Self-medication practice among patients in a public health care system

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ممارسة المداواة الذاتية لدى المرضى في ظل وجود نظام صحي عام

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الخلاصة: تم إجراء دراسة مسحية شملت 500 من المراجعين لمراكز الرعاية الصحية الأولية بمدينة الرياض بالمملكة العربية السعودية وذلك للتعرف على مدى انتشار ظاهرة المداواة الذاتية والعوامل المرتبطة بها. أظهرت النتائج أن 35.4٪ من المجيبين قد قاموا بممارسة المداواة الذاتية خلال الأسبوعين السابقة لإجراء الدراسة. أشارت نتائج التحليل الثنائي والانحدار المتعدد أن فئة الشباب، والذكور، والذين أفادوا أن حالاتهم الصحية كانت متردية أو أن لديهم أمراضاً مزمنة أو صعوبة في الوصول للخدمات الصحية أو الغير راضين عن جودة الخدمة هم الأكثر ممارسة للمداواة الذاتية. إن الحملات التثقيفية، والتعليمات الصارمة المتعلقة بصرف الأدوية من الصيدليات الخاصة، وزيادة مستوى جودة الخدمة المقدمة وسهولة الوصول إليها تعتبر من التدخلات الضرورية التي يمكن أن تعمل على تعديل سلوك أفراد المجتمع ووقايتهم من الأخطار المحتملة من ممارسة المداواة الذاتية.

ABSTRACT A survey of 500 patients attending primary health care centres in Riyadh, Saudi Arabia was carried out to determine the prevalence and factors associated with self-medication practice. The results indicated that 35.4% of the respondents had practised self-medication in the past 2 weeks. Bivariate and multivariate analyses indicated that respondents who were young, male, having poor health status, reporting inconvenient access or dissatisfied with health care were more likely to practise self-medication. Health education campaigns, strict legislations on dispensing drugs from private pharmacies and increasing the quality of and access to health care are among the important interventions that might be needed in order to change the people's health seeking behaviour and protect them from the potential risks of self-medications.

Pratique de l'automédication chez les patients bénéficiant d'un système de soins de santé public

RÉSUMÉ Une enquête a été réalisée auprès de 500 patients consultant dans des centres de soins de santé primaires à Riyad (Arabie saoudite), pour déterminer la prévalence de la pratique de l'automédication et les facteurs associés. Les résultats ont indiqué que 35,4 % des répondants avaient pratiqué l'automédication au cours des deux semaines précédentes. Des analyses bivariées et multivariées ont révélé que les répondants jeunes, de sexe masculin, en mauvaise santé, trouvant l'accès aux centres de soins difficile ou leurs services non satisfaisants étaient plus susceptibles de pratiquer l'automédication. Des campagnes d'éducation sanitaire, des lois strictes sur la délivrance des médicaments par les pharmacies privées, un accès amélioré aux soins de santé et une meilleure qualité de ces derniers comptent parmi les interventions majeures qui pourraient être nécessaires pour modifier le comportement de recours aux soins et pour protéger les personnes contre les risques potentiels de l'automédication.

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Introduction

Self-medication can be defined as the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms [1]. It may include the use of herbs, the retention and re-use of prescription drugs or the direct purchase of prescription-only drugs without medical input [2]. The practice of self-medication is common worldwide in both developed and developing countries [3,4] and may even be more common that the use of prescribed medication [5].

The importance of self-medication as a phenomenon has attracted the interest of health professionals including physicians and policy-makers, especially when drugs become deregulated and change from prescription status to be sold over-the-counter (OTC). Generally, it is accepted that self-medication has an important role in the care of minor illness [6,7]. In fact, the role of self-care was emphasized by the World Health Organization (WHO) in 1978 in its "Health for all by year 2000" initiative, which was implemented in many countries of the world including Saudi Arabia. Many possible benefits [8,9] and risks [10,11] have been attributed to increased self-medication among the public. Studies indicated that the use of self-medication is influenced by several personal [12], organizational [13] and environmental factors [14]. The failure of a health care system, when there is maldistribution of health resources and a resultant growth in health care costs, has been mentioned as a factor in self-medication [15].

In Saudi Arabia, private sector pharmacies are the most accessible health facilities and people can obtain most types of medication without a prescription, which makes self-medication easy to practice. Despite some studies conducted on this topic [16–18], self-medication has not received the attention it deserves as a research topic. The majority of studies on self-medication were conducted in countries where the health care system and culture are different from that of Saudi Arabia. Accordingly, the results may not be transferable to the Saudi context. Data on the prevalence of, and factors associated with, self-medication in Saudi Arabia are necessary to help with the planning of interventions to improve the self-use of medicines in the country.

This study aimed to determine the prevalence of self-medication among Saudi adult patients; to identify potential factors that could influence self-medication practices; to identify sources of medications used; to identify sources of information about medications used; and to identify reasons for self-medication.

Methods

Sample

This was a community-based, cross-sectional survey carried out in Riyadh city, the capital of Saudi Arabia, to explore self-medication behaviour among the general population. The study population consisted of all patients attending primary health care (PHC) centres in Riyadh city during July 2009. Five PHC centres were selected using cluster random sampling in order to represent the 5 geographical areas of Riyadh city (north, east, south, west and centre). In each PHC centre, a sample of 100 adult patients (18–65 years) was selected using systematic random sampling. Accordingly, 500 questionnaires were completed and returned, a response rate of 100%.

Data collection

The study questionnaire consisted of 5 sections, including both open- and closed-ended questions. The first section included questions on sociodemographic characteristics, including sex, age, nationality, educational level and employment status. The second section was used to collect information on self-reported health aspects of respondents, such as their perception about their health status, whether they had any chronic illness, their perception about access to health care and their satisfaction with the health care they usually receive. Respondents were also asked whether they had practised self-medication during the 2 weeks preceding the survey. In the third and fourth sections, respondents were requested to report on the sources of medication used for self-treatment and sources of information about such medication. The final section contained questions about respondents' reasons for self-medication.

In order to increase the content validity of the questionnaire, a number of steps were carried out. First, a review of the relevant literature was conducted. Second, 2 academic staff reviewed the draft questionnaire. Finally, a pilot survey of 50 adult patients (27 males and 23 females) was conducted in 2 PHC centres in Riyadh city. On the basis of the suggestions of the reviewers and the outcome of the pilot survey, a few questions were reformulated and others were added or deleted in the main study. The pilot survey questionnaires were not included in the main survey.

The respondents were assured of confidentiality and provided with an explanation about the purpose of the study and the importance of their contribution. The subjects gave verbal consent to participate in the study. All questionnaires were distributed and collected by 10 research students (5 males and 5 females). Students were given an intensive training course on data collection and management of the survey. All questionnaires were completed during the respondents' waiting time in the selected primary health care centres. Questionnaires were completed in the presence of the research students in case some participants required assistance.

In this study, self-medication was defined as the use of modern drugs

without the advice of a health professional [17].

Data analysis

The outcome of the study was the practice of self-medication in the past 2 weeks. Respondents were classified into 2 groups: those who practised self-medication and those who did not (yes/no). The chi-squared test was used to determine the differences between these 2 groups according to demographic-related characteristics, which included respondents' sex, age, educational level, marital status and employment status; and health-related aspects which included respondents' self-reported health status, whether they had a chronic illness, perceptions about access to health care and satisfaction with the quality of health care they receive. A logistic regression analysis was performed to identity factors that were significantly associated with self-medication. The multivariate-adjusted odds ratios (OR) and the corresponding 95% confidence intervals (CI) were calculated. All tests were 2-tailed with a statistical significance level of 0.05. The data for this study were entered and analysed using the *SPSS*, version 11.0.

Results

Background characteristics

A total of 500 adult patients were surveyed. They were predominantly young with a mean age of 38.6 (SD 12.9) years (range 18–65 years). Of these, 279 (55.8%) were males and 221 (44.2%) were females. The great majority of respondents were of Saudi Arabian nationality (82.4%), married (65.8%), had an educational level of high school or above (53.8%) and were in employment (73.4%).

Self-medication practices

Respondents who had practised some sort of self-medication during the past 2 weeks were 177 (35.4%) of the sample. The sources of medicine used by these patients are shown in Table 1. OTC drugs purchased from private pharmacies was the most commonly used source of self-medication, reported by the majority of self-medicated patients (79.1%). The use of left-over medicine was also prevalent and reported by almost half of respondents who practised self-medication (48.6%). Those who obtained medications from their relatives, friends or neighbours constituted nearly one-third of self-medicated respondents (30.5%).

Patients who practised self-medication in the past 2 weeks were asked about the source of information about the drugs they used for self-medication. Table 1 shows that the commonest source of information was the private sector pharmacy salesmen (including pharmacists), reported by about three-quarters of respondents (74.0%). This was followed by respondents' experiences or knowledge from previous episodes (50.8%). Health staff was the least common source of information, reported by only 9.6% of respondents. Other sources of information about medications were relatives/friends, the Internet and advertisements.

The study identified patients' reasons for self-medication (Table 1). The commonest was that the illness was regarded as minor (80.2%). More than two-thirds of respondents (70.1%) indicated that they self-medicated because health care facilities were unavailable at times when they needed care. More than half of self-medicated respondents (52.0%) reported that they did so because they lacked the time to visit formal health care facilities. More than 40% of self-medicated patients indicated that the cost of consultations with the doctor was a reason for self-medication. Other reasons for self-medication were expectations of less/no benefit from modern health care, remoteness of health care sites and convenience.

Table 1 Sources of medications and information on self-medication and reasons for using self-medication in the past 2 weeks (*n* = 177)

Variable	No.	%[a]
Sources of medications		
Private pharmacy (over-the-counter medication)	140	79.1
Leftover prescription medication	86	48.6
Family/friends	54	30.5
Other	22	12.4
Sources of information on self-medication		
Pharmacists	131	74.0
Previous prescription	90	50.8
Relatives/friends	36	20.3
Mass media	30	16.9
Health staff	17	9.6
Other (Internet, advertisements)	29	16.4
Reasons for using self-medication		
Illness was minor	142	80.2
No medical service was available	124	70.1
Lack of time to attend health care facilities	92	52.0
Cost of consultations with the doctor	76	42.9
Waiting time in health care facilities	60	33.9
Other	44	24.9

[a] *Numbers do not add to 100% as patients might have more than 1 reason.*

Characteristics of patients who used self-medication

Table 2 shows the descriptive association between sociodemographic characteristics and self-medication behaviour in the past 2 weeks. The results indicate that males were a significantly higher percentage of self-medicaters than females (44.8% versus 23.5%) ($P < 0.001$). Similarly, more of the younger respondents and those with a higher level of education were using self-medication than their counterparts ($P < 0.05$). A significantly higher rate of self-medication was reported by respondents who perceived their health status as poor versus good (47.4% versus 28.1%) ($P < 0.001$), those having chronic illness versus those who did not (45.5% versus 31.4%) ($P < 0.05$), those who reported inconvenient access to health care facilities versus those with convenient access (46.3% versus 30.1%) ($P < 0.05$) and those who were dissatisfied with the quality of their health care versus those who were satisfied (46.5% versus 32.1%) ($P < 0.05$).

Regression analysis

Table 3 provides the adjusted OR and 95% CI that quantify the association between the independent variables (sociodemographic factors and health-related factors) and the outcome variable (self-medication practice in the past 2 weeks). These estimates were obtained using the logistic regression analysis. Among the sociodemographic variables, age and sex were statistically associated with self-medication. Younger respondents were about twice more likely to practise self-medication than older ones (OR

Table 2 Demographic profile and health status according to use of self-medication in the past 2 weeks by respondents

Variable	Use self-medication				χ^2	*P*-value
	Yes		No			
	No.	%	No.	%		
Age (years)						
< 45	134	38.6	213	61.4	4.68	0.030
≥ 45	43	28.1	110	71.9		
Sex						
Male	125	44.8	154	55.2	23.48	< 0.001
Female	52	23.5	169	76.5		
Nationality						
Saudi Arabian	145	35.2	267	64.8	0.01	0.932
Non-Saudi Arabian	32	36.4	56	63.6		
Level of education						
< High school	84	31.2	185	68.8	4.05	0.044
≥ High school	93	40.3	138	59.7		
Marital status						
Married	121	36.8	208	63.2	0.63	0.426
Unmarried	56	32.7	115	67.3		
Employment status						
Employed	135	36.8	232	63.2	0.94	0.332
Unemployed	42	31.6	91	68.4		
Perceived health status						
Poor	90	47.4	100	52.6	18.36	< 0.001
Good	87	28.1	223	71.9		
Having chronic illness						
Yes	65	45.5	78	54.5	8.25	0.004
No	112	31.4	245	68.6		
Perceived access to health care						
Inconvenient	76	46.3	88	53.7	12.07	< 0.001
Convenient	101	30.1	235	69.9		
Satisfaction with health care						
Dissatisfied	53	46.5	61	53.5	7.33	0.007
Satisfied	124	32.1	`262	67.9		

Table 3 Characteristics associated with use of self-medication in the past 2 weeks

Characteristic	OR (95% CI)	*P*-value
Age (years)		
≥ 45 years	(reference)	0.002
< 45 years	2.19 (1.35–3.56)	
Sex		
Female	(reference)	< 0.001
Male	3.56 (2.15–5.89)	
Nationality		
Non-Saudi Arabian	(reference)	0.298
Saudi Arabian	1.36 (0.76–2.42)	
Marital status		
Unmarried	(reference)	0.130
Married	1.41 (0.90–2.21)	
Educational level		
≥ High school	(reference)	0.497
< High school	1.19 (0.73–1.94)	
Employment status		
Unemployed	(reference)	0.065
Employed	1.61 (0.97–2.68)	
Perceived health status		
Good	(reference)	< 0.001
Poor	2.57 (1.66–3.99)	
Having chronic illness		
No	(reference)	0.038
Yes	1.64 (1.03–2.62)	
Perceived access to health care		
Convenient	(reference)	< 0.001
Inconvenient	2.07 (1.34–3.18)	
Satisfaction with health care		
Satisfied	(reference)	< 0.001
Dissatisfied	3.13 (1.82–5.40)	

OR = odds ratio; CI = confidence interval.

= 2.19, 95% CI: 1.35–3.56) ($P < 0.05$). Similarly, males were 3.5 times more likely to practise self-medication than females (OR = 3.56, 95% CI: 2.15–5.89) ($P < 0.001$). All heath-related factors employed in the study were found to be statistically associated with self-medication. In particular, respondents who perceived their health status as poor were about 2.5 times more likely to practise self-medication than those who perceived their health status as good (OR = 2.57, 95% CI: 1.66–3.99) ($P < 0.001$). Respondents who reported having chronic conditions were 1.6 times more likely to self-medicate than those who did not (OR = 1.64, 95% CI: 1.03–2.62) ($P < 0.05$). Similarly, respondents who perceived their access to health care as inconvenient were about twice as likely to self-medicate than those who reported convenient access (OR = 2.07, 95% CI: 1.34–3.18) ($P < 0.05$). The results also show that respondents who were dissatisfied with the quality of health care they received from health care facilities were more than 3 times likely to practise self-medication than those who were satisfied (OR = 3.13, 95% CI: 1.82–5.40) ($P < 0.001$).

Discussion

Over a period of 2 weeks before this survey, 35.4% of respondents had used self-medication alone or in combination with a prescrition medication. This finding is surprising since most of the population in Saudi Arabia are eligible for free public health services. However, this prevalence supports the findings reported earlier by other studies conducted in Saudi Arabia [16–18] and confirms the notion that self-medication is widespread among the general population. Recent studies conducted in different parts of the world such as the United States [19], the United Kingdom [20], Spain [21], Germany [22], France [23], Mexico [24], Singapore [25], Turkey [26], Pakistan [27], Jordan [28], Kuwait [29], Egypt [30] and Sudan [2] vary in their estimation of the percentage of patients who practise self-medication, with prevalence rates that range from about 13% to 92%. Comparing the results of the present study with those in the literature is difficult since studies differ in their definitions of self-medication and in the methodologies employed and many countries also differ in their cultures, health care systems and the perceived role of pharmacists. However, there is a general agreement among these studies that self-medication has potential risks and that despite efforts exercised by health care professionals and decision-makers to limit this problem, rates of self-medication are on the rise.

The data from the present study indicated that 2 of the sociodemographic variables (age and sex) and 4 health-related variables (perceived health status, presence of chronic illness, perceived access to health care and satisfaction with health care) had a significant independent association with the practice of self-medication. Young individuals were more likely to administer self-medication than older ones. This finding is consistent with other studies [31]. However, the results of the present study indicated that men

were more inclined to self-medication than women, which contradicts results reported by other studies in the literature [32]. These findings are expected given the fact that young males are more mobile than older people or women. Women in Saudi Arabia are not permitted to drive a car and many do not leave home without a male escort; accordingly they are less likely to seek medicine from sources such as private pharmacies in the community. Despite the fact that the respondents' level of education was a significant factor in the bivariate analysis, it did not enter the logistic regression model as a significant predictor of self-medication practice. This finding contradicts previous research conducted in Saudi Arabia [16] and elsewhere [2], which reported that the level of education of patients has an impact on the practice of self-medication.

The results of this study showed that respondents with negative self-reported health status, those who reported having chronic illness and those who had difficulties in accessing health care facilities were more likely to practise self-medication than those who did not report such perceptions or health conditions. This finding agrees with other studies in the medical literature [4,24]. It is worth noting that numerous authors have studied the relationship between self-medication and factors related to patients' sociodemographic and health-related characteristics. The majority of these studies showed that self-medication was mainly associated with health needs or health-related variables, such as self-reported health status, presence of chronic diseases and severity of symptoms. Other authors reported that patients who have poor health or have difficulty in accessing health care are more likely to use self-medication and become frequent users of OTC drugs in an attempt to resolve their health problems [33].

In keeping with the findings of other authors [34], satisfaction with the quality of health services is an important determinant of health resource utilization. In the present study patients who were dissatisfied with the quality of health services provided to them in health care facilities such as primary health care centres were more likely to practise self-medication. An individual's decision to use a particular source of health care involves many factors related to sociodemographic characteristics, illness type and severity, perceived health status and the range and accessibility of therapeutic options available and their perceived efficacy [35,36].

The data from the present study indicated that about 80% of respondents who reported using self-medication identified that the private pharmacy was a major source of both medicine and information. This is not surprising since it is possible for any individual in Saudi Arabia to buy any drug products OTC without any prescription, except for a very limited number of drugs which may require a special prescription for dispensing. This finding is consistent with previous work reported from other neighbouring countries such as Egypt [30], Palestine [12], Sudan [9] and Jordan [8], which indicate that community pharmacies in these countries play a major role in the wide prevalence of self-medication among the population. This is probably due to the weak enforcement of regulations regarding drug handling and dispensing. Consequently, salesmen of community pharmacies are commonly considered as a major source of medicine without prescriptions.

The results of this study indicated that health staff were the least influential source of information about self-medication. This is to be expected, since many people have the impression that doctors do not approve of self-medication [5]. It is well-known that many doctors are reluctant to advise patients on self-medication or issue medicine without a clinical examination. However, in terms of patients' general sources of knowledge about health care matters, studies show the importance of the mass media in increasing people's knowledge about health care issues and that such sources provide more information than patients receive from health care settings. This may provoke questions about the health education programmes that are implemented in health care facilities and the doctor–patient relationship.

In this study, respondents identified several reasons for self-medication, including that their illness was minor, no medical services were available, lack of time to attend health facilities, waiting times to be seen and the cost of consultations. While such reasons were similar to those reported in previous research [4,9,21], they raise a number of questions relevant to the Saudi context. For example, are patients well-informed on what constitutes minor illness? Are the working hours of the primary health care facilities suitable? Are the waiting times acceptable? How do patients perceive the quality of health services provided to them? These questions, which are mainly related to the availability of, and accessibility to, health care services, need to be answered in further research.

Several limitations should be considered when interpreting the results of the present study. First, the study was limited to self-medication. Nevertheless, the findings have implications for drugs sold OTC and the dissemination of information about drugs and their potential side-effects. Secondly, respondents were asked to report on self-medication over a period of 2 weeks only. This may have influenced the results of the study. However, reporting on self-medication over a period of 2 weeks has been used in recent studies conducted in different parts of the world [21,37,38] in order to limit recall bias and to avoid problems associated with recall and reporting of health care events. Thirdly, due to time and financial constraints, the present study was limited to Riyadh city. However, Riyadh is the largest city in Saudi Arabia, with many inhabitants with different sociodemographic characteristics. Finally, the results reported

here were based on self-reported information and are therefore subjective. Despite these limitations, the study may stimulate more attention to, and research into, the prevalence, effectiveness and side-effects of self-medication in Saudi Arabia.

This study revealed a considerable rate of self-medication in the Saudi population, which should draw the attention of policy-makers to this problem. The findings of this study will encourage greater exploration of the role of self-medication in health care. Health policies should focus on ensuring that people have adequate access to health care and that the population is given information about the hazards posed by self-medication.

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This first issue for 2011 of *WHO Drug Information* (Vol. 25 No. 1) reports the recommendations made at the recent 14th International Conference of Drug Regulatory Authorities (ICDRA) hosted by the Health Sciences Authority, Singapore, and held from 30 November to 3 December 2010. The issue includes an article on Inspection of API manufacturing sites by the WHO Prequalification of Medicines Programme (PQP). Ensuring the quality of the active pharmaceutical ingredients (APIs) greatly contributes to achieving the objective of building the quality, safety and efficacy into the product. One of the strategies employed by PQP to achieve this is through inspection of API manufacturing sites to assess compliance with good manufacturing practices (GMP) and to verify data submitted in product dossiers.

The Safety and Efficacy section highlights information on signals and reports of adverse drug reactions, with other news from around the world, including labelling changes. This is complemented by the section on Regulatory Action and News which provides the most recent developments from regulatory authorities, and particularly those having an impact on decision-making and risk assessment.

The latest ATC/DDD Classifications, temporary and final, are included in this issue as well as the 65th Recommended List of International Nonproprietary Names (INN).

WHO Drug Information is available at: http://www.who.int/medicines/publications/druginformation/en/