



ORIGINAL ARTICLE

Medications prescribing pattern toward insured patients



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KEYWORDS

Insured patients;
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Prescribing pattern;
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Abstract *Background and Objective:* The rising costs of health care continue to make health insurance important for many countries. Health insurance may cover different aspects of health care in Saudi Arabia including the prescribed drugs. Physicians usually have different personal attitudes toward insured and uninsured patients. This study is to investigate the prescribing behavior of physicians to those groups of patients in the private setting.

Design and Setting: A prospective study was conducted during the period between October 2011 and January 2012, in three Saudi private hospitals.

Method: Prescriptions for insured and uninsured patients were randomly selected and analyzed. Data regarding diagnosis, age, gender, co-morbidity, number of items and the total cost of the medication in Saudi Riyals (SR) were collected through a chart review form.

Results: Three thousand sixty six patients' prescriptions were included in this study, 34.7% of them were females. 273 patients (75.2%) were insured while 90 were not.

24.8% were patients who paid cash. Majority (57.6%) of the patients were with diabetes plus hypertension and other co-morbidity. 20.7% of patients were taking three medications or less, while 67.8% were taking 4–10 and 11.6% were taking more than 10 medications. Analysis of differences showed that, patients who were insured have a higher number of prescribed medications ($p \leq 0.001$), and a higher total price of prescription than those who were paying cash only ($p \leq 0.001$). In a more confirmatory step, all uninsured patients ($n = 90$) were closely matched in the age, gender, diagnosis and hospital with similar 90 insured patients. Results of this matching process confirmed the above findings.

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Conclusion: Physicians in private setting are more likely to prescribe more drugs and/or brand drugs to insured patients than for uninsured patients. Further studies to view the reasons behind this behavior and strategies to prevent such actions are needed.

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1. Introduction

The Health insurance is a form of insurance, where individuals pay premiums in order to protect themselves from high or unexpected healthcare expenses (Insure4USA, 2012). The rising costs of health care continue to make health insurance important for many people and countries. Nowadays, The Ministry of Health (MOH) in Saudi Arabia is looking for the application of cooperative models of health insurance in order to contribute to the cost of spending on health services (Health Insurance Conference, 2011). Health insurance may cover different aspects of health care in Saudi Arabia including the prescribed drugs.

Studying the effect of health insurance status on physicians' prescribing behavior have had resulted in different findings. In Sweden 2000, D. Lundin found that physicians acted more in the interest of their patients than the insurance companies. He found that, physicians usually have different personal attitudes toward prescribing for insured and uninsured patients (Lundin, 2000). Moreover, Meyers et al. have examined the role of insurance status in clinical decision making. They found that physicians incorporate their patients' insurance status into their clinical decision making and acknowledge that, they frequently alter their clinical management as a result (Meyers et al., 2006). In a more recent study of 2009 Theodorou et al. concluded that, drug cost and patients' insurance coverage are factors that influenced physicians' prescribing decisions (Theodorou et al., 2009).

However, many authors in Saudi newspapers have addressed these differences in prescribing drug behaviors for insured and uninsured patients. Usually they mentioned this difference in their daily articles.

As Aljazeera newspaper 19/8/1431 reported Al-Thahabi said "Once the doctors know that the patients were covered by an insurance company they started to write a lots of medicines and unneeded laboratory tests based on their belief that the company have to pay for the patient's treatment" (تأمين أم كاش؟ فادي إبراهيم الذهبي).

Unfortunately, there were no such studies conducted in Saudi Arabia about this issue to date. Therefore, the aim of this study is to investigate the prescribing behavior of physicians to those groups of patients in the private setting.

2. Method

A prospective study was performed during the period between October 2011 and January 2012 in three large private hospital settings in Jeddah. The study was conducted by the analysis of randomly selected patients' prescriptions for some identified chronic disease. The included prescriptions were for males and females, insured or uninsured patients with chronic diseases such as hypertension or/and diabetes mellitus with or without other co-morbidity. The data were collected through a chart review form as the following: diagnosis, age, gender,

co-morbidity, number of items and the total cost of the medication in Saudi riyals in each prescription.

The collected data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS v16). Chi-square test and *T*-test were used to test differences between patients and their prescriptions. First, data were analyzed for all prescriptions included in the study. Then, and for more verification of data, analysis was performed on prescriptions of a closely matched pairs of uninsured to those who insured counterpart patients in each hospital. Matching process was based on three relevant characteristics; patients' age, gender and diagnosis. The Chi-square test was used to ensure that, the pairs are comparable in each characteristic of patients.

3. Results

A total of 363 patient's prescriptions were included in this study. 273 (75.2%) of those prescriptions were for insured patients while 90 (24.8%) were for uninsured patients. Patients' demographics are illustrated in Table 1. 237 (65.3%) of recruited patients were males and 126 (34.7%) were females (Fig. 1).

Analysis showed that a vast majority 209 (57.6%) of the study population were having diabetes and hypertension with other co-morbidity while 27 (7.4%) were having diabetes and 24 (6.6%) were with hypertension only (Fig. 2).

The analysis showed that 20.7% patients were taking 3 medications or less, 67.8% were taking 4–10 and 11.6% were taking more than 10 medications (Fig. 3).

Analysis of data showed significant differences ($P < 0.001$) in the number of items between prescriptions of insured and

Table 1 Patients' demographics.

	Numbered	Percentage
<i>Gender</i>		
Male	237	65.3
Female	126	34.7
<i>Patients Status</i>		
Insured	273	75.2
Uninsured	90	24.8
<i>Diagnosis</i>		
DM only	27	7.4
HTN only	24	6.6
HTN + DM	33	9.1
HTN + DM + DL	209	57.6
With/without Other co-morbidity		
DM + DL	31	8.5
HTN + DL	39	10.7
<i>Number of items</i>		
1–3 items	75	20.6
4–10 items	246	67.8
> 10 items	42	11.6

HTN, hypertension; DM, diabetes mellitus; DL, dyslipidemia.

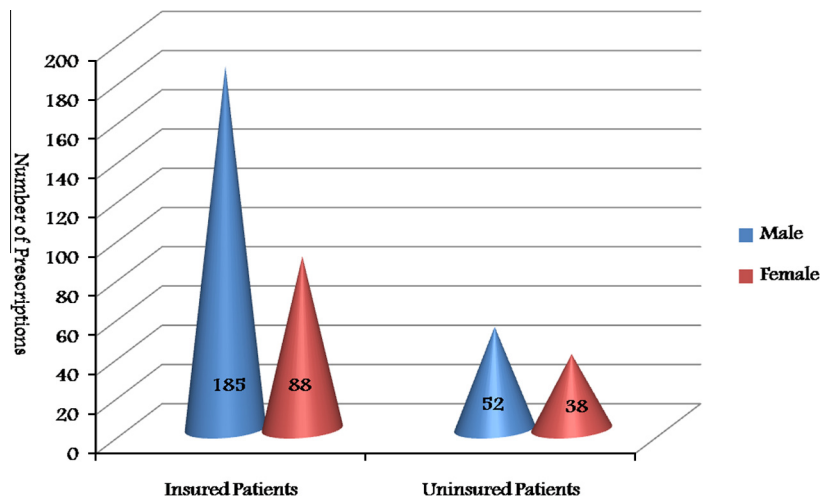


Figure 1 Number of prescriptions according to gender of insured and uninsured patients.

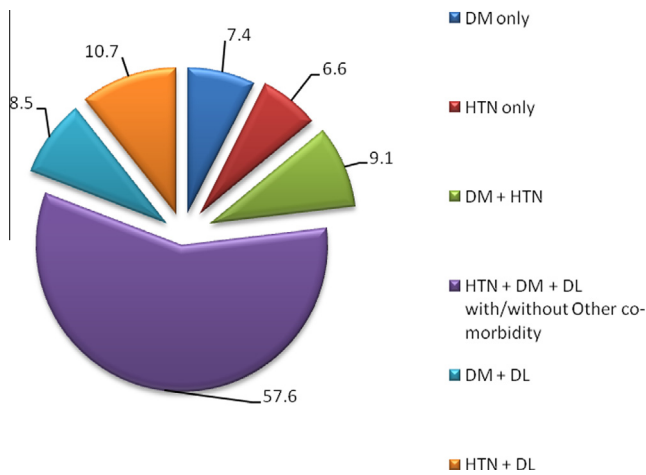


Figure 2 Percentage of patients according to their diagnosis. HTN = hypertension. DM = diabetes mellitus. DL = dyslipidemia.

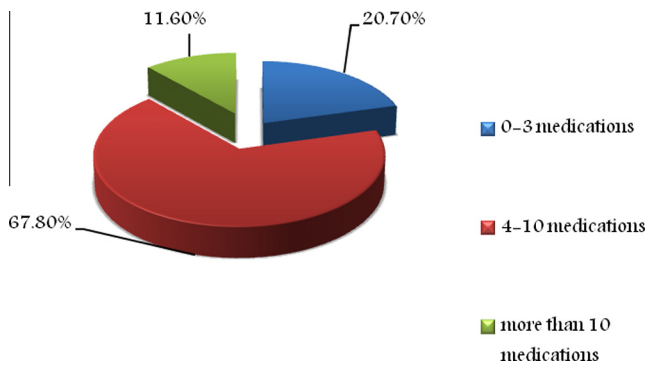


Figure 3 Number of medications in patients' prescriptions.

uninsured patients. Patients with active insurance have a higher number of items (Mean = 6.82 ± SD = 3.23) than those for uninsured (Mean = 4.84 ± SD = 2.70). (Fig. 4).

Moreover, patients with insurance coverage were likely to have more brand drugs (Mean = 4.92 ± SD = 2.48) in their

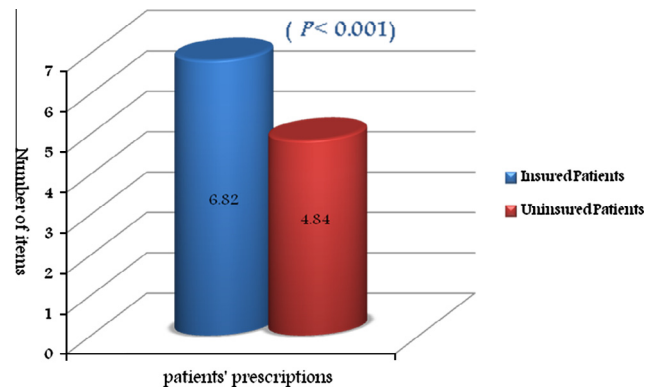


Figure 4 Differences in number of items between insured and uninsured patients' prescriptions.

prescriptions than uninsured patients (Mean = 3.37 ± SD = 2.10) (P < 0.001). The total cost of prescriptions were found to be higher for insured patients (Mean = 638 SR ± SD = 386.6) than that for uninsured patients (Mean = 460 SR ± SD = 387.3) (P < 0.001) (Fig. 5).

For more verification of the results, all the uninsured patients' prescriptions (n = 90) were closely matched in age, gender and diagnosis with similar 90 prescriptions of their counterpart insured patients in the same hospital. Table 2 shows that, the matching process has revealed no significant differences in all the predetermined patients' characteristics.

Analysis of the matched prescriptions, confirmed the above results. In each individualized hospital (A), (B) and (C), data have shown that significant differences existed between insured and uninsured patients' prescriptions. Insured patients in each hospital have a higher number of brand medications, more items and a higher total price than uninsured patients. Figs. 6–8 represent the results of the matched groups in each hospital.

4. Discussion

In this study the prevalence rate for essential hypertension and diabetes was found to be higher among males, compared to

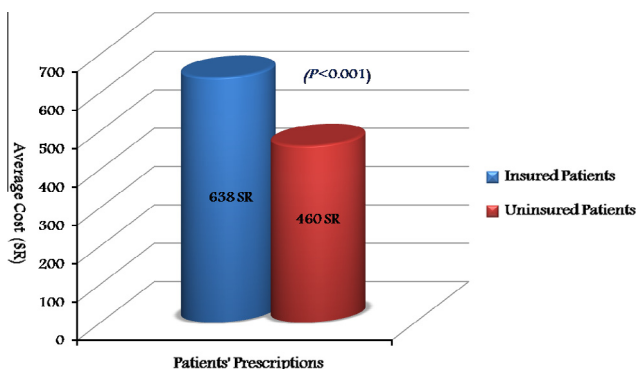


Figure 5 Average cost of patients' prescriptions in Saudi Riyals (SR).

females and this is in agreement with the previous studies that reported an overall higher prevalence of chronic diseases among adult males in Saudi population (Al-Nozha et al., 2007; Alqurashi Khalid et al., 2011). In addition, results of this study showed that about 75.2% of patients who were treated in private sector were under insurance coverage and this may represent such quota in chronic disease.

Interestingly, results of the study here have demonstrated that, some physicians may prescribe more drugs or even expensive to patients according to their insurance status, and these findings confirmed the current calling by many reporters of local newspapers and lay people

تأمين أم كاش؟. فادي إبراهيم الذهبي
شركات تأمين تضغط على الأطباء لوصف أدوية رخيصة. صالح الزهراني
من الأدوية التي تصرف للمرضى في المملكة ليسوا بحاجة إليها
(والدواء طاله التلاعب عبد العزيز المحمد الكبير

In this study, patients who paid cash get less brand drugs and spend less in total cost for drugs than patients who were completely covered by insurance companies and this is exactly the same as what had been found in Swedish study by D. Lundin and in the American study by Poisal and Murray (Lundin, 2000; Poisal and Murray., 2001). And this was mentioned recently, in a review article in 2011 about physicians' prescribing patterns in Saudi where they pointed out that exemption from

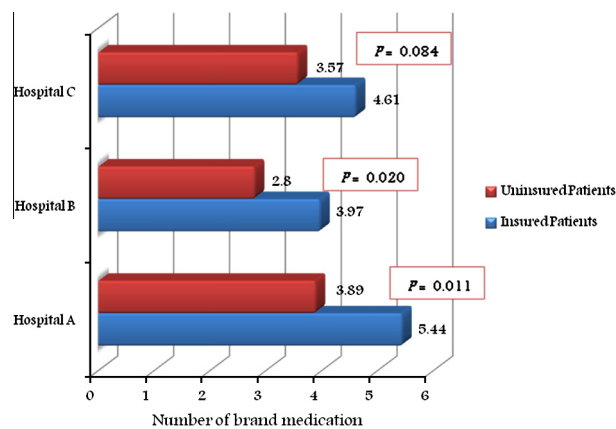


Figure 6 Differences of Brand number between insured and uninsured patients in each hospital.

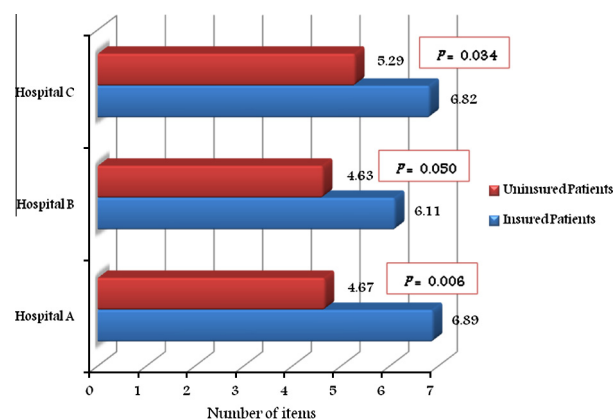


Figure 7 Number of items between insured and uninsured patients in each hospital.

cost considerations is a factor that may influence their decision (Theodorou et al., 2009; Neyaz et al., 2011).

However, studies are highly needed to explore the reasons behind such behaviors. It might be due to many factors that

Table 2 Differences in diagnosis, gender and age between insured and uninsured matched pairs of patients in each hospital.

	Insured patients	Uninsured patients	P value	Insured patients	Uninsured patients	P value	Insured patients	Uninsured patients	P value
<i>Diagnosis</i>									
I	4	4	1	11	11	1	7	7	1
II	6	6		7	7		8	8	
III	17	17		17	17		13	13	
<i>Gender</i>									
Male	18	15	.41	22	21	.81	22	16	.089
Female	9	12		13	14		6	12	
<i>Age</i>									
Years (mean)	55.37	54.37	.76	54.43	54.8	.88	54.11	55.61	.59
SD	11.705	11.988		10.376	10.087		12.102	8.279	

I – One chronic disease (hypertension and diabetes mellitus), II – Two chronic diseases (hypertension and diabetes mellitus, hypertension or diabetes mellitus with dyslipidemia), III – Three chronic diseases (hypertension, diabetes mellitus and dyslipidaemia with/without other comorbidity).

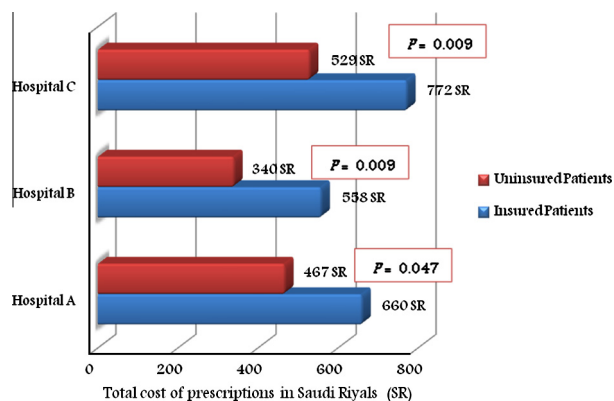


Figure 8 Differences in total cost of prescriptions in Saudi Riyals (SR) between insured and uninsured patients in each hospital.

were related to patients or/and to increase the reimbursement to their hospitals or due to drug advertisements (

من الأدوية التي تصرف للمرضى في المملكة ليسوا بحاجة إليها).

As a result, there is a calling now from the insurance company to force physicians to prescribe more generic drugs to insured patients that are cheaper and appropriate for their cases (

شركات تأمين تضغط على الأطباء لوصف أدوية رخيصة. صالح الزهراني).

Also, this result was more confirmed when all the 90 uninsured patients' prescriptions were compared with similar insured patients' prescriptions. The matching process here was to ensure more accuracy and decrease the possible factors that may affect the total cost or number of items prescribed.

However, the results here were obtained from three private hospitals only and in Jeddah city, whether the case is similar in other parts of Saudi Arabia or other hospitals, a broad study may be needed to generalize these findings.

5. Conclusion

Physicians in private setting are more likely to prescribe more drugs and/or brand drugs to insured patients than for uninsured patients. Further studies to view the reasons behind this behavior and strategies to prevent such actions are needed.

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