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RESEARCH ARTICLE

Prevalence and Associated Factors of Self-Medication with Prescription Drugs among Saudi Adults

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ABSTRACT

Introduction: The global rise of self-medication with prescription drugs may lead to unanticipated health risks and problems. We aimed to assess the prevalence of self-medication with prescription-only-medicines (POMs) and identify reasons and attitudes behind this behavior in the Saudi adult population.**Methods:**The questionnaire consisted of socio-demographic data, illness/symptoms that led to self-medication,reasons behind self-medication, and perception of drug safety regarding POMs use.**Results:** 707 questionnaires were entered into data analysis with a prevalence of 92.8% for self-medication. 56.6% of participants perceived antibiotics safe once self-medicated.Sleep disturbance was among the most reasons for self-medication (50.4%). 40.2% would take the same medication if they had similar symptoms to someone they knew.More than 70% have no regular physician visits and around 40% take their information about drugs from their community pharmacists.**Conclusion:** This study highlights the high prevalence of self-medicationamong Saudi adults. Efforts to reduce inappropriate use of POMs should involve pharmacists, and general public, in addition to enforce abiding to the regulations for dispensing drugs with prescription.

Keywords: Pharmacists, health authorities, consumers, antibiotics, self-medication, prescription.

INTRODUCTION

The rise of improper self-medication with prescription only medicines (POM) (e.g., antibiotics)is becoming a global health problem [1, 2].Various socio-demographic, cultural and economic factors have contributed to the **rise** in self-medication worldwide, such as increase in general public knowledge and education level, direct-to-consumer advertisements, misallocation of healthcare resources and rise in healthcare costs [3-7].

The prevalence of self-medications with POMs is found to be higher in developing countries than in developed countrieswhich might be due to the wide availability of drugs without prescriptions[11, 12].For instance, a study in Philippines revealed that 66.33% of medicationswere purchased without prescriptionsfrom community pharmacies[13].A study conducted on a group of developing countries found that most drugs are easily available without prescriptions from local pharmacies and hospitals[14,15].

Self-medication in Middle Eastern populations was associated with higher education levels and treating a previous similar ailment.Various studies identified the need to educate the public about proper self-medication and establish healthcare regulations to control self-treatment withPOMs [16-18].

Previous studies in Saudi Arabia established that pharmacies are the easiest accessible source for obtaining medications where mostmedicines including POMs can be obtained without aprescription [19-22]. Despite existing regulations in Saudi Arabiastating that medications other than OTCsshould be dispensed on prescriptions and only by licensed pharmacists, variousstudies have shown that there is little adherence to this law in community pharmacies[28, 29]. This malpracticeof drug dispensing exacerbates the problem of

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inappropriate self-medication and leads to improper treatments, adverse drug reactions, increase in treatment costs and antibiotic resistance among bacteria [23].

There is a lack of sufficient studies that identify the factors influencing self-medication in Saudi Arabia. Thus, our research aims to identify the main reasons for self-medication among Saudi adults which may help to determine the specific actions that need to be taken by the regulation authorities and community pharmacies to control malpractice of self-medication.

METHODS

A descriptive cross-sectional study of a random sample of 731 Saudi adults aged 18 years and above was conducted in Riyadh, the capital of Saudi Arabia. The sample was stratified from the five regions of Riyadh (Eastern, Western, Northern, Southern and Central) and the sample size was calculated by the WHO sample size calculator by considering 50% prevalence for self-medication with 95% confidence interval and 5% margin of error. The study was carried out within a span of two months from August to October, 2014.

The instrument used in this study was a questionnaire which was developed by the researchers for the purpose of this study. The questionnaire was originally designed in Arabic Language (the native language in the Kingdom of Saudi Arabia). To assure the validity, the following procedures were followed. Firstly, reviewing the literature and previous instruments were examined to develop drafts. Secondly, the questionnaire was given to experts in epidemiology for evaluation. Finally, a pilot survey upon 50 Saudi adults was conducted in Riyadh City. On the basis of the suggestions of the reviewers and the outcome of the pilot study, a few questions were reformulated and others were added or deleted in the main study in order to enhance clarity. The pilot survey questionnaires were not included in the main survey. Reliability was measured by using Cronbach's alpha tool.

The questionnaire was divided into three sections. The first section consisted of socio-demographic data of the participants (Gender, age-group, income, education level, etc.). The second section determines the reasons behind self-medication, and the third section evaluates the perception of drug safety regarding the use of POMs.

In order to maximize the response rate, all study participants were interviewed by three pharm. D students and one medical student (N.M, M.J, A.H., and Y.T). The objectives of the study were explained to the study participants prior to data collection, and their written consents were sought. The study was approved by the Institutional Review Board at King Fahad Medical City. All data were kept anonymous.

All categorical variables were presented as numbers and percentages. Chi-square or Fisher's exact test was used to determine significant relationship among categorical variables. Binary logistic regression was applied to determine risk factors of self-medication. P-value of less than 0.05 was considered as statistically significant. All data were entered and analyzed through Statistical Package of Social Science (SPSS) version 22.

RESULTS

A total of 707 questionnaires out of the 731 distributed were entered into final data analysis. 24 surveys were rejected because participants did not answer the majority of the questions.

Socio- demographic data

395 participants were males and 312 were females. Majority of the participants were from the age group 18 – 30 years (62.8%).The majority (79.9%) reported that they did not have any chronic illnesses. Socio-demographic characteristics of the participants are summarized in (**Table 1**).

Among the participants who practiced self-medication, the most common reasons were mild illness/ symptoms (32.5%) and previously treating a similar ailment (36.6%). Figure 1 summarizes the ailments/ symptoms which led to self-medication. Majority of the participants (41.6%) obtained their information about drugs from the pharmacists. Also, most participants (40.2%) would take the same medication if they had similar symptoms to someone they knew (Table 2). Information about knowledge and attitude regarding self-medication of the respondents is illustrated in (**Table 2**).

Table 1: Socio- demographic characteristics of the participantsCharacteristicsCategoriesn (n%)Gender Male

Characteristics	Categories	n (n%)
Gender	Male	395 (55.9%)
	Female	312 (44.1%)
Age Group	18 – 30	444 (62.8%)
	31 – 43	175 (24.8%)
	44 – 56	74 (10.5%)
	57 – 69	13 (1.8%)
	>70	1 (0.1%)
Education Level	Illiterate / read & write	178 (25.2%)
	Primary	24 (3.4%)
	Secondary	4 (0.6%)
	University & Above	501 (70.9%)

Monthly Salary (Income	3000 – 6000 SAR	501 (70.9%)
	7000 – 15,000 SAR	311 (44%)
	15,000 – 25,000	265 (37.5%)
	>25,000	86 (12.2%)
Monthly Salary (Income)	3000 – 6000 SAR	311 (44%)
	7000 – 15,000 SAR	265 (37.5%)
	15,000 – 25,000	86 (12.2%)
	>25,000	45 (6.4%)
Family Members working as health professionals (physicians, nurses, etc.)	Yes	294 (41.6%)
	No	413 (58.4%)
Do you have any chronic illnesses? (Hypertension, diabetes,	Yes	142 (20.1%)
	No	565 (79.9%)

The improper self-medication with POMs is becoming a global health problem [1, 2]. Various socio-demographic, cultural and economic factors have contributed to self-medication worldwide, such as increase in general public knowledge and education levels, direct-to-consumer advertisements, misallocation of healthcare resources and rise in healthcare costs [3-7].

The prevalence of self-medication with POMs is found to be higher in developing countries than in developed countries which might be due to the wide availability of drugs without prescriptions [8, 9].A study conducted on a group of developing countries found that most drugs are easily available without prescriptions from local pharmacies and hospitals [10- 12].

Self-medication in Middle Eastern populations was associated with higher education levels and treating a previous similar ailment. Various studies identified the need to educate the public about the risks of self-medication and establish healthcare regulations to control self-treatment with POMs [13-15].

Previous studies in Saudi Arabia established that pharmacies are the easiest accessible source for obtaining medications where most POMs can be obtained without a prescription [16-17]. Despite existing regulations in Saudi Arabia stating that medications other than Over the counter drugs (OTCs) should be dispensed on prescriptions and only by licensed pharmacists, various studies have shown that there is little adherence to this law in community pharmacies[18, 19]. This malpractice of drug dispensing exacerbates the problem of inappropriate self-medication and leads to improper treatments, adverse drug reactions, increase in treatment costs and antibiotic resistance among bacteria [20].

There is a lack of sufficient studies that identify the factors influencing self-medication in Saudi Arabia. Thus, our research aims to assess the prevalence and identify the main reasons POMs are consumed among Saudi adults which may help to determine the specific actions that need to be taken by the regulation authorities and community pharmacies to control malpractice of self-medication.

Table 2:Association between practical approach and knowledge about self-medication

Do you practice self-medication on a regular basis?		**Yes**	**No**	**P- value**
Gender (N=704)	Male	345 (52.5%)	47 (100%)	*< 0.001
	Female	312 (47.5%)	0.0	
Reason for taking medications without a prescription (N=701)	No doctors were readily accessible	92 (14%)	10 (21.3%)	*< 0.001
	Mild illness/symptoms	213 (32.5%)	18 (38.3%)	
	Previously treating a similar ailment	240 (36.6%)	10 (21.3%)	
	Shortage of time	18 (2.7%)	2 (4.3%)	
	The illness required rapid emergency care.	93 (14.2%)	5 (4.3%)	
What is your usual source of information about drugs? (N=706)	Pharmacists	265 (40.4%)	29 (58%)	*< 0.001
	Family / friends	160 (24.4%)	7 (14%)	
	Media advertisements	106 (16.2%)	1 (2%)	
	Sales – person	42 (6.4%)	1 (2%)	
	My decision	33 (5.0%)	0.0	
	Drug leaflet	50 (7.6%)	12 (24%)	
Have you used these drugs without a prescription? (N=707)	Paracetamol	294 (44.7%)	12 (24%)	*0.005
	Antibiotics	363 (55.3%)	38 (76%)	
For which of these conditions have you practiced self-medication? (N=707)	Fever	355 (54%)	13 (26%)	*< 0.001
	Headache	302 (46%)	37 (74%)	
Do you read the medicine leaflet? (N=706)	Always	198 (30.1%)	17 (34.7%)	0.107
	Sometimes	202 (30.7%)	21 (42.9%)	
	Rarely	168 (25.6%)	6 (12.2%)	
	Not at all	89 (13.5%)	5 (10.2%)	
If someone you know has the same symptoms at the same time as you do, what do you do? (N=707)	Take the same medication because you have the same symptoms.	264 (40.2%)	4 (8.0%)	*< 0.001

	Go to the doctor for appropriate diagnosis and treatment.	393 (59.8%)	46 (92%)	
Do you have a regular health facility or doctor that you visit? (N=707)	Yes	201 (30.6%)	4 (8.0%)	*< 0.001
	No	456 (69.4%)	46 (92%)	

Table 3:Factors affecting self-medication

Characteristics	OR	95% C.I	P-value
Self-medication in case of mild illness	9.521	7.682 – 30.282	*< 0.001
Self-medication in case of previous experience of treating similar ailment.	4.623	3.561 – 9.122	*< 0.001
Self-medication in which the illness required rapid emergency	1.212	1.161 – 2.528	*0.023
Self-medication to treat fever	1.017	1.001 – 1.032	*0.033
Self-medication to treat cough	1.036	1.006 – 1.098	*0.016
Self-medication with hormone therapy	1.027	1.009 – 1.045	*0.002
Side effects after self-medication	1.790	1.157 – 2.767	*0.009

DISCUSSION

In this representative sample of the Saudi adult population in Riyadh, we observed that self – medication is significantly prevalent with POMs. We also ascertained that POMs such as antibiotics were considered to be safe for use without prescription by 56.6% of the participants.

Optimal therapy with a prescription drug requires that the physician diagnoses the underlying health condition correctly to use the drug in a manner that minimizes risk [21]. The findings from our study arouse the concern that without proper diagnosis by health-care professionals, consumers may use POMs inappropriately for certain inaccurate self-diagnoses or chronic conditions or in high-risk situations. Furthermore, self-medication with POMs may present a high possibility of adding to physicians' workloads by requiring them to help patients interpret the information presented by non-physician advisers [22].

The ability of patients to obtain POMs with ease without prescriptions from pharmacies, as our results indicate, should be considered for regulatory review by Saudi Food and Drug Authority. A study conducted in Riyadh observed high rate of antibiotic sales without prescriptions from community pharmacies and was explained by lack of enforcement of the national regulations, suboptimal compliance to the code of ethics and professionalism among community pharmacists, due to financial interests of community pharmacists [20].

The implications of the increase in self-medication with prescription drugs depend on how Saudi patients perceive and act on the information made available through non-physicians, friends, family or media information. Previous research surveys of patients reported that 80% of people have a general awareness of advertising for prescription drugs, have seen an advertisement for a prescription drug on the internet search engines and social media, while many patients (25%) have initiated conversations with their doctors about a drug they saw on social media or internet [6, 23]. Our study revealed that 16.2% of the participants who practice self-medication regularly obtained their information about drugs from media/advertisements.

The reasons for the dramatic acceleration in self-medication with prescription drugs are complex and not fully understood. Our data are more consistent with the argument that the cultural preference in Saudi Arabia doesn't favor visiting the doctor for regular checkup or for perceived mild ailment such as fever, cough, or common cold. Our study revealed that majority of the participants, among both who practice and do not practice self-medication regularly (69.4% and 92% respectively), do not have a regular/family doctor for health checkups. The growing desire of patients to be involved in decisions about their health care, driven in part by the plethora of health-related information available on the Internet, may have encouraged self-medication practice [17].

While in many instances self-management with POMs (such as chronic conditions) might be encouraged through proper patient education and counselling [24]; misuse or non-compliance of the prescribed dose due to poor patient –physician communication might lead to health adversities rather than benefits [9]. Hence, education of consumers and patients on responsible drug use should be of foremost importance when prescribing or dispensing medications.

Studies have shown that even in the countries with low actual self-medication, substantial intended self-medication and drug storage occurs. Efforts to reduce inappropriate use of prescription only drugs should involve pharmacists, and the general public. The number of tablets dispensed in pharmacies should be according to the prescribed dose and patients should be counseled to discard their leftover drugs [9]. Moreover, large-scale public campaigns should be carried out to

emphasize the potential risks of using prescription only drugs without medical guidance. There is a need for strict enforcement and adherence to existing regulations regarding prescription medication sale.

Our findings should be interpreted in the light of the strengths and weaknesses of our data. The data we used were collected by independent participants. The study benefits from the use of data from a large sample size. However, this study has limitations that must be pointed out.

As is the case with all self-reported data, results of this survey have the potential for recall bias, underreporting, or over-reporting. The analysis was based on data collected through self-reports in the form of a questionnaire and prone to recall bias, a frequent limitation in large surveys. Subjects could be reporting intended self-medication occasions rather than actual self-medication occasions. Participants may also have been unable to exactly recall the symptom/ illness for self-medication.

Secondly, the cross-sectional design can show only association instead of causality. Thus, no conclusions about long term ramification of self-medication with POMs can be drawn. Moreover, cross-sectional studies do not enable one to assign causality to the variables of interest.

Self-medication with POMs seems to be common among adults in Saudi Arabia. This may indicate that Saudi health care system; including community pharmacies are failing their task in enhancing rational use of medicines. It is important that the SFDA take their responsibility in promoting public health goals in enforcing the national policies.

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