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Key Words: Community pharmacist, attitudes, role of pharmacist, satisfaction.

Abstract
Objectives: *The main aims of this study were to assess society's use of community pharmacies; evaluate attitudes towards the role of the community pharmacist; and describe required pharmacist characteristics and future services.*
Study design: *A cross-sectional survey with a stratified sampling technique.*
Methods: *A self-administered, validated, questionnaire was distributed to 500 consumers in attendance at 50 community pharmacies in Baghdad, Iraq. Data were gathered from January to April 2012. Mann-Whitney and Kruskal-Wallis tests were performed to test for statistical differences among the study variables. Further analysis through the Chi-square test and logistic regression was completed to assess the predictors of society's attitudes.*
Results: *Twenty-six percent of respondents visited their community pharmacies at least once per week and an additional 65% reported visiting their pharmacy at least once per month. Fifty-five percent of respondents listed the community pharmacist as the first person they would contact in case of any drug-related problem. However, the pharmacist's role was under-appreciated by the majority of respondents (79.8%). These attitudes varied significantly with regard to the demographic characteristics of respondents. Logistic regression analysis showed that gender and age were the influential predictors of favourable versus non-favourable attitudes towards the role of pharmacist.*
Conclusions: *The use of community pharmacies in Iraq was characterized by frequent visits to purchase medicines. Selection of the pharmacy primarily depended on its location. Overall, an under-appreciation of the professional performance of pharmacists was predominant. Raising public awareness towards the important role of community pharmacists in providing public health is warranted.*

Introduction

Community pharmacists are the health professionals most accessible to the public. They supply medicines in accordance with a prescription or, when legally permitted, sell them without a prescription.[1] In Iraq, pharmacists working in community practice settings are graduate pharmacists with a B.Sc. or higher degree.[2] The presence of a pharmacist is required legally during the dispensing process.

Generally, Iraqi society relies on community pharmacies to obtain medicines or to seek medical advice from a pharmacist they trust. This direct interaction with the pharmacist generates opinions and views about the given services. Therefore, accurate information regarding these views, attitudes, and perceptions is crucial if the pharmacists and/or pharmacies are to expand their roles.[3] Studies on public views towards community pharmacists have been conducted in Middle East countries.[4,5] Yet, information from Iraq is not available; and addressing that provides base line data before introducing new strategies for public health.[3]

A review of studies conducted in several Arabic countries showed relatively poor attitudes towards the role of the community pharmacist. In Jordan; society has not readily considered the community pharmacist as a health care professional.[4] Negative views and lack of privacy during the dispensing process have been reported by Saudi people.[5] Infrequent interaction between pharmacists and pharmacy-attendees has been reported in Kuwait.[6] Only in Palestinian society, have positive perceptions been reported concerning the services given by community pharmacies.[7] Most of these findings are in contrast to those reported in developed countries; positive attitudes and opinions towards the role of

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community pharmacist as well as satisfaction in the provided services have been documented frequently.[8-10] Research findings have confirmed the positive contribution and the potential of the professional performance of pharmacists in providing public-health initiatives.[11] Interestingly, a broadening of this role has been suggested for better involvement in health promotion and prevention activities.[8,12]

In order to provide a starting point for the identification of Iraqi public views about community pharmacists; this study was conducted to assess public use of community pharmacies in Baghdad (in terms of number of visits, reasons for a visit, and factors used for selecting a pharmacy); evaluate attitudes towards the role of community pharmacists; and determine required pharmacists' characteristics and future services (such as patient records, availability of diagnostic and screening services, direct contact with the physician, automatic processing of the prescription, and immunization services).

Method

Methodological approach

A cross-sectional study using a pre-piloted and validated questionnaire was conducted among consumers attending pharmacies located at different regions of Baghdad, the capital of Iraq, from January to April 2012. The study obtained approval by the Syndicate of Iraqi Pharmacists (SIP), the main body responsible for the public pharmacies in the country.

Sample frame

Community pharmacies in the city of Baghdad were stratified according to the major geographical areas; North, South, East, West, and Centre. Then, 10% of all pharmacies were selected randomly and a list of 50 pharmacies was compiled. Ten consumers from each selected pharmacy were recruited by convenience sampling to provide 500 unit consumers.[13] The selected community pharmacies were visited and each visit took about 2 hours duration by the researcher. A cover letter explaining the aim of the study was given to the pharmacist in-charge for his her permission. Further, a written consent form was given to potential respondents to obtain their agreement for participation. Study participants included both genders, individuals above 18 years of age, ability to read and write, and not being too tired due to illness.

Study tool

A self-administered questionnaire was developed through reviewing various literature sources.[10,12] It was designed with 4 parts; Part 1 encompasses demographic data (gender, age, educational levels, monthly income levels, and disease status). Part 2: The use of community pharmacy (number of visits, reason/s of visiting a pharmacy, the main influence to select a pharmacy, and the first person to consult) in which a multiple choices answer was used. Part 3: Attitudes towards community pharmacists (a set of ten relevant dimensions was examined). A four-point Likert scale ranging from "strongly agree" to "strongly disagree" was adopted to assess respondents' attitudes level. The options "strongly agree" and "agree" revealed positive attitudes/responses. Whereas, negative attitudes/responses were indicated by the options "strongly disagree" and "disagree". Part 4 of the questionnaire contains consumers' views about required pharmacist characteristics and future services that should be available in the community pharmacy.

Face validity of the questionnaire was assessed with randomly selected pharmacy-users for clarity of questions and language. Content validity was assessed with groups of social pharmacy experts for relevance, comprehension, and acceptability. Then, the questionnaire was piloted among 20 respondents, conveniently selected from different community pharmacies in the city, who were not considered for participation in this study. Reliability assessment was computed for the attitude responses to test the internal consistency of the 10 attitudinal items.

Statistical analysis

Data were coded, entered, and analysed using the Statistical Package for Social Science (SPSS) version 17. Descriptive results were presented as frequencies and percentages for categorical variables; while mean ($\pm$SD) and median for continuous variables. In the section assessing attitudes toward pharmacists, the positive attitudes/responses were given a score of 4 for strongly agree and "3" for agree; whereas, the negative attitudes/responses were given a score of "2" for disagree and "1" for strongly disagree. The maximum total score for the sum of the ten items was 40 (4 x 10). A value of more than 70% of the total attitude score (that is, greater than 28) was described as a Favourable attitude.[14] A value less than or equal to 28 was described as a Not-Favourable attitude. The one-sample Kolmogorov-Smirnov Test was used to assess the normality of data distributions. The data distribution was found to be skewed; therefore, Mann-Whitney and Kruskal-Wallis techniques were used to test for significance differences among the study variables at a priori significance level of 0.05. The Chi-square test was used to detect respondents' differences in their level of attitudes. Logistic regression analysis was performed to identify significant predictors of Favourable attitudes. Variables that were found significant through Chi-square analysis were included in the Logistic Regression prediction analysis. The dependent variable in the prediction model was 1 = Favourable versus 0 = Not-Favourable attitude.

Result

Socio-demographic characteristics of respondents

A total of 410 questionnaires out of 500 was completed and returned to the researcher giving a response rate of 82%. Cronbach's Alpha value of reliability test was 0.78 for the 10 attitude items. Slightly more than half (52.9%) of respondents were males. Mean age of all respondents was 37(±9.5) years with a range of 19-70 years. The socio-demographic characteristics of respondents are summarized in Table 1.

Public's use of community pharmacies

The majority of respondents (64.9%) have visited community pharmacies once or more/month, while few of them (26.3%) and (8.8%) stated once or more/week and every few months, respectively. The main reasons of such visits were to purchase medicines (71.2%), seeking medical advice (23.9%), and to purchase Para-pharmaceutical products (4.9%). When asked about factors that would lead them to select any particular pharmacy; more than half of respondents (52.2%) indicated the nearest location of a pharmacy, knowledge of the pharmacist (20.2%), physician (17.1%), good prices (5.6%), and availability of medicines (4.9%).

Public's attitudes towards community pharmacists in Baghdad

For medicine-related problems, respondents reported that the first person they contacted was a pharmacist (55.4%), a physician (25.0%), a nurse (6.6%), family/friend (6.3%), or rely on their knowledge (5.6%). A wide range of answers was given for the items that reflected respondents' attitudes towards the community pharmacist, through the use of four-point Likert scale, as described in Table 2. Overall, scores for all ten items indicated that the majority of respondents (79.8%) had negative attitudes (low scores) towards the current role of community pharmacist. However, statistically significant differences of public attitudes were found among respondents as shown in Table 3. The Mann-Whitney test detected significant differences among genders ($P<0.001$). The Kruskal-Wallis test revealed significant differences among the age groups ($P=0.024$), educational level groups ($P<0.001$), number of visits ($P=0.04$), reasons of the visit ($P<0.001$), and selection of a pharmacy ($P<0.001$).

Predictors of Favourable Atttitudes towards community pharmacists

With respect to the prediction analyses, variables were associated with significant differences in the proportion of Favourable (summated score greater than 28) versus Not-Favourable (summated score less than or equal to 28). Chi-square analysis findings are reported in Table 4. Genders, age groups, educational levels, reasons of the visit, and selection of a pharmacy were the significant influential factors in the univariate analysis. One variable, Number of Visits, was not significant due to the unequal cell sizes in the Chi-square analysis.

Thus, Gender, Age groups, Educational levels, Reasons for visits, and Selection of pharmacy were used as independent variables for logistic regression analysis. Overall, the Logistic Regression model was statistically significant ($\chi^2=134.437$, DF=5, $P<0.001$). Two of the independent variables (gender and age groups) were significant predictors of Favourable attitudes (see Table 5). The odds ratio for gender was 6.838 (95%CI: 3.608-12.958) with females being 6.8 times more likely than males to have a positive attitude towards pharmacists when all other variables are held constant. The odds ratio for the age groups was 2.023 (95%CI: 1.392-2.939) with each successive older age category being, on average, 2.0 times more likely than the preceding younger age category to have a positive attitude towards pharmacists.

Required pharmacist characteristics and future services

Respondents documented their views about some qualifications that should characterize the community pharmacist. They were medication knowledge (57.3%), good understanding of consumers (24.0%), less business-oriented (17.3%), and honesty (1.4%). The most desired future services that should be available for public at community pharmacies were availability of diagnostic and screening services (59.0%); direct contact with the physician (23.7%); and automatic processing of prescriptions (16.3%).

Discussion

This is the first study in Iraq that evaluated the general concepts and views towards the community pharmacist. Negative attitudes were predominant among the general public. Such data are important in the development of public health programs and crucial for the growing interest in broadening the role of community pharmacists to provide primary health management.[13]

In our study, good access to the community pharmacies was noted in which purchasing medicines was the main reason. This is in line with other studies that have investigated public's attitudes towards community pharmacies in Middle East countries.[7, 15, 17] Therefore, it can be inferred that access to community pharmacies in these countries did not appear to be an important barrier for utilizing the given services as has been identified for other populations.[18, 19]

Efficient public-pharmacist contact is essential to improve the use of medication and ensure optimal therapy outcomes. The

community pharmacist was mentioned as the first person to contact for drug related problems by more than half of respondents. This is promising in terms of expanding and developing the current role of community pharmacists in Iraq.

With regard to the response shown in the list of attitude-items, an under-appreciation of pharmacists was predominant among respondents. Under this view, the current pharmacist's role in Iraq is mainly conceptualized as supplying products. This confirms previous findings of earlier surveys from other developing countries.[5, 6] In addition; levels of the public's attitude were associated with their demographic characteristics, number of visits, reasons of a visit, and selection of a pharmacy. Logistic regression analysis showed that females and older age groups were more likely to have Favourable attitudes towards pharmacists. More research is needed for describing and understanding the predictors of Favourable attitudes towards pharmacists.

Characteristics of the community pharmacist for the future were described in this study. Medication knowledge, good understanding of consumers, less business-oriented, and honesty were the most desired qualifications identified by respondents. Understanding what pharmacist-skills that are most important to the society is of paramount importance in monitoring drug therapy and serving as a drug information provider.[17]

Positive opinions about introducing future pharmacy-services like diagnostic and screening services, direct contact with the physician, and automatic processing of prescriptions have created sufficient demand to bring these services into practice. Previous research has shown that these services are important for the development of pharmacist-primary care collaboration.[11, 17, 20] Overall, findings from this study describe the current use of community pharmacies and the general image towards the role of pharmacists in Iraq.

Limitations

Findings from this study should be interpreted with study limitations in mind. A convenience sample was used for this study and may not fully represent the whole public in Iraq. Our focus was on describing attitudes held by people who use pharmacies. Further study on other populations like those who use hospital pharmacies is warranted.

Conclusion

This study highlighted a set of concepts understood by pharmacy-users as part of the current practice of pharmacy in Iraq. Public use of community pharmacies was characterized by frequent visits to purchase medicine. The location of a pharmacy motivated the respondents to select a particular one. The professional performance of the pharmacist was under-appreciated by the participants in this study. Therefore, efforts are warranted to promote the pharmacist's role as a primary provider of public health and to include such pharmacy practice topics in the pharmacy curriculum in Iraq.

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Table 1 Characteristics of respondents [N=410]

Categories	n(%)
Gender	
Male	217(52.9%)
Female	193 (47.1%)
Age groups	
< =33 years	148(36.1%)
34-43 years	138(33.7%)
> =44 years	124(30.2%)
Educational levels [a]	
Low	33(8.0%)
Average	217(52.9%)
High	160(39.0%)
Disease status	
Present	197(48.0%)
Not present	213(52.0%)

[a] Low (primary-secondary schools), Average (High schools Institutes), and High (College-Postgraduate).

Table 2 Response to the attitudes items [N = 410]

Items	n (%)			
	Positive Attitudes		Negative Attitudes	
	SA	A	DA	SDA
The pharmacist takes my prescription and initiates a dialogue with me to obtain sufficient information.	43(10.5%)	134(32.7%)	204(49.8%)	29(7.1%)
The pharmacist asks me about the disease that I suffer from.	34(8.3%)	125(30.5%)	154(37.6%)	97(23.7%)
The pharmacist checks my prescription for accuracy in term of name of drug and dose.	56(13.7%)	90(22.0%)	180(43.9%)	84(20.5%)
The pharmacist gives me enough time to discuss my problem and listen to me carefully.	20(4.9%)	157(38.3%)	198(48.3%)	35(8.5%)
The pharmacist informs me about the main side effect of my medication and explains how to avoid it.	21(5.1%)	31(7.6%)	341(83.2%)	17(4.1%)
The pharmacist answers my drug related questions.	31(7.6%)	175(42.7%)	204(49.8%)	-
The pharmacist helps me in the selection of Para-pharmaceutical products.	5(1.2%)	73(17.8%)	146(35.6%)	186(45.4%)
The pharmacist maintains the privacy concerning my medicine.	46(11.2%)	116(28.3%)	193(47.1%)	55(13.4%)
The pharmacist is available in the pharmacy to answer my questions.	-	47(11.5%)	363(88.5%)	-
The physician will be satisfied if I ask the pharmacist.	-	26(6.3%)	384(93.7%)	-

Note: SA = strongly agree, A = agree, DA = disagree, SDA = strongly disagree

Table 3 Differences in respondents' attitudes scores toward the role of pharmacist [N=410]

Categories		Attitude Scores [a]		P value
		Mean (±SD)	Median	
Gender	Male (n = 217)	21.87 (±3.04)	21.0	< 0.001*
	Female (n = 193)	26.49 (±2.13)	27.0	
Age groups	≤ 33 (n = 148)	22.90 (±3.02)	23.0	0.024**
	34-43 (n = 138)	23.65(±2.73)	24.5	
	≥ 44 (n = 124)	24.45(±3.11)	25.0	
Educational levels [b]	Low (n = 33)	25.24 (±3.07)	24.0	< 0.001**
	Average (n = 217)	25.22 (±3.34)	26.0	
	High (n = 160)	22.20(±3.02)	21.0	
Disease status	Present (n = 197)	23.81(±3.68)	23.0	0.10
	Not Present (n = 213)	24.26(±3.34)	25.0	
Number of visits	≥ 1/week (n = 108)	24.58(±3.70)	25.0	0.04**
	≥ 1/month (n = 266)	23.98(±3.49)	24.0	
	Every few months (n = 36)	22.86(±2.75)	23.0	
Reason for visit	Medicine (n = 292)	23.49(+3.30)	23.0	< 0.001**
	Medical advice (n = 98)	26.72(+4.04)	28.0	
	Para-pharmaceutical products (n = 20)	24.55(+2.56)	25.0	
Selection of a pharmacy	Location (n = 218)	23.90(+3.59)	24.0	< 0.001**
	Physician (n = 75)	24.18(+3.29)	28.5	
	Pharmacist's knowledge (n = 73)	30.78(+2.01)	30.0	
	Good prices (n = 24)	24.11(+3.66)	23.0	
	Availability of medicines (n = 20)	23.78(+2.92)	24.0	

* Mann- Whitney test ** Kruskal- Wallis test

[a] Summated 10-item measure with each item rated from 1 = strongly disagree through 4= strongly agree. Potential range of scores was between 10 and 40; Theoretical midpoint = 25.

[b] Low (primary-secondary schools), Average (high schools-institutes), and High (college-postgraduate).

Table 4 Favourable (score >28) versus Not-Favourable (score ≤ 28) attitudes (univariate analysis)

Categories		Public attitudes n(%)		P value
		Favourable	Not-Favourable	
Gender	Male	23 (10.6%)	194 (89.4%)	< 0.001*
	Female	73 (37.8%)	120 (62.2%)	
Age groups	(≤ 33)	25(16.9%)	123(83.1%)	0.003*
	(34-43)	29(21.0%)	109(79.0%)	
	(≥ 44)	42(33.9%)	82(66.1%)	
Educational levels [a]	Low	8 (24.2%)	25 (75.8%)	< 0.001*
	Average	73(33.6%)	144(66.4%)	
	High	15(9.4%)	145(90.6%)	
Number of visits	≥ 1/week	79(73.1%)	29 (26.9%)	0.436
	≥ 1/month	61(22.9%)	205(77.1%)	
	Every few months	6(16.7%)	30(83.3%)	
Reason for visit	Medicine	251(86.0%)	41 (14.0%)	<0.001*
	Medical advice	54(55.1%)	44(44.9%)	
	Para-pharmaceutical products	1(5.0%)	19(95.0%)	
Selection of a Pharmacy	Location	53 (23.0%)	165 (77.0%)	0.008*
	Physician	15(17.1%)	60(82.9%)	
	Pharmacist's knowledge	63(85.9%)	10(14.1%)	
	Good prices	-	24(100.0%)	
	Availability of medicines	-	20(100.0%)	

* Significant at P <0.05

[a] Low (primary-secondary schools), Average (high school-institute), and High (college-postgraduate)

Table 5 Predictors of attitude level (Favourable vs. Not-Favourable) towards the community pharmacist (Logistic Regression Analysis)

Variables	B estimate	SE	P value	OR	95% CI	
					Lower	Higher
Gender	1.922	.326	0.000*	6.838	3.608	12.958
Age groups	0.705	0.191	0.000*	2.023	1.392	2.939
Educational Levels	-.664	.272	0.115	0.515	0.302	0.877
Reason for visit	-1.949	0.317	0.120	0.142	0.077	0.265
Selection of pharmacy	-1.023	0.426	0.270	0.387	0.72	2.089

*Logistic regression analysis (P<0.05), the model correctly classify 85% of the cases.

Note: SE, standard error; OR, odds ratio; CI, confidence interval.
Dependent Variable was 1= Favourable and 0 = Not-Favourable (refer to text for definitions).
Categories for the Independent Variables can be found in Table 4.