



ATTITUDE OF CHRONIC DISEASE PATIENTS TOWARDS THE COST OF THEIR PRESCRIBED MEDICATIONS

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ABSTRACT

Background: Rapid modernization and urbanization in United Arab Emirates have been accompanied by the wide spread of the devastating Serious health problems. **Objectives:** The main objectives of the study are to identify drug regimens for some chronic diseases, their cost and affordability by patients and assess the relationship of cost, economic status of patients and compliance. **Methods:** Information on drugs available in UAE to treat diabetes, hypertension and asthma were collected. These include generic name, trade name, dose strength, dosage form, pack size and cost. Commonly prescribed generic drugs and prescribed regimen for comorbid patients with both diabetes and Hypertension were also collected. Personal interviews with pharmacists in hospital and community pharmacies were carried out plus a questionnaire distributed to patients with chronic diseases. **Results:** A total of 51 questionnaires were received. Most patients were holders of bachelor degree or higher and 21 (41.2%) participants were with a monthly income of 30,000 AED. Almost similar numbers of patients were suffering diabetes, hypertension, asthma and diabetes plus hypertension. Patients with an income of 30000 AED (20, 39.2%) and above were willing to buy their medications and 19 (37.2 %) patients with lower income stated that their decision to buy the medications will depend mainly on cost of the drug. Of the latter group 10 (19.6 %) patients were willing to buy the medications. **Conclusions:** The price of medications influences the patient's decision to buy the medications and may negatively impact compliance particularly in patients with multiple prescriptions and low monthly income.

KEYWORDS: Chronic diseases, diabetes, hypertension, asthma, generic medications, cost, economic status and compliance.

INTRODUCTION

Since the discovery of oil, the UAE has experienced significant economic and industrial growth, especially in the petroleum, construction and healthcare industries.^[1] The development of UAE into a largely populated rich country with a westernized sedentary unhealthy life style was accompanied by increased prevalence of, among others, obesity, diabetes and cardiovascular diseases. It has been reported that using body mass index, 67% of adults were either overweight or obese and using waist hip ratio, 57% had central obesity and 18% and 27% of the population being diabetics or had evidence of pre-diabetes respectively.^[2] Lifestyle and diet are to blame, with cholesterol-rich diets and lack of exercise being the key factors in this growing regional epidemic. These have significantly contributed to the progressive increase in chronic diseases with cardiovascular disorders being responsible for nearly 38% of all deaths in the region. Diabetes is a growing concern too. Almost one-third of the population over the age of 30 has diabetes, which kills about 3% of the population each year.^[3] In a recent

study, it has been reported that among subjects with a previous diagnosis of risk factors, diabetes was uncontrolled in 2 of 3, hypertension 1 in 2, and hypercholesterolemia in 1 in 4.^[4]

It is expected that by 2020, 32% of the adult UAE population (age 20-79) may have diabetes or pre-diabetes, while other data indicate that the adult UAE population (ages 18 and above) has already reached a diabetes or pre-diabetes rate of 44%.^[5] According to the Emirates Cardiac Society (ECS), nearly 30% of the young people in the UAE are prone to have heart diseases because of bad eating habits, high blood pressure, obesity and high rates of diabetes.^[4]

The prevalence of asthma in school children in UAE Has also been reported to reach 13%.^[6] Asthma related illnesses account for the majority of absences in schoolchildren.

Adequate treatment and prevention programs need to be implemented in order to achieve successful treatment of these conditions. In this respect, it has been suggested that pharmaceutical management with combination therapy using multiple medicines is of great importance.^[7] This depends mainly on availability of low priced medications that can be afforded by low income patients. This pilot study was undertaken with the aim to investigate the availability of the most prescribed generic medications for the prevalent chronic diseases and attitude of patient to purchase their medications.

METHODS

Information of the available drugs, that are registered in the Ministry of Health (MOH) and are used to manage chronic diseases including diabetes, hypertension and asthma were collected and tabulated taking into consideration the following data (generic name, trade name, dose strength, dosage form, pack size and cost in Emirati Dirhams (AED). The cost per tablet or capsule was determined and the monthly cost for each medication was calculated using an excel sheet.

To check on generic drug prescribing, a total of 123 prescriptions were collected from two health centers in Sharjah. The most commonly prescribed generics for the above chronic disorders and the usual prescribed regimen for comorbid patients and those with both diabetes and hypertension were also determined. We also conducted personal interviews with 15 hospital and community pharmacists to collect data regarding the availability of and the most commonly prescribed medications and regimen for comorbid patients, those with both diabetes and hypertension and those with asthma. For evaluating the affordability of medications, an anonymous questionnaire was pre-validated by distributing it to six administrative staff of the University of Sharjah with diabetes, hypertension or both diseases. Questions covered age, education level, working status, income, type of chronic disease and willingness to buy medications. The received comments were taken into consideration in the final version of the survey. The questionnaire was distributed during the months of November and December, 2015, to a total of 65 patients with chronic diseases and living in a housing community complex. Collected data was analyzed and presented as frequency and percentage.

RESULTS

Demographic information with regard to the education level, working status and monthly income of patient or spouse is shown in Table 1. All the available drugs that are used to treat diabetes, hypertension and asthma which were solid dosage forms, such as tablets and capsules and their cost in Emirati Dirham (1 \$ = 3.68 AED) were tabulated and used to count the cost of common drug Regimen (Table 2). Data for each drug is tabulated as generic and trade names, dosage form and strength, pack size, total cost of pack, cost of one tablet or capsule and

the monthly (30 days) cost of each medication. The most commonly prescribed generic medications for comorbid patients with both diabetes, hypolipoproteinemia and hypertension are shown in Table 3. These include Aspirin (50%), Atorvastatin (46%), Metformin (37%), Glicazide (30%), Amlodipine (24%), Idapamide (19%), Perindopril (17%) and Rosuvastatin (16%). The most common prescribed generic medication for asthma was salbutamol which counted for (20%) of the total 123 prescriptions subjected to the study. The usual regimen that is commonly prescribed by physicians for comorbid patients with diabetes and hypertension was as follows; metformin 500mg TID, gliclazide 60mg OD, amlodipine 5mg OD, Perindopril 5mg OD and atorvastatin 20mg OD.

A total of 51 completed questionnaires were received producing a response rate of 78.5%. All participants were expatriates. The mean age of the patients was 29.31 years. Age of all asthmatic patients ranged between 20-30 years whereas the age range of other patients was rather wide (30-65).

The majority (33, 64.73%) of patients were with a bachelor degree, while those with high school certificate comprised 13 (25.49%) participants and only 4 (7.84%) and 1 (1.96%) of participants were with PhD or Master degrees respectively. Concerning the working status, slightly more than half (27, 52.94%) of patients were unemployed and either being a housewife or retiree. Thus, the source of their income was either from a working spouse or from relatives.

Our results indicate that 14 (27.5%) of patients were diabetic, 13 (25.5%) hypertensive, 12 (23.5%) with both diseases and 12 (23.5%) asthmatics. (Table 1).

Twenty one (41.2%) of participants have a monthly income of 30000 AED and higher while the income of the rest of participants ranged between 2,000 and 24,000 AED. When asked about their willingness to buy medications for their chronic disease from their own money, the majority (30, 58.82%) of participants, were ready to buy the medication. However, there were still a considerable number (20, 39.15%) of patients who stated that the price of medication would affect their decision on whether to buy the medications or not (Fig. 1). Results on willingness of patients with various monthly income to buy their medications are shown in Fig.2.

Table 1. Demographic data and disease status of participants.

Criteria	Frequency (%) N=51
Education Level	
High School Certificate	13 (25.5%)
Bachelor Degree	33 (64.7%)
Master's Degree	1 (2%)
Ph.D.	4 (7.8%)
Working Status	
Yes	24 (47.1%)
No	27 (52.9%)
Monthly income (AED)	
2000-4000	5 (9.8%)
5000-9000	8 (15.7%)
10000-14000	6 (11.8%)
15000-19000	7 (13.7%)
20000-24000	4 (7.8%)
30000 and Above	21 (41.2%)
Disease status	
Diabetes	14 (27.5%)
Hypertension	13 (25.5%)
Diabetes +Hypertension	12 (23.5%)
Asthma	12 (23.5%)

Table 2. The usual regimen that is commonly prescribed by physicians for comorbid patients with diabetes and hypertension and cost of medications

Drug	Monthly cost in AED (1\$=3.68 AED)
Metformin 500 mg TID.	7
Glicazide 60 mg OD.	90
Amlodipine 5 mg (2 tablets) OD.	8
Perindopril 5mg OD.	9.9
Atorvastatin 20mg OD.	20
Aspirin 81mg OD.	8
Total monthly cost (AED)	142.9 (\$38.8)

Table 3. Most prescribed generic medications for comorbid patients with both diabetes and hypertension.

Drug	Frequency (%) N=51
Aspirin	26 (51%)
Atorvastatin	23 (45.1%)
Metformin	19 (37.3%)
Glicazide	15 (29.4%)
Amlodipine	12 (23.5%)
Indapamide	10 (19.6%)
Perindopril	10 (19.6%)
Rosuvastatin	8 (15.6%)

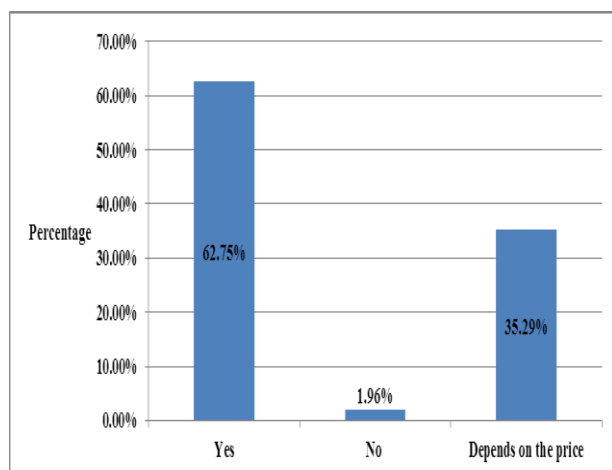


Figure 1. Willingness of patients to buy the prescribed medication.

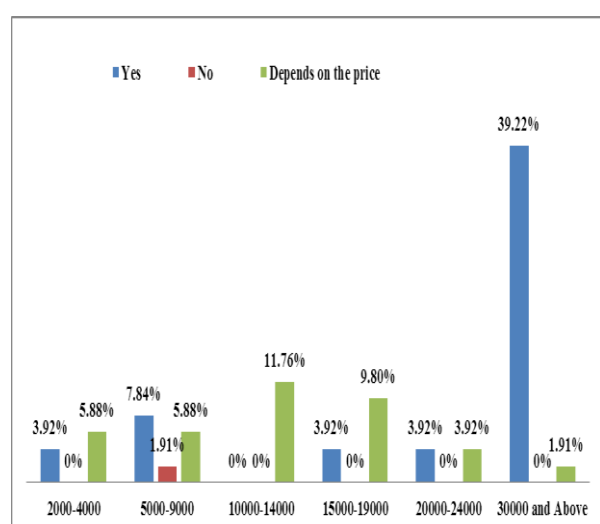


Fig. 2 Willingness of patients with various monthly income to buy their medication

DISCUSSION

According to many studies that compared the prices of UAE with other Arab countries, such as Lebanon, Bahrain, Oman, Saudi Arabia and Jordan, most of the medications cannot be afforded by middle and low income people in UAE. In UAE, most pharmacies sell products at a profit of about 18 per cent for chronic disease medicines and 24 per cent for those for non-chronic diseases. In 2013, the prices for 94% of pharmaceuticals were severely reduced by up to 40% through agreement with locally based international pharmaceutical firms.^[8] In the present study, more than 50% of the patients were not working and about two thirds of the patients were willing to buy their medications. The usual regimen that is prescribed for comorbid patients includes not less than five drugs and this number may be increased on therapeutic basis according to the patient's status and the guidelines. Slightly more than one third of our patients stated that their decision on purchasing their medication would depend on their prices. It must be pointed out that prescribing multiple medications to a low income patient

would certainly increase the medication cost and negatively impact compliance particularly for those without medical insurance. Non-compliance due to low income and high cost of multiple medications especially for patients with chronic illnesses may lead to worsening of the condition and negatively influence the prognosis of the disease. This does not underestimate the value of multiple therapy regimen for chronic illnesses such cardiovascular diseases. It has been claimed that chronic disease management with combination therapy using multiple medicines can delay the onset of disease and prevent deaths.^[7] Our results indicate that for a patient with hypertension and diabetes the total cost of his/her monthly medications would be in the range of two days wage for the lowest (AED 2000) income group. Such a cost may be more for patients with lower income and it may be a factor contributing to patient's reluctance to buy and use his/her medications. It has been suggested that adherence is a complex multifactorial behavior that is influenced by social and economic factors.^[8] Also, many studies have clearly shown that that high % of patients did not comply with their treatment regimen mainly because of the high medicine prices^[9] or because of poor availability and high prices.^[10-13]

It seems that in UAE, availability of medications is not an issue as we observed that all drugs for chronic diseases are available both as generics and brands. Prices can also be considered affordable for the majority of patients particularly in the light of the recent reductions introduced by the Ministry of Health. However, Patient's preferences should be taken into consideration especially when patient show reluctance to buy his/her medications.

Both the physician and the pharmacist should consider all factors that may influence his/her decision with regard to buying multiple medications for chronic diseases. This entails an effective communication between the prescriber and dispenser in this regard. Moreover, policymakers should be concerned with poor adherence particularly in chronic disease sufferers by reducing medications prices as, on the long run, it produces large downstream health care costs.^[14, 15]

LIMITATIONS

The sample size in this study and also the number of chronic diseases studied were rather small. This was mainly the result of strict regulations of the majority of hospitals approached to collect patients' information. However, the present study may be considered as a pilot one and further in-depth investigations are suggested for future research on the subject. Further studies are planned to collect data among both private and governmental hospitals in the various Emirates in UAE. In addition, follow up with the patients to see their level of compliance and whether or not affordability is the main issue behind compliance would prove useful. Future studies should also explore the insurance policies and the percentage of insurance coverage for medications.

CONCLUSION

The economic status of patients with chronic diseases may greatly influence the success of the therapeutic program and outcomes. The community pharmacist can in cooperation with the prescribing physician play an important role as part of a rational prescribing and pharmaceutical care delivery in designing and dispensing the regimen for treatment that suits the patient's economic ability. Health authorities in the country should also adopt a system whereby low income patients with chronic diseases are regularly supplied with their medication needs free of charge or at reduced prices.

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REFERENCES

1. Loney, T., Aw, T., Handysides, D., Ali, R., Blair, I., Grivna, M., Shah, S., Sheek-Hussein, M., El-Sadig, M., Sharif, A. and El-Obaid, Y. An analysis of the health status of the United Arab Emirates: the 'Big 4' public health issues. *Global Health Action*. 2013; 6(1): 1-8.
2. Hajat C, Harrison O, Al Siksek Z, Weqaya A Population-Wide Cardiovascular Screening Program in Abu Dhabi, United Arab Emirates. *Am J Public Health*. 2012; 102(5): 909-914.
3. Musaiger, AO and Al-Hazzaa, HM. Prevalence and risk factors associated with nutrition-related noncommunicable diseases in the Eastern Mediterranean region. *Int J Gen Med*, 2012; 5: 199-217.
4. Yusufali, A., Bazargani, N., Muhammedy, K., Gabrounz, A., AlMazrooei, A., Agrawalk, A., Al-Mulla, A., Hajat, C., Baslaiby, F., Philip, J., Gupta, P., Bakiry, S., Krishnan, S., Almahmeed, W., Alsheikh-Ali, A. Opportunistic Screening for CVD Risk Factors The Dubai Shopping for Cardiovascular Risk Study (DISCOVERY) GLOBAL HEART, 2015; 10(4): 265-272.
5. McLaughlin, G, Stoltz, K, Kemp, J. Diseases of Lifestyle: Diabetes in the UAE– Portrait of a country at risk, <http://www.middleeasthealthmag.com/cgi-bin/index.cgi?http://www.middleeasthealthmag.com/jan2013/feature11.htm>, 2013 (accessed 14-3-2015).
6. al-Maskari F, Bener A, al-Kaabi A, al-Suwaidi N, Norman N, Brebner J. Asthma and respiratory symptoms among school children in United Arab Emirates. *Allergie et Immunologie*, 2000; 32(4): 159-163.
7. van Mourik, MSM, Cameron, A, Ewen, M and Laing, RO. Availability, price and affordability of cardiovascular medicines: A comparison across 36 countries using WHO/HAI data *BMC Cardiovascular Disorders* 2010; 10: 25.
8. Medicine cost for chronic illnesses down 40 per cent in UAE. The National, 2013. <http://www.thenational.ae/news/uae-news/health/medicine-cost-for-chronic-illnesses-down-40-per-cent-in-uae> (Accessed, 13-5-2015).
9. Briesacher BA, Gurwitz, JH, Soumerai, SB. Patients at-risk for cost-related medication nonadherence: a review of the literature. *J Gen Intern Med* 2007; 22: 864-71.
10. Buabeng OB, Matowe L, Plange-Rhule J: Unaffordable drug prices: the major cause of non-compliance with hypertension medication in Ghana. *Journal of Pharmacy and Pharmaceutical Sciences* 2004; 7: 350-352.
11. Nurgozhin T, Pavin M, Hafner G, Yusupov F, Khusanbaev S, Laing R: Technical report: The Pharmaceutical Study in Ferghana Oblast, Uzbekistan Ferghana Oblast, Uzbekistan; 2001.
12. Hafner G, Nurgozhin T, Gulyaev A, Laing R: Technical report: Summary of Results: Availability of Pharmaceuticals in Kazakhstan's Pharmacies. Almaty, Kazakhstan 2002.
13. Guerra AA Jr, Acurcio FA, Gomes CA, Miralles M, Girardi SN, Werneck GA, Carvalho CL: Availability of essential drugs in two regions of Minas Gerais, Brazil. *Rev Panam Salud Publica* 2004; 15: 168-175.
14. Nobrega OT, Marques AR, de Araujo AC, Karnikowski MG, Naves JO, Silver LD: Retail prices of essential drugs in Brazil: an international comparison. *Rev Panam Salud Publica* 2007; 22: 118-123.
15. Viswanathan, M, Golin, CE, Jones, CD, Ashok, M, Blalock, SJ, Wines, RCM, Coker-Schwimmer, EJJ, Rosen, DL, Sista, P, Lohr, KN. Interventions to Improve Adherence to Self-administered Medications for Chronic Diseases in the United States: A Systematic Review. *Ann Intern Med*. 2012; 157(11): 785-795.