

# Evaluation of the Knowledge and Perceptions of Patients towards Generic Medicines in UAE

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## Abstract

**Objectives:** The objective of this study was to evaluate the knowledge and perceptions of patients towards generic medicines in some Emirates of the United Arab Emirates. **Methods:** A cross-sectional survey involving patients in three Emirates was undertaken. A 23-item questionnaire was designed, pre-validated and administered. **Results:** The questionnaire was fully answered by 96 patients out of 120 producing a response rate of 80%. The majority of patients were young Arab females with a university degree. Slightly less than 50% of patients were having a monthly income of less than ED 10,000. Results of the patient's survey indicate that they have poor knowledge and perception of generic medicines. They did not know the meaning of generic or brand medicines and this negatively influenced their responses to consequent questions. **Conclusion:** Patients' knowledge and perception of generic drugs were poor. Efforts are needed to increase public awareness of generic drugs and possible brand substitution. Both the prescribing physician and the dispensing pharmacists have an essential role to play in educating their patients of generic drugs.

## Keywords

Evaluation, Patients, Generic Medicines, Brand Medicines, Knowledge, Perception

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## 1. Introduction

Generic medicine use is increasing both in developing and developed countries. Prescribing trends among physicians can be investigated using the drug use indicators suggested by the World Health Organization (WHO) [1]. In a previous study of this kind, we demonstrated that generic prescribing by both consultants and general practi-

tioners in the United Arab Emirates was far from ideal [2]. However, there is evidence that not only doctors but also pharmacists hold negative views of generics and resist prescribing generic medicines [3] [4]. Patients have been shown to have poor knowledge and misconceptions about generic medicines [5]. Many studies have reported patients to have negative views about generics as they believe generics to be less effective, of lower quality and unsuitable for treatment of major illnesses, as compared to their branded equivalents [5]-[7]. It is worth noting that some patients might ask the prescriber for a particular drug by name which is usually brand and expensive drug either because of previous experience with the medicine or due to the impact of promotional activity. It has also been suggested that such an insistence on an expensive medicine may be because the patient does not pay the full cost or because they believe that those drugs are better than cheaper ones [8]. Keeping this in mind, it seems rather important to evaluate the level of knowledge, perception and attitudes of patients and if the levels are poor or misconception were of significant negative impact on generics use, interventions must be implemented to increase awareness of the public towards generic drugs as substitutes for expensive counterpart brands. It must be noted that low income patients and those without medical insurance coverage may not adhere to their prescribed drugs if they cannot afford its cost and as such drug compliance may not be achieved and this would negatively impact therapeutic outcomes. On the other hand, prescribing generic medicine by the physician or replacement of brand by generic by the pharmacist would have the opposite effect. Taken cost of medicine into consideration, it must be remembered that generics, according to estimates of Food and Drug Administration (FDA) are usually 20% - 70% less expensive than their counterpart brands [9]. In the United Arab Emirates (UAE) there is a lack of studies on generic prescribing and knowledge, perception and attitude of patients towards generic drugs. Therefore, this study was undertaken to evaluate the level of knowledge, perception and attitude of patients towards generic versus brand medicines.

## 2. Methods

### 2.1. Questionnaire and Study Design

We designed a questionnaire to collect data on patient's knowledge and perception of generic drugs that was prepared both in Arabic and in English (available upon request) and pre-piloted by distributing to six patients who were randomly selected and interviewed face-to-face and their recommendations, comments and views were taken into consideration in the final version of the survey. Patient inclusion criteria include patients, who willingly accepted to participate in the survey and thought capable of responding to the questionnaire. We targeted patients attending private clinics, public hospitals, and health centers in the Emirates of Abu Dhabi, Sharjah and Ajman, UAE during the months of February-March, 2016. A total of 120 questionnaires were distributed to patients. Once the returned questionnaires were subjected to analysis, only 96 questionnaires were completely filled and their responses were considered in the results. Patient's participation was totally voluntary and their informed consent was obtained.

In addition to that, anonymity of respondents in the study was preserved in which the names of participants were not included. One of the investigators was available during filling the questionnaire to clarify any queries. The questionnaire consisted of three sections. The first dealt with patient's demographic data including gender, age, ethnic group, educational level, monthly income, medical insurance and % cost paid per prescription. The second section comprised the average number of prescriptions per year, practice of self-medication without prescription, asking for specific medicine by name, explaining the condition and consulting the pharmacist for medication and whether the patient prefers local or imported medicines. We also examined patient's believes of imported medicines as compared to locally produced drugs. Patients have to select either agree, not sure or disagree to statements on whether imported medicines are of higher quality, more effective, more expensive, with less side effects, more prescribed by physicians, more recommended by dispensing pharmacists and are more advertised than locally produced drugs.

In the third part of the questionnaire, we examined the patient's knowledge and perception of generic medicines. In this section, patients were asked if they know the meaning of generic and brand medicines, and to briefly describe each in case they know, and if they think there are differences between generic and brand medicines. In addition, patients were asked whether they agree, are not sure or disagree to statements such as; brand medicines are of higher quality than generics, safer, with fewer side effects and whether they are more expensive. Patients were also asked whether they accept substitution by pharmacists of their prescribed brand with generic and what generics they prefer locally produced or imported, cheap or expensive, and how often their brand medication was replaced by a generic one and whether the cost of the prescribed medicines is an issue or not as long as his/her condition is treated.

## 2.2. Statistical Analysis

Responses of the participants were encoded and the data were analyzed using Statistical Package for the Social Sciences (SPSS, version 17, Chicago, IL, US). Three categories of the relevant responses were used so that 95% confidence intervals (95% CI) could be calculated. Descriptive analysis was used to calculate the proportion of each group of respondents who agreed/disagreed with each statement in the questionnaire. Chi square test was used to identify any significant difference among the participants' responses regarding certain statements in the questionnaire with a significant level of  $p$  value of  $<0.05$ .

## 3. Results

Participants include more female (71, 74%) than male (25, 26%) patients. More than two thirds of participants were young (20 - 30 years) Arabs and holders of a university degree. Slightly less than 50% of the participants were with a monthly income of less than ED 10,000 (**Table 1**).

Views of patients on imported drugs as compared to locally produced medicines are

**Table 1.** Demographic characteristics of patients.

Criteria	Frequency (%) n = 96
<b>Gender</b>	
Male	25 (26%)
Female	71 (74%)
<b>Age</b>	
20 - 30	65 (67.7%)
31 - 40	14 (14.6%)
41 - 50	12 (12.5%)
51 - 60	4 (4.2%)
>60	1 (1.1%)
<b>Nationality</b>	
Arabic	77 (80.2%)
Non-Arabic	18 (18.8%)
<b>Educational level</b>	
Illiterate	8 (8.3%)
High school	6 (6.3%)
University degree	73 (76%)
Master	4 (4.2%)
Ph.D.	5 (5.2%)
<b>Patient's monthly income ED</b>	
<1000	47 (49%)
10,000 - 14,000	20 (20.8%)
15,000 - 19,000	14 (14.6%)
20,000 - 24,000	12 (12.5%)
25,000 - 30,000	3 (3.1%)

shown in **Table 2**. The majority of patients agreed to the statements that imported medicines are of higher quality (44.8%), more effective (50%), more expensive 66.7%), more advertised (65.6%) and more prescribed (42%) than locally produced drugs. Knowledge of participants of brand medicines as compared to generics is shown in **Table 3**. It is clear that knowledge of patients in the present study is poor as 47% - 50% of the data that is based on awareness of brand and generic medicines was not recorded by participants.

Fifty six (58.3%) of female and 14 (14.6%) of male patients did not know what is meant by generic or brand name medicines while more females (15, 15.6%) than males (11, 11.5%) knew the meaning of both drug categories (**Table 4**). There was no statistical significance between males and females concerning their preference of locally

**Table 2.** Views of patients on various aspects of imported versus locally produced drugs.

Statement	Frequency (%), n = 96			95% CI for Agree responses
	Agree	Not sure	Disagree	
Imported medicines are of higher quality	43 (44.8%)	41 (42.7%)	41 (42.7%)	(34.89 - 54.69)
Imported medicines are more effective	48 (50%)	36 (37.5%)	12 (12.5%)	(40.05 - 59.95)
Imported medicines are more expensive	64 (66.7%)	22 (22.9%)	10(310.4%)	(57.28 - 76.05)
Imported medicines produce fewer side effects	18 (18.8%)	43 (44.8%)	35 (36.5%)	(10.98 - 26.52)
Imported medicines are more prescribed by physicians	42 (43.8%)	42(43.8%)	11 (11.5%)	(33.88- 53.62)
Imported medicines are recommended more by pharmacists	33 (34.4%)	45 (46.9%)	17 (17.7%)	(24.92 - 43.83)
Imported medicines are more advertised	63 (65.6%)	23 (24%)	10 (10.4%)	(56.17 - 75.08)

**Table 3.** Patient's knowledge of properties of brand as compared to generic medicines.

Statement	Frequency (%), n = 96				95% CI for agree responses
	Agree	Not sure	Disagree	Data not recorded	
<b>Quality of brand medicine is higher.</b>	26 (27.1%)	12 (12%)	13 (13.5%)	45 (46.9%)	(18.24 - 35.93)
<b>Brand medicine is more effective.</b>	21(21.9%)	13 (13.5%)	15 (15.6%)	47 (49%)	(13.65 - 30.10)
<b>Brand medicine is safer.</b>	18 (18.8%)	16 (16.7%)	15 (15.6%)	47 (49%)	(10.98 - 26.52)
<b>Brand medicine is more expensive.</b>	37 (38.5%)	9 (9.4%)	3 (3.1%)	47 (49%)	(28.86 - 48.23)
<b>Brand medicine produces fewer side effects.</b>	11 (11.5%)	21(21.9%)	16 (16.7%)	48 (50%)	(5.12- 17.80)

**Table 4.** Influence of patient's gender on various aspects of generic drugs.

Question/statement	Gender, frequency (%), n = 96			P value
	Male	Female		
<b>Do you know what is meant by generic medicines?</b>				
<b>Yes</b>	11 (11.5%)	15 (15.6%)		0.028
<b>No</b>	14 (14.6%)	56 (58.3%)		
<b>Do you know what is meant by brand medicines?</b>				
<b>Yes</b>	13 (13.5%)	16 (16.7%)		0.007
<b>No</b>	12 (12.5%)	55 (57.3%)		
<b>Which generic medicine you prefer?</b>				
<b>Locally produced</b>	13 (13.5%)	40 (41.7%)		0.056
<b>Imported</b>	12 (12.5%)	31 (32.1%)		
<b>Cost is not an issue as long as my condition is treated.</b>				
<b>Yes</b>	25 (26%)	49 (51%)		0.062
<b>No</b>	0	22 (22.9 %)		

Chi square test, significance at p value < 0.05.

produced or imported generics. When considering the cost, statistically significant number of females selected yes to cost being not an issue as long as their condition is treated. Although low (21, 21.9%) but statistically significant number of the youngest (20 - 30 years) age group agreed that brand medicines are more expensive than generics (Table 5). More Arab (65, 67.7%) than non-Arab patients (4, 4.2%) did not know what is meant by brand or generic. However, only less than 5% of non-Arab pharmacists did not know the meaning of both brand and generic medicines (Table 6). When asked whether more imported medicines are recommended by pharmacists, about one third of Arab patients agreed or was not sure. With regard to the statement that imported medicines produce fewer side effects than locally produced ones, statistically higher percentages of Arab patients disagreed or were not sure of such statement (Table 3). In studying the influence of the level of education on the statements that brands are more recommended by pharmacists and being more expensive than generics, statistically significant higher percentages of patients with a master degree approved both statements (Table 7). The monthly income of patients did not statistically influence their preference to locally produced or imported drugs but patients with the least monthly income (<10,000 ED) agreed or were not sure of imported medicines being of higher quality, more effective and are more prescribed by physicians than locally produced counterparts (Table 8).

#### 4. Discussion

In the present study, most of the participants were young Arab females with a university degree who believed that imported drugs are superior to locally manufactured counterparts. In addition, knowledge of patients of generic and brand medicines was rather poor and this was negatively reflected on their consequent responses to the questions in the survey. In general, patients have less confidence in generic drugs, because, among other reasons, the packaging of generics does not have acceptable appearance as brand drugs do. It has been reported that a significant disadvantage to the use of generics—and a factor identified as conducive to continued use of proprietary medicines—was variability in appearance of generics [10]. Also some patients insist on certain drugs, because of their previous experience or due to the impact of promotional activity in favor of these drugs. Knowledge of patients in the present study was poor as compared to

**Table 5.** Influence of patient's age on whether brand medicine is more expensive than generic ones.

Statement	patient age (years), frequency (%), n = 96					P value
	20 - 30	31 - 40	41 - 50	51 - 60	>60	
Brand medicines are more expensive than generics.						
Agree	21(21.9 %)	8 (8.3 %)	6 (6.3%)	2 (2.1%)	0	0.005
Not sure	8 (8.3%)	0	1 (1%)	0	0	
Disagree	0	1 (1%)	1 (1%)	0	1 (1%)	

Chi square test, significance at p value < 0.05.

**Table 6.** Influence of ethnicity of patient on some aspects of generic medicines.

Questions/statement	Frequency (%), n = 96		
	Arabic	Non-Arabic	*P value
Do you know what is meant by generic medicines?			
Yes	12 (12.5 %)	14 (14.6 %)	0.000
No	65 (67.7 %)	4 (4.2%)	
Do you know what is meant by brand medicines?			
Yes	15 (15.6%)	14 (14.6%)	0.000
No	62 (64.6%)	4 (4.2%)	
Imported medicines are recommended more by pharmacists.			
Agree	30 (31.3 %)	2 (2.1%)	0.072
Not sure	33 (34.4 %)	12 (12.5%)	
Disagree	14 (14.6 %)	3 (3.1 %)	
Imported medicines produce fewer side effects than locally produced ones.			
Agree	16 (16.7%)	2 (2.1%)	0.038
Not sure	30 (31.3%)	13 (13.5%)	
disagree	31 (32.3%)	3 (3.1%)	

Chi square test, significance at p value < 0.05.

**Table 7.** Views on imported and brand medicines.

Questions/statement	Frequency (%), n = 96					*P value
	Illiterate	High school	University	Master	Ph.D.	
<b>Imported medicines are recommended more by pharmacists</b>						
Agree	2 (2.1%)	1 (1%)	27 (28.1%)	3 (3.1%)	0	0.009
Not sure	4 (4.2%)	1 (1%)	35 (36.5%)	0	5 (5.2%)	
Disagree	2 (2.1%)	4 (4.2%)	10 (10.4%)	1 (1%)	0	
<b>Brand medicines are more expensive than generics</b>						
Agree	2 (2.1%)	0	30 (31.3%)	2 (2.1%)	3 (3.1%)	0.002
Not sure	0	2 (2.1%)	7 (7.3%)	0	0	
Disagree	2 (2.1%)	0	1 (1%)	0	0	

Chi square test, significance at p value < 0.05.

**Table 8.** Influence of patient's monthly income on their views on some aspects of imported drugs.

Question/ statement	Frequency (%), n = 96					*P value
	10	10 - 14	15 - 20	20 - 24	25 - 30	
<b>What medicines do you prefer?</b>						
-Locally produced	7 (7.3%)	8 (8.3%)	2 (2.1%)	1 (1%)	0	0.064
-Imported	18 (18.8%)	6 (6.3%)	3 (3.1%)	5 (5.2%)	3 (3.1%)	
No preference	22 (22.9%)	6 (6.3%)	9 (9.4%)	6 (6.3%)	0	
<b>Imported medicines are of higher quality than local ones.</b>						
Agree	16 (16.7%)	14 (14.6%)	6 (6.3%)	4 (4.2%)	3 (3.1%)	0.005
Not sure	27 (28.1%)	4 (4.2%)	3 (3.1%)	7 (7.3%)	0	
Disagree	4 (4.2%)	2 (2.1%)	5 (5.2%)	1 (1%)	0	
<b>Imported medicines are more effective.</b>						
Agree	18 (18.8%)	14 (14.6%)	8 (8.3%)	5 (5.2%)	3 (3.1%)	0.009
Not sure	24 (25%)	5 (5.2%)	1 (1%)	6 (6.3%)	0	
Disagree	5 (5.2%)	1 (1%)	5 (5.2%)	1 (1%)	0	
<b>Physicians prescribe mainly imported medicines</b>						
Agree	21 (21.9%)	11 (11.5%)	2 (2.1%)	7 (7.3%)	2 (2.1%)	0.019
Not sure	23 (24%)	4 (4.2%)	8 (8.3%)	5 (5.2%)	0	
Disagree	2 (2.1%)	5 (5.2%)	4 (4.2%)	0	0	

Chi square test, significance at p value < 0.05.

that of renal patients in Al Ain Emirate—UAE [11]. However, even in the later study, some of highly educated patients were unsure of the efficiency of generic medicines and substitution [11]. In addition, pharmacists may not promote generics as this may negatively affect their sales. Both physicians and pharmacists, who have direct contact with the patients, should be more convinced that generic drugs can have as good quality as brands. Also they themselves should be educated that brand drugs are not necessarily of higher and better quality than generics. Moreover, for the benefit of the patients, more effective communication between the treating physician and the community pharmacist should be established. We have earlier shown that 60% of physicians rarely or never discuss patient's drug therapy with the pharmacist [12]. The present patients' poor ability to differentiate between generic and brand drugs, could improve tremendously if both the pharmacists and the physicians focus on communicating more with their patients, educate them about the correct selection between generic and brand drugs and inform them that both categories of medicines have similar effectiveness but generics are cheaper. It is also a fact that some patients are with the wrong impression that the



more expensive the medication, the better its quality and its effectiveness [13].

## 5. Conclusion

Results of this survey conclude lack of knowledge of generic medicines and patients are inclined to prefer imported drugs. Efforts must be directed towards increasing public awareness of generic medicines and should also focus on educating physicians and pharmacists about generic medicines through inclusion of related topics in undergraduate curricula and continuing educational programs.

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## Limitation of the Study

In the present study although we covered patients from three Emirates in UAE, coverage of patients from other Emirates would produce more informative results particularly in the light of the relatively small sample size of our study.

## Conflict of Interest

The authors declare that there is no conflict of interest.

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