

# Pharmacist's Knowledge, Attitude and Practices towards Written Prescription in Dispensing and Substitution of Drugs in Riyadh

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## ABSTRACT

**BACKGROUND:** This study was aimed to investigate the knowledge, perception and attitude of community pharmacists towards written prescription in drug dispensing and substitution at Riyadh, Saudi Arabia.

**PATIENTS & METHODS:** A qualitative methodology was adopted. Snowball sampling technique was used to identify community pharmacists. Riyadh city was divided into five sectors, which were further subdivided into two sub-regions. Ultimately, the 10 sub-regions were covered by 10 research assistance randomly. **RESULTS:** The demographic characteristics of the current study showed that majority of Pharmacists were having bachelor degree and having experience of over 10 years. Ninety-two percent ( $n = 373$ ) of the pharmacists enquired about the symptoms of disease and less than 60% asked about drug allergy while dispensing the drug. Only 35.8% and 45.7% respectively educated the patients about the drug side effects and drug interactions. The patient's request (57.6%) and the pharmacist's long experience (51.1%) represented the most common factors that guided the pharmacists to prescribe the drugs to patients without any written prescriptions. About 53% ( $n = 216$ ) of the pharmacists advised the patients to consult the physicians before prescribing the drugs requested by them. **CONCLUSION:** Patients request and pharmacists' experiences are the most important factors in determining the dispensing of drugs. The dispensing of medications at pharmacies should be more tightly regulated to ensure quality for the patient. All prescriptions should be examined for accuracy, completeness and correctness by dispensing pharmacists.

**Key words:** Drug dispensing, Pharmacist, knowledge, attitude and practice

## INTRODUCTION

The major contributor in improving public health is Community Pharmacist who by appropriate health education strategies gives extensive advice on medicine use to ensure safe and responsible self-care and promotes medication adherence as well as encourages healthy life-styles [1]. In an Arabic-speaking traditional Middle Eastern country, pharmacy education and pharmacy practice still seems to be evolving.

**الملخص**  
خلفية: يهدف البحث إلى دراسة مستوى المعرفة والإدراك وموقف الصيادلة نحو الوصفات الطبية في مجال صرف واستبدال الدواء في مدينة الرياض بالمملكة العربية السعودية. **المنهج:** دراسة نوعية اعتمدت فيها تقنية كررة التلّاح لجمع العينات من الصيادلة المستهدفين بالدراسة. تم تقسيم مدينة الرياض إلى خمسة قطاعات، وكل قطاع قسم إلى منطقتين فرعيتين لتصنيع مجموع المناطق ١٠ حيث تم جمع المعلومات منها. **النتائج:** أظهرت الخصائص الديموغرافية للدراسة أن الغالبية العظمى من الصيادلة يحملون درجة البكالوريوس مع وجود خبرة أكثر من ١٠ أعوام. استقر اثنان وتسعون في المئة ( $n = 373$ ) من الصيادلة عن أعراض المرض وأقل من ٦٠٪ منهم سأل المريض عن تاريخ الحساسية عند استخدام الدواء. فقط ٣٥,٨٪ شرح للمريض الاعراض الجانبية للدواء، و ٤٥,٧٪ وضح لهم تفاعلات الدواء. أكثر العوامل التي تؤدي إلى صرف الدواء من غير وصفة، طلب المريض (٥٧,٦٪) ثم طول خبرة الصيدلي (٥١,١٪). وجّدت الدراسة أن حوالي ٥٣٪ ( $n = 216$ ) من الصيادلة ينصح المرضى باستشارة الأطباء قبل اعطائهم الأدوية التي يطلبونها. **الاستنتاجات:** أكثر العوامل التي تؤدي إلى صرف الدواء من غير وصفة هي طلب المريض و طول خبرة الصيدلي. صرف الأدوية في الصيدليات ينبغي ان يكون اكثر تنظيماً و إحكاماً لضمان الجودة للمرضى. كما يجب على جميع الصيادلة فحص كل الوصفات الطبية للتأكد من دقتها، و اكمالها، و صحتها.

For hundreds of years, the physician in order to communicate decisions on drug therapy and the pharmacist in order to dispense medication largely depended upon handwritten prescription. At the same time, it has acted as a source of information for the patient about how to use the medication in order to maximize its benefit. The biggest culprit causing problem is believed to be the handwriting of the prescriber. The number of new drugs and large influx of novel drugs in the market has been increasing at

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an almost alarming rate during the last few years; careless handwriting by the prescriber is, therefore, inexcusable. The pharmacist should revert to the prescriber in a situation of doubt however, what happens when he is not in doubt?

Incomplete prescription seems to be another problem where the prescriber has failed to provide one or more of the essential particulars. It is a cardinal point with pharmacists that confidence between the patient and his doctor is vital and anything that is likely to disturb this confidence is to be avoided if possible. The pharmacist is therefore reluctant to allow the patient to see that he is in any doubt about the prescription.

Regulation of the written prescriptions used by apothecaries in dispensing drugs appeared in one of the earliest known statutes on the control of drugs. Over the following centuries, both the "recipe" for drug composition and the dispensing of medications at pharmacies became more and more tightly regulated and became subject of inspection by the authorities in order to ensure quality for the patient. Self-medication is defined as "the product for the treatment of a disease or symptom or for disease prevention or promotion of health without a professional prescription". Dispensing pharmacists are now obliged to examine all prescriptions for accuracy, completeness and correctness.

Prescribers should first evaluate the evidence for efficacy, safety and quality while prescribing compounded medicines. He should prescribe detailed formulation to ensure consistency of performance with the evidence based formulae. Potential barriers must be considered before this patient service can be successfully implemented. Individuals may not always recognize how pharmacists function or understand the part they play in assuring safe medication use. Saudi Arabia has a diverse population of medication users who conceivably possess different values and beliefs around drug therapy and pharmacist roles based on practices in their countries of origin.

Most situations surrounding pharmacist selection require the acquisition and assessment of patient information; analysis regarding proper drug selection and use and clinical judgment regarding suitability of drug therapy. Heterogeneous patient groups in Saudi Arabia may not recognize the abilities of

pharmacists to provide this care thereby averting a time-consuming medical office visit.

Due to limited publications describing the knowledge, attitude and Practice of Pharmacist in Drug dispensing, we were unable to identify any published reports that provided an overall and comparative summary of the general conditions of pharmacist education and practice in territorial capital Riyadh, Saudi Arabia.

The objectives of this study were to characterize the community pharmacists' attitudes and practices of drug dispensing and to evaluate the factors to enhance self-prescription.

## METHODS

### Study selection:

The current cross-sectional study targeted the pharmacists who were working in Community Pharmacies. There are 1500 Community Pharmacies distributed in Riyadh city, Saudi Arabia, where the study has been conducted.

Data obtained was based on series of questionnaire. To validate and improve the quality of questionnaire, a randomized pilot study was carried on 24 pharmacists before conducting the main study. Questionnaire items were developed from literature reviews and consultation with pharmacy lecturers. Informed consent letters were obtained from the pharmacist before completing the questionnaire.

### Evaluation process:

The questionnaire used for this study included two groups of questions. The first one focused on the personal data, including (age, qualification of the pharmacists, years of experience, latest CME attended), and the second one represented the main items that assess the pharmacist attitude and practice toward drug dispensing, including (asking about patient health and complain before prescription, educating patient about the drug and the factors which lead for self prescription).

### Participants:

The study participants were pharmacists in community settings. The sampling frame comprised of pharmacists practicing in community pharmacies located near the doctors' clinics. This close association

of pharmacist with doctor's clinics allowed the pharmacists to receive high inflow of patients.

#### Sample size and sampling technique:

The study was carried out by using a multi-stage randomized sampling technique. Riyadh city was divided into five sectors (Northern, Southern, Eastern, Western & Central) considering the discrepancies in population density & socioeconomic status among the different regions of the city. Each sector divided into two sub-regions. Ultimately, the 10 sub-regions were covered by 10 research assistance randomly; each research assistant was responsible for one sector. The pharmacies were selected randomly from each sector.

Nonprobability sampling strategy, i.e., snowball sampling was adopted. Snowball sampling is the best way to locate respondents with certain attributes or characteristics and is instrumental in difficult to reach populations [2]. In snowball sampling, the first respondent is identified by the researcher and the first is asked to suggest more research participants. In this way, the research sample evolves in a similar fashion a snowball enlarges while rolling down a hill.

#### Inclusion and exclusion criteria:

If a single pharmacy was found to have more than 2 pharmacists then both of them were included in the study. Pharmacist whose experience was less than 6 months and also the pharmacists who were working in more than 2 pharmacies belonging to one company within one sector were excluded from the study.

The authors trained the research assistants to collect the data through personal interview during March, 2006. Refusal rate was 10% which was due to either pressure of time or administrative commitments.

#### STATISTICAL ANALYSIS

Data from the questionnaire forms were coded and fed on statistical software SPSS (SPSS-20 version) for analysis. Summary and description of all variable has been produced where mean, percent and standard deviations were used (when required). Analytical statistics using chi-square test to measure association between different variables and socio-demographic characteristics of pharmacists was also done.

#### RESULTS

##### Sociodemographic Data of the Community Pharmacist in Riyadh

A total of 405 pharmacists were included in the present study. Detailed demographics of the community pharmacist are shown in Table 1. Of these, 69.9% ( $n = 283$ ) were Egyptians. About 90% ( $n = 362$ ) of the pharmacists were below age of 40 years. The majority (92.4%;  $n = 374$ ) of them were having bachelor degree or less. Around two third of the pharmacists have been working for >5 years. Twenty two percent of total pharmacists had an experience exceeding 10 years. Two third of the pharmacists attended continuous medical education (CME) activity during the last six years, and 43.2% of the pharmacists attended CME activities during the last one year of the study. Only 28.9% ( $n = 117$ ) of pharmacist never attended any CME activities.

##### Information obtained during drug dispensing by pharmacists

The Pharmacists were asked to list the information gathered before dispensing the drug. Ninety-two percent ( $n = 373$ ) of the pharmacist asked the patients about their symptoms before drug dispensing. The majority of the pharmacists (>90%) were usually concerned in inquiring about the possibility of pregnancy and lactation provided the drug was to be used by women. Less than 60% of the pharmacists asked about any drug allergy while dispensing the drug and less than 30% concerned about the patient nutrition (Graph 1).

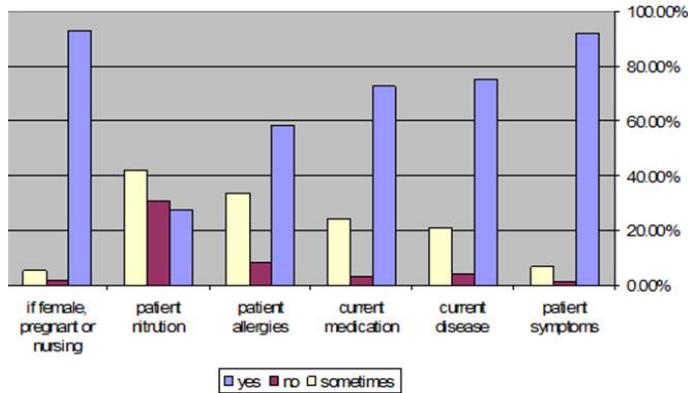
##### Instruction given while dispensing drug by pharmacists

Most of the pharmacists 401(99%) made aware the patients of how to use the particular prescribed drugs, 339 (83.7%) educated them about its frequency and 309 (76.3%) informed them about its duration. However, only 145 (35.8%) and 185 (45.7%) educated the patients about the drug side effects and drugs interaction respectively, (Figure 2).

##### Factors responsible for dispensing drugs without written prescription

The patient request (57.6%), the pharmacist's long experience (51.1%) and the pharmacists' knowledge and background (46.3%) represented the most common factors that guided the pharmacists to prescribe the drugs to patients without any written

prescriptions, (Table 2).

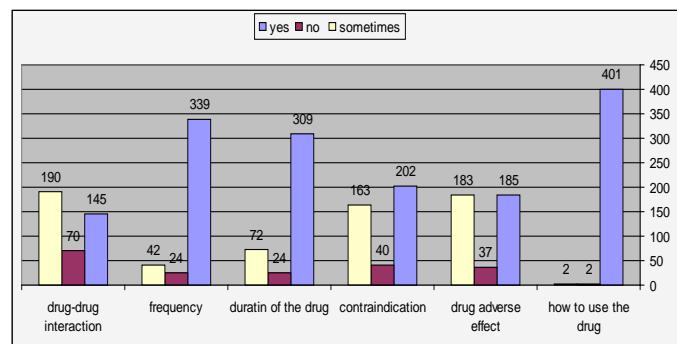


**Figure 1:** Information gathered from patients while dispensing the drug

About 53% ( $n = 216$ ) of the pharmacists asked the patients to consult the physicians before prescribing the drugs requested by them. On the other hand when the patients insisted for a drug, only 6.7% ( $n=27$ ) of the pharmacists refused to give them the medication.

**Table 1:** Sociodemographic Data of the Community Pharmacist in Riyadh

Demographic Parameter	Subdivisions	(%)
Nationality	Egyptian	69.9
	Others	30.1
Area in Riyadh	Eastern	19.8
	Southern	19.3
	Western	20.2
	Northern	21.2
	Central	19.5
Age Group	≥40	10.6
	<40	89.4
Professional Qualification	Undergraduate Diploma	3.5
	Bachelors	88.9
	Masters	6.9
	MD/PhD/Pharm D	0.7
Experience	≤5 years	37.5
	>5 years	62.5
Last CME Activity	2005-2006	43.2
	2004-2005	14.1
	2002-2003	13.8
	NO CME Attended	28.9
Total		405



**Figure 2:** Educating patients regarding the information of drug by pharmacist while dispensing drugs

According to the pharmacists, the most common factors that led the patients to ask for drugs, without any prescription, were the economic status of the patient (79.9%), or the previous symptoms treated by similar medication (77.3%), or the refilling of the drug (69.6%) or the patient taking his/her symptoms casually (66.7%), ( Table 3)

**Table 2:** Factors responsible for prescribing drugs without prescription by pharmacist

Factors	Agree		Disagree		Undecided	
	Freq	%	Freq	%	Freq	%
Patients request	159	57.6	95	34.4	22	8
The pharmacists' long experience	141	51.1	94	34	41	14.9
The pharmacists' knowledge and background	126	46.3	100	36.8	46	11.4
Treating previous similar cases	103	37.7	138	50.6	32	11.7
Taking patient's symptoms simply	64	23.6	176	65	31	11.4

## DISCUSSION

The physician or pharmacist who pursues his profession without a deep sense of duty to the public welfare misinterprets his calling, if, indeed, he be worthy of entering its sacred ranks. Altruism not selfishness must be the dominating motive of both professions. The desire to serve suffering humanity must overshadow personal comfort; off times it must disregard personal gain. In this public service the work of the two professions is so closely akin and so interdependent that physician and pharmacist should form a closer alliance to be kept inviolate until death do us part. By the united and intelligent efforts of each other, satisfactory results could be insured.

When a prescription leaves the hands of the doctor, he expects it to fall into the hands of a competent and conscientious druggist. There is no check on the work of the pharmacist, and if he happens to be inefficient or unprincipled, the physician's skill and knowledge may go for naught. It is no reflection upon the doctor to say that occupied with the graver problems of diagnosis and treatment, he occasionally misjudges the solubility and chemical relations to the ingredients of his prescription [3].

Table 3: Community pharmacists opinion regarding the patients requesting drugs without prescription

Factors	Agree		Disagree		Undecided	
	Freq	%	Freq	%	Freq	%
Economical status of the patient.	223	79.9	35	12.6	21	7.5
Previous symptoms treated by similar medication	218	77.3	42	14.9	22	7.8
Refill of the drug	181	69.6	46	17.7	33	12.7
Taking his/her symptoms simply	184	66.7	59	21.4	33	11.9
Getting late appointments in the hospital	142	51.8	85	31	47	17.2
Emergency cases which need fast intervention	113	41	121	43.8	42	15.2
Difficulties to reach medical centers	113	40.8	111	40.1	53	19.1
Loss of trust with doctors	65	23.4	156	56.1	57	20.5

Preventable Preventable drug-related problems due to inappropriate prescribing, under-prescribing, and inappropriate medication use contribute significantly to both the economic and human costs of health care [4-6]. Several studies have demonstrated that pharmacists have a vital role to play in drug therapy management, thus enhancing overall patient health outcomes. Therapeutic agents beneficial in themselves are frequently deleterious when combined and it is for the pharmacist to exercise care, discrimination and accuracy in interpreting the therapeutic intent of the physician. Every prescription received must be filled with due regards not only for the reputation of the physician and pharmacist, but for the safety and welfare of the patient. How

inseparable the two professions are is illustrated in the fact that when you think of the physician you think of the prescription and when you think of the prescription you think of the pharmacist. Such is the ideal condition, but unfortunately, not always to be met with today. What conditions obtain? Each of the professions has its grievances. That the physician has much to hear, that he has been patient and long-suffering we will not question [7-9].

Medication safety has long been recognized as a key issue within the broader patient safety agenda [10,11]. A number of studies have shown that medication error is relatively common and identified a range of contributory factors occurring at the individual (for example, fatigue and training) and organisational (for example, staffing, organizational climate and system design) levels of analysis [12,13].

A prospective self-report study in a sample of 35 British community pharmacies found an incidence rate of 22 near misses and four errors for every 10,000 items dispensed [14]. A similar error rate (0.26%) was found in an observational study of a single pharmacy in the United States [15]. In both cases, errors were attributed to a range of factors, including misidentification of drugs, workload, distractions and dispensing against product labels created during the process rather than against the prescription itself. Meanwhile, Peterson, Wu & Bergin [16] note concerns among Australian community pharmacists that an increase in workload is creating more opportunities for dispensing errors to occur, and Szeinbach, Seoane-Vazquez, Parekh & Herderick [17], found a relationship between volume of prescriptions and frequency of dispensing errors in a self-report survey of US community pharmacists.

Pharmacy education and practice is continuing to evolve in the Arabic-speaking traditional Middle East countries, although with relatively less information. In the present study the knowledge, perception and attitude of community pharmacists towards written prescription in drug dispensing and substitution at Riyadh, Saudi Arabia was evaluated. To the best of knowledge, there is no similar study being conducted in kingdom of Saudi Arabia.

In Saudi Arabia, the first college of pharmacy was established in King Saud University (KSU), Riyadh,

in 1959 [18]. The first year commenced with the enrollment of 17 students. Currently the total number of students in the College of Pharmacy at KSU has increased to over 1500 students. Other schools of pharmacy have since been established in Saudi Arabia. These include King Abdul Aziz University (KAAU) in Jeddah, the College of Dentistry and Pharmacy in Riyadh (a privately funded institution), The Faculty of Clinical Pharmacy at King Faisal University (KFU) in Al-Ehsa, and the Faculty of Pharmacy at King Khalid University in Abha. Reasons for the increase in the number of pharmacy schools include the popularity of pharmacy as a profession, an increased demand for pharmacists in the country, and the general increase in the number of high school graduates seeking to enroll in colleges. There also appears to be a reduced reliance on expatriate pharmacists in the Kingdom; hence, the need to train more pharmacists locally.

Several randomized trials have shown that pharmacists with specialized training can improve prescribing [19,20] and reduce health care use [21-23]. The current study demonstrated that around two third of the pharmacists have been working for >5 years. Twenty two percent of total pharmacists had an experience exceeding 10 years. Two third of the pharmacists attended continuous medical education (CME) activity during the last six years, and 43.2% of the pharmacists attended CME activities during the last one year of the study. Only 28.9% ( $n = 117$ ) of pharmacist never attended any CME activities.

In addition, the result demonstrated that the majority of the pharmacists were usually concerned in inquiring about the possibility of pregnancy and lactation provided the drug was to be used by women. Less than 60% of the pharmacists asked about any drug allergy while dispensing the drug and less than 30% concerned about the patient nutrition. Most of the pharmacists made aware the patients of how to use the particular prescribed drugs. Also most of the pharmacist educated them about its frequency and informed them about its duration. The patient request (57.6%), the pharmacist's long experience (51.1%) and the pharmacists' knowledge and background (46.3%) represented the most common factors that guided the pharmacists to prescribe the drugs to patients without any written prescriptions. According to the pharmacists, the most common factors that led the patients to ask for drugs, without

any prescription, were the economic status of the patient, or the previous symptoms treated by similar medication, or the refilling of the drug or the patient taking his/her symptoms casually [24,25].

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