

Assessment of Medical and Pharmacy Students' Knowledge & Perceptions about Generic Medicines' Prices & Quality in Kabul-Afghanistan

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ABSTRACT

Objective: This study aimed to assess medical and pharmacy students' knowledge and perception about generic medicines' prices and quality in Kabul Afghanistan. **Method:** Convenience sampling was performed. The sample size was determined using RAOSOFT calculator by using 95% confidence interval with a margin of error of 5%. **Results:** Among the calculated sample size of 255, in total 220 (response rate 86.27%), 95 pharmacy and 125 medical students agreed to participate in the survey. SPSS version 16 was used for data analysis. Overall, 67.84% of the respondents had knowledge about generic medicines, while 80.39% expressed their concern about the quality of generic medicines. During the analysis it was found that 98.2% respondents were strongly agreed that can control the cost of the treatment if generic medicines are used, and 65% of the interviewees suggested that highest patient prices of branded medicines has increased inclination towards the prescription of generic medicines. While in regards to the quality of generic medicines 44.8% of the respondents asserted, that safety, effectiveness and quality of generics is their major concerns. **Conclusion:** The current study emphasizes that awareness and knowledge about generic medicines is required. Concerns about the quality and prices of generic medicines should be addressed to ensure the access of safe and cost-effective generic medicines.

INTRODUCTION

In an era of continuously rising health care costs, the increased use of generic medicines as alternatives to more expensive innovate brands is encouraged by health authorities worldwide (Håkonsen *et al.*, 2009). In addition, the generic medicines provide an opportunity for consumers and government to offset the rising cost of health care (McLachlan, 2010). The promotion of cheaper generics, either by generic prescribing or generic substitution, has led to substantial savings in the health care sector in many countries (Andersson *et al.*, 2007). Physicians can play pivotal role in the cost containment and interventions are needed to educate physicians about drug costs and provide them with reliable, easily accessible cost information in real-world practice (Reichert *et al.*, 2000). The "poor quality medicines" is a term inclusive of counterfeit, substandard, and degraded medicines which also fail chemistry analysis (Newton *et al.*, 2011). It is apparent, that poor-quality medicines,

constitute a major burden on public health in resource-poor countries (Senior, 2008). According to good manufacturing practices, the generic medicines are bio-equivalent of their innovator counterparts and are produced in similar facilities (Davitt *et al.*, 2009) and this claim has been confirmed by a study, that generic medicine is bioequivalent to a brand-name medicine, but still, issues affecting prescriber attitudes towards prescribing of generic drugs include concerns about their bioequivalence, quality and safety of generic medicines (Birkett, 2003). On the other hand, physicians are apprehensive regarding the quality of generic drugs (Tilyard *et al.*, 1990; Biswas *et al.*, 2000) and have concerns about their reliability as well as interchange of certain drug categories (Hassali *et al.*, 2010).

In Afghanistan, like other low-income and poor settings, the prices of medicines and its quality is the major constraint toward access to affordable treatment. On the other hand, the knowledge, awareness and experience of prescribing generic medicines are the key for future practitioners and healthcare providers in Afghanistan. A potential reason may be limited coverage in university curricula of the concept of generic medicines, which would affect the attitudes of healthcare providers in practice (Hassali *et al.*, 2007).

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To overcome this problem, education about the benefits of generic prescribing and generic substitution should be focused on medical and pharmacy students, the prescriber dispensers of the future (Hassali *et al.*, 2007). The pharmacy (Pharm-D) and medical (MD) curricula is outdated and course contents regarding generic medicine, cost-containment, medicine pricing policy should be incorporated. As major part of the medicine are imported and the locally manufacturing facilities are not fulfilling the domestic demands, therefore, it is essential to promote generic medicine concept and practice which deem necessary to further measure the future practitioner's knowledge of the generic medicines. To date no studies conducted to assess medical and pharmacy students' knowledge and perception about generic medicines' prices and quality in Kabul, Afghanistan.

Therefore, this research will be a key document for policy makers, legislation, pharmacy and medical colleges/universities and future healthcare providers.

MATERIALS AND METHODS

Data collection

A cross-sectional study conducted at Kabul Medical University and Pharmacy Faculty of Kabul University among the medical and pharmacy students.

Study sample

Convenient sampling was performed. The total population size was 600 and for calculating the sample size, based on the 95% confidence interval and margin of error was 5%, using the RAOSOFT sample size calculator.

Questionnaire

This questionnaire is consisted of 25 questions. Among these three questions were related to demographic information (group, age and gender) and three questions about the general knowledge of generic medicine, definition of generic and branded medicine and perception towards generic medicine. The second part contained four questions about branded and generic medicine. The third and last part contained 15 questions about perceptions towards generic medicines, quality and prices. The questions in this part was framed in five-point, Likert-scale format (1= "strongly disagree", 2= "disagree", 3= "don't know", 4= "agree", 5= "strongly agree").

The questionnaire was tested for face and content validity by experts, and gave their advices on the relevancy, clarity and conciseness of the items.

Data analysis

Data analysis was performed by using Statistical Package for Social Science (SPSS) version 16.0. The non-parametric statistical test (chi-square) and appropriate descriptive statistics (Frequencies and Cross Tabulation) for demographic characteristics performed. Non-parametric statistics (chi square) were applied to see the association among the variables.

RESULTS

Among the total sample size of 255, $n = 220$ (response rate 86.27%) students of which $n = 95$ (43.2%) pharmacy and $n = 125$ (56.8%) voluntarily participated in the survey.

Most of the respondents $n = 152$ (70.4%) were from the male group and in connection to the working experience, $n = 27$ (12.3%) out of 95 pharmacy students were working as pharmacists in the private pharmacy outlets.

Among the respondents $n = 136$ (63.6%) were aged from 23–25 years. In reference to generic medicines $n = 173$ (80.1%) of the respondents have heard about generic medicines, Table 1.

Table 1: Respondent demographics and general knowledge about generic medications.

Variable	<i>n</i>	%
Groups		
Pharmacy Student	95	43.2
Medical Student	125	56.8
Age		
18-20	5	2.3
21-22	76	34.5
23-25	139	63.8
Gender		
Male (Pharmacy)	76	80.0
Female (Pharmacy)	19	20.0
Male (Medical)	80	64.0
Female (Medical)	45	36.0
Total Male	156	70.9
Total Female	64	29.1
Work experience in Hospital or Community Pharmacy		
Pharmacy Student	27	12.3
Medical Student	14	6.4
Have you ever heard of branded medicine?		
Yes	118	53.6
No	102	46.4
Have you ever heard of generic medicine?		
Yes	172	78.2
No	46	21.8

The respondents' views about the definition of generic and branded medication concluded in Table 2 and it shows that most of the students have knowledge around generic and branded medicine.

The majority proportion of the participants $n = 157$ (71.4%) Table 3, agreed that cost should be considered before medicines are used and $n = 146$ (66.4%) has confirmed that generic medicine is bioequivalent to a brand-name medicine. Following the analysis of the results, $n = 216$ (98.2%) of the respondents perceived that cost of the treatment will be less if generic medicines are used and $n = 143$ (65%) of the respondents suggested that highest patient prices of branded medicines has increased inclination towards the prescription of generic medicines. On the other hand $n = 205$ (44.8%) of participants suggested that the safety, effectiveness and quality of generics is their major concerns (Table 3).

Table 2: Respondent views about the definition of generic and branded medication.

Statements about generic and branded medicines	Groups	Generic Medicine		Branded Medicine	
		%	%	%	%
A drug that is produced and distributed without patent protection. The generic drug may still have a patent on the formulation but not on the active ingredients.	Pharmacy	68	30.9%	27	12.3%
	Medical	93	42.3%	32	14.5%
A drug that is the property of the company that manufactures it through research and development and markets it under a patent. No other companies are allowed to produce it until the patent expires.	Pharmacy	31	14.1%	64	29.1%
	Medical	29	13.2%	96	43.6%
Drugs manufactured by local/national pharmaceutical firms are.....	Pharmacy	72	32.7%	23	10.5%
	Medical	70	31.8%	55	25.0%
Drugs manufactured by multinational firms under propriety rights are.....	Pharmacy	30	13.6%	69	29.5%
	Medical	34	15.5%	91	41.4%

Table 3: Perceptions about generic medications

S no	Statements	Strongly Disagree		Disagree		Don't Know		Agree		Strongly Agree	
1	A generic medicine is bioequivalent to a brand-name medicine.	13	5.9	35	15.9	26	11.8	79	35.9	67	30.5
2	Generic products of a particular medicine are therapeutically equivalent to the innovator branded product.	15	6.8	47	21.4	25	11.4	95	43.2	38	17.3
3	Branded medicines are safer than generic medicines because they have been tested through bioequivalence studies.	45	20.5	36	16.4	18	8.2	61	27.7	60	27.3
4	Generic medicines are in the same dosage form (e.g. Tablet, Capsule) as the brand-name medicine.	16	7.3	41	18.6	32	14.5	98	44.5	33	15
5	Medicines manufactured by multinational companies are more reliable than those manufactured by national firms.	20	9.1	23	10.5	19	8.6	95	43.2	63	28.6
6	Branded medicines should be preferred over generic medicine in life-threatening conditions.	30	13.6	72	32.7	42	19.1	49	22.3	27	12.3
7	Generic medicines are of low quality to brand-name drugs: that why they are less expensive.	41	18.6	83	37.7	30	13.6	46	20.9	20	9.1
8	Generic medicines produce more side effects than brand-name medicines.	42	19.1	91	41.1	46	20.9	28	12.7	13	5.9
9	Brand-name medicines are required to meet higher safety standards than generic medicines.	20	9.1	50	22.7	50	22.7	80	36.4	20	9.1
10	When buying generic medicine, the safety, effectiveness and quality of generic medicine is my major concern	5	2.3	4	1.8	6	2.7	118	5.3	87	39.5
11	The cost should be considered before medicines are prescribed	20	9.1	22	10	21	9.5	80	36.4	77	35
12	Cost of treatment will be less if generic medicines are used.	1	0.5	2	0.9	1	0.5	134	60.9	82	37.3
13	The highest patient price of branded medicines has increased inclination towards the prescription of generic medicine	12	5.5	36	16.4	29	13.2	87	39.5	56	25.5
14	Cost is not an issue for me as long as the medicine will treat my condition	23	10.5	20	9.1	15	6.8	94	42.7	68	30.9
15	I would buy the generic only if it were less expensive for me than the branded medicine	41	18.6	54	24.5	32	14.5	64	29.1	29	13.2

DISCUSSION

In Afghanistan, like other countries one of the obstacles in the public health sector is the high medicine prices. Therefore, in order to know the reasons behind the high medicine prices, we attempted to assess medical and pharmacy students' knowledge and perceptions surrounding the generic medicines' price and quality. Generally, during the survey majority of the respondents perceived that treatment affordability can be improved and reduction in family expenses will occur if generic medicines are used (Bertoldi *et al.*, 2005) since generic drugs cost less (Hassali *et al.*, 2009). To know exactly the cost-effectiveness of generic medicines, the participants were asked, "Does the highest patient price of branded medicines have increased inclination towards the prescription of generic medicine?" sixty-five percent of respondents in this survey agreed with the statement. Multiple approaches toward cost containment has been taken all over the world and our current study has strongly emphasized that steps to be undertaken and applied to reduce the costs of medication. The Afghan government like other countries should support, the practice of generic prescribing and substitution (Sanborn *et al.*, 1993) to ensure access to affordable medicines.

Along with the high medicine prices, the quality of generic medicine is also counted as one of the major concerns. We therefore found that half of the respondents were concerned about the safety, effectiveness and quality of generic medicines. In Australia, in one of the studies it was found that generic medicines are of inferior in quality, less effective, produce more side-effects and be less safe than brand-name medicines (Hassali *et al.*, 2007) and a study in India, indicates that there is a lack of trust in the quality control of generic companies exists among physicians (Roy *et al.*, 2012). In New Zealand, 65% of the respondents stated that original brand medicines were of higher quality than their generic counterparts (Babar *et al.*, 2011). In contrast, the results of the study conducted in the USA, states that participants perceived generic drugs to be safe (68%) and effective (62%), 50% did not consider them to be identical to brand equivalents (Sansgiry *et al.*, 2004). But, there is a prevailing notion that generic medicines are inferior in quality (King and Kanavos, 2002). Taking in consideration of misconceptions about the quality of generic medicines, the Afghan health regulatory authorities should take effective measures, because existing negative perceptions surrounding the quality of generic medicines can further worsen

the case and pave the way for higher prices. These issues must be addressed to ensure that people use generic medicines with confidence (Patel *et al.*, 2012). In Pakistan the quality of medicine was also an issue but Jamshed *et al* suggested, "It could be resolved by offering bioequivalence studies in some specific therapeutic classes (Jamshed *et al.*, 2011)" therefore, the Afghan government should take same steps.

The educational institutes such as Medical and Pharmacy Schools can also play pivotal role in the promotion of generic medicines' concept. Therefore it is critical that future physicians and pharmacists should have the proper understanding of generic drug substitution (Kobayashi *et al.*, 2011). Fortunately, the current study depicts that 80.1% of the respondents have heard about generic medicines, which is consistent with the findings in Pakistan (Jamshed *et al.*, 2010) and Bangladesh where 85 % of the students disclosed that they had heard of branded and generic medicines (Siam *et al.*, 2013).

To further promote a concept of generic medicine, the government authorities are required to add topics about generic medicines in 'pharmacy and medical colleges' curriculum since, increasing knowledge and understanding of generic medicines is the way to ensure cost-effective treatment plans for patients (Gafa *et al.*, 2002).

This is one of the first studies in Afghanistan conducted to assess medical and pharmacy students' knowledge and perception about generic medicines, prices and quality. The study was carried along with some limitations, as it was performed in only two public educational institutes and results cannot reflect the knowledge and perceptions of whole Afghanistan.

CONCLUSION

The current study emphasizes that awareness and knowledge about generic medicines is required. Concerns about the quality and prices of generic medicines should be addressed to ensure the access to safe and cost-effective generic medicines. Further advocacy is required in implementing of medicine policies that make generic substitution compulsory.

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