



# Attitude and Perception of Physicians and Nurses Toward the Role of Clinical Pharmacists in Riyadh, Saudi Arabia: A Qualitative Study

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## Abstract

Clinical pharmacists are responsible for guiding pharmacotherapy and ensuring medication safety along with other health-care providers. This study highlighted barriers that physicians and nurses encounter when interacting with clinical pharmacists. Twenty-seven physicians and nurses were randomly invited to participate in focus-group discussions. Five focus-group discussions were recorded and then transcribed, and the transcripts were reviewed and coded. Three major themes were identified, which were the role of clinical pharmacists, interprofessional communication, and competency. The greatest challenge reported in this study was lack of consistent understanding of the role of clinical pharmacists which to some extent caused communication deficiencies and affected the level of involvement with multidisciplinary teams. Despite that, majority of the participants perceived pharmacists as beneficial in optimizing pharmacotherapy and improving quality of care. Clinical pharmacy services are perceived positively in impacting quality of care as expressed by majority of the study participants. However, there is a lack of common understanding of the role of clinical pharmacists by other health-care providers.

## Keywords

clinical pharmacist, focus groups, nurses, Saudi Arabia, perception, physicians

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The introduction of clinical pharmacy as a discipline allowed pharmacists to change from a product-oriented role to become involved in patient-centered care, a major goal of which is to ensure the provision of the optimal drug therapy for patients (Awalom, Kidane, & Abraha, 2013; Jin et al., 2014). Clinical pharmacists are a primary source of information relating to the activity and safety of drugs; they have responsibility for pharmacotherapeutic care management and patient care (American College of Clinical Pharmacy & Key, 2008).

The implementation of clinical pharmacy services differs between countries (Bilal et al., 2016). In Saudi Arabia, it began in the mid-1970s (Al-Jedai, 2011). Two hospitals adopted clinical pharmacy practices, and several other hospitals sent candidates to the United States to study for Doctor of Pharmacy (PharmD) degree. In 2008, a PharmD Program was

adopted making some Saudi universities offering two programs in pharmacy, which are Bachelor of Pharmaceutical Sciences (BPharm) and PharmD (Asiri, 2011). In hospitals, pharmacists are categorized into three groups: staff pharmacist, senior pharmacist, or consultant pharmacist. A staff pharmacist should have a BPharm degree and pass the licensure examination or have a PharmD degree (Almeman & Al-jedai, 2016).

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Some of their duties include dispensing, medication verification, offering drug and poison information services to other health-care providers, and medication storage and supplies. A senior pharmacist or commonly known as clinical pharmacist should have a Master's degree in clinical pharmacy or a PharmD degree in addition to postgraduate year 1 (PGY1) residency. A consultant pharmacist can have either a PharmD or a BPharm degree with completion of both PGY1 and PGY2 residencies. The role of both senior and consultant pharmacist involves medical rounding with other health-care providers, on-call coverage, managing various clinics, teaching at universities, and working as a preceptor for residents and students.

Clinical pharmacy services have been extensively developed in Saudi Arabia to provide high-quality patient care (Ahmed Alomi, 2015). However, physicians could be reluctant to fully accept the role of clinical pharmacists due to a few reasons such as lack of awareness of the role of clinical pharmacist, physicians with medical qualification before 21st century, and absence or rare encounter with pharmacist (Kheir et al., 2008; Tahaineh, Wazaify, Albsoul-Younes, Khader, & Zaidan, 2009). On the other hand, a recent systematic review showed that the economic role of clinical pharmacist is cost-effective as they reduce hospital stay, medication errors, and increase patient satisfaction (Dawoud et al., 2019). Hence, resistance and barriers to involve clinical pharmacists could increase hospital cost and impact the quality of care. To our knowledge, pharmacy practice literature has a few descriptive studies of health-care providers' experiences with pharmacy practice services provided by clinical pharmacist.

## **Aim of the Study**

The aim of this study was to assess the perceptions of physicians and nurses with regard to the role of clinical pharmacists. A qualitative approach was employed to identify the experiences of health-care professionals and the nature of their interactions through the use of semistructured focus groups and to highlight difficulties that physicians and nurses experience when interacting with clinical pharmacists.

## **Methods**

### ***Study Design***

An in-depth qualitative approach was utilized to explore the perceptions of health-care providers toward the role of clinical pharmacists in Riyadh, Saudi Arabia. Focus-group discussion was selected as an approach, to ensure the availability of comprehensive information, gathered in a setting in which participants stimulate one another,

rather than in one-to-one interviews (Bowling & Ebrahim, 2005; Krueger & Casey, 2000). A set of open-ended questions was developed (Online Appendix 1), according to the objectives of the study and results from a literature review of similar studies and articles (Abu-Gharbieh, Fahmy, Rasool, Abduelkarem, & Bashedi, 2010; Al-arifi, Alghamdi, Idris, & Wajid, 2015; Azhar, Hassali, & Ibrahim, 2010; Bilal et al., 2016; Bowling & Ebrahim, 2005; Jin et al., 2014; Krueger & Casey, 2000; Li, Huo, Kong, Li, & Wang, 2014; Sabry & Farid, 2014). A pilot test of the focus-group discussion protocol was conducted with five participants, to ensure consistency and freedom from bias.

### ***Participants and Recruitment***

Contact lists of consultant physicians, assistant consultant physicians, medical residents, and nurses were obtained from different departments of King Abdullah International Medical Research Center. Potential participants were selected at random and asked verbally or by e-mail if they would voluntarily participate in the study after providing the study aim and objectives. Random selection minimized bias, as participants were chosen randomly and not based on any referrals or recommendations. The criterion for inclusion in the study was that the participants had to be in contact with clinical pharmacists on a daily basis. Focus groups were facilitated by two members of the research team a moderator and an observer (N. S. and L. A.), who were trained to minimize interviewing bias. Participants were divided on the basis of profession and level of experience (Table 1) to make them comfortable and more open to share their opinions. In addition, discussions were conducted in the English language.

Opinions in the group of consultant physicians differed considerably from the other groups; thus, more consultant physicians were recruited for an additional focus-group discussion to assess consistency with the previous group. Each discussion was conducted until data saturation was reached and no new ideas were generated.

### ***Institutional Review Board***

Ethics approval was received from the King Abdullah International Medical Research Center in January 2016. The study was conducted between February 2016 and May 2016. All participants signed a consent form, and confidentiality was assured by securely storing the data.

### ***Data Collection and Analysis***

During each discussion, the moderator posed the open-ended questions listed in Online Appendix 1.

**Table 1.** Demographic Information of the Participants.

	Total	Consultant physicians	Consultant physicians (second group)	Assistant consultant physicians	Residents	Nurses
Number of participants	27 (100%)	5 (18.5%)	6 (22.2%)	4 (14.8%)	6 (22.2%)	6 (22.2%)
Female:male	7:20	0:5	1:5	1:3	0:6	5:1
Median years of experience	10.2	11.8	20.5	5.5	3.0	20.5
Age (years)						
20–30	7	0	0	1	6	0
31–40	8	3	1	2	0	2
41–50	5	1	1	1	0	2
>50	7	1	4	0	0	2
Participant codes		C1–C5	C6–C11	G1–G4	R1–R6	N1–N5

Probes were included in the discussion and used if required to stimulate the participants to explain extensively. The discussions were recorded, and the audio recordings were transcribed; three members of the research team read the transcripts and then sent it back to the participants for confirmation and feedback. The transcripts were coded, and a thematic analysis was conducted by two researchers employing a combination of manual sorting and coding, in addition to using NVivo 11 computer software (QSR International, Australia) to help in organizing data more easily. Thematic analysis was chosen due to its flexibility and suitability for large sets of data. Two researchers independently reviewed the transcripts and the coding and then compared them with the notes taken by the observer to ensure consistency and completeness. Similar codes were clustered together to form themes. Any disagreements over interpretation of the data were discussed between the research members until consensus was reached. Analyst triangulation was used to review the findings of the study (Patton, 1999).

**Results**

A total of 27 participants were recruited (Table 1), 74.1% of whom were males (reflecting the gender demographic of health professionals at King Abdullah International Medical Research Center). Five focus-group discussions took place (70–100 minutes each), and the issues raised in these discussions were categorized. Thematic analysis of the data identified three major themes: two of which were split into four sub-themes each and one of which was split into further two subthemes (Table 2).

**Theme 1: The Role of the Clinical Pharmacist**

When participants were asked regarding the role of clinical pharmacist, all of them indicated that the role of the clinical pharmacist is essential to the medical team.

**Table 2.** Thematic Framework: Themes and Subthemes Identified in the Perceptions of Physicians and Nurses to Clinical Pharmacists.

Themes	Subthemes
The role of the clinical pharmacist	Role clarity Professional evolution Role involvement Demarcation
Interprofessional Communication	Type of communication Behavior
Competency	Reliability Years of experience Subspecialty Prescribing medications

However, most of the participants stated that this role is vague and needs clarification. Some participants said that because the field of clinical pharmacy services is relatively new and several health-care providers lack awareness regarding the role of clinical pharmacists.

...I think sometimes the role of clinical pharmacist is not identified, because there is a difference between clinical pharmacist and pure pharmacist. There is a huge difference, so, we need to identify it in order to utilize them. (R2)

All participants agreed that the role of clinical pharmacists is important, and that they improve the quality of life of patients by reducing polypharmacy, preventing drug–drug interactions, adjusting doses, and checking for adverse effects.

...I had an experience with clinical pharmacists in regard to cardiac medication. For example, hypertension, one physician will add a medication and another physician will add another one. So, we end up with five hypertensive medications. Then, the clinical pharmacist will come and make the list shorter, which is really a positive thing for the patient. It is crazy for the patient

to swallow all of these medications and no one try to correct it except the clinical pharmacist. (N2)

Nearly all participants reported that their views on the role of clinical pharmacists had changed over time, as clinical pharmacists had become more integrated into the health-care system. The participants said that the development of clinical pharmacy had increased the safety and quality of patient care. Having a clinical pharmacist to assist physicians and nurses made their jobs easier and resulted in a decrease in medication errors.

To be honest with you, 3 years ago I thought it was just a waste of time and money. Honestly, I cannot currently work in my daily round without a clinical pharmacist. They're helping us with doses, assessing medications that need adjustment and everything. They're part of our team, and we do not work without them. Now, I do not have any kind of phobia of making errors because a clinical pharmacist is with us! However, before, believe me it was tough! (C8)

However, the participants also indicated that some clinical pharmacists are difficult to reach and are not fully involved with the medical team primarily because of a shortage of clinical pharmacists in situations where they must cover many areas.

Sometimes when they act as a consultant only. They come and suggest and then leave. So, the nurse has to inform the physician! So, there is a gap! (N1)

The majority of consultant physicians stated that clinical pharmacists do not draw a clear line between their positions and those of physicians. The consultant physicians suggested that clinical pharmacists, as well as other health-care providers, should understand their specific roles and learn when it is appropriate to take action, rather than insisting on changing recommendations that have been made by consultant physicians. Interestingly, in the other groups, the belief was that rigid demarcation lines might deter clinical pharmacists from doing their job, which could negatively affect patient care. These other groups emphasized that all health-care providers should work together to provide the highest quality patient care and should be allowed to intervene for the patient's sake.

...I really enjoy working with them, and having them beside you is extremely helpful. However, as I said, the demarcation is the most important part. They should know when your role starts and when it ends! How much do you interfere in the clinical decision, and who makes the final decision? This is the interaction between clinical pharmacists and us where there will be some

friction. Clinical pharmacists are very nice and helpful until they do not know where they should stop. After that it becomes a type of management problem. (C1)

## Theme 2: Interprofessional Communication

In relation to interprofessional communication, participants provided information on the levels of reactive and proactive exchanges with clinical pharmacists. Most focus groups reported an average rate of reactive communication (which took place only when a problem occurred). By contrast, proactive communication, such as interpersonal meetings and multidisciplinary rounds, are highly encouraged by health-care providers to enable discussion and decision-making that can have a beneficial effect on the quality of care. In all the focus-group discussions, comments were made to the effect that the level of reactive communication was the result of a shortage of clinical pharmacists, leading them to be overwhelmed by their many duties and patients.

...4 years ago. There were not as many clinical pharmacists as we have now. So, we had some rounds without a clinical pharmacist. So, I can see the difference between now and that time. They're helping us a lot. And I think this because I have experience with two of the clinical pharmacists: one of them is involved with us physically during the round; however, the other one we only call after the round, and there is a difference! If they are involved with us, the discussion will be more beneficial for the team and also for the choice of medication. Because if the clinical pharmacist saw the patient by himself later, the choice of antibiotic would be changed. (R4)

The second subtheme within the overall theme of interprofessional communication related to the effect of the behavior of the individual clinical pharmacist, which affects the level of communication with health-care providers. In the focus-group discussions, participants made statements to the effect that they were likely to seek out friendly and motivated clinical pharmacists. In all the groups, participants indicated that they had an excellent and strong relationship with a clinical pharmacist that enhanced communication and, therefore, the quality of patient care.

...it should be a strong relationship, and they are an essential part in our team. Any personal conflict might reflect on your job. You know if I have a problem with someone, then I might not contact him! I might not be happy to contact them! So, as I told you, they're my

friends because we're working in the same field, and I think we should have a good relationship. (G1)

Excellent. I think it is even sometimes better than a physician with other physicians or departments. Because there is no conflict, they're helping. So, usually we are the one asking for them, and we're the one trying to please them. (G3)

### Theme 3: Competency

The subthemes associated with the perception of competency and knowledge were the clinical pharmacist's reliability, experience, subspecialty, and prescribing authority. Comments made in the discussion groups indicated that clinical pharmacists' recommendations were valued because they stayed up-to-date in their field; some participants had even requested educational sessions from clinical pharmacists.

... their role as a clinical resource person is the most important role, and they're also assisting us with non-formulary medication for the benefit of the patient. (N5)

However, consultant physicians emphasized the importance of having highly experienced and knowledgeable clinical pharmacists in critical areas, to ensure high-quality care, whereas a lower level of expertise could be accepted in more general areas.

In critical areas, the experience level of the clinical pharmacist should be high! If you take a resident and charge him with responsibility for the ICU, he will be shaking and unable to give any advice! However, someone who is well experienced won't do that! So, in the ICU the level is vital! In the ward, we are trying to help them to mature as they help us, but in the ICU experience levels should be high! (C1)

Subspecialty enables clinical pharmacists to provide suitable help in the departments that they are involved with. The distribution of clinical pharmacists is not equitable in all departments, as subspecialization tends to focus on particular departments, which results in deficiencies and shortages in some areas more than others.

One of the problems, I think, is the lack of subspecialized clinical pharmacists. I think it is only by interest, as far as I know; so, it is not part of the training. So, knowledge about the expectations from a clinical pharmacist, as they are not expected to manage the patient fully, but expected to provide data with regard to their knowledge and field. (C2)

Whether clinical pharmacists should be eligible to prescribe medications was discussed with all groups. Generally, the majority of physicians expressed the opinion that clinical pharmacists should not be eligible to prescribe independently, although some physicians thought that they could but with restriction to certain medications. All participating nurses stated that they trust clinical pharmacists to prescribe and wondered why they are not yet authorized to do so. The discussions in all the groups indicated support for the ability of clinical pharmacists to adjust medications.

... they should prescribe, and their role now is only like consultation! They are suggesting medication but not physically prescribing. (N1)

### Discussion

Focus-group discussions were conducted to investigate the experiences of physicians and nurses with regard to clinical pharmacists, including challenges that hinder proper contact. The results demonstrate that the perception of the nature of the role of clinical pharmacists has changed positively over the past several years, increasing the desire among physicians and nurses to include clinical pharmacists in their medical teams, to optimize the quality of patient pharmacotherapeutic care. These results are consistent with those of prior studies in Asia in which health-care providers showed favorable attitudes toward services provided by clinical pharmacists (Al-arifi et al., 2015; Li et al., 2014; Sabry & Farid, 2014).

The responses in the focus-group discussions suggested that participants consider proactive communication and good relationships to be essential factors to establish effective teams that enhance patient care. This finding suggests that to contribute to a successful team, individual characteristics of teamwork need to be developed in advance. Demonstration of attributes such as accountability, competency, and adaptability is important to facilitate bonding, which is necessary to improve the function of the team (Mickan & Rodger, 2000). Prior studies have shown that pharmacists and pharmacy students have a more positive attitude toward physician-pharmacist collaboration than physicians and medical students in primary care (Seselj-Perisin, Mestrovic, Klinar, & Modun, 2016), suggesting that perceptions among physicians should be targeted to facilitate such collaborations in the future. This reinforces the recommendation of raising the awareness of health-care professionals about the effective role of clinical pharmacists.

Nevertheless, communication is one of the critical challenges faced by physicians and nurses. Most of the

participants in this study commented on the effect that staffing shortages have in preventing proper collaboration, such that understaffed clinical pharmacists are overloaded with responsibilities to multiple clinical teams, as well as administrative and teaching duties. An increase in recruitment of clinical pharmacists has been previously shown to reduce medication errors and remarkably improve patient safety (Bond, Raehl, & Franke, 2002). Nationally, the clinical pharmacy workforce continues to experience shortages, despite a 10-fold increase in clinical pharmacist staffing in 2010 (Alomi & Pharm, 2016). To compensate these staff shortages, several approaches have been instigated, such as granting scholarships to candidates on Doctor of Pharmacy programs, extending residency programs and recruiting international clinical pharmacists (Albekairy et al., 2015; Alomi & Pharm, 2016).

Before discussing the varied views across participant groups in this study, the difference between enrolled physicians in this study is briefly explained as physicians are registered differently in Saudi Arabia compared with other countries (Saudi Commission for Health Specialties, 2014). Medical residents should obtain a Bachelor's degree in medicine, 1 year internship, and enrolled in a postgraduate training program. Assistant consultant physicians have a 4-year postgraduate qualification training with 2 years of training in the field of the specialty. Consultant physicians have completed a postgraduate training and completed a training experience in the same specialty so that the total years of experience not less than 7 years.

In this study, consultant physicians perceived the active role of some clinical pharmacists as overstepping their roles and expanding their services more than what is expected. A possible explanation for this opinion is that consultant physicians might have become used to working alone without the assistance of clinical pharmacists in past years and now view the pharmacists' suggestions as interference with their own decisions. Moreover, most consultant physicians enrolled in this study have obtained their degrees in the 1990s or before which is similar to the finding of one study that showed resistance to the role of pharmacist by more experienced physicians with medical qualification gained before 2000s (Tahaineh et al., 2009). By contrast, clinical staff in the other focus groups described the recommendations of clinical pharmacists as positive actions that are intended to improve the quality of patient care. These views are consistent with those expressed previously by family-practice physicians, who indicated that clinical pharmacists' consultations and recommendations were beneficial to the quality of patient care (Haxby, Weart, & Goodman, 1988).

Many participants claimed that the role of clinical pharmacists is poorly defined. This lack of definition is

likely to prevent effective utilization of clinical pharmacists in health-care teams. Similarly, in a study of health-care teams in Canada, team members commented that the role of pharmacists is unclear, which results in misunderstandings and builds barriers that hinder the provision of clinical pharmacy services (Makowsky et al., 2009). When the role was clarified afterward in the previous study, the effectiveness of pharmacists in multidisciplinary patient-care teams was increased, which suggests that an official summary of each member's role in the team can promote awareness of individual responsibilities and help to avoid conflict caused by a lack of demarcation.

In our discussions, most physicians were not in favor of granting clinical pharmacists eligibility for independent prescribing, whereas the nurses were in favor. Prescribing permissions for pharmacists differ greatly around the world. In 2002, in the United Kingdom, approval was given for pharmacists to prescribe any medications under a therapeutic plan that was initiated by an independent prescriber. Later in 2006, to increase patients' access to medications, legislation was introduced authorizing qualified pharmacists to independently prescribe with limitation to few controlled drugs. In this case, certification after training and testing is required to give pharmacists authorization to prescribe independently ("Pharmacist Independent Prescriber," n.d.; Yuksel, Eberhart, & Bungard, 2008).

In a study conducted in the United Kingdom, reported that pharmacists and nurses who were eligible to prescribe were not confident to do so when factors – such as their perceptions of their own competency and the risk involved in prescribing – limited their ability to take full responsibility (Maddox, Halsall, Hall, & Tully, 2016). To ensure safety and continuity of patient care, pharmacists should receive adequate training and support and should practice within well-defined limits in an environment free of the threat of recrimination (Emmerton, Marriott, Bessell, Nissen, & Dean, 2005; Maddox et al., 2016). Professional development of clinical pharmacists should be encouraged and should be assessed through regular assessments of competency.

## Strengths and Limitations

To our knowledge, this is the first study conducted in the Middle East to measure the perception of physicians and nurses toward clinical pharmacists in a qualitative focused-group discussion. This allowed to capture numerous ideas and thoughts until saturation compared with quantitative surveys in which perceptions and ideas are limited.

This study has certain limitations: The fact of its qualitative nature, and the results might not be generalizable to a wider population of physicians and nurses.

Indeed, the recruitment of participants was limited to employees of King Abdulaziz Medical City, which might limit the applicability of the results to other national health-care settings. A social desirability bias (Shenton, 2004) may influence the validity of data, where senior physicians may have been concerned to express their beliefs in front of their consultant physicians. Thus, focus-group discussions were divided based on the level of profession to minimize bias and provide convenience to the participants to share their views. Data collection relied on self-reporting of the participants, and therefore the accuracy of information might have been limited by the ability of the participants to recall their experiences. Finally, analyzing and coding the responses in the discussion transcripts are subjective processes that are open to imprecision and misinterpretation.

### Implications for Practice

Eligibility to prescribe by clinical pharmacist had controversial point of views especially among physicians, which need to be addressed more in further research. Future studies could assess these perceptions by a quantitative approach, applied to large numbers of participants in different locations, to enable generalization. Furthermore, studies of the perceptions of clinical pharmacists toward physicians are warranted.

### Conclusions

Physicians and nurses have positive perceptions of the role of clinical pharmacists, but they are aware that the role of clinical pharmacist needs to be defined and recognized for effective integration into health-care teams. Most participants appreciated the proactive involvement and recommendations suggested by clinical pharmacists and indicated that their engagement has enhanced the safety and quality of patient care.


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### Supplemental Material

Supplemental material for this article is available online.

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