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Research Article

Attitudes and Perceptions of Healthcare Providers and Medical Students Towards Clinical Pharmacy Services in United Arab Emirates

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Abstract

Purpose: To explore healthcare providers' (HCPs) and medical students' attitudes to, and perceptions of the pharmaceutical services that clinical pharmacists can provide in United Arab Emirates.
Methods: A total of 535 participants (265 HCPs and 270 medical students) were asked to complete a questionnaire over a period of three months (January through March 2009).
Results: Almost three quarters of the students perceived that the clinical pharmacist is an important part of the healthcare team while 82% believed that clinical pharmacists can help improve the quality of medical care in hospitals. Eighty one percent of medical students expressed confidence in the ability of clinical pharmacists to minimize medication errors. Although slightly more than half of the respondents (53%) reported that they did not have clinical pharmacy services in their institutions, there was substantial willingness among physicians and nurses to cooperate with clinical pharmacists. The majority of physicians (92%) and nurses (87%) expressed the view that the clinical pharmacist is an important integral part of the healthcare team.
Conclusion: **The** HCPs and medical students in the study setting valued the role of clinical pharmacists in healthcare delivery. However, new developments in pharmacy services in the UAE hospital setting is recommended for adoption in hospitals.

Key words: *Clinical pharmacy services, Pharmaceutical care, Perception, Healthcare providers.*

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INTRODUCTION

Clinical pharmacy is a health science discipline whereby pharmacists provide patient care that optimizes medication therapy and promotes health, wellness, and disease prevention [1]. This field of pharmacy practice focuses on patient-oriented rather than drug product-oriented service [2]. The discipline arose out of dissatisfaction with old practice norms and the pressing need for a competent health professional with a comprehensive knowledge in the therapeutic use of drugs. Clinical pharmacists are a primary source of scientifically valid information and advice regarding the safe, appropriate, and cost–effective use of medications [1,3-5]. Already, the level of interaction between physicians and pharmacists in the developed world is high, resulting in safer, more effective, and less costly drug therapy [3].

Many studies have shown that physicians are receptive to several clinical services provided by pharmacists if these services were provided in the form of consultation or in a supportive role [4-7]. Still, however, the relationship between the physician and community pharmacist has been described as a 'complex one' [3,8-13] and some studies have reported the existence of communication gap between pharmacists and medical doctors [14.15].

Studies have been conducted in some Arab countries to assess physicians' acceptance of the clinical pharmacists' role. In Kuwait, patient care, which involves interaction with and observation of the patient, is still exclusively delivered by physicians and nurses, with the pharmacists' input in managing drug therapy dependent on the physician's willingness to accept that role [16]. In Sudan, physicians were found to be 'uncomfortable' with pharmacists suggesting or recommending prescription medications to their patients, even if it involved the treatment of minor illnesses [17] but in Jordan, the situation was different, as 63 % of physicians expected the pharmacist to educate their patients with regard to the safe and appropriate use of drugs. In addition, approximately half of the physicians agreed that pharmacists were always a reliable source of drug information [18]. In contrast, although the role of the community pharmacist seems to be changing in many countries, 48.2 % of physicians in Kuwait are still uncomfortable with pharmacists suggesting the use of prescription medications to patients. Furthermore, one third of physicians do not expect the pharmacist to be available for consultation during rounds [19]. Doctors and community pharmacists have little interaction in Libya and UAE, based on the findings of one particular study [20] which showed that almost 70 and 60 % of doctors in Libya and UAE, respectively, either 'rarely' or 'never' discussed patients' drug therapy with a pharmacist. Furthermore, it would appear that there is some skepticism about the appropriateness of pharmacists being involved in monitoring blood pressure and providing a therapeutic substitute.

In UAE, due to the increasing demand for pharmacy professionals, seven pharmacy schools offering bachelor's degree in pharmacy were established across the emirates. Pharmacy education commenced in UAE in 1992 with the establishment of Dubai Pharmacy College. Since then more pharmacy training programs have been put in place to meet the high demand for pharmacists in the country. In October 2008, Gulf Medical University launched the Doctor of Pharmacy (PharmD) program but no pharmacy school has commenced any postgraduate clinical pharmacy program in UAE.

Pharmacists in the UAE practice in various settings, including community pharmacy, hospital pharmacy, drug information service, pharmaceutical industry, marketing, sales, regulatory agencies, academia, and drug

distribution. Many are being recruited from other countries to meet the high demand for pharmacy professionals in all practice areas. There are few clinical pharmacists working in the public sector in UAE and virtually none in the private sector. Thus, clinical pharmacy is still in its early stage of development in the UAE and, therefore, requires greater attention to achieve the objective of pharmaceutical care [21].

The objective of this study was to investigate the level of acceptance of integrating clinical pharmacists into the primary healthcare team. This was carried out by assessing the perception of physicians, nurses, pharmacists as well as medical colleges' students regarding the clinical pharmacists' roles and responsibilities in providing better pharmaceutical care to patients in the UAE. In addition, we aimed to identify the obstacles that hinder such integration and suggest ways to overcome these obstacles.

METHODS

The study was conducted in three randomly selected hospitals and six health-related science colleges in four different universities: Gulf Medical University, Sharjah University, Dubai Pharmacy College and Dubai Medical College for Girls. The participants were randomly selected from lists provided by their facility administrators. The questionnaires were distributed to 300 health care professionals and 300 medical students. The participants were approached either directly or via telephone interview to arrange a 15-minutes interview with the researcher at a convenient time. The questionnaire was completed by the participants under the supervision of the researcher in order to improve clarity and limit response bias.

The questionnaire included both closed and open questions and statements, and consisted of a series of questions prepared by the researchers with one version targeted at HCPs and the other at students. To ensure face validity, the questionnaire was sent to three academics and three physicians with a wide range of professional experience. Their views and comments were considered and then incorporated, where appropriate, into the final versions of the questionnaire. To assess test-retest reliability, the questionnaire was administered on two occasions to 12 randomly selected HCPs. The second testing took place two weeks after, and was not included in the final survey analysis. Test-retest reliability was calculated using Spearman's correlation coefficient (r). The rho-value was 0.82, which implies acceptable test-retest reliability.

Respondents were asked to answer a question using the options "yes" or "no", or to rate their response using the options, "agree", "neutral", or "disagree". There was a section inviting comments at the end of the questionnaire. The study was carried out over a period of three months (January to March 2009).

Data analysis

The participants' responses were encoded and the data were analyzed using Statistical Package for the Social Sciences (SPSS, version 17, Chicago, IL, US). Three categories of the relevant responses were used so that 95 % confidence intervals could be calculated. Descriptive analysis was used to calculate the proportion of each group of respondents who agreed/disagreed with each statement in the questionnaire. Chi square test was used to identify any significant difference among the participants' responses regarding certain statements in the questionnaire with a significant level of p value of < 0.05.

RESULTS

Three hundred questionnaires were distributed to both HCPs and health sciences-related students. A total of 270 students and 265 HCPs - 103 pharmacists, 71 physicians, and 91 medical assistants (nurses) - completed the questionnaire.

Response rates of 90.0 and 88.3 % were recorded for medical students and HCPs, respectively.

Students' perception

Table 1 summarizes the data obtained in respect of students who gave their opinions in response to the questions or statements included in the survey. The respondents were 132 (49 %) female and 137 (51 %) male. Among them were 71 (26 %) pharmacy college students, 94 (35 %) medical college students, 57 (21 %) dental college students and 38 (14 %) nursing college students.
The majority of the respondents 199 (74 %) perceived that the clinical pharmacist is an important part of the medical team while 221 (82 %) believed that clinical pharmacists can help improve the quality of medical care in a hospital setting. When the students were asked about the ability of clinical pharmacists to minimize medication errors and improve patient therapeutic outcomes, 217 (81 %) of them agreed with the statement.

The majority of the respondents (221, 82 %) reported that their institutions do not offer clinical pharmacy or PharmD degree programs. However, 173 (64 %) reported that they had heard of such programs during the course of their studies. One hundred eighty one (67 %) of the students agreed that clinical pharmacists should be allowed to acquire training and qualifications in certain medical areas to enable them effectively discharge the responsibility of patient counselling in chronic illnesses.

Of all the respondents, only 146 (54 %) of the students perceived that the presence of clinical pharmacists will be accepted by other healthcare staff in their daily practice. A minority of students (104, 39 %) believed that there is increasing interest in UAE in clinical pharmacy as a profession while more than half of the students (154, 57 %) believed that there is increased interest in clinical pharmacists serving on the healthcare team in order for a hospital to secure accreditation.

Table 1: Data obtained in respect of student respondents who gave their opinions on the statements included in the survey (n = 270).

Statement	Agree n (%)	Neutral n (%)	Disagree n (%)
Previously heard about clinical pharmacy programs	173 (64)	-	97 (36)
The clinical pharmacist is an important and integral part of the medical team	199 (74)	66 (24)	5 (2)
The clinical pharmacist can improve the quality of medical care in a hospital setting.	221 (82)	40 (15)	9 (3)
The clinical pharmacist can acquire training in certain medical areas enabling them to perform patient counseling	181 (67)	73 (27)	16 (6)
Clinical pharmacists as part of medical teams is essential for hospital accreditation	154 (57)	98 (36)	18 (7)
Clinical pharmacists as part of medical teams will minimize medication errors and improve patient therapeutic outcomes	217 (81)	44 (16)	9 (3)
There is increasing interest in clinical pharmacy as a profession in UAE	104 (39)	118 (43)	48 (18)
Doctors and other healthcare staff will accept the involvement of clinical pharmacists in patient management and providing extra services within the framework of clinical pharmacy	146 (54)	96 (36)	28 (10)

$p < 0.001$ (Agree vs Disagree)

Healthcare providers' perceptions

Ninety seven (37 %) of the HCPs were citizens of UAE while the rest (186, 63 %) were of other nationalities. The respondents were 149 (56 %) female and 116 (44 %) male. One hundred twenty five (47 %) of the respondents were less than 35 years old and 121 (46 %) were in the age bracket of 36 - 46 years. With regard to respondents' professions, 103 (39 %) were pharmacists, 71 (27 %) physicians and 91 (34 %) nurses. Of the total, 103 (39 %) reported that they obtained their first professional degree or qualification from either USA or a European country while 57 (22 %) and 105 (40 %) of the respondents stated that their first professional qualification was acquired in UAE and Eastern Asia, respectively. Participants' demographic information is shown in Table 2.

Table 2: Healthcare workers' demographic information (n = 265)

Demographic information	n (%)
Gender	
Male	116 (43.8)
Female	149 (56.2)
Age distribution	
Less than 35 yeas	125 (47.2)
(36 - 46) years	121 (45.7)
Nationality	
UAE citizens	97 (36.6)
Other nationalities	168 (63.4)
Profession	
Pharmacy	103 (38.9)
Physician	71 (26.8)
Nurse	91 (34.3)
Professionally qualified in	
USA/Europe	103 (38.9)
UAE	57 (21.5)
Other countries	105 (39.6)

The majority of HCPs (253, 95.5 %) reported that the clinical pharmacist is an important integral part of the clinical ward team. HCPs perception was high and was not significantly dependent on their professions. However, respondents' belief in clinical pharmacists' capacity to improve the quality of patient care in a hospital setting was relatively less with only three-quarters of HCPs agreeing. In addition, 196 (74.0 %) of respondents perceived that the clinical pharmacist is able to minimize medication error and improve patient therapy outcomes.

Two hundred and forty five (92.5 %) of the respondents believe that clinical pharmacy representation in pharmacy and therapeutic committees is essential while 226 (85.3 %) stated that the presence of clinical pharmacists in a clinical ward team is a requirement for hospital accreditation.

There is a strong view that the clinical pharmacist can obtain training in certain medical specialty areas to enable them perform patient counselling (243, 92.0 %) and play a role in patient medication education (249, 94.0 %). The perception of clinical pharmacists' role in patient medication education varied among the different professions studied with 81 (89 %) of the nurses saying that clinical pharmacists could play a role in patient medication education compared with 102 (99 %) of pharmacists.

Although the majority of other respondents (253, 95.5 %) reported their willingness to cooperate with the clinical pharmacist, however, when they were asked whether there was increasing interest in clinical pharmacy services in UAE, only about half (148, 55.9 %) agreed. On the other hand, under a third (78, 29.4 %) of HCPs agreed with the statement that the clinical pharmacist has fulfilled his/her role in UAE.

Table 3 shows the data in respect of HCP respondents who provided their on the statements put to them in the survey. With regard to HCPs' perception of clinical pharmacists' role, there was a significant difference in their responses on the issue of the clinical pharmacists bringing improvement

Table 3: Perception of HCP respondents who agreed or not with the statements put to them in the survey (n = 265)

Statement	HCP	Agree n; % (95% CI)	Neutral %	Disagree %	*p*-value
Healthcare professionals' willingness to cooperate with the clinical pharmacist	Pharmacists	97; 94 (90-99)	0	6	0.418
	Physicians	67; 94 (89-100)	0	6	
	Nurses	89; 98 (95-100)	0	2	
	Total	**253 (95.47)**			
The clinical pharmacist is an important integral part of the clinical ward team	Pharmacists	96; 93 (88-98)	6	1	0.656
	Physicians	65; 92 (85-98)	7	1	
	Nurses	79; 87 (80-94)	11	2	
	Total	**240 (90.57%)**			
The clinical pharmacist can improve the quality of patient care in a hospital setting	Pharmacists	83; 81(73-88)	18	1	0.154
	Physicians	54; 76 (66-86)	23	1	
	Nurses	61; 67 (57-77)	33	0	
	Total	**198 (74.7%)**			
The clinical pharmacist can acquire training in certain medical areas to perform patient counseling	Pharmacists	98; 95 (91-99)	5	0	0.387
	Physicians	64; 90 (83-97)	10	0	
	Nurses	81; 89 (83-95)	10	1	
	Total	**243 (92.0%)**			
The clinical pharmacist in a clinical ward team is a requirement for hospital accreditation	Pharmacists	86; 84 (76-91)	15	1	0.622
	Physicians	63; 89 (81-96)	9	2	
	Nurses	77; 85 (77-92)	13	2	
	Total	**226 (85.28)**			
The clinical pharmacist is able to minimize medication error and improve patient therapy outcomes	Pharmacists	74; 72 (63-81)	22	6	0.693
	Physicians	57; 80 (71-90)	17	3	
	Nurses	65; 71 (62-80)	23	6	
	Total	**196 (74.0%)**			
There is increased interest in clinical pharmacy services in UAE	Pharmacists	61; 59 (50-69)	32	9	0.576
	Physicians	35; 49 (38-61)	35	16	
	Nurses	52; 57 (47-67)	30	13	
	Total	**148 (55.9%)**			
Clinical pharmacy representation in therapeutic policy committee and clinical ward rounds is desirable	Pharmacists	95; 92 (87-97)	7	1	0.410
	Physicians	69; 97 (93-100)	3	0	
	Nurses	81; 89 (83-95)	10	1	
	Total	**245 (92.5%)**			
The clinical pharmacist has a role in patient medication education	Pharmacists	102;99(97-100)	1	0	0.05
	Physicians	66; 93 (87-99)	7	0	
	Nurses	81; 89 (83-95)	10	1	
	Total	**249 (94.0%)**			
The clinical pharmacist has fulfilled his/her role in UAE	Pharmacists	28; 27 (19-36)	42	31	0.054
	Physicians	18; 25 (15-35)	31	44	
	Nurses	32; 35 (25-45)	43	22	
	Total	**78 (29.4%)**			

Chi-square test, $p < 0.05$; (n=103, 71 and 91 for pharmacists, physicians and nurses, respectively); HCP = healthcare professional

Table 4: Respondents' responses on some roles of the clinical pharmacist

Statement		Country where medical qualification was obtained				
		UAE n (%)	USA n (%)	Eastern Asia* n (%)	Europe n (%)	*p*-value
The presence of the clinical pharmacist in a clinical ward team will improve the quality of patient care in a hospital setting	Agree	33 (58)	45 (75)	86 (81)	34 (81)	0.017
	Neutral	24 (42)	15 (25)	19 (18)	7 (17)	
	Disagree	0 (0.0)	0 (0)	1 (1)	1 (2)	
I think that the clinical pharmacist able to minimize medication errors, maximize cost-effectiveness and improve patient outcomes	Agree	41 (72)	43 (72)	80 (76)	32 (76)	0.913
	Neutral	12 (21)	13 (22)	23 (19)	8 (7.0)	
	Disagree	4 (7)	4 (3)	3 (3)	2 (5)	

** India, Pakistan, Philippine and Bangladesh.*

Table 5: Further respondents' responses on the ability of the clinical pharmacist to minimize medication errors, maximize cost-effectiveness and improve patients' drug therapy outcomes if clinical pharmacy services are available

		Agree n (%)	Neutral n (%)	Disagree n (%)	Total	*p*-value
Do you have a clinical pharmacist in your institution?	**Yes**	102 (82)	17 (14)	6 (5)	125	0.016
	No	94 (67)	39 (28)	7 (5)	140	
Total		196	56	13	265	

to the quality of patient care ($p < 0.05$) in relation to the country where they obtained their medical qualifications from (Table 4). However, there was no significant difference in their responses in relation to their nationality and gender. In addition, there was no significant difference ($p > 0.05$) in their responses (in relation to the part of the world they obtained their professional qualifications) when it came to the issue of the clinical pharmacist's ability to minimize medication error and improve patient therapy outcomes.

Interestingly, as Table 5 shows, having a clinical pharmacist in the respondent's institution significantly affected ($p < 0.05$) the responses of the participants to the statement that participation of the clinical pharmacist in the clinical ward team will minimize medication errors and improve patient therapy outcomes.

DISCUSSION

The practice of pharmacy has changed significantly in recent years. This, invariably, will necessitate changes in procedures and training, and may require more resources, imaginative use of pharmacy skills, and involvement of clinical pharmacists at prescribing and dispensing stages [22]. In spite of the interest in increased professionalization of many pharmacy services, is there sufficient will amongst pharmacists generally to make the change

that is necessary? Are pharmacists willing to be more professional and extend their role?

Interestingly, there is a strong belief among medical college students that clinical pharmacists are an important part of the clinical team and are able to minimize medication errors in a hospital setting. More than half (54 %) of them agreed that doctors and other HCPs will accept the pharmacists to provide additional services within the framework of clinical pharmacy. The study revealed that only two-thirds of the medical students knew about the clinical pharmacy program in their institutions during their study period. This may be attributed to the absence of patient-oriented PharmD program or the fact that most of the clinical pharmacy courses are delivered in the last year of the pharmacy programs of the colleges of pharmacy in UAE. Only 39 % students perceived that there is increased interest in clinical pharmacy services in UAE. This should attract the attention of health care facilities to the need to recruit and expand the role of clinical pharmacists in order to provide the better pharmaceutical patient care. In a previous study in UAE, it was reported that there a shortage of clinical pharmacists serving in hospitals exists [23], which necessitate the need for clinically-oriented training programmes for pharmacists and pharmacy students to overcome this shortage and to enhance pharmacists' role in improving patient care in hospital settings.

Healthcare providers (HCPs) in UAE showed a high perception of the role of clinical pharmacists in improving therapeutic patient outcomes. This study also revealed that HCPs expected pharmacists to assume an important role in direct patient care especially by playing a supportive role in therapeutic treatment and in patient education and counseling. Other healthcare professionals, to a certain extent, appreciate the role of the pharmacist in the hospital setting with up to three-quarters of them stating that clinical pharmacists can help to improve the quality of patient care in the hospital setting. There is a previous report which indicated that pharmacists working in hospitals managed by international institutions, such as Johns Hopkins and Cleveland Clinic, provided more professional clinical pharmacy services where clinical pharmacists were involved in patient medication review and therapy management [24].

Resistance of physicians to the role of the clinical pharmacists has been reported in some studies [20;25]. While the situation in UAE may be comparable in some ways to that in the United States, it is somewhat different from those in other Arab countries, such as Kuwait, where physicians showed resistance to the role of clinical pharmacists, and this was attributed to lack of physicians' exposure to pharmacists participating in clinical activities[16]. To overcome this resistance, development and incorporation of courses related to inter-professional relationships between physicians and pharmacists in medical and pharmaceutical education curricula should enhance collaboration between physicians and pharmacists in the provision of patient care.

Although our findings indicate that HCPs generally expressed belief that clinical pharmacists have fulfilled their role in UAE, this is applicable only to the health care facilities managed by the government. This is due to the virtual lack of clinical pharmacists in private hospitals in UAE [21]. Clinical pharmacy services are provided in most of governmental hospitals in UAE. These hospitals are managed by international institutions which have incorporated clinical pharmacy services in their patient care. Private hospital proprietors should do likewise by first hiring clinical pharmacists to become part of their clinical ward teams.

Findings from this study also further support the need for clinical pharmacists to perform specific duties that have been suggested in previous studies, e.g., patient education and minimizing medication errors [26]. Physicians and nurses in UAE clearly support

the participation of the clinical pharmacist in the clinical ward team work from whom they can regularly seek advice with regard to patient medication. The results also reinforce the importance of the specialized role of the clinical pharmacist as well as the fact that HCP resistance should not constitute a barrier to instituting clinical pharmacy services in UAE hospitals.

Limitations of the study

Although the response rate was high, the study has some limitations with regard to the small sample size of respect of participants' area of specialization. In addition, HCPs random sampling was not done based on categorization of their facilities which may have an impact on the need for clinical pharmacy services.

CONCLUSION

This study showed that HCPs were willing to collaborate with clinical pharmacists in monitoring drug therapy and improving patient care by identifying medication errors. Consequently, new measures to promote and extend clinical pharmacy services in both governmental and private hospitals in UAE should be adopted and implemented in UAE. Attention to to the institution of clinically-oriented training programmes for pharmacists and pharmacy students in order to overcome the present shortage of clinical pharmacists in the country. Increasing inter-professional relationships between physicians and pharmacists in medical and pharmaceutical education curricula is also needed to enhance collaboration between physicians and pharmacists in patient care.

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