

# PHARMACY PRACTICE

## Prescribing pattern at community pharmacies in Saudi Arabia

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### Summary

*Rational informed self-medication is an essential part of any health care system. This study was conducted to determine the nature and extent of self-medication purchases at community pharmacies in Riyadh, Saudi Arabia. The data were collected and recorded for one and one-half h, one working day of the week, between six and eight p.m., at 15 community pharmacies operating for 24 hours, using a specially designed survey form. Out of the 347 patients surveyed, 89 obtained their drugs by prescription, 147 obtained OTC drugs, and 111 customers purchased cosmetics and similar items. A total of 153 and 188 drugs were dispensed on prescription and over the counter, respectively. Out of 188 drugs dispensed over the counter, there were 66 (35.1%) drugs which should be dispensed on prescription only. Analgesics/antipyretics and dermatological drugs were the drugs dispensed most commonly over the counter, while antibiotics were the most common drugs dispensed on prescription. The study findings indicate the need to enforce the regulations governing the sale of drugs and the specification of drugs to be sold over the counter on registration as well as to improve community pharmacy practice, update the College of Pharmacy curriculum to emphasise the role of the pharmacist in self-medication, and the establishment of a licensing examination to ensure that there are qualified pharmacists in practice.*

*Prescribing pattern; Self-medication; Saudi Arabia*

### Introduction

Rational, informed self-medication is an essential part of any health care system. The health care system of all countries relies heavily on the ability of an informed public to self diagnose certain ailments and symptoms and to treat them successfully and inexpensively with the available non-prescription drugs. To put this in perspective, annual sales of over the counter (OTC) drugs in the US are approaching US\$ 10 billion, and prescription drug sales are approaching US\$ 20 billion annually. Of the 3.5 billion health problems treated in a year, over 57% are self-treated with OTC drugs<sup>1</sup>. In addition, over the past two decades the Food and Drug Administration (FDA) has approved the regrading of over 20 drugs from prescription to OTC status, including doxylamine, chlorpheniramine, ibuprofen, hydrocortisone topical (0.25 and 0.5%) and many others<sup>2,3</sup>.

Many reasons support the trend towards informed self-medication of minor medical disorders. These include the desire to reduce health care costs, the reduction in the number of visits to physicians for trivial conditions, the diminished use of folk remedies, and patient convenience. The US Food, Drugs and Cosmetics act defines a non-prescription drug as a drug for which directions for safe use by the public can be written<sup>3</sup>. It does not necessarily mean that these drugs are without danger. Like prescription drugs, OTC drugs may produce serious adverse effects, lead to allergic reactions, interact with other drugs, produce physical and psychological dependence and mask serious medical disorders which may require immediate attention<sup>4-6</sup>.

In 1978, a new law regulating the profession of pharmacy in Saudi Arabia was passed. The law demands professionalisation of pharmacy operations and prohibits the practice of pharmacy by persons other than licensed pharmacists. In addition, a pharmacist is required to dispense drugs on prescription only, except those drugs defined as OTC. However, a study conducted in the eastern province of Saudi Arabia by Al-Freihi et al.<sup>7</sup> draws attention to the potential for drug misuse due to the lack of adherence to this regulation governing the dispensing of drugs by community pharmacies.

The main objectives of this study are to characterise the self-medication at community pharmacies in terms of (i) commonly dispensed drugs, (ii) pharmacist adherence to regulations and (iii) the magnitude of self-medication in Riyadh.

### Materials and methods

In January 1988, there were 319 community pharmacies in Riyadh, Saudi Arabia, of which 20 were operating for 24 hours per day. The author surveyed only those community pharmacies open for 24 hours in Riyadh, because these cover approximately 70% of the Riyadh area and attract more customers. The data were collected using a specially designed survey form. The contents of the survey form, as well as the objectives of the study, were explained to the pharmacists. In addition, pharmacists were assured that the data would be used for research purposes only. Fifteen out of the 20 pharmacies contacted agreed to participate in the study.

A pilot study was carried out to test the validity of the survey form and to ascertain the best time to collect data. The data were collected and recorded for one and one-half hours on one working day of the week, between six and eight p.m. This time was selected for several reasons, including (i) community pharmacists recommended this as the best time for conducting the survey, (ii) the time chosen represents one of the busiest periods for public shopping in Riyadh, and (iii) the time required for data collection was short, which encouraged pharmacists to participate in the study with minimal disturbance to their work. Furthermore, the age of the customers was estimated to avoid interference between pharmacist and customer. Drugs were coded according to the Anatomical Therapeutic Chemical Classification System (ATC)<sup>8</sup> and data were analysed by a standard statistical package.

**Table 1**  
Age of person related to items purchased at community pharmacies.

Age group (Years)	OTC medicine		Prescription medicine		Cosmetics	
	No.	(%)	No.	(%)	No.	(%)
10-20	18	( 12.2)	16	( 18 )	12	( 10.8)
21-29	44	( 29.9)	23	( 25.8)	33	( 29.7)
30-39	46	( 31.3)	36	( 40.4)	49	( 44.2)
40-49	32	( 21.8)	10	( 11.2)	12	( 10.8)
>50	7	( 4.8)	4	( 4.5)	5	( 4.5)
<b>Total</b>	<b>147</b>	<b>(100 )</b>	<b>89</b>	<b>(100 )</b>	<b>111</b>	<b>(100 )</b>

## Results

An analysis of the results showed that of the 347 patients surveyed, 89 (25.6%) obtained their drugs by prescription; 147 (42.4%) obtained OTC drugs and 111 (32%) purchased cosmetics and similar items. The ratio of male to female was 3.2:1 and the mean age was 30.8 (SD  $\pm$  9.8) (Table 1).

Out of the 147 patients who obtained OTC drugs, 75% obtained one drug, 19% obtained two drugs and 5.6% obtained three or more drugs. Furthermore, 64 (43.5%) patients requested the OTC drugs by name, 50 (34%) requested the OTC drugs by showing a drug sample and 28 (19.1%) asked the pharmacist to recommend something for their illnesses. The pharmacist refused to dispense medicine for five (3.4%) patients who requested controlled drugs. On the other hand, out of the 89 patients who obtained their drugs on prescription, 46% obtained one drug, 32.6% obtained two drugs and 21.3% obtained three or more drugs.

Table 2 shows the most frequently dispensed classes of drugs with and without prescription in 15 community pharmacies in Riyadh, Saudi Arabia. A total of 153 and 188 drugs were dispensed on prescription and OTC respectively. Out of 188 items dispensed over the counter, there were 66 (35.1%) drugs which should have been dispensed on prescription only. Analgesic/antipyretics and dermatological drugs were the most common drugs dispensed over the counter. Nonsteroidal anti-inflammatory drugs (NSAIDs), such as mefenamic acid and piroxicam; anti-ulcer drugs such as H<sub>2</sub>-receptor antagonists; and antibiotics, for example the broad spectrum penicillins, were the second most common drugs dispensed. Other drugs which should not have been dispensed over the counter included oral contraceptives, cardiovascular drugs, antidiabetics, antispasmodics and eye drops.

Moreover, antibiotics were the most common drugs dispensed on prescription. Other common drugs dispensed on prescription included analgesics/antipyretics, oral contraceptives, cough syrups, NSAIDs, potent corticosteroid ointments and multivitamins.

## Discussion and conclusion

The present study highlights the problem of self-medication in Saudi Arabia. More than 35% of the drugs dispensed over the counter were prescription drugs, such as antibiotics, cardio-vascular drugs and topical potent corticosteroids. These findings are in agreement with those reported earlier by Al-Freihy et al.<sup>7</sup>, in which it was found that among the drugs easily available over the counter were antibiotics, which were dispensed readily by 85.4% of pharmacists. Although drugs which should be dispensed only on prescription are obtained over the counter, the present findings draw attention to the possible misuse of topical potent corticosteroids and NSAIDs by the public.

Many factors can be identified which encourage improper use of self-medication in Saudi Arabia. These include lack of enforcement of the regulations governing pharmacy practice, commercial pressure on community pharmacies, lack of professionalism of community pharmacy practice, and lack of public awareness of the danger of OTC medicines. The study demonstrates the lack of interpretation, supervision and enforcement of pharmacy law. The pharmacist in the majority of cases will offer any drug (except narcotics and psychotropics) without a prescription, simply at the mere request of the customer, who in many instances does not even know the name of the drug and can only show a product sample.

Furthermore, the current list of OTC drugs as defined by the Ministry of Health in Saudi Arabia<sup>7</sup> requires an urgent update and interpretation. Failure to identify which drugs should be sold over the counter during the registration process may add further confusion in identifying which drugs should be sold over the counter by the pharmacist.

Commercial pressure applied by drug company representatives, who may offer a big discount to pharmacists purchasing large quantities of their products, may be responsible for the high rate of OTC drugs sold by community pharmacists. The present study has shown that this is equal to 42.4% of their total sales. In addition, the ownership of community pharmacies by non-pharmacists and the large number of community pharmacies, which may exceed public need, had led to commercial

Table 2

Categories of the most frequently dispensed classes of drugs in 15 community pharmacies in Riyadh, Saudi Arabia.

Drug class	OTC medicines		Prescription medicines	
	No.	(%)	No.	(%)
Analgesics/antipyretics	32	( 17 )	16	( 10.5 )
Cough preparations	20	( 10.6 )	11	( 7.2 )
Various dermatological drugs	17	( 9.0 )	-	-
NSAIDs	14	( 7.4 )	11	( 7.2 )
Anti-ulcer drugs	13	( 6.9 )	4	( 2.6 )
Antibiotics	12	( 6.4 )	32	( 20.9 )
Potent corticosteroid ointments	11	( 5.6 )	11	( 7.2 )
Multivitamins	10	( 5.3 )	12	( 7.8 )
Laxatives	9	( 4.8 )	-	-
Cardiovascular drugs	6	( 3.2 )	3	( 2.0 )
Hormonal preparations	6	( 3.2 )	13	( 8.5 )
Antispasmodics	5	( 2.7 )	-	-
Eye/ear drops	4	( 2.1 )	5	( 3.3 )
Others	29	( 15.4 )	35	( 22.9 )
<b>Total</b>	<b>188</b>	<b>( 100 )</b>	<b>153</b>	<b>( 100 )</b>

cial competition between pharmacies.

The current practice of community pharmacy needs to be changed in order to provide a better pharmaceutical service to the public. The present study indicates that 35% of customers obtained their OTC drugs by showing a product sample to the pharmacist. Dispensing all medicines in their commercial packs, which contain a fixed number of tablets or capsules, in addition to a lack of professional behaviour on the part of the pharmacists, gives the public the impression that pharmacies do not differ much from grocery stores. This leads to underestimating the risks associated with the use of medicine by the public and encourages the use of drugs with minimal caution<sup>9</sup>.

The prescribing pattern of private clinic physicians is similar to hospital out-patient clinics and primary health centres, which indicates that antibiotics, analgesics and vitamins are the most commonly prescribed drugs<sup>10</sup>. In addition, polypharmacy is commonly practised by private clinic physicians in Riyadh. This supports the earlier findings reported by Al-Freihy et al.<sup>7</sup>.

In conclusion, health education for the public is a prerequisite of proper self-medication. This can be achieved by intensive health education campaigns which stress the hazards of improper self-medication. The present study indicates the need to enforce the regulations governing the sale of drugs, and the specification of drugs to be sold over the counter on registration, along with the need to introduce changes to present community pharmacy practice, reduce the commercial pressure on community pharmacies and update the College of Pharmacy curriculum to emphasise the role of the pharmacist in self-medication. Finally, there is an urgent need to establish a licensing examination to ensure that only qualified pharmacists enter practice.

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**Résumé**

**Modèles de prescription dans les pharmacies d'officine en Arabie Saoudite.** Une auto-médication rationnelle fait part essentielle de tout système de soins de santé. La présente étude a eu pour but de caractériser l'auto-médication dans les pharmacies d'officine à Riyadh en Arabie Saoudite. Les données furent enregistrées pendant une heure et une heure et demi, un jour d'ouverture en semaine, entre six et huit heures du soir dans 15 pharmacies d'officine ouvertes 24 heures sur 24, en se servant d'une formulaire d'enquête spécialement conçue. Sur 347 malades, 89 prirent leurs médicaments sur ordonnance, 147 prirent des médicaments en vente libre et 111 clients achetèrent des produits de beauté et autres. Un total de 153 et 188 médicaments furent dispensés respectivement sur ordonnance et en vente libre. Des 188 médicaments en vente libre, 66 (35%) auraient dû être vendus sur ordonnance seulement. Les analgésiques/antipyretiques et les médicaments dermatologiques étaient les médicaments les plus vendus en vente libre, alors que les antibiotiques étaient les plus vendus sur ordonnance. Les résultats de l'étude indiquent la nécessité de renforcer les réglementations qui régissent la vente de médicaments, les spécifications des médicaments qui doivent être vendus en vente libre sur registration, améliorer la pratique de la pharmacie d'officine, mettre à jour le programme du Collège de pharmacie pour souligner l'importance du rôle de la pharmacie dans l'auto-médication, et établir un contrôle des licences afin d'assurer que la pratique soit entre les mains de pharmaciens qualifiés.

**Mots-clés:** Modèle de prescription; Auto-médication; Arabie Saoudite

**Zusammenfassung**

**Verschreibungsmuster in öffentlichen Apotheken in Saudi-Arabien.** Zweckmäßige verständige Selbstmedikation ist ein grundlegender Bestandteil jedes Gesundheitssystems. Diese Untersuchung wurde durchgeführt, um die Selbstmedikation in öffentlichen Apotheken in Riyadh, Saudi-Arabien, zu beschreiben. Die Daten wurden gesammelt und gespeichert für eineinhalb Stunden an einem Wochen-Arbeitstag zwischen sechs und acht Uhr nachmittags, in 15 öffentlichen Apotheken mit 24-Stunden-Betrieb, wobei eigens ausgearbeitete Untersuchungsbögen benutzt wurden. Von 347 in Augenschein genommenen Patienten erhielten 89 Patienten ihre Medikamente auf Rezept, 147 Patienten erhielten rezeptfrei Präparate und 111 Kunden erwarben Kosmetika und ähnliche Artikel. Insgesamt wurden 153 bzw. 188 Medikamente mit Rezept bzw. rezeptfrei ausgegeben. Von 188 rezeptfrei verkauften Medikamenten waren 66 (35.1%) Präparate, die nur auf Rezept ausgegeben werden sollten. Analgetika/Antipyretika und dermatologische Medikamente waren die Präparate, die am häufigsten auf Rezept ausgegeben wurden, während Antibiotika die häufigsten auf Rezept ausgegebenen Medikamente waren. Die Ergebnisse der Untersuchung zeigen die Notwendigkeit an, die Bestimmungen zum Medikamentenverkauf zu verschärfen, die rezeptfrei verkäuflichen, registrierungspflichtigen Medikamente zu spezifizieren, die Praxis der öffentlichen Apotheken zu verbessern, die Studienpläne der Pharmazeutischen Hochschule zu aktualisieren, um die Rolle des Apothekers bei der Selbstmedikation zu unterstreichen, und Prüfungen/Genehmigungen zu erstellen, die qualifizierte Pharmazeuten in der Praxis gewährleisten.

**Schlüsselworte:** Verschreibungsmuster; Selbstmedikation, Saudi-Arabien

**Resumen**

**Patrón de Prescripción en Farmacias de Comunidades en Arabia Saudita.** La auto-medicación racional es una parte esencial de cualquier sistema del cuidado de la salud. Este estudio se dirigió a caracterizar la auto-medicación en farmacias de comunidades en Riyadh, Arabia Saudita. Los datos fueron reunidos y grabados en 15 farmacias de comunidades que operan 24 horas. El trabajo se realizó durante una hora y media entre seis y ocho p.m. en un día semanal de trabajo utilizando una forma de inspección especialmente diseñada. De los 347 pacientes examinados, 89 pacientes obtuvieron sus drogas por prescripción, 147 pacientes obtuvieron drogas OTC, y 111 clientes compraron cosméticos y artículos similares. Un total de 153 fueron entregadas por prescripción, y 188 sobre el mostrador. De las 188 drogas entregadas sobre el mostrador, hubo 66 (35.1%) drogas que debieron ser dispensadas solamente por prescripción. Analgésicos/antipiréticos y drogas dermatológicas fueron las drogas más comunes entregadas sobre el mostrador, mientras antibióticos fueron las drogas más comunes dispensadas por prescripción. Los hallazgos del estudio indican la necesidad de imponer regulaciones para regir la venta de drogas, especificación en el registro de drogas a venderse sobre el mostrador, mejorar la práctica de farmacias de comunidades, actualizar el curriculum de Escuelas de Farmacología con el fin de enfatizar el rol del farmacéuta en auto-medicación, y establecer exámenes para la obtención de licencias para asegurar que hayan farmacéutas calificados en la práctica.

**Palabras claves:** Patrón de prescripción; Auto-medicación; Arabia Saudita

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