

# Patient Perspectives of the Role of the Community Pharmacist in the Middle East: Jordan, United Arab Emirates and Iraq\*

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Received 19 March 2014; revised 22 May 2014; accepted 6 June 2014

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## Abstract

**Objectives:** To explore patient's perspectives of the role of the community pharmacist in view of other health care professionals (specialist physician, general practitioner, nurse and others (e.g. herbalist)) in Jordan, UAE and Iraq. The study also investigated patient's willingness to pay for specialized pharmaceutical care services. **Methods:** This study followed a single phase cross sectional survey methodology, conducted in three Middle Eastern countries. Data were collected over a period of 6 months on two consecutive years (March to May 2009 and 2010). A questionnaire was designed and validated, then completed by patients walking into community pharmacies. The source of advice (specialist physician, general practitioner, pharmacist, nurse, or herbalist) regarding patient's medication use and medical management were investigated. **Key findings:** Patients visiting community pharmacies in Jordan (n = 1000), UAE (n = 1000) and Iraq (n = 968) were recruited into the study (mean age 35.9 ± 13.1, 50.6% males). Significant difference between the three countries was shown, as more patients chose the pharmacist as their primary source of advice on medication use vs. the specialist physician in Jordan (50.8% vs. 37.3%) and Iraq (41.9%

\***Ethics approval** for this study was obtained from the Applied Sciences University (Jordan), Dubai Pharmacy College (UAE) and Al-Mustansiriya University (Iraq) Ethics Committees.

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**How to cite this paper:** Basheti, I.A., Qunaibi, E.A., Hamadi, S.A., Abu-Gharbieh, E., Saleh, S., AbuRuz, S., Mohamoud, M. and Bulatova, N.R. (2014) Patient Perspectives of the Role of the Community Pharmacist in the Middle East: Jordan, United Arab Emirates and Iraq. *Pharmacology & Pharmacy*, 5, 588-599. <http://dx.doi.org/10.4236/pp.2014.56069>

vs. 36.7%) compared to UAE (38.0% vs. 40.1%),  $P < 0.001$ , Chi-square test. Few agreed to receive paid pharmaceutical care services (Jordan 19.5%; UAE 24.7%; Iraq 2.3%). Conclusion: Current situation resulting in the lower socioeconomic status in Jordan and Iraq seems to lead to patients' higher reliance on the pharmacist, as compared to the UAE. Majority of patients, regardless of the country of origin, are not willing to pay for specialized pharmaceutical care services. These findings are important for future social pharmacy research in the area.

## Keywords

Community Pharmacy, Pharmaceutical Care, Outpatients, Health Care Professionals

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## 1. Introduction

The pharmaceutical world around us is evolving continuously and has become more dynamic, and so is the role of the community pharmacist. Worldwide, pharmaceutical care has evolved to embrace different counseling services delivered by pharmacists. These services range from simple brief counseling following medication purchase to extensive lengthy MMR services. Investigating the value of these counseling services delivered by pharmacists to the community and whether they meet the needs and expectations of patients has become a cornerstone in today's social pharmacy research [1].

Investigating patient's perspectives of the role of the community pharmacist needs to be done in the context to their perspective of the role of the other health care team [2]. Patient's feedback about the available health care services in a country and the actual/expected role played by the health care providers can facilitate identifying important needs, concerns and areas of service failure. Implementing changes based on this feedback is vital in upgrading the health system and reaching optimal patient satisfaction [3].

Issues regarding community pharmacy under-use and/or misuse in the Arabic world have been reported, without much information regarding patient's perspectives of the matter. The services the community pharmacy delivers, and the services that has the potential to be delivered, need to be investigated through the eyes of the patients [4] [5].

Jordan has more than 2800 functioning community pharmacies distributed throughout the country, giving a pharmacy-to-population ratio of around 1:2280 [6], with Amman, the capital, having more than half of those pharmacies. This ratio is high when compared to other Middle Eastern countries, perhaps being one of the reasons leading to patients (23% - 40%) self-medicating themselves. In addition, half of the Jordanian patients purchase their medications at community pharmacies without approaching the pharmacists for advice, nor being approached by the pharmacists for counseling [7] [8].

The United Arab Emirates (UAE) is one of the Gulf Cooperation Council Countries in the Middle East region. The UAE is classified as a high-income developing country by the International Monetary Fund [9]. The pharmacy-to-population ratio there has been estimated to be around 1:1650 [9]. Community pharmacists practicing in Abu Dhabi and Dubai (the two largest territories in the UAE) were reported to be more involved in providing enhanced professional services than those practicing in other territories and perhaps other Arabic countries [10]. However, many pharmaceutical services are not currently provided through the majority of the pharmacies there. Drug information and counseling about medications are not being provided to patients to a large extent, and pharmacists are currently minimally involved in patients counseling [10].

As for Iraq, the number of community pharmacies has been found to be around 6000, giving a pharmacy-to-population ratio close to that of Jordan's (1:3000) with the majority of the community pharmacies found in Baghdad, the capital. High business competition and poor patient focus care have been reported [11]. Furthermore, years of war during the last three decades has had a negative impact on both pharmacy education as well as pharmacy practice [11].

The aim of this study is to investigate patient's perspectives of the role of the community pharmacist in view of other health care professionals (specialist physician, general practitioner, nurse and herbalist) in Jordan, UAE and Iraq. Secondly, to explore patient's perception of the counseling services delivered, or need to be delivered by the community pharmacist.

## 2. Methods

This study was conducted in community pharmacies in Jordan, UAE and Iraq. It was decided by the researchers to run the study in these three countries to compare and contrast the effect of social instability (Iraq), low income with social stability (Jordan), and high income with social stability (UAE) on patient perspectives of the pharmacist role and willingness to pay for more specialized services such as the Medication Management Review service.

There were some differences in the study procedure over the three countries (Figure 1). In UAE and Iraq, pharmacies were randomly selected according to a single pre-determined computer-generated allocation list, created using the random number generation function of Excel. Pharmacists were contacted by the main researcher in each of these countries and were introduced to the nature of the study, and those who accepted to participate were visited by the research assistant (researcher with a degree of B. Pharm.) and were provided with an explanation letter. Pharmacists who returned an expression of interest to participate (by signing an informed consent form and returning it to the research assistant in person) were then invited to complete the study.

In Jordan, data collection was conducted by pharmacy students enrolled in the Clinical Pharmacy and Therapeutics course (final year subject) for the year 2009/2010 (n = 143). Because data was collected by 143 students, randomization was not pre-determined. Community pharmacists were introduced to the nature of the study by the students, and those who accepted to participate were provided with an explanation letter. Pharmacists who agreed to participate in the study signed the informed consent form and returned it to the students in person.

In all three countries, pharmacist recruitment took place over one month, and pharmacists consented for the research assistants (students in Jordan) to approach patients stepping into their pharmacies for recruitment into the study. Patient questionnaire completion was carried out over a period of 6 months during two consecutive years (March to May 2009 and 2010).

In the Jordanian arm of the study, following training on data collection and questionnaire administration, each student approached 10 to 15 patients walking into a community pharmacy to purchase prescription medications. Patients were approached consecutively until the needed number of patients to complete the questionnaire was reached (10 to 15), or data collection period was finished. Patients who agreed to take part in the study provided informed oral consents (results of the Jordanian arm of the study have been reported elsewhere) [2]. In UAE and Iraq, one research assistant in each country was responsible for data collection from all the patients recruited from the randomly-selected pharmacies.

The research assistant (students in Jordan) administered the questionnaire by reading the questions to the patients and completing the answer section according to the patient’s answers.

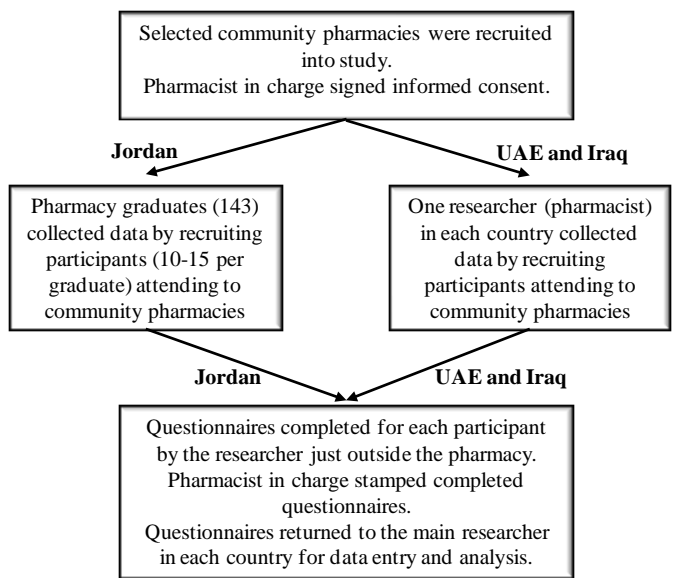


Figure 1. Flowchart showing sequences for the study conducted in Jordan, UAE and Iraq.

Many process measures were addressed to guarantee that data collected in the three countries was valid. During data collection, the main researcher from each country contacted a random sample of the pharmacies to assure that the study was running according to protocol. In the Jordanian arm of the study, importance of authenticity of data was explained to the students before study commencement, no marks were given in return for the completed questionnaires, and the study was proposed as an important learning process only. In addition, the pharmacist in charge was required to authenticate student's interaction with each patient by observing the recruitment process and stamping the completed questionnaires. Pharmacist in charge also stamped the completed questionnaires in UAE and Iraq before they were returned to the main researchers.

Pharmacy graduates (Jordan) and research assistants (UAE and Iraq) were clarified by the main researcher in each country on the reality of cognitive bias that can lead to social desirability (having respondents answer questions in a way that is not completely according to their true beliefs). Importance of preventing this bias with practical measures to attain true results were clarified and implemented. These measures involved: research assistants/students introducing themselves as research volunteers, clarifying that the questionnaire is anonymous and for the purpose of research only, and questionnaires were completed away from the dispensing counter where the pharmacist in charge was standing.

Patient questionnaire included both closed and open questions (**Appendix 1**). The questionnaire was set by the researchers of this study who possess extensive experience in the pharmacy practice research area, then validated and published [2]. The first part of the questionnaire (Part A) signified patient's perspective of the role of the health care professionals with regards to the source of advice on their medication use, review of pharmacological treatment for their chronic conditions, review of their non-pharmacological treatments, and their most trusted health care professional in terms of advice on their medical condition/s in general. The second part (Part B) included questions exploring patient's perspectives of and needs from the community pharmacist: length and extent of counseling, provision of counseling areas, home delivery of medications, and conduction of paid services such as the MMR service.

Respondents were asked to answer the questionnaire in Arabic. Part A of the questionnaire used the options "general practitioner", "specialist physician" (a clinical specialist in a specific therapeutic area, e.g. gynecologists), "pharmacist", "nurse" and "others (e.g. herbalist)". Part B of the questionnaire used the options "Yes", "No", or "Not sure". There was a section inviting comments at the end of the questionnaire.

Validation was completed for the English and Arabic versions of the questionnaire. To ensure face validity, the questionnaire was evaluated by academics ( $n = 5$ ) who have previous experience in conducting clinical studies and have a wide range of clinical professional experience. The questionnaire was then completed by a sample of pharmacy students ( $n = 15$ ) and patients ( $n = 15$ ) to test for clarity of questions. Views and comments of the students/patients were considered by the researchers 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 15 randomly selected pharmacy students and 15 patients. The second questionnaire completion took place two weeks after the first one, and was not included in the final survey analysis. Test-retest reliability was calculated using Spearman's correlation coefficient ( $r$ ). The rho-value was 0.84, which implies acceptable test-retest reliability.

## 2.1. Data Analysis

The responses of the participants were encoded and the data were analyzed using Statistical Package for the Social Sciences (SPSS, version 17, Chicago, IL, US). Descriptive analysis was carried out to determine the proportion of patients who selected each of the health care professionals (HCPs) for the first part of the questionnaire, and proportion of patients who agreed or disagreed with each of the questions in the second part of the questionnaire. Chi square test was used to identify any significant differences among the participant's responses for Jordan, UAE and Iraq, with significance defined as P value of  $\leq 0.05$ .

## 2.2. Sample Size Calculation

Sample size calculation was based on the population of Amman in Jordan (1,206,266) Bagdad in Iraq (7,216,040) and Dubai in UAE (1,770,533) in the year 2009 [12]. Minimum sample size of (Jordan 181; Iraq 442; UAE 256) was calculated, for a margin error of 5%, confidence level of 95%, a response distribution of 50% and an added on 15% since a non-parametric test was planned to be used in the analysis. We decided to

collect a sample size of 1000 patients for each country, which exceeds the required minimum sample size.

### 3. Results

Two thousands nine hundred and forty two patients visiting community pharmacies in Jordan, Iraq, and UAE were approached by a researcher in each country (Jordan 1000 UAE 1000, and Iraq 968). For the Jordanian study, the 1000 participants included in this analysis were selected randomly from the 2000 who were originally recruited into this arm of the study (published elsewhere [2]). Sample size did not reach 1000 in Iraq due to political issues that emerged in the area at the time of data collection. Not all patients from Jordan and UAE agreed to answer all questions, but the minimum number of patients that answered each of the questions was 932 (93.2%). Patients from Iraq refused to provide information regarding their occupation due to political issues leading to insecurity for some type of occupations.

On average, fifty percent of the patients interviewed were males and the mean age of patients was  $35.92 \pm 13.07$ . Demographics of patients are detailed in **Table 1**.

In the first part of the questionnaire, about half of the respondents from Jordan and 41% from Iraq believed that, among the HCPs (general practitioner (GP), specialist physician, pharmacist, nurse, and herbalist), the community pharmacist provides them with most of the advice needed regarding their medication use, including medical devices. The specialist physician came after the pharmacist in both countries. In the UAE, the situation was different, as more patients (40.5%) reported that the specialist physician is the HCP that provided them with most of the advice needed on medication use followed by the pharmacist (**Table 2**).

As for the review of the treatment for patient's chronic conditions, results showed that majority of Jordanian and UAE patients tend to go back to their specialist physician than to any other HCP (**Table 2**). The pharmacist

**Table 1.** Patient demographic characteristics for Jordan (n = 1000), UAE (n = 1000) and Iraq (n = 968).

Country	Age Mean $\pm$ SD	Gender Male:Female	Occupation n (%)					
			Student	House Wife	HCP	Academic	Engineer	Other
Jordan	35.0 $\pm$ 13.5	569:431	231(23.1)	130 (13.0)	53 (5.3)	57 (5.7)	88 (8.8)	441 (44.1)
UAE	31.0 $\pm$ 12.2	385:615	293 (29.3)	165 (16.5)	82 (8.2)	93 (9.3)	28 (2.8)	339 (33.9)
Iraq	41.9 $\pm$ 10.8	539:429	--	--	--	--	--	--

Occupation for participants in Iraq was not collected due to political reasons (see limitation section). HCP = Health Care Professionals. Significant differences in all of the above demographic characteristics were found between the countries ( $P < 0.001$ , Chi square test).

**Table 2.** Proportion of patients from Jordan, UAE and Iraq choosing the health care professional that provided them most with advice.

	Jordan (n = 970) n (%)	UAE (n = 932) n (%)	Iraq (n = 968) n (%)
1) Advice on their medication use			
General Practitioner	103 (10.6)	162 (17.4)	135 (13.9)
Specialist	362 (37.3)	378 (40.5)	354 (36.7)
Pharmacist	493 (50.8)	354 (38.0)	406 (41.9)
Nurse	8(0.9)	25 (2.7)	73 (7.5)
Others	4(0.4)	13 (1.4)	0 (0.0)
2) Frequent review of their chronic conditions.			
General Practitioner	131 (13.5)	129 (13.3)	273 (28.2)
Specialist	630 (65.0)	658 (68.1)	91 (9.4)
Pharmacist	194 (20.0)	155 (16.1)	361 (37.3)
Nurse	10 (1.1)	9 (0.9)	214 (22.1)
Others	4 (0.4)	15 (1.6)	29 (3.0)

Not all patients answered these questions, hence  $n < 1000$  for Jordan and UAE. Significant differences were found between the countries with regards to the above two questions ( $P < 0.001$ , Chi square test).

came next in this area. Although here the trend in results were similar between Jordan and the UAE, a significant difference between the two countries was found, with the proportion of patients going back to the specialist physician being significantly higher in the UAE than Jordan ( $P < 0.001$ , Chi-square test) (Table 2).

For Iraq, the results were different, as a majority of patients reported going back to the pharmacist for treatment review of their chronic condition, followed by the GP. The specialist physician surprisingly came third in line in Iraq.

Patient's trust in the HCPs was found to be similar across the three countries, with the specialist physician attaining the first position (Jordan 62.1%, UAE 74.4%, Iraq 64%), followed by the GP (Jordan 19.5%, UAE 14.4%, Iraq 21.9%), and then the pharmacist (Jordan 16.2%, UAE 8.7%, Iraq 12.3%). Significant differences were found between the countries as more people from Jordan trusted the pharmacist than Iraq and the UAE ( $P < 0.001$ , Chi-square test).

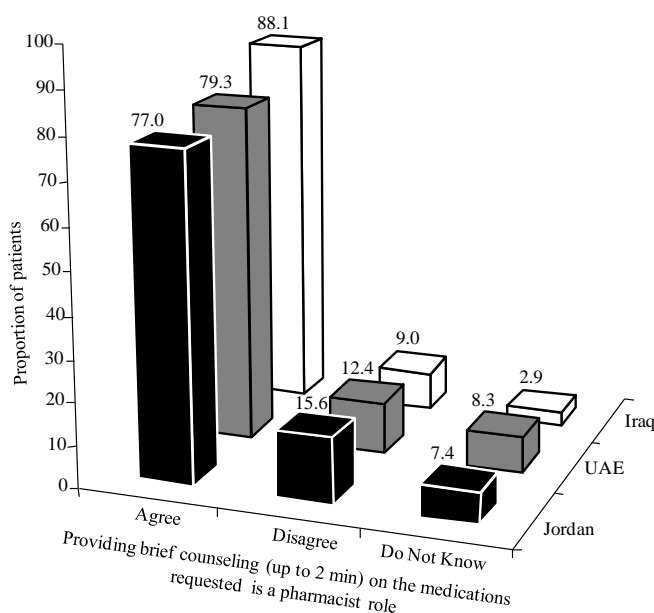
With regards to non-pharmacological treatments (alternative and complementary medicines), significant differences were found between the countries regarding whom of the HCPs provides most of the advice in this area ( $P < 0.001$ , Chi-square test). The Herbalist from Jordan (34.3%) followed by the pharmacist (33%) played the major role in this category. In the UAE it was the herbalist (43.3%) followed by the specialist (22.4%), while it was the nurse (75%) followed by the general practitioner (9.8%) in Iraq.

The second part of the questionnaire showed that majority of patients in Jordan and the UAE believe that community pharmacists should be responsible for the sale of OTC medications independent of the specialist physician and the GP advice (Jordan 73.3% vs. UAE 51.4%,  $P < 0.001$ , Chi-square test). Smaller, yet significant proportions of patients disagreed (Jordan 22.9%, UAE 36.0%), while others were not sure (Jordan 3.8%, UAE 12.6%). In contrast, in Iraq, a majority of patients disagreed with community pharmacists selling OTC drugs independent of advice from the physician (83.8%).

Results were more similar across the countries when it came to prescription medications, as a majority of patients in all three countries agreed with the role of the pharmacist involving dispensing medications once prescriptions are presented (Jordan 65%, UAE 72.7%, Iraq 100%,  $P < 0.001$ , Chi-square test).

Majority of patients from Jordan, UAE and Iraq (78.8%, 78.3%, and 69.4%, respectively,  $P < 0.001$ , Chi-square test) reported that it's the pharmacist role to refer them back to the specialist when needed (*i.e.* when they were not sure about their treatment) rather than suggest and give treatment independently.

The majority of patients considered being provided with brief counseling (up to two minutes) as an important role of the community pharmacist (Figure 2). Yet, above half of the patients (Jordan 53.6%, UAE 57.1%, Iraq



**Figure 2.** Proportion of patients from Jordan ( $n = 988$ ), UAE ( $n = 995$ ) and Iraq ( $n = 968$ ) who reported their view (agree/disagree/do not know) of the role of the community pharmacist involving provision of brief, up to 2 minutes, counseling.

63.6%) believed that the pharmacist needs to provide longer counseling sessions (more than two minutes).

Regardless of explaining to the patients the benefits perceived from the MMR service in many countries around the world, paying the pharmacists for this extra counseling service was agreed upon by only a small proportion of the respondents from Jordan (19.5%), UAE (24.7%) and Iraq (2.3%) (Figure 3).

A question regarding the need for provision of private counseling areas in the community pharmacies revealed a significantly higher proportion of patients from Jordan (45.4%) reporting the need for this part of the pharmacy than patients from the UAE (41.7%) and Iraq (32.6%) ( $P < 0.001$ , Chi-square test). Many patients were not able to decide on whether they need such counseling areas or not (Figure 4).

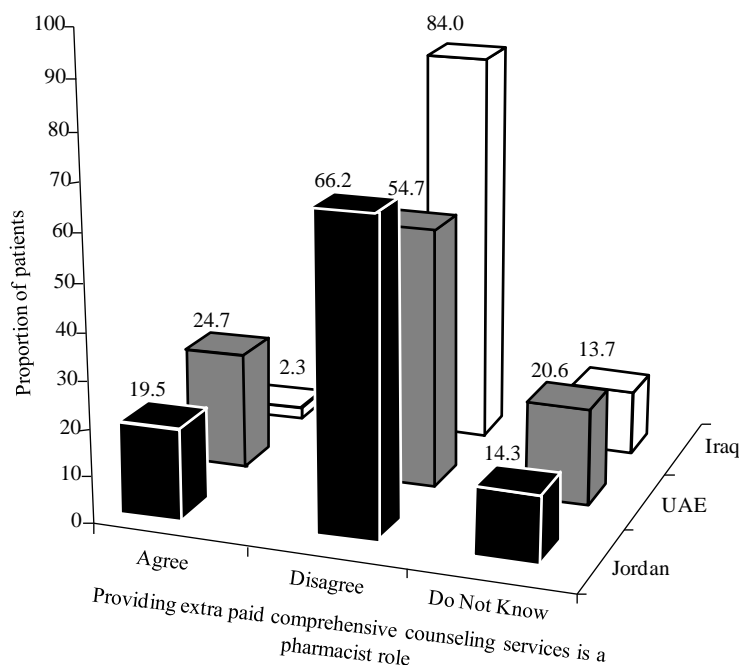
Few patients from Jordan, UAE and Iraq (15.3%, 12.2%, and 0.0%, respectively) agreed to receive their medications by delivery to their homes without counseling provision (Figure 5). A significantly higher proportion of patients from Jordan accepted this concept ( $P < 0.001$ , Chi-square test) than Iraq and the UAE, due to their reported previous use of similar services in the country.

#### 4. Discussion

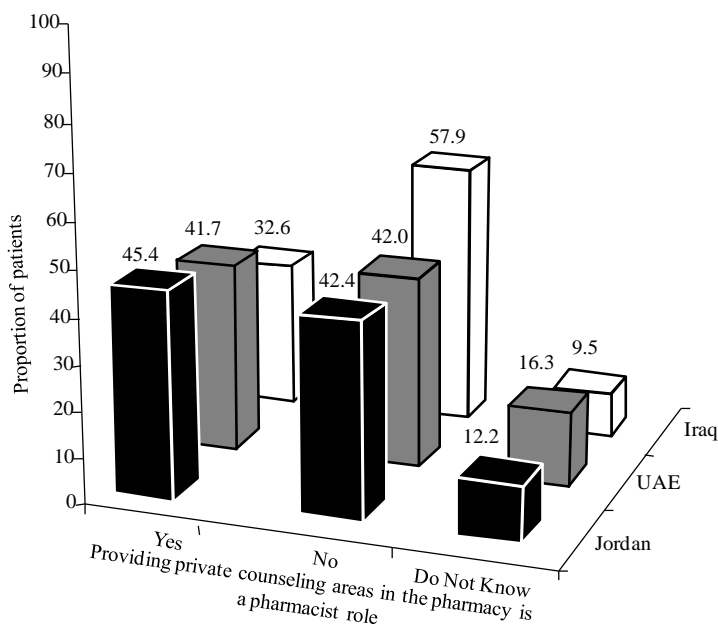
To our knowledge, this study is the first in the area of social pharmacy research in Jordan, UAE and Iraq, reporting on patient perspectives of the role of the HCPs. The study sheds light on the important roles pharmacist plays in the health care sector in these countries. It also highlights important findings regarding the effect of hindered financial situations in Jordan and Iraq, as compared to the UAE, leading to increased need for pharmacist care and counseling.

Importance of understanding patient’s perspectives is extrapolated from previous reports stating that patients who have good consideration of the healthcare providers are more concerned about their well-being, show greater satisfaction with the care received and are more likely to comply with treatment regimens [13]. Accounting for patient perspective is now receiving more attention since patients have become more knowledgeable, sophisticated and educated than patients in the previous decades [13].

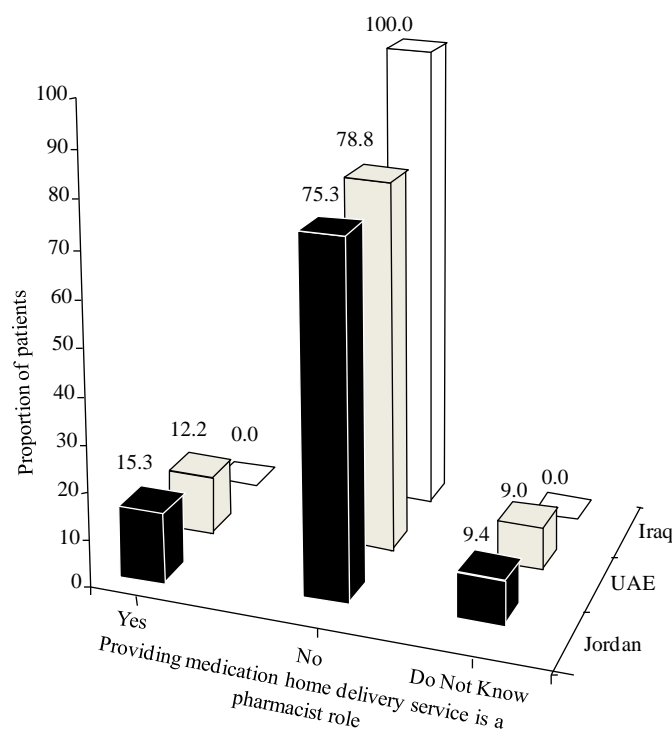
Results of this study revealed a majority of Jordanian and Iraqi patients considering the community pharmacist as the major contributor to advice on the use of their medications and medical devices. In the UAE, results were different, as patients referred more to their specialists for such advice. Socioeconomic differences between



**Figure 3.** Proportion of patients from Jordan (n = 990), UAE (n = 996) and Iraq (n = 968) who reported their view (agree/disagree/do not know) of the role of the community pharmacist in providing extra paid comprehensive counseling services (2 to 3 hours medication management reviews).



**Figure 4.** Proportion of patients from Jordan (n = 991), UAE (n = 995) and Iraq (n = 968) who reported their view (Yes/No/Do not know) of community pharmacists requirement to provide private counseling areas in their pharmacies.



**Figure 5.** Proportion of patients from Jordan (n = 993), UAE (n = 991) and Iraq (n = 968) who reported their view (Yes/No/Do not know) of community pharmacists providing medication home delivery services.

the countries could explain these differences. Results reported in a study previously conducted in Qatar showed that over 90% of respondents agreed that the community pharmacist is the primary source of provision on the directions of medication use [14]. The differences shown between the two Gulf countries, Qatar and UAE, are



surprising but justifiable considering the way patients were questioned. In our study, we asked the patients to choose between the HCPs, while in the “Qatar” study, patients were asked to agree or disagree with the suggested role of the community pharmacist [14].

Previous worldwide studies measuring patient expectations and satisfaction from pharmacy services revealed a high level of acceptance for all community pharmacy service types, including remunerated services [15]-[17]. This study reveals a similar situation in the Middle East, from Jordan, to UAE, to Iraq, as patients showed acceptance to all counseling services a pharmacist can deliver. However, when it came to accepting the MMR services that required payments, the majority of patients from the three countries did not welcome this concept even after being informed by the researcher of its benefits elsewhere around the world. This could be due to patient’s lack of knowledge and awareness regarding the clinical and financial benefits of such services. Difficult economic situations could have also hindered patients from agreeing to be engaged in any further financial obligations. Accordingly, Iraq presented the least proportion of patients who agreed to pay for MMR services in comparison to UAE and Jordan, reflecting the lower socioeconomic status and medical literacy currently found in the country. Such effect of divergence in patients’ socioeconomic background on their perspectives of the health care services has already been proven in a previous study conducted in Jordan comparing two socioeconomically different regions in the country [2]. Lack of financial reward for more specialized pharmaceutical care services has been said to be a major barrier to the implementation of many pharmacy services in the Middle Eastern region [10]. These findings should not be underestimated when planning for health care budget allocations in each of the countries.

More patients from Iraq reported dependency on the pharmacist for review of their chronic conditions than Jordan and UAE. This could be due to the war and recent political events in the area preventing patients from visiting the specialist, while the wide-spread pharmacies are more accessible and feasible. In addition, low social economic situation has been shown previously to lower patients’ dependency on the specialist [18]. The cost of a visit to the specialist physician is about 40 American dollars in the three countries. With an average income of \$500 a month for a working person in Amman [2], and \$350 in Iraq, a direct visit to the community pharmacist can save a significant amount of money. UAE patients have a much higher monthly income, with an average of \$5000 [19], making it much more affordable for them to visit their specialists and pay the fees. Nevertheless, across the three countries, specialists were recognized as the most trusted HCPs even if visiting community pharmacies was recognized as more feasible. This emphasizes the importance of updating and upgrading the educational level of the pharmacist as a step towards increasing patient’s trust and meeting the current extra patient management demands [20].

New educational courses at the university curriculum in the three countries have been applied. The Iraqi Council for Medical Specialties approved in 2011 a professional degree titled the “Iraqi Board in Clinical Pharmacy” in collaboration between the Ministry of Higher Education and the Ministry of Health. The PharmD program has started in Jordan in the year 2007 and in UAE in the year 2008. Both degrees graduate pharmacists specialized in the clinical area [11]. Although the introduction of these courses can have a positive influence on the standard of care delivered by the community pharmacist in the area, compulsory continuous educational workshops are vital and still needed [20].

When it comes to complimentary treatments, pharmacists in Jordan were referred to for advice just next to the herbalists [2]. In the three studied countries, herbalists do not have a professional degree and are not considered as HCPs. Moreover, herbalists have been found to have variable and suboptimal knowledge of herbal and complimentary treatment [21]. Pharmacists on the other hand are HCPs interested in providing herbal information to patients [22]. The incorporation of relevant topics in herbal medicine in the pharmacy curriculum is needed to optimize pharmacist knowledge in this area [22]. Continuous educational programs in this area have also been recommended to maintain and update pharmacist’s information [22]. Previous studies have shown that patients from Jordan and the UAE have faith and confidence in herbal medicines and are consequently high users of them despite the country’s progressive adoption of western approaches to health care [21] [23]. Surprisingly, in Iraq, nurses were reported to be mostly responsible for patient advice on herbal treatments. No previous study has investigated herbal treatments and role of the HCPs in Iraq, hence, explaining this finding needs further research. Anecdotal comments have indicated that specialized clinics have been opened in the country by nurses for patient treatment and follow-up, not just herbal treatment, but modern treatments as well. As a result of the above, current situation shows that proper regulations and licensing regarding the use of complimentary treatment in the area are still needed [24].

Differences regarding patient's perception of the pharmacist's role regarding OTC medication provision were reported. In Jordan and UAE, a majority of patients acknowledged pharmacist's right to sell these products independent of other HCPs compared to 10% from Iraq. This could be due to the current widespread of counterfeit medicines and drugs of substandard quality in the country [11]. In spite of patients' reporting immense reliance on the pharmacist, Iraq has been described as a country living in "pharmaceutical chaos" [11].

The importance of having private counseling areas has been stressed in previous research studies [25]. Lacking private counseling areas in the pharmacy is an important barrier when it comes to proper patient counseling and education [26]. Yet, the percentage of patients from the three countries who envisaged the need for such areas was low. This could be due to their lack of information on the topic (reported by anecdotal comments provided by the researchers in the note section of the questionnaire). This highlights the importance of clarifying the significance of this cornerstone element in the counseling process. Pharmacist and patient awareness programs are needed to highlight the importance of providing private counseling areas in the pharmacies.

Turning research into practice is the ultimate aim of any study. Results of this study can positively influence pharmaceutical care in the Middle East by focusing future patient education on the issues highlighted within this research. Such issues include emphasizing the importance of patient pharmacist relationship and counseling, in addition to promoting the different counseling services available, or that could be made available. From another point, results of this study can also help in focusing the efforts during continuous education workshops for the HCPs. Importance of the pharmacist role regarding herbal and complimentary treatment and importance of providing private counseling areas in the community pharmacies are important examples.

Different researchers from the three countries collecting the data could have led to certain variability in the results. This was minimized as much as possible by having a clear stringent protocol followed by the different investigators. Patients could have been confused between the pharmacist and the pharmacist technician when responding to the pharmacist-specific questions. This could not be prevented, as in many cases patients have no way in differentiating a pharmacist from his technician when obtaining their treatments. Although it would have been useful to extrapolate socio-economic factors in the analysis by questioning the respondents about their income, this was not possible due to the refusal of respondents (especially in Iraq and Jordan) to such questioning. Another limitation of this study is that Iraqi patients refused to give information regarding their occupation. Comments from the Iraqi patients indicated that political events in the country have previously led to the assassination of people with certain qualifications and job descriptions. Finally, although the study presents a unique approach to research in the Middle East, it is challenging to draw stringent conclusions for such a varied sample and such a large sample size.

## 5. Conclusion

This study is important for future social pharmacy research in the Middle Eastern countries. Results have revealed the impact of lower socioeconomic status leading to patient's higher degree of reliance on the pharmacist versus other HCPs, as was shown in Iraq and Jordan when compared to the UAE. Lower socioeconomic status in Iraq has also been associated with lower patient interest in receiving paid MMR services. Regardless of the socioeconomic status, lack of awareness about the benefits of this service could have led to the majority of patients from the three countries declining from agreeing to receive the MMR service. This finding calls onto the health care policy makers in the area to allocate other resources for future remuneration of such essential services.

## Acknowledgments

This work was supported by the University of Applied Sciences, Amman, Jordan. The authors would like to thank all patients and pharmacy students who participated in this study. We acknowledge the help of the research assistant Mohammad Gabayen (pharmacist and academic) in the data entry and analysis of this research. Conflict of interest to disclose by any of the authors: none

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## Appendix 1

Please complete the following information for the community pharmacy and patient

*Pharmacy:* name ----- location ----- phone number -----

*Patient:* name----- age ----- gender M/F occupation ----- living place ----

**Please ask the patient the following questions. Patients may choose more than one HCP for each question.**

1. Whom of the following HCPs provides you most with the advice on your medication use (including medical devices)

- 1- General Practitioner                      2- Specialist physician                      3- Pharmacist  
4- Nurse    5- Other (e.g. herbalist)-----

2. Whom of the following HCPs you tend to go back to for frequent review of your treatment for your chronic condition/s

- 1- General Practitioner                      2- Specialist physician                      3- Pharmacist  
4- Nurse    5- Other (e.g. herbalist)-----

3. In terms of giving you advice on your medical conditions, whom of the following HCPs do you trust the most?

- 1- General Practitioner                      2- Specialist physician                      3- Pharmacist  
4- Nurse    5- Other (e.g. herbalist)-----

4. Whom of the following HCPs provides you with advice on your non-pharmacological treatment (complimentary medicines/alternative medicines)?

- 1- General Practitioner                      2- Specialist physician                      3- Pharmacist  
4- Nurse    5- Other (e.g. herbalist)-----

(Name and use of herbal/alternative medicines reported, if any -----)

**Now ask the patient the following: In your view, which of the following describes the role of the community pharmacist**

1. Selling OTC medications based on pharmacist decision, independent of the doctor/specialist advice:

**Yes/No/Do not know**

2. Dispensing of prescription medications once prescriptions are presented: **Yes/No/Do not know**

3. Referring you back to the doctor/specialist when needed (*i.e.* when they are not sure about your treatment) and not to suggest and give treatment independently: **Yes/No/Do not know**

4. Providing brief counseling (up to 2 min) on the medications requested: **Yes/No/Do not know**

(*Example: patient with rash- pharmacist dispense Claritin twice a day & refer to doctor if rash persists*).

5. Providing more detailed counseling (more than 2 min) following a quick review of your current medications and medical conditions: **Yes/No/Do not know**

(*Example: patient with rash- pharmacist review cause of the rash based on patient's medical condition/s and treatment/s taken. Patient was started on Allopurinol two weeks ago. Rash started two weeks ago as well. The rash was caused by the new drug. Pharmacist dispense Claritin twice a day & refer to doctor for a review of the new drug*)

6. Providing extra paid counseling services when needed: **Yes/No/Do not know**

(*Example: pharmacists conducting detailed comprehensive medication management reviews that would take 2-3 hours, based on patient's medical history, current therapeutic regimen, and any concerns, making appropriate recommendations for consideration by the doctor. It aims at maximizing patients care and benefit from their medication regimen, reducing adverse drug events and eventually healthcare service costs*)

7. Providing private counseling areas in their pharmacies for counseling: **Yes/No/Do not know**

8. Delivering medications to your home without counseling provision: **Yes/No/Do not know**

Comments \_\_\_\_\_