

Doctors' Attitude and Satisfaction Toward Clinical Pharmacists' Role at Omdurman Military Hospital: A Descriptive Cross-Sectional Study

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Abstract

Objectives: This study aimed to assess the attitude and satisfaction of doctors toward clinical pharmacists' role at Omdurman Military Hospital. **Methods:** A descriptive cross-sectional study was conducted in Omdurman Military Hospital in Khartoum state, Sudan. A self-administered questionnaire was delivered to 165 doctors who had previously worked with clinical pharmacists. Data were analyzed using Statistical Package for Social Sciences. The Chi-square test was used for the data analysis. **Results:** A total of 165 filled questionnaires were returned, 84 (50.9%) of them were males, and over 50% were aged under 31 years. Around 94.6% of them agreed that the clinical pharmacist is an important and integral part of the medical team, while 89.1% believed that clinical pharmacists could improve overall patient outcomes/quality of patient care. Collectively, 85.6% of the participants had a positive attitude toward the clinical pharmacist's role. Moreover, the calculated overall satisfaction of doctors toward clinical pharmacy services showed that 83% had them with a high level of satisfaction. There was a significant relationship between doctors' attitude and satisfaction with the area of practice, years of experience, and the duration of work in settings where clinical pharmacy service is provided. **Conclusions:** The study identified a positive attitude and high level of doctor satisfaction with clinical pharmacist role and confidence in the abilities of the clinical pharmacists, also found that doctors overwhelmingly favor the presence of clinical pharmacists, frequently seek their advice, and feel they improve the quality of patient care.

Keywords: Attitude, clinical pharmacy service, physicians, satisfaction, Sudan

INTRODUCTION

Clinical pharmacy is a branch of pharmacy that focuses on providing patient care that improves drug therapy while also promoting health, well-being, and disease prevention.^[1] Pharmacists have evolved a clinical role in response to the societal need to promote the rational use of medications and optimize therapeutic effect while minimizing risk, lowering costs, and respecting patients' preferences.^[2,3] Clinical pharmacy services have a lot of promise in an ambulatory or hospital-based practice because optimizing medication use necessitates a complete review of every area of the medication use spectrum.^[4] At the very least, having a clinical pharmacist available as a consultant to evaluate medication protocols and guidelines, make recommendations for individual patient care based on pharmacological principles through prospective or retrospective review, and provide medication education for

patients and health care practitioners at all levels would be beneficial to a medical practice.^[5]

Implementation of clinical pharmacy services into the core health-care teams is critical for improving patient care, team decision-making, and financial savings through cost-effective medicine use and greater utilization of pharmaceutical expertise.^[6] Literature showed that clinical pharmacy services are implemented to varying degrees in different countries. In certain

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countries, clinical pharmacy is well developed, while in others, it is still in its infancy. Furthermore, there is a lack of consistency in the concept of clinical pharmacy around the world.^[7]

Clinical pharmacy education started in the year 2004 when the degree of master of clinical pharmacy was established at the Faculty of Pharmacy, University of Khartoum in collaboration with Bath University, United Kingdom, by the training of postgraduate pharmacy students in clinical pharmacy.^[8] In addition, in 2005, the Federal Ministry of Health's General Directorate of Pharmacy sent the first group of pharmacists to Malaysia to pursue a master's degree in clinical pharmacy. Following that, some colleges began offering master's degrees in clinical pharmacy.^[9] Currently, Gezira University and a few Sudanese universities offer research-based PhD in clinical pharmacy.

In Sudan, clinical pharmacy practice is relatively new, as the concept of clinical pharmacy and pharmaceutical care is relatively new. Probably, it may not be better understood by other health professionals who only perceive pharmacy from the traditional point of view. It is essential to know what other health professionals (mainly physicians) think of this practice as collaborators. This understanding will help the managers and educators of clinical pharmacy address issues such as how best to collaborate with doctors for optimal therapeutic outcomes. Thus, this study was conducted to assess the attitudes and satisfaction of doctors toward clinical pharmacists' role at Omdurman Military Hospital.

METHODS

Study design and setting

This was a descriptive cross-sectional hospital-based study carried out at Omdurman Military Hospital, Khartoum, Sudan. The targeted population was doctors working in different specialties at this hospital. The study was conducted during the period from July to September 2018.

Study population

All available doctors working at Omdurman Military Hospital at the time of the study were targeted; they were of four categories: consultants, registrars, medical officers, and house officers. Doctors working in the departments that include clinical pharmacists in their health-care team were included in this study, while those working in the department that did not contain clinical pharmacists and those who refused to participate were excluded from the study.

Sample size and sampling method

Total coverage for all available doctors in the internal medicine and surgery departments and intensive care unit (ICU) was applied. A convenient sampling technique was used in this study, and participants were selected based on their availability at the time of data collection. The total sample size was 173 participants; 8 of them refused to participate in the study. Thus, the final sample was 165 respondents, and the response rate was 95.4%.

Data collection tool

Data were collected using a self-administered questionnaire that contained a detailed description of the objective of the survey. The questionnaire was created using a literature review and prior studies on clinical pharmacy services and was written in English. There were three sections to the questionnaire. The first component consisted of six items, most of which focused on the doctors' demographic information, including age, gender, experience, and current position in the hospital. Section two was about the attitude toward clinical pharmacists' role and consisted of 14 statements. The doctors were asked to indicate their level of agreement with either agree, neutral, or disagree. The last section consisted of nine statements measuring the doctor's satisfaction level toward clinical pharmacy services provided by the clinical pharmacists at their settings. The questions were manually scored; each positive attitude or satisfying response was given one point, and neutral or negative response for knowledge and dissatisfied response for satisfaction was given 0. Then, scores of attitude and satisfaction domains were categorized using the median value as positive and negative attitude and high and low level of satisfaction.

Data analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) for Windows, Version 24.0 software (Armonk, NY, USA: IBM Corp). For descriptive statistics, results were expressed as numbers and percentages. The Chi-square test was used to determine the significance of association between demographics with attitude and satisfaction levels. $P \leq 0.05$ was considered statistically significant.

Ethical consideration

The ethical approval (FPEC-21-2018) to conduct the research was obtained from the Ethical Committee of the Faculty of Pharmacy, University of Khartoum. Permission was also collected from the administration of Omdurman Military Hospital. Written informed consent was obtained from each participant. All collected questionnaires were encoded to ensure the confidentiality of the obtained information.

RESULTS

A total of 165 participants had filled the questionnaire, around half (49.9%) of them were male, and the majority (49.7%) of them were aged under 31 years. Most of the respondents (57%) had 2–5 years of experience. The distribution of the doctors based on their area of practice was internal medicine (42.4%), surgery (40%), and intensive care unit (17.6%), whereas the distribution based on the position was house officers (6.7%), medical officers (36.4%), registrars (46%), and specialists (10.9%). Around 94.6% of the participants were nationally obtained their final degree [Table 1].

The results showed that doctors had a positive attitude toward the role of clinical pharmacists regardless of their position.

Table 1: Demographic characteristics of the participants (n=165)

Demographic characteristics	n (Frequency %)
Age group (years)	
20–30	82 (49.7)
31–40	78 (47.3)
>40	5 (3)
Gender	
Male	84 (50.9)
Female	81 (49.1)
Years of experiences	
<2	47 (28.5)
2–5	94 (57)
>5	24 (14.5)
Professional level	
Specialist	18 (10.9)
Registrar	76 (46.1)
Medical officer	60 (36.4)
House officer	11 (6.7)
Specialty	
Internal medicine	70 (42.4)
Surgery	66 (40)
Critical care (ICU)	29 (17.6)
Physician's last degree obtained from	
Sudan	156 (94.6)
Egypt	2 (1.2)
Europe	4 (2.4)
United States	2 (1.2)
Other	1 (0.6)
Total years of work in a setting where there is a provision of clinical pharmacy service	
<1	85 (51.5)
≥1	80 (48.5)

ICU: Intensive care unit

As demonstrated in Table 2, most (94.6%) of the respondents reported that “the clinical pharmacist is an important and integral part of the medical team,” and 91.5% believed in the capacity of the clinical pharmacists to enhance the quality of patient care. More than 90% agreed that “the presence of clinical pharmacists in the medical team is essential for hospital accreditation and that they contribute to reducing medication errors and improving therapeutic outcomes.” More than 85% of the respondents agreed on the items related to the role of the clinical pharmacist in improving the patient outcomes. Other responses of doctors toward various clinical pharmacists are demonstrated in Table 2. The calculated overall attitude toward clinical pharmacy services showed 85.6% of them with a positive attitude.

Responses to the satisfaction items were overwhelmingly positive except for items where lower scores represented higher satisfaction (reverse-worded item), as 85.5% were satisfied with the clinical pharmacists providing timely information on drug availability. In addition, 79.4% of them were satisfied with the clinical pharmacist role in counseling patients regarding the safe and appropriate use of medication, and 81.8% of

them were satisfied with their role in preventing, detecting, and resolving any drug interaction and dose calculation for patients [Table 3]. The calculated overall satisfaction of doctors toward clinical pharmacy services showed that 83% of them had a high level of satisfaction.

Chi-square test showed that there were significant relationships with doctors attitude score with the area of practice ($P = 0.001$), with total years of experience ($P = 0.032$), and with the duration of work in a setting where there is the provision of clinical pharmacy service ($P = 0.038$). There is no significant relationship between attitude scores with gender and age [Table 4]. On the other hand, there was a significant relationship between satisfaction level and doctors' area of practice ($P = 0.001$), years of work experience in the health-care system ($P = 0.001$), and where there was the provision of clinical pharmacy services ($P = 0.02$).

DISCUSSION

This study aimed to assess doctors' attitudes and satisfaction regarding clinical pharmacists' role at Omdurman Military Hospital in Khartoum, Sudan. Understanding doctors' attitudes of the clinical pharmacists' role is vital to facilitating the service's uptake and further implementation. It also provides an in-depth description of their service experience, gives insight into how they perceive clinical pharmacists and their role in hospital wards, and what impacts clinical pharmacy services have on patient outcomes. The study revealed positive attitude and high level of satisfaction among doctors regarding the services offered by clinical pharmacists.

In the current study, doctors not only supported the role of clinical pharmacists in patient care, but they also accepted their involvement in patient management and, to some extent, their participation as members of the clinical ward team. The current study's findings are similar to other studies conducted in this area in the United Arab Emirates, Saudi Arabia, and the United States.^[10-12] Another Ethiopian study revealed a positive attitude of health-care providers toward the clinical pharmacy services, even the provided services below their expectations.^[6] In contrast, other reports indicated that doctors were uncomfortable with the role of clinical pharmacists in direct patient care, which may be related to a lack of exposure to activities of the clinical pharmacists.^[13-15] Thus, it is important to remember that efficient clinical pharmacy service implementation necessitates collaboration between pharmacists, physicians, and other health-care providers.

Furthermore, there is a strong belief among doctors that clinical pharmacists can play an important role in patient education and counseling and minimize medication errors in a hospital setting. These findings support several previous studies; they concluded that clinical pharmacy services positively affect medication use, health service use, and costs.^[11,16,17] The attitude of doctors toward clinical pharmacists was found to be completely favorable. There was a high response to accepting and accommodating clinical pharmacists in clinical

Table 2: Attitude of doctors toward the clinical pharmacist (n=165)

Attitude item	Responses number (frequency %)		
	Agree	Neutral	Disagree
The clinical pharmacist is an important and integral part of the medical team	156 (94.6)	5 (3.0)	4 (2.4)
Clinical pharmacist participation in medical ward round is desirable	142 (86)	12 (7.3)	11 (6.7)
Clinical pharmacists can play an important role in patient education and counseling	152 (92.1)	7 (4.2)	6 (3.6)
The clinical pharmacist, as part of medical team, minimizes medication errors and improve patient therapeutic outcomes	151 (91.5)	8 (2.8)	6 (3.6)
Clinical pharmacists can provide drug information to health-care professionals such as compatibility, stability, storage, availability	156 (94.6)	5 (3.0)	4 (2.4)
Clinical pharmacists should take patients medication history at admission	143 (86.7)	15 (9.1)	7 (4.2)
Clinical pharmacists should have access to patient charts and have a place to document their service	142 (86.1)	8 (4.8)	15 (9.1)
Clinical pharmacists should analyze patient treatment and suggest changes of therapy when necessary	146 (88.4)	11 (6.7)	8 (4.8)
Clinical pharmacists should care about drug products and leave patient care to doctors	50 (30.3)	5 (3.0)	110 (66.7)
The current setup (infrastructure and environments of your hospital is appropriate for the provisions of clinical pharmacy service)	122 (73.9)	30 (18.2)	13 (7.9)
Clinical pharmacy service initiation is desirable in the Sudanese health-care system	140 (84.9)	12 (7.0)	13 (7.9)
Clinical pharmacists can improve overall patient outcome/quality of patient care	147 (89.1)	9 (5.5)	9 (5.5)
Doctors and other health-care staff accept the involvement of clinical pharmacists in patient management and provide extra service within the framework of clinical pharmacy	142 (86.1)	18 (10.9)	5 (3.0)
I think that the clinical pharmacist is able to maximize cost-effectiveness and improve patient outcomes	136 (82.4)	21 (12.7)	8 (4.8)

Table 3: Satisfaction of the doctors toward the roles of clinical pharmacists (n=165)

Attitude item	Responses number (frequency %)		
	Satisfied	Not-satisfied	Missing
Response of clinical pharmacist in providing timely information on drug availability	141 (85.5)	20 (12.1)	4 (2.4)
Clinical pharmacists' participation in preventing, detecting, and resolving any drug interaction	135 (81.8)	26 (15.8)	4 (2.4)
Clinical pharmacists; role in side effect prevention and management	138 (83.6)	23 (13.9)	4 (2.4)
Clinical pharmacists' role in counseling patients regarding the safe and appropriate use of medications	131 (79.4)	30 (18.2)	4 (2.4)
Clinical pharmacist participation in dose calculation for patients	134 (81.2)	30 (18.2)	1 (0.6)
Clinical pharmacist advises about cost-effective medication alternatives	136 (82.4)	28 (17.0)	1 (0.6)
Clinical pharmacist response in providing information on the alternative drug regimen	143 (86.7)	21 (12.7)	1 (0.6)
Clinical pharmacist participation in bedside discussions to assist the clinician in the therapeutic care plan and drug selection	137 (83.0)	27 (16.4)	1 (0.6)
Overall satisfaction toward clinical pharmacy services in your setting	137 (83.0)	27 (16.4)	1 (0.6)

Table 4: Association between attitude and satisfaction scores with study sample demographic characteristics

Demographic characteristics	χ^2 (P)	
	Attitude level	Satisfaction score
Gender	0.231	0.340
Age	0.132	0.190
Professional level	0.062	0.119
Years of experiences	0.032	0.001
Specialty	0.001	0.001
Total years of work in a setting where there is a provision of clinical pharmacy service	0.038	0.02

settings. Our finding was similar to a study that showed that most physicians had favorable attitudes toward collaboration with pharmacists.^[18] In addition, most of the doctors had a view that pharmacists are a reliable source of general drug information, clinical pharmacists can inform doctors about

more cost-effective alternatives to the drugs they prescribe. Similar findings were observed with physicians in Jordanian hospitals.^[19]

Regarding the association between attitude and some demographic characteristics of the doctors, a significant relation was found between attitude and current area of practice, where doctors at the internal medicine department had a more positive attitude toward the role of clinical pharmacists. This is because pharmacists and physicians have more collaborative relationships in the internal medicine ward. Furthermore, a significant positive relationship was observed between the attitude of doctors and total years of work experience in a setting where there were clinical pharmacy services. These findings agreed with a study carried out in Ethiopia.^[6]

Regarding satisfaction, there is an overall high level of satisfaction with the range of clinical pharmacy services

provided by clinical pharmacists, and this result is consistent with previous research conducted in an obstetrics teaching clinic, United States, that showed a high level of physicians' satisfaction toward clinical pharmacy services.^[20] Moreover, 80% of respondents were agreed with the highly valued clinical pharmacist response in providing timely information on drug availability and clinical pharmacists' participation in preventing, detecting, and resolving any drug interaction. In contrast to these findings, a study from Pakistan stated that a higher percentage of physicians disagreed with the clinical pharmacist's intervention and did not allow the involvement of the clinical pharmacist in the consultation.^[18] This might be due to general practitioners thinking that pharmacists do not have sufficient training to participate in the clinical decision process.

Chi-square test showed that current area of practice and years of work experience had a significant relationship with doctors' satisfaction level. The study revealed that clinical pharmacists positively impacted health-care quality at Internal Medicine, Surgery, and ICU departments. Furthermore, doctors at these departments were willing to work together collaboratively with clinical pharmacists. This can result from understanding and acceptance of each other roles, effective communication, accessibility, trust, and mutual respect, which are vital for effective collaboration.

The study has some limitations. First, it was a single institute study that limited the results' generalizability to other hospitals, where the level of clinical pharmacy implementation varies significantly. Second, the participants might be subjected to recall bias. Despite these limitations, the study is interesting as it provides evidence of the value of clinical pharmacy services and doctors' appreciation of these unique services in one of the biggest hospitals in Sudan. Consequently, we recommend conducting large multicenter studies and implementing new measures to promote clinical pharmacy services in public and private hospitals in Sudan.

CONCLUSIONS

This study showed that doctors have a positive attitude toward clinical pharmacists' role in the hospital, and they were willing to collaborate with clinical pharmacists in managing drug therapy and improving patient care. Furthermore, the study identified a high level of doctor's satisfaction toward the clinical pharmacy services.

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Conflicts of interest

There are no conflicts of interest.

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