



Original Article

Exploring community pharmacists' knowledge, perception and experiences towards branded and generic medicines in Kuwait: Highlighting the role of pharmacist

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ABSTRACT

Background: Substituting brand drugs with generic drugs without affecting patients' health is considered a cost-effective measure to reduce health care expenditure.

Objectives: The study was designed to explore the community pharmacists' knowledge, perception and experiences toward generic drug substitution and highlight the role of pharmacist in practicing substitution.

Method: A descriptive cross sectional survey among community pharmacists was carried out in Kuwait. A validated questionnaires consisting of 3 sections with total of 22 questions were distributed to 180 pharmacists and collected after 3–5 days.

Results: Less than half of respondents (46.1%) thought that generic drugs are equivalent to the original brands. 60% of pharmacists believed that OTC are as effective as brands while only 42% agreed that generic drugs can be as effective as brand for chronic diseases. Pharmacists agreed that brands have more strength variety (74%), better packaging (72%) and more expensive (66.2%) than generic. Most of the pharmacists agreed on stocking brand (88%) and generic (72%). Also 81% and 62% agreed that drug price and doctor's opinion could affect patients' choice, alternatively. 88% of pharmacists would recommend generic substitutes when brands are not available. Whereas 45% would try to persuade patients to shift to a brand when patient is unsatisfied with the generic. Pharmacists were more confident in recommending generic OTC drugs than the branded counterpart for chronic diseases ($p = 0.001$).

Conclusion: A national brand substitution policy should be formulated and implemented to assist pharmacists in the proper substitution practice and to help minimize the healthcare costs.

1. Introduction

Rational utilization of medicines play an essential role in decreasing morbidity and mortality as well as in improving quality of life [1]. Consequently, rapid growth of pharmaceutical expenditures both in developed and developing countries has occurred, especially in the last two decades which is considered a major factor that increase costs of health care [2,3]. Using generic medicines can be considered as a cost-effective measure to limit health care expenditures on pharmaceuticals, leading to considerable savings to the population and the government [2,4,5]. Thus, substitution of generics for branded drugs could be an alternate method for savings in drug expenditure without affecting the quality of the provided treatment, given that generic drugs are expected to be within an acceptable bioequivalent range to the brand-name

counterpart and that they are available at a lower cost [2,6]. As a reward for the innovation, inventors are granted patents for a newly developed drug. At the end of patency, other manufacturers are allowed to produce and sell the generic substitute that shows equivalent pharmacological characteristics. Leading to substantial reduction in price of that medicine and greater savings in drug expenditure [6]. Thus, generic pharmaceuticals play an important role as an alternative to originator medicines in treating diseases [5].

The private health system in Kuwait is well developed with a private health insurance coverage organized by employers for non-citizens. While the public health sector is financially supported by the government and regulated by Ministry of Health (MOH). It can be described as a tertiary model consisting of primary health-care polyclinics, specialized health-care polyclinics, general and specialized hospitals. The

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government provides full health services free of charge to all Kuwaitis and for a nominal charge for non-Kuwaitis. Private sector health care is provided by general practitioner's clinics, hospitals, and community pharmacies, and they are available for those who have private health insurance, or feeling their desires are not adequately attended by government facilities, and who need special treatments, brands or new medicines which are not available in the public health sector [7]. In 2012, the public health expenditure was 2.1% of gross domestic product (GDP) and 5.6% of total government expenditure [8]. Only 15.8% originated from private health sector while 82.5% was the public health sector expenditure [8].

Health professionals have no influence on the process of public health purchasing for pharmaceuticals which is done through tenders. Thus, health professionals are obliged to prescribe and dispense the available drugs, and patients are switched between brand-name drugs and generic drugs and vice-versa primarily depending on availability. On the other hand, private sector health professionals' have absolute freedom to prescribe and dispense brand-name drugs or generic substitutes based on doctors or patient's preference or stock availability. In the private sector, medicines required for chronic and minor diseases are obtained without a prescription, however, psychotropic, corticosteroids, narcotic, antibiotics and a list of other medicines require prescription [7,9]. In developed countries' health care system, the role of the pharmacist has progressed from a merely dispenser to caregiver, counselor, and decision-maker [10]. Pharmacists are considered as the direct and last line of contact with the patients. Also, as health-care professionals are expected to give advice patients regarding dosages, expected side effects and adverse effects, and drug-drug interactions and to take part in the multidisciplinary team as a practicing pharmacist [10,11]. Therefore, evaluation of community pharmacists' views and attitudes regarding the use of generic medicines and substitution is vital. To the best of our knowledge, no studies have been conducted to evaluate perception, knowledge and attitude of community pharmacists towards generic medicine dispensing in Kuwait. Therefore, the aims of this study were to investigate knowledge, perception, and experience of community pharmacists towards generic substitution of the innovative brand medicines in Kuwait.

2. Material and methods

A descriptive cross sectional survey among community pharmacists was carried out in Kuwait over a period of 3 months from February to April 2017. The study population was the practicing pharmacists in community pharmacies in Kuwait and the sampling unit was the community pharmacy. The sampling frame was a list of 386 community pharmacies and 18 hospital pharmacies in Kuwait based on December 2015 statistics that was obtained from the inspection department in the Ministry of Health, Kuwait. Data collection was carried out using a structured self-administered paper-based questionnaire. The sample for this study included 42 randomly selected private community pharmacies proportionally from 6 governorates in Kuwait. The estimation of sample size was performed using the Raosoft® online calculator. There were approximately 400 registered community pharmacists practicing in Kuwait. The sample size of this study was calculated based on a confidence level of 95% and a 5% margin of error, and 30% non-response rate, the study targeted 180 community pharmacists.

2.1. Study design

The instrument used in this study was developed and validated by the researchers. The questionnaire was formed based on previous studies investigating knowledge and perception of pharmacists and other healthcare professionals regarding branded and generic medicine [12–14]. It consisted of 23 questions; among these 4 questions were on pharmacists' characteristics, 6 questions about pharmacists' knowledge of branded and generic medicines; 8 questions about pharmacists'

perceptions towards branded and generic medicine; 4 questions about pharmacists' practices in dispensing of branded and generic drugs; and 1 question on pharmacists' awareness of any regulation about generic substitution of branded drugs. All questions were framed in five-point, Likert-scale format (1 = "strongly disagree", 2 = "disagree", 3 = "not sure", 4 = "agree", 5 = "strongly agree"). The questionnaire was tested for face and content validity by experts, and pretested on ten pharmacists. Cronbach's alpha of 0.83 was obtained. This pretest data were excluded from the main study analysis. With the questionnaire an explanatory statement and an informed consent were given to each participant to explain the aim and objectives of the study and about the concealment of the survey results. Upon fulfillment of the suitability criteria, participants were given a copy of the questionnaire after signing the written informed consent.

2.2. Statistical analysis

All data entry and the basic summary of the data were conducted using Statistical Package for Social Sciences, (IBM SPSS Statistics 23, IBM Corporation, Armonk, NY, USA 2014). Categorical variable were described using numbers and percentages and mean and standard deviation (SD) were used to describe continuous variables.

This study was approved by Research Ethics Committee of The Public Authority for Applied Education and Training.

3. Results

3.1. Demographics of the respondents

Overall, 180 respondents were surveyed in 120 pharmacies from 6 governorates of Kuwait. The mean age of participants was 34 years with a standard deviation of 7.2, more than 50% were in the age range of 30–39 years and 77.2% were Egyptians. Proportionally more pharmacists were from Hawalli Governorate and less were from Mubarak Al-Kabeer Governorate and this can be understood because of population density variation. Also, more participants were from big pharmacies compared to small or medium size pharmacies. Respondents' demographics are shown in Table 1.

Table 1
Characteristics of the studied sample (n = 180).

Characteristics	Number	(%)
Age in years		
< 30	50	(27.8)
30–39	93	(51.6)
> = 40	37	(20.6)
Nationality		
Kuwaiti	5	(2.8)
Egyptian	139	(77.2)
Jordanian	11	(6.1)
Syrian	10	(5.6)
Indian	7	(3.9)
Others	8	(4.4)
Governorate		
Capital	22	(12.2)
Hawalli	66	(36.7)
Mubarak al-kabeer	8	(4.4)
Farwaniya	34	(18.9)
Jahra	37	(20.6)
Ahmadi	13	(7.2)
Size of pharmacy		
Small/Medium	82	(45.6)
Big	98	(54.4)

Table 2
Community pharmacists' knowledge on branded and generic drugs.

	Number	(%)
Generic drugs are equivalent to brands always		
Agree	83	(46.1)
Undecided	34	(18.9)
Disagree	63	(35.0)
Generic drugs treating chronic diseases are as effective as brands		
Agree	76	(42.2)
Undecided	30	(16.7)
Disagree	74	(41.1)
OTC generic drugs are as effective as brands		
Agree	108	(60.0)
Undecided	26	(14.4)
Disagree	46	(25.6)
Brands have fewer side effects than generic drugs		
Agree	40	(22.2)
Undecided	30	(16.7)
Disagree	110	(61.1)
Brands have simpler regimen than generic		
Agree	87	(48.3)
Undecided	41	(22.8)
Disagree	52	(28.9)
Brands are available in a variety of strengths which makes them better choice		
Agree	133	(73.9)
Undecided	18	(10.0)
Disagree	29	(16.1)

3.2. Community pharmacists' knowledge on branded and generic drugs

Community pharmacists' knowledge on branded and generic drugs are shown in Table 2. Only 46.1% of the respondents believed that generic drugs are equivalent to the original brands, 42.2% believed that generic drugs treating chronic diseases are as effective as original brands, whereas 60% of respondents reported that OTC generic drugs are as effective as brands. In terms of side effects, only 40 (22.2%) agreed that branded medicines have less side effects than generic ones while 61% disagree. About three quarter (73.9%) agreed that brands are available in a variety of strengths and that makes them a better choice than generics, while less than half (48.3%) agreed they have simpler regimen than generics.

3.3. Community pharmacists' perceptions on branded and generic drugs

Table 3 describes community pharmacists' perceptions on branded and generic drugs. Although about 88% of respondents reported that it is important to have in stock originator drugs all the time, 72.3% of the respondents agreed with the equal importance to have generic drugs in stock. Two-third (66.1%) of pharmacists shared a similar opinion that OTC generic medicines exceed their brands in variety. A higher proportion of pharmacists (71.7%) stated that packaging of original brands is always better than that of generic counterparts. Concerning the price of branded and generic drugs, two-third of the participants (66.2%) believed that branded drugs are always more expensive than generics. More than two-third of participants (71.1%) believed that patients with chronic diseases prefer branded drugs, and a greater proportion of pharmacists (80.6%) were on the view that price can affect patients' choice between branded and generic drugs. In terms of reliability of pharmacists versus clinicians' advices, majority of pharmacists (62.2%) assessed that patients trusted doctors more than pharmacists on the choice between branded and generic drugs.

3.4. Community pharmacists' practices in dispensing of branded and generic drugs

Table 4 shows community pharmacists practices in dispensing

Table 3
Community pharmacists' perceptions on branded and generic drugs.

	Number	(%)
It is important to have in stock brand drugs all the time		
Agree	158	(87.8)
Undecided	11	(6.1)
Disagree	11	(6.1)
It is equally important to have generic drugs in stock		
Agree	130	(72.3)
Undecided	24	(13.3)
Disagree	26	(14.4)
The variety in generic OTCs exceed the variety of brands		
Agree	119	(66.1)
Undecided	37	(20.6)
Disagree	24	(13.3)
Packaging of branded drugs are always better than generic drugs		
Agree	129	(71.7)
Undecided	22	(12.2)
Disagree	29	(16.1)
Branded drugs are always more expensive than generic drugs		
Agree	119	(66.2)
Undecided	17	(9.4)
Disagree	44	(24.4)
Brand drugs are more preferred by patients for chronic diseases		
Agree	128	(71.1)
Undecided	16	(8.9)
Disagree	36	(20.0)
Price has an effect on the choice between brand and generic		
Agree	145	(80.6)
Undecided	20	(11.1)
Disagree	15	(8.3)
Patients trust doctors more than pharmacists on the choice between brand and generic		
Agree	112	(62.2)
Undecided	28	(15.6)
Disagree	40	(22.2)

Table 4
Community pharmacists' practices in dispensing of brand and generic drugs in pharmacies.

	Number	(%)
Do you recommend alternatives		
Agree	145	(80.6)
Undecided	22	(12.2)
Disagree	13	(7.2)
If brand is not available do you try to convince the patient that generic has the same effect		
Agree	159	(88.4)
Undecided	13	(7.2)
Disagree	8	(4.4)
If patients are satisfied with generic drugs more than brands do you try to change their minds to take brands		
Agree	39	(21.7)
Undecided	29	(16.1)
Disagree	112	(62.2)
If patient come complaining from generic drug do you shift him to brand without referring him to his doctors		
Agree	81	(45.0)
Undecided	37	(20.6)
Disagree	62	(34.4)

branded and generic drugs. More than three-quarter of the pharmacists (80.6%) reported that they do recommend alternatives to the patients. When branded drug is not available, most of the participants (88.4%) spend extra efforts in convincing patients to use the generic counterparts because they have the same effect as the branded drug. But, if patients were satisfied with generic drugs than branded ones, majority of the participants (62.2%) do not put efforts to change patients minds

to take branded medicines. On the other hand, if patients come to the pharmacists complaining about generic drugs, only 45% of the participants would try to convince them to shift their medicines to branded ones without referring to their prescribing physicians.

4. Discussion

To be approved for use, generic medicines have to be bioequivalent to their innovator version, exhibiting the same safety profile and quality as the originator product [3,15]. Generic medicines have been available to be used routinely to treat a wide range of acute and chronic diseases. However, the use of generics has increased considerably in the last two decades because generic medicines are available at a lower price and provide a less expensive alternative to branded medicines. Therefore, encouraging substitution with generic drugs in developing countries can provide a better opportunity for savings in health care expenditure. Community pharmacists are considered to be major contributors in improving public health. The opinion of pharmacists about branded and generic drugs can provide insight into the potential hurdles that may need to be overcome in enabling acceptance of generic medicines use in Kuwait. In our study, approximately half of the pharmacists (46.1%) believed that generic drugs were equivalent to corresponding branded drugs, as well as (42.2%) of them responded that using generic drugs in treating chronic diseases was as effective as their originators. However, for OTC drugs that are commonly used in the treatment of minor illnesses, more respondents (60%) had the belief that OTC generic drugs are as effective as their brands. It appears that pharmacists were more confident in prescribing generic OTC drugs than drugs for chronic diseases ($p = 0.001$). Less than a quarter of our participants (22.2%) agreed that branded medicines have fewer side effects than generic ones. Also, close to three-quarter of participants were in the opinion that brands are a better choice because they are available in a variety of strengths, and nearly half of respondents agreed that they have simpler regimen than generics. Some of these findings were similar to the findings from other studies published from different countries. In the study evaluating perceptions of Malaysian community pharmacists by Chong et al. [12], only about half of all respondents agreed that generics are therapeutically equivalent to the brand name drugs, 21% of them supported the statement that generic medicines were of lower quality and 61.6% disagreed that more side effects are produced by generic drugs than brand name drug. Awaisu et al. [16] reported that three-quarters of the respondents provided wrong answers about the technical definition of bioequivalent products and over 60% of the participants did not know that bioequivalence does not essentially mean therapeutic equivalence. In the study by Toklu et al. [6], Turkish healthcare providers as well as consumers, found that almost half of the pharmacists who participated in their study were hesitant about the bioequivalence of the generics and only one third of the pharmacists thought that the generics did not differ from the original. In a study from New Zealand by Babar et al. [14], even though 70% of the participants had knowledge on bioequivalence of generic medicine to the brand product, half of the respondents perceived that original brands are more effective and a little more than one-quarter of them mentioned that original brands were safer than generics. In a study from Poland [17] about the attitude of community pharmacists to generic substitution, about three-quarters of participants believed that brands are available in a variety of strengths, which make them a better choice. On the other hand, there are studies in literature showing better knowledge among pharmacists about generic medicines. Most of Jordanian pharmacists had a positive opinion on generic medicines and 87.7% of the participants trusting that a generic medicine is bio-equivalent to the brand name drug [18]. In a study from Saudi Arabia, about 80% of the community pharmacists approved that products accepted as generic equivalents can be considered therapeutically equivalent with the brand name drug and many holding the opinion that they are as effective as the originators [19]. Olsson and Källemark Sporrang found

that most of the Irish pharmacists they interviewed considered generics to be equivalent with and as effective as the original products [20]. Three-quarters of Czech pharmacists agreed that generic drugs are therapeutically equivalent to the respective brand name drugs, while only 16.1% of them believed that generic drugs might be of lower quality than branded drugs, and 11% of them expected generics to cause more adverse drug reactions [21]. In a study from North-Central Nigeria, about two-third of community pharmacists had the opinion that generic medicines are bio-equivalents to the originators, and 17.5% believed that generic medicines have adverse allergic reactions [22]. Our results may conclude that community pharmacists in Kuwait have inadequate information on bioequivalence, safety and toxicity of generic medicines. This could be related to their poor knowledge about the concept of bioequivalence. In addition, the respondents may not know that there are strict regulations from Kuwait Food and Drug Authority for the registration of generic products in the country. Chong et al. [12] and Babar et al. [14], suggest that the negative opinion of at least some of the participants regarding the quality and efficacy of generics may perhaps be due to the fact that a high percentage of them were in both situations unaware that any drug approved as generic equivalent had to be bioequivalent to the originator drug by definition. A high proportion of pharmacists in our study agreed that generic drugs are cheaper than branded ones and that the former must be carried in stock always. This shows that most of the community pharmacists in Kuwait have a positive attitude towards generic drugs. Studies from other countries reported a higher proportion of pharmacists have the same opinion about the price of branded medicines. Vast majority of Jordanian pharmacists agreed that the generic medicines are cheaper alternative to the originators [18]. Most pharmacists from New Zealand reported that generic medicines are less expensive than original brand medicine [14]. Vast majority of respondent (93.2%) in an Irish study agreed that generic medicines are cheaper to buy than originator medicines [20]. In our study, a greater proportion of pharmacists (80.6%) were on the view that price had an effect on the patients' choice between branded and generic drugs. But, more than two-third of participants believed that patients preferred branded drugs to generic drugs for chronic diseases. Also, majority of pharmacists (62.2%) assessed that patients trusted doctors more than pharmacists on the choice between branded and generic drugs. The patients' preference for branded medicines may be based on the fact that generics are less expensive and so it is assumed that they cannot be as good as branded medicines. This could be also due to patients placing more trust in doctors than pharmacists. More than three-quarters (80.6%) of participants in our study stated that they would recommend alternatives to the patients. When branded drugs were not available, most of them (88.4%) tried to convince the patients that generics have the same effect as brands. But, if patients were satisfied with generic drugs, 62.2% of the participants did not try to change their minds to take branded medicines. Also, if patients came to them complaining about generic drugs, (45.0%) of the respondents would shift their medicines to branded ones without referring to their prescribing physicians. Chong et al. in a nationwide study on generic medicines substitution practices in Australia found that community pharmacists recommended generics for 96% of the items that were eligible for substitution [23]. Babar et al.'s study reported that approximately 60% of New Zealand pharmacists routinely recommended generics and generic substitution was supported by 89.4% of them [14]. Olsson and Källemark Sporrang found that most pharmacists were in favor of generic substitution because of the economic benefits [20]. Quintal and Mendes in their study on opinions of patients and pharmacists reported that Portuguese pharmacists very often (91.6%) advised their patients to purchase generic medicines [24]. In Poland, most of pharmacists will always (40%) or often (46%) advise consumers about a generic option, and two-thirds of participating pharmacists were in favor of generic substitution [17]. Majority (92.9%) of the 154 Pharmacists in North-Central Nigeria were supporting generic substitution [22]. In an Iranian

study of 1205 pharmacists, 73.6% of them claimed that they substitute generic medicine once it is available [25]. More than 80% of the Jordanian pharmacists supported generic substitution in most cases, and 30.6% of them would perform generic substitution without consulting the prescriber physician, which was similar to our results [18]. Our results shows that even though a significant number of pharmacists in our study had concerns about equivalence and safety of generic medicines, most of them would recommend alternatives to the patients; but they do not interfere with the patient's choice. While, they would place more effort to convince the patient about equal effect of generics only when branded drugs were not available. The absence of a law that would regulate and support the community pharmacist in the process of substitution will build more self-confidence in practicing generic drug substitution. Pharmacists, with negative perception to generic drug substitution, would be an obstacle to broader acceptance of generic drugs by patients. The government needs to take educational and regulatory interventions to improve knowledge and professional behavior of pharmacists. Probably, another way to encourage the utilization of generic substitutes is actual prescribing of generic medicines; where physicians prescribe using the International Non-proprietary Name, and pharmacists should have the choice which brand to dispense [26].

Pharmacy continuing education programs can correct the negative views of pharmacists about generic medicines. In addition, educational strategies used by other countries for generic substitution including newsletter, websites and campaigns can be adopted by governments to improve pharmacists' knowledge of generics. Apart from education involvements, establishing a national formulary of interchangeable medicines would help in eliminating the pharmacists' doubt about the quality of local generics [27]. Since there are procurements policy among the GCC in purchasing and registration of pharmaceuticals, there is a great need for establishing a standard generic substitution policy that can serve all GCC countries.

4.1. Study limitation

The study has some significant limitations characteristic to most survey-type studies. Hardcopy questionnaires were distributed among community pharmacists, which have the possibility of exchanging information among participants. There might be a chance of bias on the perception and attitude questions, where the participants may tend to show more positive attitude toward generic substitution practices. However, since Kuwait uses a fixed profit margin to all types of drugs, generic substitution policy might negatively affect profits because selling the more expensive brand name drug will make more incomes compared to selling the alternative cheaper generics. Also, the use of nonprobability sampling technique may cause some response bias to occur among respondents.

5. Conclusions

The current study showed lack of knowledge and perception towards generic medicines among community pharmacists in Kuwait. Although it appears that most community pharmacists have a positive attitude towards generic recommendation and they are in favor of implementing a generic substitution, they still have concerns and misconceptions about the reliability and quality of generic products. Pharmacists need to be continuously educated and reassured about the FDA approval system in Kuwait concerning quality, efficacy and safety. The government must take firm steps to improve the local pharmaceutical industry in order to replace imported medicines with locally manufactured generics, and also to formulate and implement a national brand substitution policy to help minimize the healthcare costs and proper substitution practice. In addition, a formulary of interchangeable medicines and their prices must be established to guide and improve the pharmacists' confidence in substitution.

Conflict of interest

The authors declare that there is no conflict of interest.

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