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Original Article

An Assessment of Pharmacy Practice in Libya Measured against International Standards

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Abstract

Introduction: Practicing pharmacy in Libya is still limited to the dispensing roles. However, pharmacists have started to work proactively to advance modern practices by expanding their roles in different practice settings. **Objective:** This study aims to evaluate the status of pharmacy practice in Libya through self-assessing competencies of hospital and community pharmacists. **Materials and Methods:** This is a cross-sectional online survey study of community and hospital pharmacists. The survey questionnaire was based upon the "Global Competency Framework for Pharmacists" and the Joint FIP/WHO guidelines on good pharmacy practice. **Results:** A total of 199 responses were received with 93% response rate. 47.0% were community pharmacists, 39.4% worked both in hospital and community, and 13.6% practiced exclusively in hospitals. 10% of respondents graduated in 1980–1989; 15% graduated in 1990–1999. 30% graduated in 2000–2009, and 45% graduated in the past 8 years before the study (2010–2017). The overall pharmacy competency indicators were reportedly met consistently by 45.3% of respondents, usually by 25% of responders and only sometimes or rarely by 15.9% or 13.8% of respondents, respectively. **Conclusions:** Pharmacy practice in Libya is more population and system-focused than being professional and patient-focused. Significant amendments in pharmacy education curricula are required to include modern teaching methods, knowledge, skills, and competencies. Continuous professional development programs are also needed for established pharmacists to modernize pharmacy practice in the country.

Keywords: Competency, framework, Libya, pharmacists, pharmacy practice

Introduction

The increase in health demands resulted from an endless and complex range of medicines, and poor adherence to these medicines has shifted the pharmacists' role toward a patient-centered approach.[1,2] Pharmaceutical care currently emphasizes that the pharmacist's role to involve "a

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practice in which the practitioner takes responsibility for a patient's drug-related needs and is held accountable for this commitment."[2] Over the past three decades, pharmaceutical care transformed pharmacy into more accountable patient care, primarily to ensure that a patient achieves positive outcomes from drug therapy promoting the pharmacist as a vital member of the health-care team who is accountable for and committed to the outcome of medication therapy. Furthermore, the World Health Organization (WHO) has expanded the professional roles of pharmacists. The WHO stressed that future pharmacists must be equipped with fundamental knowledge concerning supply chain management, rational use of medicines, pharmaceutical care provision, pharmacovigilance, drug information service, pharmacoeconomics, antimicrobial stewardship, and other clinical and administrative sciences, in addition to attitudes, skills, and behaviors to practice effectively in the society.[3] Pharmacists, therefore, should be held accountable for the cost, quality, and results of services provided to patients. They should also act as advisors to physicians and nurses and contribute to medicine policy decisions.

While the level of pharmacists' involvement in health-care provision varies across different parts of the world, the scope of pharmacy practice still encompasses a great number of services.[4] A competent and capable workforce is a prerequisite for all health-care professions. Improving therapeutic outcomes, quality of patients' lives, scientific progress, and promotion are everyday health necessities based on competency.[5] The International Pharmaceutical Federation (FIP) has developed a global and competency framework for pharmacists.[6] This framework was formed after grouping several documents into categories.[7-11] A comparative study identified common behaviors within the different frameworks resulting in a comprehensive table of elements which were further categorized into several domains.[12]

In 2011, FIP and WHO adopted an updated version of good pharmacy practice (GPP).[13] The joint FIP/WHO guidelines on GPP defined the aim of pharmacy practice to "contribute to health improvement and help patients with health problems make the best use of their medicines." To support this practice, there must be an established national framework of quality standards and guidelines. This document has underlined the requirements of GPP and how to set standards required for GPP, which are organized around four major roles for pharmacists. Each function is structured in several roles, and for each role, a list of minimum national standards to be established.[13] In the 2012 FIP Centennial Declaration, pharmacists and pharmaceutical scientists accepted responsibility and accountability for improving global health and patient outcomes by improving the development, distribution, and responsible use of medicines.[14]

The practice of the pharmacy profession in Libya is still limited to primary dispensing roles. However, through personal efforts, Libyan pharmacists started to work to advance modern practices by expanding their roles in different practice settings, reflecting positively on the country's health-care system. The Libyan Pharmacists Syndicate records in 2019 showed just above 2000 pharmacists renewed their license to practice in the community and hospital pharmacies.[15] Therefore, it is vital to create and adopt the globally shared vision to guide the country-level initiatives to develop an operative pharmaceutical workforce. This study aims to assess the status of pharmacy practice in Libya through self-assessing competencies of hospital and community pharmacists, using the Global Competency Framework for Pharmacists and the Joint FIP/WHO guidelines on GPP.

Materials and Methods

This is a cross-sectional online survey questionnaire study. The questionnaire was based on the Global Competency Framework for Pharmacists and the Joint FIP/WHO guidelines on GPP. The finalized questionnaire was emailed to 205 hospital/community pharmacists all over Libya. The questionnaire comprised four domains: (a) Pharmaceutical Public Health, (b) Pharmaceutical Care, (c) Organization and Management, and (d) Professional/Personal profiles. Each domain comprises several indicators, which were transformed into questions (Qs) with four

options to choose from, with their times' frequency interpretation. These options are (1) consistently (85 to100% of the time), (2) usually (51 to 84% of the time), (3) sometimes (25 to 50% of the time), and (4) rarely (0 to 24%) of the time. Thirty-three indicator questions were arranged according to the above four domains of pharmacy practice. The answers were assigned numbers from 1 to 4 on a Likert scale, in the same order of the above options for statistical analysis purposes. The questions were translated to the Arabic language to facilitate complete comprehension, and the questionnaire was further tested for reliability and validity by applying Cronbach's alpha test using SPSS software version 22 Statistical Software SPSS (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.). Data were collected over 4 months in 2018, and statistical analysis techniques were employed.

Results

Profiles of the participating pharmacists

A total of 199 responders (68% female and 32% male) were included with 93% response rate. 47.0% were community pharmacists, 39.4% worked both in hospital and community, and 13.6% practiced exclusively in hospitals. 10% of respondents graduated in 1980–989; 15% graduated in 1990–1999. Thirty percent graduated in 2000–2009 and 45% graduated in the past 8 years before the study (2010–2017).

The overall pharmacy competencies

The overall pharmacy competency indicators were reportedly met consistently by 45.3% of respondents, usually by 25% of responders and only sometimes or rarely by 15.9% or 13.8% of respondents, respectively [Table 1 and Figure 1].

Pharmaceutical public health competencies

Responses to the 3 questions on pharmaceutical public health indicators are presented in Table 2. The majority (>85%) of pharmacists either consistently or usually participate in health promotion by assessing the primary health-related needs, taking into account the cultural and social background of the patient. Likewise, about 85% of pharmacists consistently or usually play a role in advising the community regarding disease prevention and healthy lifestyle. Concerning medicines information and advice, 88% of pharmacists are either consistently or usually provide the population in general with the appropriate information related to the safe and rational use of medicines and devices (including the selection, use, contraindication, storage, and medicines' side effects).

Table 1: Statistical analysis representing the Likert scale mean for the answers to indicators of pharmacy practice domains questions

Domains*	*n*	Mean score	SD	SEM
Pharmaceutical public health	191	1.57	0.526	0.0832
Pharmaceutical care	191	2.14	0.522	0.0825
Organization and management	191	1.80	0.446	0.0706
Professional skills	191	2.24	0.545	0.0862

*Detailed responses are shown in Tables 2-5. SEM: Standard error of the mean, SD: Standard deviation

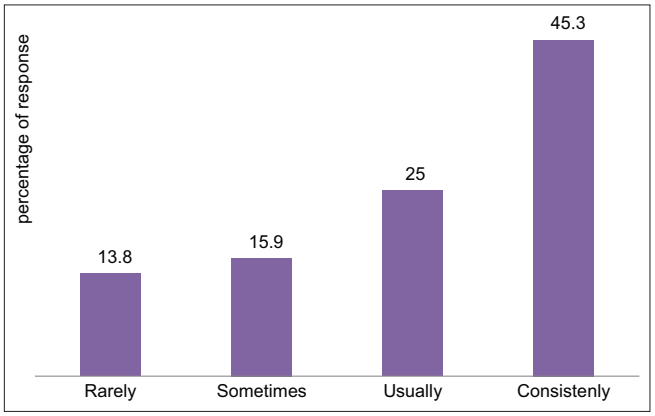

Figure 1: Overall responses to pharmacy competency indicators

Pharmaceutical care competencies

The responses to the 14 questions in the pharmaceutical care indicators domain are presented in Table 3. Majority of pharmacists indicated that they either rarely or sometimes try to identify and prioritize all medicines-related problems. About 81% of respondents affirmed dispensing medicines accurately and checking whether these medicines are for minor or major ailments. On the contrary, two-thirds of the pharmacists seldom or only sometimes report any defective or substandard medicines to the appropriate authorities [Table 3]. More than 90% of respondents reported that they consistently validate prescriptions to ensure that they are legal and correctly interpreted. Besides, approximately 80% of responders reported that they consistently dispense devices such as inhalers and glucose meters properly. Concerning documenting

Table 2: Responses to pharmaceutical public health domain indicators

Indicators	Responses, frequency (%)				Score
	Consistently	Usually	Sometimes	Rarely	
1. Assessing the patient's primary needs taking into account his/her cultural and social background	103 (53.9)	71 (37.2)	17 (8.9)	0	1.50 (0.654)
2. Providing advice on health promotion, preventing disease, and emphasizing healthy lifestyles such as exercise and healthy eating	98 (51.3)	65 (28.3)	24 (12.6)	4 (2.1)	1.65 (0.778)
3. Providing advice and information on the safe and rational use of medicines and medical devices in all respects	118 (61.8)	54 (28.3)	17 (8.9)	2 (1.0)	1.49 (0.702)

Responses are presented as frequency and percentage per question and the score is presented as mean (SD). SD: Standard deviation

Table 3: Responses to pharmaceutical care domain indicators

Indicators	Responses, frequency (%)				Score
	Consistently	Usually	Sometimes	Rarely	
1. Identification of drug interactions, drug-disease interactions, drug-food interactions, or any drug-related problem and prioritize them by severity	15 (7.9)	35 (18.3)	75 (39.3)	66 (34.6)	3.02 (0.920)
2. Dispense medication accurately, whether it is POM or OTC	117 (61.3)	55 (28.8)	17 (8.9)	2 (1.0)	1.50 (0.702)
3. Write a report and send it to the authorities responsible for any drug that has a problem or is not conforming to the specifications	15 (7.9)	42 (22.0)	79 (41.4)	55 (28.8)	2.91 (0.687)
4. Check the prescription carefully and make sure it is legal and written correctly	117 (61.3)	57 (29.8)	15 (7.9)	2 (1.0)	1.49 (1.024)
5. Properly dispense medical devices such as an inhaler, nebulizer, and glucometer	127 (66.5)	47 (24.6)	2 (1.0)	15 (7.9)	1.50 (0.863)
6. Document any error in dispensing	15 (7.9)	87 (45.5)	39 (20.4)	50 (26.2)	2.90 (0.879)
7. Advise patient on good storage conditions and ensure that the drug is appropriately stored and not expired	60 (31.4)	31 (16.2)	57 (29.8)	42 (22.0)	2.43 (1.151)
8. Ensure that the drug is the appropriate medication for the patient in terms of dosage, concentration, method of administration, dosage form, efficacy, and safety	131 (68.6)	45 (23.6)	15 (7.9)	0	1.39 (0.630)
9. Ensure that the packaging safeguards medication safety	44 (75.4)	45 (23.6)	2 (1.0)	0	1.26 (0.461)
10. Implement and follow known and approved protocols for monitoring the therapeutic effect of the medicine	109 (57.1)	51 (26.7)	23 (12.0)	8 (4.2)	1.64 (0.853)
11. Refer to a specialist physician correctly	6 (24.1)	46 (24.1)	55 (28.8)	44 (23.0)	2.49 (1.094)
12. Discuss and consensus with the patient the best use of medicines taking into account the patient's preferences	47 (24.6)	57 (29.8)	49 (25.7)	38 (19.9)	2.41 (1.066)
13. Document any intervention or change in the patient's medical record	37 (19.4)	50 (26.2)	40 (20.9)	64 (33.5)	2.31 (1.131)
14. Review the patient's medical history	47 (24.6)	57 (29.8)	49 (25.7)	38 (19.9)	2.50 (1.148)

Responses are presented as frequency and percentage per question and the score is given as mean (SD). SD: Standard deviation, POM: Prescription only medicine; OTC: Over the counter

medications and dispensing errors, pharmacists' answers indicated that these errors are rarely documented [Table 3]. Regarding medicines' information and checking, the results showed that 80% of respondents' pharmacists do consistently or usually ensure that medicines-related information such as route of administration, dose, form, time, frequency, and packaging is correct. The answers also indicated that pharmacists advise patients on the proper storage conditions of the medicines [Table 3]. Furthermore, 60% of participating pharmacists consistently perform initial assistance to patients when needed and appropriately refer them to a physician or a specialist. Nearly 80% of participants in the survey indicated that they are consistently discussing the appropriate use of the drug with their patients, taking into account patients' preferences. Three quarters of participants suggested that they do not document any intervention or change in the patient's medical records. Finally, only half of surveyed pharmacists consistently review the patient's medical history [Table 3].

Organization and management competencies

The responses to the 5 questions in the organization and management indicators are presented in Table 4. The responses suggest that 65% of participants

consistently contribute to and participate in the medicines supply chain of hospitals and community pharmacies. Furthermore, 68% of the participants ascertained that they consistently keep track of the medicines stocks, check the stores, and forecast future shortages. Besides, 60% of them stated that they consistently consider the cost of medicines in relation to their effect when procuring medicines for their institutions or pharmacies. Over half (57%) of participants consistently ensure that the pharmacies, stores, and facilities comply with the legal specifications and conditions to ensure that pharmaceutical services are appropriately provided. Furthermore, 72% of the respondents suggested that they favor team-based work to working alone.

Professional and personal competencies

The responses to the 11 questions in the domain of professional skills indicator are presented in Table 5. Majority (90%) of respondents are either consistently or usually showing the ability to establish effective communication with others [Table 5]. This indicates that Libyan pharmacists have positive and active relationships with others and can adapt this skill to serve their

Table 4: Responses to organization and management indicators

Indicators	Responses, frequency (%)				Score
	Consistently	Usually	Sometimes	Rarely	
1. Contribute to and participate in the supply chain of medicines to the hospital or pharmacy	106 (55.5)	57 (29.8)	21 (11.0)	7 (3.7)	1.628 (0.822)
2. keep the stocks of medicines and check the reserves of medicines as well as predict the potential shortfall in the future	46 (24.1)	92 (48.2)	41 (21.5)	12 (6.3)	2.099 (0.839)
3. Amend and contribute to the application of the concept of effectiveness and cost during the acquisition of medicines (cost-effectiveness)	114 (59.7)	57 (29.8)	17 (8.9)	3 (1.6)	1.523 (0.724)
4. Ensure that the pharmacy, stores, and facilities have the specifications and legal requirements to ensure the proper delivery of pharmaceutical services	113 (59.2)	54 (28.3)	19 (9.9)	5 (2.6)	1.560 (0.778)
5. The pharmacist depends on working in a team either with other pharmacists or with medical staff and prefer to work in this concept to working alone	82 (42.9)	39 (20.4)	23 (12.0)	47 (24.6)	2.182 (1.228)

Responses are presented as frequency and percentage per question and the score is given as mean (SD). SD: Standard deviation

Table 5: Assessment of professional skills

Professional skills	Responses*				Score*
	Consistently (%)	Usually (%)	Sometimes (%)	Rarely (%)	
1. Ability to establish effective communication with others (positive and active relationships with others and adapt them to serve the work)	121 (53.4)	33 (17.3)	21 (11.0)	16 (8.4)	1.644 (0.978)
2. Use appropriate communication skills to communicate with the patient	129 (67.5)	39 (20.4)	13 (6.8)	10 (5.2)	1.497 (0.839)
3. Directing communication to meet the patient's needs without going into other nonhelpful topics	110 (57.6)	49 (25.7)	22 (11/5)	10 (5.2)	1.644 (0.881)
4. Follow-up of what is new in the field of specialization (taking care to follow-up the changes in the field of work and try to learn and develop it)	103 (53.9)	50 (26.6)	28 (14.7)	10 (5.2)	1.712 (0.903)
5. Ensure that CPD activities are documented	13 (6.8)	32 (16.8)	79 (41.4)	67 (35.16)	3.047 (0.890)
6. Communicating and interacting with pharmacy students and graduates	144 (75.4)	42 (22.0)	5 (2.6)	0	1.272 (0.501)
7. Find out self-limitations and shortcomings in experience and knowledge	128 (67.0)	51 (26.7)	12 (6.3)	0	1.392 (0.605)
8. Knowledge of laws and regulations governing the profession of pharmacy	55 (28.8)	38 (19.9)	36 (18.8)	62 (32.5)	2.549 (1.216)
9. Participation in research and publication in well-known journals that can benefit the community	12 (23.0)	34 (17.8)	35 (18.3)	99 (51.9)	3.099 (1.083)
10. Participation in pharmacovigilance	50 (26.2)	30 (15.7)	59 (30.9)	52 (27.2)	2.591 (1.147)
11. Whether pharmacist's interventions are always based on scientific evidence	128 (67.0)	48 (25.1)	10 (5.2)	6 (2.6)	1.434 (0.714)

*Responses are presented as frequency and percentage per question and the score is given as mean (SD). CPD: Continuous professional development, SD: Standard deviation

work. Moreover, 80% of those pharmacists suggested that they usually direct communication with their patients to meet patients' needs without going into irrelevant topics. In addition, 54% of participants alleged that they keep updated with what is new in pharmacy education and practice and try to learn and adapt what is new and develop it to benefit the practice. However, only 6% of the participants consistently document their achievements concerning continuous professional development (CPD). Yet, 76% document such as activity sometimes or seldom. Three quarters of the participants consistently interact with pharmacy students and graduates. Only 26% of respondents could usually find their limitations and shortcomings in experience and knowledge. However, when participants were questioned about their knowledge concerning the national health laws and legislation, only 49% appeared to have excellent knowledge of the laws and regulations governing the pharmacy profession in the country. Furthermore, the responses to the questions dealing with the participation of pharmacists in research, publications, and pharmacovigilance revealed that this matter is rarely considered important. However, 67% indicated that their interventions are consistently based on scientific evidence.

Discussion

The evaluation of the pharmaceutical public health competencies domain suggested that most Libyan pharmacists are participating in the health promotion of the society by assessing the primary health-related needs, taking into account the cultural and social background of patients. Results also suggested that Libyan pharmacists play a role in advising the community about disease prevention and a healthy lifestyle. Pharmacists appeared to contribute effectively to providing the population with appropriate information about the safe and rational use of medicines and devices. It is, however, worth mentioning that pharmacy education in Libya does not emphasize public health education. Therefore, it is important to consider including it within pharmacy curricula, as did many Arab and international pharmacy schools.[16]

When evaluating pharmaceutical care competencies, the study concluded that surveyed pharmacists are competent when it comes to medicines dispensing through accurately checking and validating the prescription and the dispensed medication(s). Nevertheless, they seldom report any problems or defects related to medicinal products they dispense to the authority. This is because of the deficiency in knowledge, competence, and training in specific fields of education and practice such as pharmacovigilance, identifying and documenting medication errors, counterfeit medicines identification.[17] Although the pharmaceutical care concept is well known to many, its systematic and comprehensive application; through the assessment and detection of medicines-related problems, constructing a pharmaceutical care plan, and follow-up evaluation are not practiced due to numerous barriers.[18,19] On the other hand, pharmacists counsel patients on the proper use of medicines, perform initial assistance to patients when needed, and discuss with patients the appropriate use of medicines considering patients' preferences and appropriately referring them to a physician when necessary.

The evaluation of managerial and organizational competencies indicated that the questioned pharmacists are aware of their duty as managers and participants in the medicines supply chain.[20] Most participated pharmacists elaborated on their ability to consider costs versus medicines effect when procuring medicines for their institutions or pharmacies. However, it is essential to point out that the assessment of cost and effect will not be valid unless pharmacoeconomic methods of evaluation are used to obtain accurate inference of results that may be considered when selecting certain medicines and therapeutic alternatives.

When evaluating personal competence, pharmacists appeared to show the ability to establish effective communication with others.[21] Most participated pharmacists in our survey claimed that they update their knowledge and adopt new ways to benefit the practice. Some appeared to have excellent knowledge of the laws and regulations governing the profession of pharmacy in the country, even though

these laws and legislations need amendments to support the modern practice of the profession. The study participants are considered an authentic slice of the pharmacists' community, reflect professional practices in general, and suggest that Libyan pharmacists are proactive in building personal and professional competencies. Global engagement between schools and colleges of pharmacy in the west and those in the Arab world has increased, and it has been suggested to enriching and fruitful engagement, sensitivity toward the cultural and clinical needs of the people, and in particular, the professionals of that region are critical.[22] This is very limited under the circumstances in Libya at the time of this study.

Conclusions

This study revealed that pharmacy practice in Libya tends to be more population- and system-focused rather than professional- and patient-focused. The assessment of Libyan pharmacists' competencies, using the "Global Competency Framework for Pharmacists," indicated that significant adjustments in pharmacy education curricula must include new teaching methodologies, knowledge, skills, competencies, and CPD certifications for pharmacists to modernize pharmacy practice in the country. It is vital to emphasize the importance of practicing patient-centered pharmaceutical care. In addition, pharmacists' specializations must be clearly defined in Libyan health laws and legislations. Financial incentives and reimbursements must also be established for the various pharmacy specialties and services to provide high-quality pharmaceutical services.

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Authors' contribution

Both authors contributed to the conception, drafting, revision, and finalization of this manuscript. The work was conducted in partial fulfillment for the degree Master of Pharmaceutical Sciences, Faculty Pharmacy, University of Tripoli, Tripoli, Libya.

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Conflicts of interest

There are no conflicts of interest.

Compliance with ethical principles

The exercise was undertaken as a quality improvement exercise. All data were collected anonymously.

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