

Expectations and Experiences of Physicians Regarding Pharmaceutical Care and the Expanding Role of Pharmacists in Jordan

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ABSTRACT

The main aim of this study was to investigate physicians' expectations and experiences regarding pharmaceutical care in Jordan. A questionnaire was hand delivered to a random sample of 240 physicians. The questionnaire collected physicians' current expectations, current experiences and future expectations regarding pharmaceutical care. Physicians' positive expectations were on 6 of the current expectation statements (46% of the statements). In the experience part, for only two statements more than 50% of physicians indicated a positive experience. In the future expectations parts, physicians did not only agree on most of the statements (81% of statements) but also the agreement was by more than two third of them in most of the statements. Physicians in Jordan do not disagree with the concept of pharmaceutical care. They also accept traditional pharmacy services such as educating patients about their treatment. However they have bad experience with pharmacists providing pharmaceutical care or expanding their service. They do not think that pharmacists are currently ready to practice such service. It will be interesting to examine the change in physicians' expectations and experience in the future with the increasing number of PharmD and Master of Clinical Pharmacy graduates.

Keywords: Expectation, Experience, Pharmaceutical Care, Pharmacist, Physician.

INTRODUCTION

Studies have shown that pharmaceutical care services influence health expenses, save lives, and enhance patient's quality of life¹⁻⁵. Currently, the principal responsibilities of the pharmacist in Jordan are dispensing and marketing⁶. The role of Pharmacist in Jordan has been expanding very slowly during the last 10 years to include more clinically oriented responsibilities. This expanding role of pharmacist was driven by the establishment of PharmD and Master of Clinical

Pharmacy programs at the two major Universities in Jordan (University of Jordan and Jordan University of Science and Technology) in the period between 2000 and 2004 and the publication of the Clinical Pharmacists Job Description by the Jordan Ministry of Health In 2005, which described pharmacists' clinical duties, including providing pharmaceutical care, therapeutic drug monitoring and patient counseling⁷.

Currently, less than 5-10 institutions in Jordan offer comprehensive pharmaceutical care services. However, a healthcare system with medication experts providing pharmaceutical care and other healthcare professionals working together to develop the best plan for the patient

Received on 4/5/2011 and Accepted for Publication on 4/1/2012.

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is the goal. The slow progression of pharmaceutical care in Jordan indicates the presence of barriers or resistance to the concept. Identifying these barriers should be of prime concern, in order to be able to find out solutions and help in expanding this service that had strongly established itself as indispensable practice in many countries.

In general, it is perceived by pharmacists that physicians are one of the major barriers to the expanding role of pharmacist. It is believed that physicians are worried that pharmacists may take over prescribing task and other important clinical activities from physician. Therefore, before effectively developing pharmaceutical care service, a stronger understanding of physicians' attitude regarding pharmacist involvement in patient care process and their expectations from such involvement need to be explored.

The main aim of this study was to investigate physicians' current expectations, experiences and future expectations regarding pharmaceutical care and the expanding role of pharmacists in Jordan. Physician characteristics affecting their current expectations, experiences and future expectations were also investigated. We have identified only one study that had examined the perception of physicians regarding the role of pharmacist in Jordan in 2006⁸. However, the study had different aims than the current study. In general, studies into physicians' attitudes or expectations regarding pharmaceutical care and the expanding role of pharmacists have been limited worldwide⁹⁻¹³.

Methods

Setting

Healthcare facilities in Jordan are divided into public hospitals, private hospitals, primary health care centers and private clinics. This study doesn't require an ethical approval according to local regulations.

Sample size determination

To estimate the percentage of physicians who have a

positive expectation toward the concept of pharmaceutical care, a minimum of 200 physicians is required for this study. The sample size is based on the assumption that the true percentage is 50% (95% confidence and 5% accuracy)¹⁴. Assuming a response rate of 85%, a sample size of 240 was selected for this study.

Subjects and Sampling Procedure

The study was conducted from September through December 2008. A list of all physicians in Jordan was obtained from the Jordan Medical Association. The questionnaire was hand delivered to a random stratified sample of 240 physicians. Physicians were stratified by area of practice. The following physician's specialties were included: Internal medicine and its subspecialties, surgery, pediatrics and general practitioners (60 physicians per specialty). A trained research assistant explained the study aims and the different parts of the questionnaire to physicians. Physicians didn't receive any incentive to participate in the study. Data collection was conducted by one trained research assistant to ensure consistency.

Questionnaire Design

The questionnaire was composed of four parts. In Part 1, we collected demographic information such as age, gender, specialty of participants, number of years spent in practice, average number of patients seen per day and country of graduation. Part 2 included 13 questions that measured physicians' current expectations of the expanding role of pharmacist and pharmaceutical care practice, part 3 included 15 questions that measured their actual experience with pharmacists providing pharmaceutical care service and expanding their involvement in patient care, and part 4 included 16 questions that measured their future expectations regarding pharmaceutical care and the expanding role of pharmacists in Jordan.

Before administration of part 4, the research assistant conducted a brief educational session (5-10 minutes) regarding definition¹⁵, history and practice of pharmaceutical care, its importance and evidence of its value, including results of major studies. All important information were also provided to physicians as an educational leaflet and physicians were given the time to read it.

Each part of parts 2 to 4 included a set of statements for which respondents were asked to indicate their level of agreement using a 5- point Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Physicians were considered to have an agreement on a statement if > 50% of them (i.e. the majority) agreed or strongly agreed on that statement. Physicians were considered to have a disagreement about a statement if > 50% of them (i.e the majority) disagreed or strongly disagreed on that statement.

The questionnaire described above was adapted and modified from previously published studies⁹⁻¹¹. The modifications included adding more questions in the expectations and experiences parts to reflect the current and the complete practice of pharmaceutical care as described by the American Society of Health System Pharmacists¹⁵. These include items 7, 12 and 13 in the current expectations part; items 3, 10, and 12-15 in the experience part and most items in the future expectations part. The future expectations part was completely modified as the original one included only three items which did not cover the current and complete process of pharmaceutical care⁹. The different parts of the questionnaire underwent pilot testing on 10 physicians, content validity evaluation by three experts, and reliability analysis (Cronbach's α).

Data analysis

Data were analyzed using SPSS version 16. The data

were first analyzed descriptively, computing frequencies, means, and standard deviations for each item of the questionnaire. Secondly, Cronbach's α was computed to evaluate internal consistency (internal reliability) of the three measurement scales (current expectations, experience, and future expectations). Finally, analysis of variance (ANOVA) was used to examine the association between physician characteristics (age, gender, number of years in practice, practice settings, area of practice, location of practice in Jordan and country where medical qualification was obtained) and the three dependent variables (i.e., current expectations, current experiences, and future expectations). The dependent variables were the average scores of the items in part 2 (current expectations), part 3 (current experiences), and part 4 (future expectations). Significance was determined by the F test with analysis of variance tests. The level of significance was set at 0.05.

Results

Two hundred and forty physicians were approached and 210 (87.5) agreed to participate in the study. Physicians' demographic characteristics are shown in Table 1. The average age of physicians' was 39.9 and the majority of the respondents were males. Most of physicians obtained their qualifications from Asia and Middle East and around 17% from Western Europe. Approximately one half of the participants were practicing in Amman, the capital of Jordan, where more than 50% of the population resides.

Frequency of pharmacist-physician interactions related to patients' medications are shown in Table 1. Pharmacist-physician interactions were not very common as more than half of the sample indicated that they never or rarely interact with pharmacist.

Table 1: Physicians' demographic characteristics (N = 210)

Variable	Value
Gender [N (%) Male]	150 (71.4)
Age (years) [mean (SD)]	39.9. (11.4)
Years in practice [mean (SD)]	15.5 (10.6)
Country were medical qualification was obtained	
Jordan	72 (34.3)
Asia and Middle East	74 (35.2)
Eastern Europe and Russia	23 (11)
Western Europe	36 (17.1)
USA	5 (2.4)
Location of practice in Jordan [N (%)]	
North of Jordan	54 (25.7)
Middle of Jordan (Amman)	115 (54.8)
South of Jordan	41 (19.5)
Main practice setting	
Private clinic	48 (22.9)
Hospital	143 (68.1)
Medical center	19 (9.0)
Current area of practice [N (%)]	
General practitioner	59 (28.1)
Internal medicine and subspecialties	50 (23.8)
Surgery	50 (23.8)
Pediatrics	51 (24.3)
Number of patients seen per day [mean (SD)]	27.7 (23.5)
Ever heard of the concept of pharmaceutical care [N (%) yes]	112 (53.3)
Frequency of pharmacist-physician interactions N (%)	
Never	30 (14.3)
Rarely	85 (40.5)
1-3 times a week	47 (22.4)
4-5times a week	20 (9.5)
More than 5 time a week	28 (13.3)

Evaluation of the final version of the questionnaire by experts indicated that it has an appropriate content

validity. Pilot testing of the questionnaire indicated that there is no need to do any further modifications. Cronbach's α for each part was more than 0.9 indicating excellent reliability ¹⁶.

Table 2 shows the physicians responses to the statements regarding attitude and current expectations of physicians toward pharmaceutical care and the expanding role of pharmacists. In general, physicians have a neutral to positive attitude and expectations as indicated by the average score of 3.31 (Table 2). The physicians agreed the most (81.4%) with statement 6 “I expect pharmacists to educate my patients about the safe and appropriate use of their medication. Physicians’ positive attitude and expectations were on 6 of the statements (46% of the statements) (statements 1, 5, 6, 8, 9, and 10) where at

least 60% of physicians have agreed or strongly agreed. Physicians’ disagreed the most (62.4%) with the statement that pharmacist should be allowed to treat minor ailments (statement 12). On the other hand, physicians’ disagreement was on only 2 statements (statements 12 and 13) which were related to pharmacists’ involvement in prescribing where at least 56% of them disagreed on the statements. The physicians did not disagree on the statements describing the core elements of pharmaceutical care (statements 1-4) ¹⁵ where at least 48-64% agreed on the statements and only 21-37% disagreed on the statements. These results indicate that physicians have no problem with pharmacist providing pharmaceutical service as long as they are not prescribing medications.

Table 2: Current expectations of physicians toward pharmaceutical care and the expanding role of pharmacists

	<i>Survey Item</i>	Agree or Strongly agree N(%)	Neutral N(%)	Disagree or Strongly disagree/ N(%)	Mean(SD)
1	I expect pharmacists to maintain a complete medication profile on my patients	134(63.8)	31(14.8)	45(21.4)	3.58±1.14
2	I expect pharmacists to take personal responsibility for resolving any drug-related problems they discover involving my patients	102(48.6)	37(17.6)	71(33.8)	3.18±1.27
3	I expect pharmacists to assist me in designing drug therapy treatment plans for my patients	101(48.1)	32(15.2)	77(36.7)	3.09±1.23
4	I expect pharmacists to monitor my patients' response to drug therapy and let me know if a patient encounters any drug-related problem	100(47.6)	38(18.1)	72(34.3)	3.14±1.29
5	I expect pharmacists to be knowledgeable drug therapy experts	162(77.1)	21(10)	27(12.8)	3.99±1.14
6	I expect pharmacists to educate my patients about the safe and appropriate use of their medication	171(81.4)	7(3.3)	32(15.3)	4.06±1.20
7	I expect pharmacists to educate and counsel patient regarding his disease, non-pharmacological therapy and life style modifications.	66(31.4)	45(21.4)	99(47.1)	2.72±1.23
8	I expect pharmacists to take reasonable steps to ensure that my patients have their medications refilled on time and to help improve patients adherence to medications	142(67.6)	27(12.9)	41(19.5)	3.68±1.18
9	I expect pharmacists to advise me about more cost-effective	159(75.7)	20(9.5)	31(14.8)	3.92±1.08

	alternatives to the drugs I prescribe				
10	I expect pharmacists to know the specific indication of each drug I prescribe, even when drugs have more than one approved or recognized indication	148(70.4)	40(19)	22(10.5)	3.85±0.99
11	I expect pharmacists to assist my patients in selecting appropriate non prescription medications	84(40)	44(21)	82(39)	2.95±1.20
12	I believe pharmacist should be allowed to treat minor ailments and I expect them to be successful	51(24.3)	28(13.3)	131(62.4)	2.34±1.25
13	I believe pharmacist should be allowed to prescribe or adjust drugs for patients with chronic diseases on repeat prescription and I expect them to be successful	66(31.4)	25(11.9)	119(56.7)	2.53±1.32
	Average Score				3.31±0.65

Physicians' actual experience with pharmacists is shown in Table 3. In general, the results show that physicians have a neutral to negative experience with pharmacists at this stage as indicated by the average score of 2.83. Physicians' best experience (54.8%) was with pharmacists being a reliable source of general drug information (statement 6) while physicians' worst experience (17.6%) was with pharmacists following up and monitoring patients (statement 4). For only two statements more than 50% of physicians indicated a positive experience (statements 1 "Pharmacists routinely inform me if they discover clinical problems with my

prescriptions" and 6 "pharmacists are a reliable source of general drug information"). Physicians' negative experience was on four statements where more than 50% of physicians disagreed on the statements (statements 2, 4, 5 and 15). Apart from informing physicians about clinical problems (statements 1), physicians did not indicate a positive experience with pharmacists providing the core elements of pharmaceutical care (statements 2, 3, 4). On the other hand the majority of physicians did not believe that pharmacists are ready to take personal responsibility for resolving drug-related problems they discover.

Table 3: Physicians' actual experience with pharmacists providing pharmaceutical care and expanding their role

	Survey Item	Agree or Strongly agree N(%)	Neutral N(%)	Disagree or Strongly disagree/ N(%)	Mean(SD)
1	Pharmacists routinely inform me if they discover clinical problems with my prescriptions	110(52.4)	28(13.3)	72(34.3)	3.32±1.26
2	From my experience, pharmacists appear ready to take personal responsibility for revolving any drug-related problems they discover	60(28.5)	41(19.5)	109(51.9)	2.59±1.18
3	In my experience, pharmacists are helpful in selecting appropriate medication and designing treatment plan	61(29.1)	50(23.8)	99(47.1)	2.75±1.14

	Survey Item	Agree or Strongly agree N(%)	Neutral N(%)	Disagree or Strongly disagree/ N(%)	Mean(SD)
4	Pharmacists frequently monitor and follow-up my patients and they let me know if they have experienced some problems with their medications (e.g adverse drug reaction, treatment failure, etc...)	37(17.6)	40(19)	133 (63.3)	2.40±1.02
5	Pharmacists frequently ask me to clarify for them the drug therapy objectives I have in mind for my patients	65(31)	37(17.6)	108(51.4)	2.69±1.20
6	In my experience, pharmacists are a reliable source of general drug information (i.e specific facts about drugs which can be found in standard references)	115(54.8)	41(19.5)	54(25.7)	3.29±1.13
7	In my experience, pharmacists are a reliable source of clinical drug information (i.e information regarding the clinical use of drugs in specific situations)	74(35.2)	65(31)	71(33.8)	3.02±1.07
8	Pharmacists routinely inform me about the more cost effective alternatives to the drugs I prescribe	89(42.4)	40(19)	81(38.6)	3.05±1.14
9	Pharmacists routinely counsel my patients regarding the safe and appropriate use of their medications	75(35.7)	42(20)	93(44.3)	2.87±1.15
10	In my experience, pharmacists are helpful in improving patient adherence to medications	86(41)	40(19)	84(40)	2.99±1.23
11	I have a relationship with one or more pharmacists wherein the pharmacist adjusts my patients' medication with my prior approval (adjustments include dosage adjustments, therapeutic interchanges, changes in route of administration)	71(33.8)	38(13.1)	101(48.1)	2.82±1.14
12	In my experience, pharmacists are helpful in educating and counseling patients regarding their disease, non-pharmacological therapy and life style modifications.	58(27.6)	51(24.3)	101(48.1)	2.70±1.11
13	In my experience, pharmacists are successful in helping patients selecting appropriate non prescription medications	65(30.9)	59(28.1)	86(41)	2.81±1.08
14	In my experience, pharmacists are successful in treating minor ailments	58(27.6)	55(26.2)	97(46.2)	2.70±1.17
15	In my experience, pharmacists are successful in prescribing or adjusting drugs for patients with chronic diseases on repeat prescriptions	49(23.3)	41(19.5)	120(57.1)	2.48±1.15
	Average Score				2.83±0.67

Table 4 shows the future expectations of physicians towards pharmaceutical care and the expanding role of

pharmacists. The majority of physicians agreed on most of the statements.

ANOVA was used to investigate the associations between physicians' characteristics and the average scores for the three dependent variables current expectations, experience and future expectations. None of

the physicians characteristics investigated was found to be associated with any of the three dependent variables ($P>0.05$).

Table 4: Future expectations of physicians

	Survey Item	Agree or Strongly agree N(%)	Neutral N(%)	Disagree or Strongly disagree/ N(%)	Mean(SD)
1	The pharmacist's role should extends beyond the dispensing of medications	165(78.6)	22(10.5)	23(11)	4.03±1.08
2	The pharmacist should keep a record of patient medical history	166(79.0)	16(7.6)	28(13.3)	3.94±1.02
3	The pharmacist should play more active role in assessing patients for the presence of drug related problems	186(88.6)	15(7.1)	9(4.3)	4.19±0.77
4	The pharmacist should play more active role in resolving drug related problems, designing treatment plans and selecting patient treatment in collaboration with the physician	160(76.2)	30(14.3)	20(9.5)	3.92±1.01
5	The pharmacist should play more active role in monitoring, follow up and documenting my patients' response to drug therapy	137(65.2)	44(21)	29(13.8)	3.72±1.04
6	The pharmacist should play more active role in patient counseling regarding the appropriate use of medications	173(82.4)	18(8.6)	19(9.0)	4.00±0.93
7	The pharmacist should play more active role in patient counseling regarding the disease, non-pharmacological therapy and life style modifications.	118(56.2)	40(19)	52(24.8)	3.39±1.17
8	The pharmacist should play more active role in improving patient adherence to medications	180(85.7)	17(8.1)	13(6.2)	4.11±0.87
9	The pharmacist should play more active role as providers of drug information for doctors	176(83.8)	22(10.5)	12(5.7)	4.16±0.90
10	The pharmacist should play more active role as a drug information specialist	187(89.0)	14(6.7)	9(4.3)	4.25±0.81
11	The pharmacist should adjust drug therapy for some of my patients (e.g. those with certain chronic disease states) using protocols that I have approved	108(51.4)	35(16.7)	67(31.9)	3.16±1.23
12	Pharmacists should have the opportunity to generic substitution	128(61)	35(16.7)	47(22.3)	3.49±1.22
13	Pharmacists should have the opportunity to therapeutic substitution	81(38.6)	39(18.6)	90(42.9)	2.89±1.33
14	Pharmacists should be allowed to provide repeat-medication independently	59(28.1)	50(23.8)	101(48.1)	2.70±1.22
15	Pharmacists should be allowed to treat minor ailments	73(34.8)	39(18.6)	98(46.7)	2.82±1.27

	Survey Item	Agree or Strongly agree N(%)	Neutral N(%)	Disagree or Strongly disagree/ N(%)	Mean(SD)
16	Pharmacists in the future should bear a greater share of legal responsibilities for the outcomes of drug therapy	156(74.3)	36(17.1)	18(8.6)	3.93±0.93
	Average Score				3.67±0.61

Discussion

This study investigated several aspects related to physicians' attitude and expectations regarding pharmaceutical care that were not adequately answered in previous literature on the subject in Jordan. We have identified one study conducted in 2006 that examined the perception of physicians regarding the role of pharmacist; however the study did not include a random sample of physicians and was limited to hospital setting (only four hospitals) located only in one area (northern Jordan) ⁸.

The current study investigated expectations and experiences of physicians from four different specialties: internal medicine and its subspecialties, general surgery, pediatrics and general practice. These were selected as these are the specialties where pharmaceutical care service is expected to be required the most (at least initially) in Jordan.

The questionnaire we used was found to have appropriate face validity, content validity and internal validity.

What are physicians' current expectations regarding pharmaceutical care and the expanding role of pharmacists in Jordan?

In this part (Table 2) we asked physicians about their current expectations in relation to pharmacists providing a range of services. Some of these are related to more established pharmacy roles, such as detecting and resolving drug related problems, while others are related to extended roles such as prescribing for chronic diseases and independently diagnosing and treating minor ailments. Most of the mean values in Table 2 were

between 3 and 4, suggesting that physicians have no strong negative expectations regarding pharmaceutical care and the expanding role of pharmacists in Jordan and that they have neutral to positive expectations.

There was a good agreement with statement 5 ("I expect pharmacists to be knowledgeable drug therapy experts"). It seems that physicians believe that pharmacist should use this knowledge in patient education about their medications as they agreed the most about statement 6 "I expect pharmacists to educate my patients about the safe and appropriate use of their medication". Considering the responses to other items, however, it appears that physicians have no clear expectations of how pharmacists can apply that knowledge in practice. Physicians also agreed the most in the study by Tahaineh et al ⁸ with statements 5 and 6. However, the degree of agreement was much less than the results of the current study as only 58.8% and 62.5% have agreed about statements 5 and 6 respectively. Our results were very similar to those obtained in the studies conducted in Kuwait (79.8% and 77.1% respectively) ¹⁰ and Sudan (87.9% and 81.8% respectively) ¹¹ regarding statements 5 and 6.

Interestingly, the physicians did not disagree on the statements describing the core elements of pharmaceutical care. However, as it would be expected, they disagreed on the statements that pharmacist should be allowed to prescribe medications.

Does the current level of pharmacy practice match physicians' expectations?

This part of the questionnaire measured physicians'

actual experiences with pharmacists, regardless of what they may expect of pharmacists. Unfortunately the results indicated that physicians didn't have a positive experience with pharmacists providing patient care.

The results for statements 6 indicate that pharmacist matched physicians' expectations (see current expectations section) with being a reliable source of general drug information. This was similar to the results obtained in the study from Kuwait¹⁰ where more than 50% of physicians agreed on statements 1 and 6. However, the physicians had positive experience (more than 50% agreement) only on statement 6 in the study by Tahaehai et al⁸ and statements 6 and 7 "pharmacists are a reliable source of clinical drug information" in the study from Sudan¹¹.

Physicians experience with the pharmacist prescribing medications was not encouraging as only approximately one fourth of them agreed that pharmacists were successful in treating minor ailments or prescribing for patients with chronic diseases (statements 14 and 15). This result matches the physicians' expectations as indicated above in the current expectations section. Although the regulations in Jordan don't allow pharmacist to diagnose diseases or dispense medications without a prescription, it is known that most pharmacists are involved in diagnosing and managing minor ailments and dispensing medications without prescription.. The negative experience of physicians with pharmacists in this regard is alerting since many patients in Jordan avoid visiting the physicians for minor ailments in order to save time for setting up an appointment or waiting in the physician's office as well as for financial concerns.. Therefore, an emphasis to change the pharmacy education in all pharmacy schools in Jordan to help in producing more skillful and knowledgeable pharmacists who are able to meet the patients' needs is needed especially for managing and monitoring minor ailments.

Perhaps, most importantly, was the finding that the majority of physicians didn't believe that pharmacists are

ready to take personal responsibility for resolving drug-related problems they discover. The main reasons behind this negative experience regarding pharmacist providing pharmaceutical care is probably that most pharmacists currently don't have enough therapeutic knowledge or adequate clinical skills.

Lack of appropriate therapeutic knowledge or clinical skills can be considered as the main barrier for the pharmacists' involvement in patient care. The main pharmacy schools in Jordan became aware of this issue in the late 90s and have implemented major curricular changes to overcome this issue. The main change was introducing the PharmD and the master of clinical Pharmacy programs in the main schools of pharmacy in Jordan.

The results of this section could not be compared to previous studies from Jordan, Kuwait and Sudan^{8, 10, 11} as these studies did not cover the physicians experience regarding pharmacist practicing pharmaceutical care.

What are physicians' future expectations regarding pharmaceutical care and the expanding role of pharmacists in Jordan?

The results of this part were very promising (Table 4) as physicians did not only agree on most of the statements (81% of statements) but also the agreement was by more than two third of them in most of the statements. This represents a substantial change compared to the current expectations part in Table 2. The change in physicians' expectation for the future could be explained by the following:

1. Before administering this part of the questionnaire, physicians were introduced to the concept, definition, history and practice of pharmaceutical care, its importance and evidence of its value, including results of major studies. This may indicate the importance of educating physicians about pharmaceutical care as a tool to change their attitude.

2. Most of the pharmacists the physicians had

experience with in the past had a BSc degree and did not have enough clinical training. Now physicians realize that future pharmacist are PharmD or Master of Clinical Pharmacy holders who are expected to have much more clinical knowledge and skills.

The results of this part could not be compared to previous studies from Jordan, Kuwait and Sudan^{8,10,11} as these studies did not cover the physicians' future expectation regarding pharmaceutical care and the expanding role of pharmacists.

Limitations of the study

The results of the study should be considered within the context of its limitations. Although the study questionnaires were used in several published studies, they were not fully validated and therefore the average score of each part may not be highly valid. However this doesn't affect the validity of the study results as the

response rate for each item was considered separately in deciding if physicians agree or disagree about a statement and was the primary outcome in this study.

Conclusions

Physicians in Jordan do not disagree with the concept of pharmaceutical care. They also accept traditional pharmacy services such as educating patients about their treatment. However they have bad experience with pharmacists providing pharmaceutical care or expanding their service. They do not think that pharmacists are currently ready to practice such service. It will be interesting to examine the change in physicians' expectations and experience in the future with the increasing number of PharmD and Master of Clinical Pharmacy graduates.

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