



# Knowledge Attitude and Practice towards Pharmaceutical Care in Community Pharmacy in Saudi Arabia

Nahid Osman Ahmed<sup>1\*</sup> and Noura Saleh AL-Wahibi<sup>1</sup>

<sup>1</sup>Qassim University, Saudi Arabia.

## Authors' contributions

*This work was carried out in collaboration between authors. Author NOA designed the study, wrote the protocol and wrote the first draft of the manuscript. Author NSAW managed the literature search, the data collection process and analysis. All authors read and approved the final manuscript.*

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## ABSTRACT

**Objective:** To assess the knowledge, attitude and practice of towards pharmaceutical care for pharmacists working in community pharmacy in Alqassim region in Kingdom of Saudi Arabia.

**Mthedology:** Two hundred twenty four pharmacists were included using a pretested self administered questionnaire designed to carry out a cross-sectional descriptive study.

**Results:** The response rate was 63%, there were (52.7%) of the pharmacists think that they are knowledgeable about pharmaceutical care. The majority of the pharmacists (77.7%) think that pharmaceutical care is the pharmacist responsibility.

Taking patients' medication history is a service often/always provided by (54.5%) of the pharmacists.

The most important barriers to provide pharmaceutical care are overload of responsibilities (86.8%), lack of clinical knowledge of disease states (50%), and lack of technical knowledge on how to provide Pharmaceutical care (47%).

**Conclusion:** The current pharmaceutical care situation in community pharmacies in Alqassim

\*Corresponding author: E-mail: [nantish@hotmail.com](mailto:nantish@hotmail.com);

needs further improvement by improving pharmacist information regarding medications and disease states, and overcoming barriers to provide pharmaceutical care are useful.

*Keywords: Pharmaceutical care; community; Saudi Arabia; knowledge; attitude; practice.*

## 1. INTRODUCTION

Pharmaceutical care (PC) is defined by Helper and Strand as the responsible provision of the drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life [1].

It has been suggested that pharmaceutical care describes the original purpose of clinical pharmacy, when it was understood as an approach to professional practice [2].

Pharmaceutical care involves the process through which a pharmacist develops a therapeutic plan that will produce specific therapeutic outcomes for the patient. The concept of "pharmaceutical care" term has been accepted and implemented in many countries [3].

Although the definition of pharmaceutical care has been described long time ago; the term was interpreted inaccurately by most of the pharmacists [4].

Also as a consequence of the advancement in pharmacy profession, the pharmacist's role is changing from drug compounding and dispensing to providing drug information and patient care, which is a revolution in pharmacy practice [5,6].

Various studies have showed the positive influences of pharmaceutical care provided by pharmacists as general and community pharmacists' specially to health care promotion [7-9].

Implementation of pharmaceutical care in community pharmacies, and pharmacists knowledge, perception towards pharmaceutical care is varied worldwide, for example a study done in Canada concluded that many pharmacists in community settings have not yet been able to implement pharmaceutical care as part of their routine work activities, a small number of pharmacists appeared to be introducing pharmaceutical care into the practice setting [10].

In another similar study conducted in New Zealand where the pharmacists' attitudes towards pharmaceutical care and barriers to

pharmaceutical care were assessed, it was seen that (60%) of the respondents accurately understood pharmaceutical care, (55%) supported the concept of pharmaceutical care in New Zealand and most (75%) of the respondents stated the requirements of improvement in the clinical knowledge to implement pharmaceutical care [11].

In a study investigating the community pharmacists' attitudes about pharmaceutical care in Malta, 72% of the community pharmacists declared their willingness to provide pharmaceutical care [12].

To assess the perception of community pharmacists toward pharmaceutical care, a study conducted in northwest China, pharmacists did not well recognize the definition of the pharmaceutical care. These pharmacists performed only some of the pharmaceutical care services in the community pharmacy. It was determined that their professional time consumed with traditional pharmaceutical services such as dispensing and counseling [13]. In study conducted in Turkey majority of the pharmacists (86.8%) were willing to provide pharmaceutical care services and (78.9%) considered these services as pharmacists' duty [14]. Another study conducted in Jordan found more than 62% of respondents had a correct understanding of the basic concept of pharmaceutical care. The data show that the level of reported pharmaceutical care activities was limited. In general pharmacists have very good attitudes toward pharmaceutical care. Interestingly, more than 90% of respondents fully support the concept of pharmaceutical care [15]. Also in a study conducted in Dubai, pharmacists negatively perceived their own professional role [16]. In Qatar, one study found that only 31%, 29%, 17%, of community pharmacists believed that they provide enough medications counseling, enough use instructions and appropriate monitoring, respectively [17].

## 2. BARRIERS TO IMPLEMENT PHARMACEUTICAL CARE IN COMMUNITY PHARMACY

In New Zealand, lack of time (87%), lack of reimbursement (81.9%), inappropriate physical

space (54.4%) and limited access to patient medical records (61.3%) were identified as major barriers to pharmaceutical care, which were similar to those mentioned by pharmacists in different countries [11,18].

Lack of time was suggested as the most important barrier to pharmaceutical care by 59% of the pharmacists in different practice settings in Argentina; this was followed by lack of specific training, lack of patient communication skills and limited space in pharmacy, 5% of the pharmacists mentioned lack of communication with the other health-care providers as a barrier to pharmaceutical care [19].

Pharmacists in Northern Ireland pointed out the difficulties in providing pharmaceutical care routinely as lack of time, financial issues, and lack of private counseling area and low public expectation of the pharmacy profession [20].

The community pharmacists in northwest China reported lack of time, information, skills, and support from other health professionals and economic issue as the barriers to the provision of pharmaceutical care [13].

Also in Thailand, pharmacists tend to be lacking of therapeutic knowledge and clinical problem solving skills (54.8%), lacking the role model who provides pharmaceutical care (53.8%), also lack of time (54.2%) and limited access to patients' medical information (40.1%), all barriers to pharmaceutical care provision [21].

In the study conducted in Jordan, the need for pharmaceutical care training was found to be the top barrier to the provision of pharmaceutical care as indicated by more than 80% of pharmacists [15].

In Dubai, the study stated that there are number of barriers which hinder optimized delivery of pharmacy services like under-estimation by pharmacy clients and other healthcare professionals, pressure to make sales, and high running cost [16].

Pharmaceutical care is a relatively new service started to be applied in the Kingdom of Saudi Arabia (KSA) especially by hospital pharmacists. The introduction of clinical pharmacy services in various hospitals helps in spreading the implementation of pharmaceutical care.

Regarding community pharmacies, it has been observed that pharmacists are still practicing

their traditional roles without making efforts to participate in detecting and solving patient's drug related problems.

### 3. AIM OF THE STUDY

This study aim to assess the opinion and knowledge towards pharmaceutical care of the pharmacists working in community pharmacy in Alqassim region.

### 4. METHODS

This is a descriptive cross sectional study conducted in Alqassim region is one of the fourteen administrative regions of Saudi Arabia. It is located in middle of the north part of the kingdom.

Pharmacists included in the study were informed about the study and its objectives, and only those who agreed to participate were questioned.

Two hundred twenty four pharmacists included in the study completed a pre tested self-administered questionnaire designed in five sections. Section one contains three question (demographic data). Section two contains five questions, it highlights helpful equipments, and staff related characteristic in community pharmacy. Section three contains four questions; it reflects pharmacists' opinions on pharmaceutical care as general, utilized a 5-point Likert type scale (1=strongly disagree, 5=strongly agree). Section four contains twelve questions; it represents pharmaceutical care related services provided by community pharmacists, utilized a 5-point Likert type scale (1=Never, 5= Always). Section five consists of thirteen questions; it reflects barriers in providing pharmaceutical care practice as mentioned by community pharmacists. Also utilized a 5-point Likert type scale (1=strongly disagree, 5=strongly agree).

Data was analyzed using computer based Statistical Package for Social Science (SPSS) version 21. For qualitative data frequency and percent were used.

#### 4.1 Ethical Approval

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

## 4.2 Consent

All authors declare that 'written informed consent was obtained from the pharmacists for publication of this paper and accompanying images.

## 5. RESULTS

The response rate of questionnaire was 63% of the total 353 pharmacists invited, 224 accepted to be involved in the study and filled-in questionnaires.

All pharmacists working in community in KSA are males, regarding age (42.9%) of the pharmacists are less than 30 years old, (37.1%) are 30-39 years old, (17%) are 40-49, and (3.1%) of the pharmacists are 50 years old or more.

The majority of the community pharmacists (49.1%) have less than five years in pharmacy practice, the rest have 5-9 years experience (43.8%), and 10-19 years experience (7.1%).

The majority of pharmacists have only bachelor degree (88%). Only (10%) have pharm D, and one pharmacist (2%) is a master holder.

### 5.1 Equipments and Staff Related Characteristics

Only (14%) of pharmacies in this study does not have computers and (62%) have only one computer and (24%) have two computers. Number of reference books differ in pharmacies; (30.8%) of pharmacies has only one book, (37.5%) have two books, (18.8%) have three books, and only (12.9%) have more than three books. Regarding periodicals, (22.8%) of the pharmacies have not got periodicals, (36.2%) have one professional periodical, (31.7%) have two professional periodicals and (9.4%) have more than two professional periodicals. There are (11.2%) of the pharmacies with no single pharmacy technicians, (47.3%) with one pharmacy technician to help in pharmacy work, (33.5%) with two pharmacy technicians, (2.2%) have three pharmacy technicians, and (5.8%) have four pharmacy technicians. Also (75.4%) of pharmacies included in this study do not hire a second pharmacist.

### 5.2 Pharmacists' Opinions on Pharmaceutical Care

Table 1 summarizes community pharmacists' opinion regarding their knowledge about

pharmaceutical care, and about the concept of this practice.

### 5.3 Pharmaceutical Care Related Services Provided in the Community Pharmacy

The pharmaceutical care related services reported to be provided by the pharmacists in the community pharmacy were as follows; Taking patients' medication history is a service often/always provided by (54.5%) of the pharmacists, occasionally by (32.1%), and rarely/never provided by (13.4%) of the pharmacists. Taking patients' medical history is occasionally provided by (48.2%), often /always by (26.3%), and never/rarely by (25.4%) of the pharmacists.

More than half of the pharmacists (53.6%) never/rarely take patient allergy history, (29.95%) occasionally take allergy history, and (16.5%) often/always take it.

Patients' up use history (smoking, alcohol consumption) is occasionally taken by (54.5%) of the pharmacist, (26.3%) never/rarely take up use history, and (19.2%) often/ always take this history.

Asking the patients reasons of consuming their particular non prescription Over The Counter (OTC) medications is occasionally done by (48.2%), (36.6%) never/ rarely asked patients, and only (15.2%) often/always ask the patient about reasons of consuming OTC medications.

Community pharmacists as a source of medicines information, they provide information to patients at different levels. Table 2 shows different types of information usually provided by pharmacists.

### 5.4 Other Pharmaceutical Care Services Provided by Community Pharmacists

Regarding other services provided, controlling the appropriateness of the prescribed medication for a particular patient is a service occasionally provided by (48.2%) of the pharmacists, never/rarely provided by (35.7%), and (16.1%) of pharmacists provide this service often/always.

Regarding monitoring outcomes of therapy, (62.9%) of the pharmacists never/ rarely monitor therapy outcomes, (24.6%) occasionally do, and only (12.5%) of the pharmacists often/ always monitor outcomes of therapy.

**Table 1. Pharmacists' opinions on pharmaceutical care**

	Strongly disagree/ Disagree		Neither agree/ Nor disagree		Agree/Strongly agree	
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
1- I am knowledgeable about PC	76	33.9 %	30	13.4%	118	52.7%
2- Pharmacists' opinions must be taken when establishing standards of PC in modification of related law	0	0%	13	5.8%	211	94.2%
3- PC is not the pharmacists' duty; there is no need for pharmacists' involvement	174	77.7%	43	19.2%	7	3.1%
4- PC is the pharmacists' duty; but it cannot be practiced feasibly	23	10.3%	37	16.5%	164	73.2%

**Table 2. Informing patient**

	Never/Rarely		Occasionally		Often/Always	
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
6 Why they were prescribed the particular medications	114	50.9%	66	29.5%	34	15.2%
7 How to use their medications	22	9.8%	36	28.1%	139	62.1%
8 Side effects of the medications	171	76.3%	36	16.1%	17	7.6%
9 Storage of the medications	36	16.1%	69	30.8%	119	53.1%
10 Drug and/or food interactions	45	20.1%	69	30.8%	110	49.1%

### 5.5 Perceived Barriers in Providing Pharmaceutical Care Practice

Practicing pharmaceutical care in community pharmacists is faced with many barriers, these barriers as mentioned by pharmacists are summarized in Table 3.

### 6. DISCUSSION

The majority of pharmacists working in community pharmacies (42.9%) are less than 30 years of age, have less than five years in

pharmacy practice (49.1%), and have only bachelor degree (88%). This finding is consistent with previous finding in survies conducted in community pharmacies in KSA, and other countries [16,22-25].

The cause of the finding that the majority of pharmacists in KSA community pharmacies are less than 30 years old may be because of that older pharmacists, and post graduate as they become more expert, they tend to work in other fields of practice as medical representatives, regulatory affairs, and in the academia.

**Table 3. Perceived barriers**

		Strongly disagree/ disagree		Neither agree nor disagree		Agree/Strongly agree	
		Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
1	Lack of knowledge of drugs	156	69.6%	55	24.4%	28	6 %
2	Lack of clinical knowledge of disease states	70	31.2%	42	18.8%	112	50%
3	Lack of technical knowledge on how to provide PC	61	27.2%	56	25%	107	47.8%
4	Lack of communication with physicians	125	55.8%	60	26.8%	39	17.4%
5	Lack of communication with patients	120	53.6%	55	24.6%	49	21.8%
6	Lack of patient's time/demand	148	66.1%	32	14.3%	44	19.6%
7	Lack of information sources	132	58.9%	27	12.1%	65	29%
8	Lack of knowledge on how to reach the information	97	43.3%	35	15.6%	92	41.1%
9	Stationary workload related to regulatory issues	144	64.3%	44	19.6%	36	16.1%
10	The physical conditions of the pharmacy	144	64.3%	28	12.5%	52	23.2%
11	Insufficient number of auxiliary staff	82	36.6%	31	13.8%	111	49.6%
12	Personality characteristics	133	59.4%	52	23.2%	39	17.4%
13	Overload of responsibilities as a pharmacist	46	2.5%	24	10.7%	154	86.8%

Results showed that the largest group of pharmacists (52.7%) agree/ strongly agree with that they are knowledgeable about PC. In accordance with this result, a similar pattern of distribution also reported by other researchers in turkey and KSA [14,24].

Now a days the concept and the information about PC is available everywhere; in conferences, workshops, reference books, and online sources, that's why it is logic that the majority of pharmacists have an acceptable knowledge about PC even if they do not practice it.

The majority of the pharmacists (94.2%) think that pharmacists' opinions must be taken when

establishing standards of pharmaceutical care in modification of related law. A similar result was also reported in another study [14].

As the majority of pharmacists are knowledgeable about PC, so it is reasonable that the majority know it is the pharmacist new role and duty. And they want to participate in establishing new roles related to pharmaceutical care. New roles that may give the pharmacist more time and space to provide pharmaceutical care.

Results show that (73.2%) think that PC is the pharmacist duty but it cannot be practiced feasibly. This result is different with that reported in the similar study in Turkey [14], where only

(21%) of the pharmacist agree/strongly agree with PC is the pharmacist duty but it cannot be practiced feasibly.

As has been shown in the results, regarding pharmaceutical care related services often provided by pharmacists in the community pharmacy; the largest group of pharmacists (54.5%) takes patients' medication history, (98.2%) inform the patient about why they were prescribed the particular medication, (53.1%) provide information about drug storage, and (49.1%) of pharmacists inform patients about drug and/or food interactions.

Similar pattern of distribution regarding pharmaceutical care was found in Turkey [14].

In contrast to this result, some researchers found only (12%) of the pharmacist working in community pharmacies take patient medication history [24]. More over other researchers found that (84.4%) of the pharmacists consider that taking medication history is unimportant/very unimportant [23]. Others found that only (4%) of pharmacists provide drug information on how medication adverse effects, only 2% of the pharmacist provide information about drug storage [26]. Only (2%) of pharmacists informs patients about drug and/or food interactions (33).

Compared to other regions, community pharmacists in Qassim seem to provide variety of pharmaceutical care services which could be the building block paving the way to proper pharmaceutical care. As the majority of pharmacists are young, and they think that they are knowledgeable about pharmaceutical care, It is reasonable that they are enthusiastic to provide such services. Also the competition between different community pharmacies may make the pharmacist try to provide high level of patient services, also this could be a genuine reason for regarding barriers to pharmaceutical care, as has been shown in the results, the majority of pharmacists strongly agree/agree with that the following are the most important barriers to provide pharmaceutical care ; lack of clinical knowledge of disease states (50%), lack of technical knowledge on how to provide pharmaceutical care (47.8%), Insufficient number of auxiliary staff (49.6%), and overload of responsibilities as a pharmacist (86.8%).

While main barriers to provide pharmaceutical care in community as found by other similar study results are as follows; lack of therapeutic

knowledge, insufficient staff, lack of knowledge of clinical solving drug related-problems [14,27], and lack of patients demand [14], which are in accordance with what we have found in this study.

Increasing the number of staff, and involving community pharmacists in the continuous professional programs may help pharmacists by providing them more time and knowledge to improve the practice of patient care.

The main limitation of this study is that the small number of pharmacies in Qassim may not represent the situation in the whole country. There for larger studies are needed.

## 7. CONCLUSION

The majority of pharmacists consider themselves knowledgeable about pharmaceutical care, and and they agree that pharmaceutical care is the pharmacists' duty.

Pharmaceutical care related services provided in the community pharmacy are mainly taking patients' medication history, informing patients how to use their medications, informing patients about medication storage, and provide information about drug and/or food interaction.

The most important barriers to provide pharmaceutical care service in community pharmacies as mentioned by pharmacists, are lack of clinical knowledge of disease states, lack of technical knowledge on how to provide pharmaceutical care, insufficient number of auxiliary staff, and overload of responsibilities.

The situation of pharmaceutical care in KSA is not differing from that worldwide. More or less the same range of services provided and corresponding barriers mentioned by pharmacists in different countries.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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