
	31-35 years	42	3	1			
		17.4%	1.2%	0.4%			
	36-40 years	13	1	0			
		5.4%	0.4%	0%			
	41-45 years	16	1	0			
		6.6%	0.4%	0%			
	46-50 years	7	0	0			
		2.9%	0%	0%			
	More than 50 years	11	0	1			
		4.6%	0%	0.4%			
Participant gender	Male	71	10	3	13.19	**0.001**	0.23
		29.5%	4.1%	1.2%			
	Female	152	5	0			
		63.1%	2.1%	0%			

		Level of attitude			X^2	*P*-value	Cramer's phi (φc)
Variable	**Category**	**Positive**	**Neutral**	**Negative**			
Pharmacy type	Independent pharmacy	170	10	2	0.82	0.662	0.06
		70.5%	4.1%	0.8%			
	Chain pharmacy	53	5	1			
		22%	2.1%	0.4%			
Location	Near hospital	22	1	0	7.76	0.256	0.13
		9.1%	0.4%	0%			
	Near medical center	73	3	0			
		30.3%	1.2%	0%			
	No hospital or medical center	76	8	3			
		31.5%	3.3%	1.2%			
	Near private doctor clinic	52	3	0			
		21.6%	1.2%	0%			
Counselling area	Yes	162	12	2	0.45	0.799	0.04
		67.2%	5%	0.8%			
	No	61	3	1			
		25.3%	1.2%	0.4%			
Employee's area	Yes	201	14	2	2.01	0.366	0.09
		83.4%	5.8%	0.8%			
	No	22	1	1			
		9.1%	0.4%	0.4%			
knowledge about GPP	Yes	207	12	2	5.54	0.063	0.15
		85.9%	5%	0.8%			
	No	16	3	1			
		6.6%	1.2%	0.4%			
GPP related workshops	Yes	99	3	3	7.34	**0.026**	0.17
		41.1%	1.2%	1.2%			
	No	124	12	0			
		51.5%	5%	0%			
Research	Yes	111	7	1	0.34	0.832	0.04
		46.1%	2.9%	0.4%			
	No	112	8	2			
		46.5%	3.3%	0.8%			

GPP, Good Pharmacy Practice; *Fischer's Exact test was used for the analysis.

Table 8. Determinants that are associated with the pharmacists' attitude toward the implementation of GPP guidelines in community settings (Theme: Patient counselling) (n=241)

		Level of attitude			X^2	*P*-value	Cramer's phi (φc)
Variable	**Category**	**Positive**	**Neutral**	**Negative**			
Participant's age	21-25 years	60	5	0	8.25	0.765	0.13
		24.9%	2.1%	0%			
	26-30 years	73	7	0			
		30.3%	2.9%	0%			
	31-35 years	40	5	1			
		16.6%	2.1%	0.4%			
	36-40 years	11	3	0			
		4.6%	1.2%	0%			
	41-45 years	14	3	0			
		5.8%	1.2%	0%			
	46-50 years	6	1	0			
		2.5%	0.4%	0%			
	More than 50 years	10	2	1			
		4.1%	0.8%	0.4%			
Participant gender	Male	72	11	1	2.64	0.267	0.12
		29.9%	4.6%	0.4%			
	Female	142	15	0			
		58.9%	6.2%	0%			
Pharmacy type	Independent pharmacy	164	18	0	3.79	0.151	0.13
		68%	7.5%	0%			
	Chain pharmacy	50	80	1			
		20.7%	33.2%	0.4%			
Location	Near hospital	18	5	0	6.56	0.363	0.12
		7.5%	2.1%	0%			
	Near medical center	71	5	0			
		29.5%	2.1%	0%			
	No hospital or medical center	75	11	1			
		31.1%	4.6%	0%			
	Near private doctor clinic	50	5	0			
		20.7%	2.1%	0%			
Counselling area	Yes	156	19	1	0.34	0.831	0.04
		64.7%	7.9%	0.4%			
	No	58	7	0			
		24.1%	2.9%	0%			
Employee's area	Yes	193	24	0	9.20	**0.010**	0.20
		80.1%	10%	0%			
	No	21	2	1			

		Level of attitude			X^2	*P*-value	Cramer's phi (φc)
Variable	**Category**	**Positive**	**Neutral**	**Negative**			
		8.7%	0.8%	0.4%			
knowledge about GPP	Yes	198	23	0	11.60	**0.003**	0.22
		82.2%	9.5%	0%			
	No	16	3	1			
		6.6%	1.2%	0.4%			
GPP related workshops	Yes	92	12	1	1.40	0.498	0.08
		38.2%	5%	0.4%			
	No	122	14	0			
		50.6%	5.8%	0%			
Research	Yes	106	13	0	1.00	0.612	0.06
		44%	5.4%	0%			
	No	108	13	1			
		44.8%	5.4%	0.4%			
GPP, Good Pharmacy Practice; *Fischer's Exact test was used for the analysis.							

DISCUSSION

Main findings

In this study, a 33-item GPP-CP questionnaire was developed and validated to assess the attitudes of CPs toward GPP guidelines. The psychometric properties of the questionnaire were established in the Jordanian context and showed good reliability (Cronbach's alpha = 0.932). While limited continuous learning activity was identified, CPs were perceived to have a good level of knowledge about GPP (91.7%). The findings suggest that CPs fulfill various functions in compliance with GPP guidelines (38,39). These functions can be categorized into five essential roles of a CP: (a) obey national professional laws, legislation, and guidelines; (b) maintain pharmacy organization; (c) manage administrative aspects of professional performance; (d) provide effective prescription management; and (e) provide effective medication therapy management and counseling.

In the present study, the lack of a documentation system in pharmacies—which would allow CPs to formally record dispensed medications, medication side effects, and therapeutic interventions—among a significant proportion of CPs (organization management theme) may be linked to limited attendance at workshops and continuing education courses. Therefore, there may be opportunities to increase awareness and documentation activities among CPs in routine practice. However, the extent to which this is feasible and acceptable is still unknown. Future research should explore the barriers and enablers for pharmacists to increase proactive documentation activity in community settings.

Interpretation and implications of practice

GPP is an essential practice to provide optimal and evidence-based pharmaceutical care in community settings. While many countries worldwide adopted their national GPP guidelines, the impact of pharmacists' adherence to these guidelines in providing pharmaceutical care services in community settings is still being examined in the literature. This study sought to assess the level of adherence of pharmacists to GPP guidelines in community settings. The highest agreement level detected was for the presence of essential requirement for the storage of

medications in the pharmacy (98.3%). Importantly, this level was not associated to the pharmacy or the pharmacists' characteristics. These findings were in line with what was found in a cross-sectional study conducted among 250 CPs in Lebanon which reported that 88% of pharmacies have been equipped with cooling and heating systems to properly store medications (30). It is highly recommended that pharmacists should supervise storage conditions on a regular basis to safeguard compliance with the manufacturer's instructions, thus ensuring sought medication safety and efficacy. Our findings reported a good attitude toward prescription management among more than 90% of CPs. They review the dose, dosage form, indication, and duplication of medications. Interprofessional collaboration with prescribers was reported by participants in case of recommending any modification about the medicines or information related to them. A similar trend was seen in one cross-sectional postal survey among 112 general practitioners and 163 CPs to assess their role in medication review and medication management programs in clinical practice in Germany. Although not restricted to community settings. Most CPs revealed that they check the storage conditions of medications (n = 154, 94.5%), initial compilation of the patient's medication (n = 148, 90.8%), clinical parameters (n = 144, 88.3%), administration times (n = 118, 72.4%) and medication overuse and underuse (n = 100, 61.3%) either alone or in collaboration with general practitioners. Few pharmacists revealed that they check the dose of medications (n = 64, 39.3%), side effects (n = 61, 37.4%) and non-adherence (n = 52, 31.9%) (40). In the current study, more than three-quarters of the respondents agreed that they provide comprehensive information to patients about their medications (for example, dosing, duration of treatment, instructions about the appropriate use, storage conditions) and ensure that patients understand pharmacists' educational information. This may be linked to the shift of CPs ' role toward a patient-centric approach to meet patient's health-related needs. Though not limited to the operationalization of GPP guidelines and conducted in heterogeneous healthcare settings in different countries, several studies have assessed the role of pharmacists in patient counselling to provide effective medication therapy management (41-47). A retrospective longitudinal study of 1,572 patients who received medication management interventions from CPs in British Columbia reported that all patients were educated about their medications during pharmacy visits. Furthermore, pharmacists identified 2,133 drug-related problems, including the need for additional therapy 61.8% (n = 1319); unnecessary drug therapy 11.4% (n = 243); poor adherence 10.8% (n = 231); adverse drug reaction 4.8% (n = 103); dosage too low 4.8% (n = 103); dosage too high 4.2% (n = 90); and recommend alternative drug 2.1% (n = 44) (47). Particular emphasis should be given to the key elements of pharmaceutical care process such as patients' medication review, medication monitoring and treatment follow-up that should be adopted into day-to-day activities. Documentation of pharmaceutical care process should also be prioritized.

Determinants related to good attitudes of CPs towards the implementation of GPP guidelines in routine practice are also explored in this study. The findings revealed that CPs' knowledge about the GPP and the attendance of GPP workshops positively impact CPs' attitudes toward the implementation of GPP guidelines. These findings provide insights that participants who have better attitudes might have better opportunities to access updated information, which would help them to improve their knowledge of GPP; consequently, improve their attitude and practice. Educational programs and workshops are recommended for pharmacists to enhance their practice in community settings. Regular audits could assist the national health authorities in ensuring that the pharmacies are following GPP guidelines. Incentives would be to optimize patient care. Future research should focus on the development of structured indicators to monitor implementation of GPP in community pharmacy settings.

Strength and limitations

The assessment of the GPP-CP questionnaire's validity and reliability enhanced the quality and accuracy of the data collected. Notwithstanding the existence of positive attitude of pharmacists toward implementation to most of GPP guidelines, the current findings identified areas for improvement, such as the adoption of documentation of the pharmaceutical care process in routine practice. Some limitations need to be considered when interpreting the results. First, the cross-sectional design of this research makes it difficult to determine causal inferences from the data. Second, the self-reported method of data collection exerts the possibility of recall bias; pharmacists may have altered their answers to meet GPP guidelines. Third, for the accurate assessment of pharmacists' adherence to GPP guidelines specifically those of critical importance for patients' health, we should use specific measurement outcomes such as patient satisfaction; this should be the aim of future work. Finally, Hence, the research findings on pharmacists' attitudes garnered from Jordanian respondents in Arab society, findings may not generalize to pharmacists in non-Arab societies, where the GPP guidelines could be different.

CONCLUSIONS

This study highlighted that most GPP guidelines in community pharmacy settings are being met by pharmacists—for example, maintaining proper storage conditions and ensuring appropriate patient education to maximize medication safety and efficacy. However, documentation of the pharmaceutical care process was found to be lacking to a lesser extent. Future interventional research should focus on changing pharmacists' behavior toward documentation activities and aim to identify the most relevant and feasible measures and outcomes for implementation in routine practice.

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DECLARATION OF CONFLICT OF INTEREST

The author(s) declare that there are no conflicts of interest.

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سلوكيات الصيادلة تجاه تطبيق معايير الممارسة الصيدلانية الجيدة في صيدليات المجتمع: دراسة مسحية مقطعية

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ملخص

لتحسين جودة الخدمات، تم تطوير إرشادات الممارسات الصيدلانية الجيدة في العديد من البلدان حول العالم. بالإشارة إلى الأبحاث التي تمت دراستها عن موضوع الممارسة الصيدلانية الجيدة، فإنّه لا زال هناك نقص في الأدلة حول مدى التزام صيادلة المجتمع باتباع إرشادات الممارسة الصيدلانية الجيدة. تهدف هذه الدراسة إلى تقييم مواقف الصيادلة تجاه هذه الممارسات في الأردن. تم استخدام نهج أخذ العينات العشوائية الطبقية الاحتمالية لتوظيف الصيادلة المؤهلين. تمت إدارة استبيان الممارسة الصيدلانية الجيدة بين صيادلة المجتمع (GPP-C) وتم تقييم مستوى موقف المشاركين تجاه الالتزام بمعايير الممارسة الصيدلانية الجيدة. شارك في هذه الدراسة 241 صيدلانيًا (معامل الاستجابة 68.1%). من المشاركين، كان هناك ما نسبته 65.1% من الإناث و91.7% أشاروا إلى معرفتهم عن الممارسة الصيدلانية الجيدة. أظهرت نتائج الدراسة أن وجود مستوى معرفي حول الممارسة الصيدلانية الجيدة عند المشارك أثّر بشكل كبير على توجه المشاركين نحو الالتزام بأساسيات المهنة ومتطلباتها $P = 0.047$، والأداء المهني الإداري $P = 0.015$، وممارسات تقديم المشورة للمرضى $P = 0.003$، كما أظهرت الدراسة أن هناك ممارسة قليلة بشأن عملية توثيق الأدوية المصروفة للمرضى (52.3٪). تسلط هذه الدراسة الضوء على الحاجة الملحة لإنشاء مؤشرات منظمة لرصد تنفيذ الممارسة الصيدلانية الجيدة في قطاع صيدليات المجتمع. ينبغي أيضًا إعطاء الأولوية لتوثيق عملية الرعاية الصيدلانية. لتحقيق ذلك، يُوصى بالبرامج التعليمية وورش العمل التي تهدف إلى تعزيز الممارسة الجيدة للصيادلة في قطاع صيدليات المجتمع. لا بد من الإشارة إلى أن نتائج البحث حول مواقف الصيادلة تم الحصول عليها من مشاركين أردنيين في مجتمع عربي وقد لا تنعكس هذه النتائج على الصيادلة في المجتمعات غير العربية، حيث يمكن أن تكون مبادئ الممارسة الصيدلانية الجيدة هناك مختلفة.

الكلمات الدالة: العلوم الاجتماعية والإدارية، الصيدليات المجتمعية، ممارسة مهنة الصيدلة، ممارسات الصيدلة الجيدة، دراسة مقطعية.

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