

# Beliefs and attitudes of generic versus original drugs among doctors in a tertiary-care hospital in Western India

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Received February 23, 2016. Accepted March 4, 2016

## ABSTRACT


**Background:** Physicians have a choice between original and generic drugs while prescribing to patients. The original and generic drugs are rarely studied against each other in patient population, and, hence, it is important to know how health-care providers perceive the differences between two classes of the drugs. **Aims and Objective:** To analyze the beliefs, perceptions, and attitudes of health-care providers in a tertiary-care hospital toward generic and original drugs. **Materials and Methods:** This is a descriptive, cross-sectional, questionnaire-based study conducted among 200 students and faculty in a tertiary-care hospital in western India. The questionnaire mainly dealt with perceptions, attitudes, and beliefs of doctors toward generic drugs in comparison with original drugs. The results were analyzed using descriptive statistics. **Result:** Of 200 participants, 62% supported generic substitution for original drugs in most cases, 60 (30%) supported generic substitutions for original drugs in all cases where generics were available, and 16 (8%) did not support generic substitution for original drugs. One hundred and seventeen (58.5%) participants perceived that there was significant difference between price of generic and original brand drugs. Although 56% participants believed that generic drugs are as effective as originals, 56% participants also mentioned that they have experienced difference in the quality of generic drugs against original brand drugs. **Conclusion:** This study found a gap between knowledge score and generic prescription practices, indicating that training programs for health-care providers in India to improve their knowledge about generic drugs may be necessary.

**KEY WORDS:** Generic; Original; Attitudes; Beliefs

## INTRODUCTION

Health-care expenditure mainly owing to the escalating costs of drugs has been on the rise in most countries over the past few decades.<sup>[1]</sup> One of the reasons for elevated drug expenditures

is the rising rate of physicians recommending the more costlier original drugs and fewer generic drugs.<sup>[1]</sup> Pharmaceutical companies hold international patent rights which give them the exclusive right to produce a new drug for a specific period, which may run into decades after its development. It is only after the lapse of the patent that generic formulations are allowed into the market according to the current drug production laws.<sup>[2]</sup> Generic drugs have an important place in health care because they are less expensive and mimic the original drug in terms of the active ingredients, dose, dosage form, and bioequivalence.<sup>[3]</sup> They are copies of the original drugs that have exactly the same intended use, effects and side effects, route of administration, risks, safety, and strength as the original drug.<sup>[3]</sup>

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| Website: <a href="http://www.njppp.com">http://www.njppp.com</a> | Quick Response Code:  |
| DOI: 10.5455/njppp.2016.6.23022016127                            |  |

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Physicians often refer to original drugs by their brand names, resulting in these drugs being widely prescribed even when less expensive bioequivalent generic alternatives are available.<sup>[4]</sup>

According to the WHO, having Standard Treatment Guidelines and Essential drug lists (which includes generic drugs) could promote rational use of medicines and substantially lower health-care costs.<sup>[5]</sup>

The Indian market accounts for 22% of the world market of generic drugs.<sup>[6]</sup> India is the fourth largest market in terms of production and ranks thirteenth in terms of consumption value of generic drugs.<sup>[7]</sup>

The health-care scenario in India is quite contrary to the developed countries where the reimbursement policy does not exist. In an editorial by Chaudhari *et al.* published in this journal in 2013, authors have highlighted health-care cost as one of the major obstacles for health-care providers, and the major components of this increased cost are reported toward the cost of the medicines. The article mentions India to be predominantly an out-of-pocket country, where 78% patients spent money on health services out of pocket, and almost 72% of this cost is toward the medicines.<sup>[8]</sup> In such a scenario, it would be a huge benefit to the patient if generic drugs are prescribed by health-care providers. Although generics reduce the cost of treatment, there are questions raised about the quality control assessment. There are studies conducted which demonstrate suboptimal quality of generics, which may translate into differences in efficacy, safety, or both.<sup>[9]</sup>

According to a study conducted by Decollogny *et al.*,<sup>[10]</sup> attitudes and beliefs on the part of physicians had a major effect on the decision of whether or not to prescribe generic medications.

The objective of this study is to correlate perceptions and attitudes of health-care professionals toward generic versus original drugs and trends in prescribing the same.

## MATERIALS AND METHODS

This is a descriptive, cross-sectional study conducted among the interns, postgraduate students, and faculty in a tertiary-care hospital in Mumbai. After taking approval from the Institutional Ethics Committee, a questionnaire-based survey was conducted among 200 doctors agreeing to complete the questionnaire and willing to give written informed consent. They were informed that participation is voluntary and their confidentiality would be maintained. It was further explained to them that at any point they could withdraw their participation from the study.

All those who agree to participate in the study were given the questionnaire in English language. The questionnaire mainly dealt with perceptions, attitudes, and beliefs of doctors toward generic drugs in comparison with original drugs.

Total number of practitioners including undergraduates, postgraduates, and super specialty students and faculty was 400. Using the sample size calculator, the sample size was determined to be 196 with 80% power and 5% significance

level.<sup>[11]</sup> The sample size was then rounded to 200, and the same number of questionnaires were distributed by hand to all the participants in a tertiary-care hospital in Mumbai.

The questionnaire was formed on the basis of qualitative research.<sup>[12]</sup> Two experienced members of the Pharmacology faculty of the TNMC and BYL Nair Hospital reviewed the first draft of the questionnaire. They checked for the face validity of the instrument and provided feedback, based on which the student investigator improved the questionnaire. The modified version of the questionnaire was pretested among eight practising physicians, and further minor changes were implemented.

The questionnaire consisted of two parts. The first part was about sociodemographic and background characteristics of the participants. This covered age, gender, educational qualification, and number of years in practice.

The second part consisted of 14 questions which analyzed knowledge, attitude, and practice about generic and brand drugs among prescribers.

## Statistical Analysis

The data were entered into the Microsoft Excel 2013, and descriptive statistics were applied to evaluate the sociodemographic characteristics, educational qualifications and to elucidate knowledge, attitude, and perceptions of the participants about prescribing of generic and original drugs.

## RESULT

A total of 200 questionnaires were assessed. Of these, 138 (69%) were male while 62 (31%) participants female subjects. Most of the respondents ( $n = 150$ ) were in the age group of 20–30 years (75%). Majority of the participants were postgraduates ( $n = 164$ ). A total of 148 participants (74%) had an experience in clinical practice for around 1–5 years [Table 1].

Details of demographic characteristics along with qualifications, practice experience, and number of visits by medical representatives for generic or original drugs is presented in Table 1. The majority of the doctors who prescribed generic drugs were postgraduates when compared with super specialty doctors (85 versus 18) [Table 2]. Of 200 participants, 124 supported generic substitution for original drugs in most cases, whereas 60 supported generic substitution for original drugs in all cases where generic was available, and 16 did not support generic substitution for original drugs [Figure 1].

Only 64% participants sometimes explained about the differences between generic and original drugs to the patients before prescribing drugs. A total of 83 and 67 participants said that patients never asked for generic drug and original drug prescriptions, respectively [Table 3].

One hundred and seventeen (58.5%) participants perceived that there was significant difference between price of generic and original brand drugs, 55 (27.5%) perceived little differences, while 14 (7%) perceived comparable, and 14 (7%) could not comment [Figure 2].

**Table 1: Demographic details of study participants**

| Parameters   | Response, N (%) |
|--|-----------------|
| Age range (years)  |                 |
| 20–30  | 150 (75)        |
| 31–40  | 31 (15.5)       |
| 41–50  | 14 (7)          |
| 50   | 5 (2.5)         |
| Gender   |                 |
| Male   | 138 (69)        |
| Female   | 62 (31)         |
| Medical qualification  |                 |
| MBBS   | 11 (5.5)        |
| Postgraduates  | 164 (82)        |
| Super speciality   | 25 (12.5)       |
| Experience (years)   |                 |
| 1–5  | 148 (74)        |
| 6–10   | 18 (9)          |
| 11–15  | 13 (6.5)        |
| 16–20  | 6 (3)           |
| 21–25  | 9 (4.5)         |
| 26–30  | 4 (2)           |
| 31–35  | 2 (1)           |
| Number of medical representative visits for generic drugs per month  |                 |
| <5   | 11 (5.5)        |
| 5–10   | 20 (10)         |
| 11–20  | 58 (29)         |
| >20  | 111 (55.5)      |
| Number of medical representative visits for original drugs per month |                 |
| <5   | 19 (9.5)        |
| 5–10   | 33 (16.5)       |
| 11–20  | 67 (33.5)       |
| >20  | 81 (40.5)       |

Only 49% of the participants agreed that generic drugs are as safe as original drugs. About 38% participants agreed that most of the generic drugs lack the quality of their branded counterparts. About 46.5% participants found some literature where original and generic drugs showed difference. About 87.5% participants believed that doctors should be educated more about generic medicines. About 81.5% felt that more confidence should be built among patients about generic medicines [Table 4].

A majority of physicians (94%) considered socioeconomic status of the patient while prescribing medicines. If patient could afford, then majority of participants preferred to prescribe original brand drug against those who referred to prescribe generic drug (153 vs. 47, respectively) [Table 5].

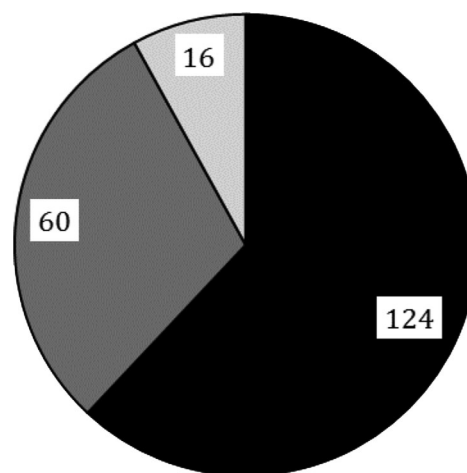
Medical representatives and drug company leaflets were the most common sources of drug information [Figure 3].

**Table 2: Prescription of drugs according to qualification**

| Drugs    | Qualification |              |                  |
|----------|---------------|--------------|------------------|
|          | Graduate      | Postgraduate | Super specialist |
| Generic  | 10            | 85           | 18               |
| Original | 1             | 39           | 5                |
| Equally  | –             | 40           | 2                |

## DISCUSSION

This study was undertaken in 200 participants to evaluate knowledge, attitude, and perception of prescribers toward generic and original drugs. Most of the study participants were the postgraduates [164 (82%)], followed by super specialty doctors (12.5%). At 148 in number, postgraduate students were the highest participants with a clinical experience of 1–5 years. The reason for this could be that they were readily willing to participate in the study and present in the hospital premises at most times. About 56% participants perceived that generic drugs are as effective as original drugs. However, interestingly, when they were asked if they ever experienced difference in quality between the two, 56% participants believed that the generic drugs were not as efficacious (Tables 4 and 5). We can, thus, conclude that there is a clear gap identified between the knowledge and perception of generic versus original drugs.



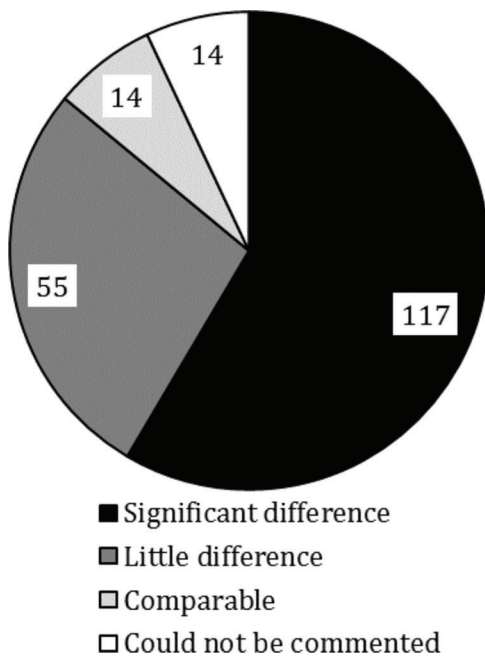
- Supported generic substitution for originator drug in most cases
- Supported generic substitution for originator drugs in cases
- Did not support generic substitution for originator drugs

**Figure 1:** Substitution of generic drugs for original drugs.

**Table 3: Attitude of prescribers toward generic and original drugs**

| Statement  | Never, n (%) | Sometimes, n (%) | Often, n (%) | Always, n (%) |
|--|--------------|------------------|--------------|---------------|
| Explanation given to the patient about the differences between generic and original drugs before prescribing | 52 (26)      | 128 (64)         | 20 (10)      | -             |
| Patients specifically ask for generic drugs  | 83 (41.5)    | 101 (50.5)       | 12 (6)       | 4 (2)         |
| Patients specifically ask for original drugs   | 67 (33.5)    | 92 (46)          | 33 (16.5)    | 8 (4)         |

A majority of participants perceived that there was significant difference between price of generic and original brand drugs. Nearly similar findings were reported by studies done in different countries such as Australia, Iraq, and Malaysia.<sup>[13-15]</sup> In one article, authors classify industry to innovating pharmaceutical companies and generics producers.<sup>[16]</sup>



**Figure 2:** Perception about differences in prices of generic and original drugs among prescribers.

It was interesting to note that a majority of (62%) of health-care providers were willing to substitute generic drugs but not for all the cases they treated, thus reinforcing the clear difference in the perception of the efficacy of two classes of the drugs. Physicians were doubtful about the efficacy of the generic drugs, which in turn shows the lack of confidence for the use of such drugs and lack of knowledge regarding generic drugs. We suggest that this could be overcome by training medical professionals at the undergraduate level by making curricular innovations. Basic information on health policy, pharmaceutical policy, essential drug list, innovators and generic medicines, and their availability and affordability should be provided.

Health-care providers also doubted the efficacy of the quality of generic drugs although they thought it was cheaper. This could probably be owing to poor quality control of some generics.<sup>[9]</sup>

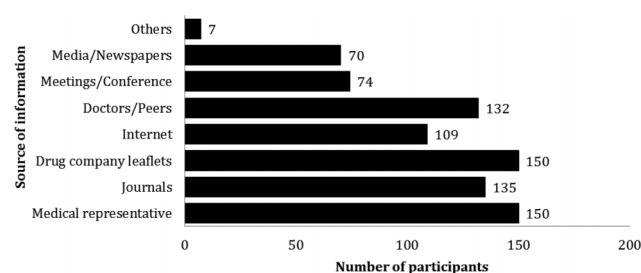
This study also attempts to evaluate factors which hinder or favor generic drug prescription. About 70.5% agreed that few local companies are reputable generic drug companies. Moreover, prescription of generic drugs was influenced by number of visits done by medical representatives. More number of generic drugs was prescribed when visits by medical representative increased from less than 5 to more than 20. But, this trend was similar in case of original drug prescribing practice also. Evidence suggest that medical representatives are a good source of information and pharmaceutical industries and their representatives do have direct and indirect effects on prescribing outcomes.<sup>[13,15-23]</sup> On the contrary, a study conducted on general practitioners in the United Kingdom denied any undue impact of drug representatives on their prescribing.<sup>[24]</sup> Thus, socioeconomic status, reputation of local generic drug manufacturing companies, and more number of medical representatives visiting clinicians had positive influence

**Table 4: Perception of prescribers toward generic and original drugs**

| Statement  | Agree, n (%) | Disagree, n (%) | Neutral, n (%) |
|--|--------------|-----------------|----------------|
| I believe generic drugs are as effective as original drugs                       | 112 (56)     | 24 (12)         | 64 (32)        |
| I believe generic drugs are of lower quality when compared with original drugs   | 29 (14.5)    | 99 (49.5)       | 72 (36)        |
| I think generic drugs cause more side effects than original drugs                | 32 (16)      | 96 (48)         | 72 (36)        |
| I think generic drugs are as safe as original drugs                              | 98 (49)      | 37 (18.5)       | 65 (32.5)      |
| I view few local companies as reputable generic drug companies                   | 141 (70.5)   | 34 (17)         | 25 (12.5)      |
| I feel most of the generic drugs lack the quality of their branded counterparts  | 76 (38)      | 71 (35.5)       | 53 (26.5)      |
| I believe doctors should be educated more about generic medicines                | 175 (87.5)   | 15 (7.5)        | 10 (5)         |
| I believe more confidence should be built among patients about generic medicines | 163 (81.5)   | 8 (4)           | 29 (14.5)      |

**Table 5: Knowledge of prescribers toward generic and original drugs**

| Statement   | Yes, n (%) | No, n (%) | Do not know, n (%) |
|---|------------|-----------|--------------------|
| Are you aware of any literature where original and generic drugs showed difference                            | 93 (46.5)  | 50 (25)   | 57 (28.5)          |
| Have you ever experienced any difference in efficacy in generic and original brand drug                       | 112 (56)   | 30 (15)   | 58 (29)            |
| Do you believe generic drug companies need to carry out clinical study to prove equivalence to original drugs | 159 (79.5) | 11 (5.5)  | 30 (15)            |
| Do you take into consideration the socioeconomic status of the patient while prescribing medicines            | 188 (94)   | 12 (6)    | -                  |

**Figure 3:** Sources of information about generic and brand name drug.

on prescribing generic drugs. Therefore, proper education must be provided to the clinicians and patients to make them aware regarding safety, efficacy of generic drugs. It will help to reduce cost of the treatment making it more affordable. About 79.5% participants said that generic drug companies need to carry out clinical study to prove equivalence to original drugs. Bioequivalence studies and stringent quality control measures should be conducted for all generic drugs.

Health-care providers in our hospital considered noncommercial sources of drug information such as journals, drug company leaflets more powerful than commercial sources. This is in contrast to previous studies where general practitioners consider commercial sources of drug information more powerful than noncommercial information sources.<sup>[25,26]</sup> More number of medical representative visits resulting in more promotion of drugs by noncommercial sources could be the reason. We have also tried to understand difference in the perspectives of various specialties toward prescription of generic and original drugs. As medical representatives visited doctors more frequently, they were the most common sources of drug information.

Limitations in the study includes that, as the study was cross-sectional in design, the direction of causality was not always clear in some cases, where generic drug prescription practices may also harden or influence beliefs in generic drug characteristics. The study was performed in only one hospital of India. Therefore, these findings cannot be generalized to doctors practising in different setups, other cities and requires a larger sample size.

## CONCLUSION

This study shows that the cost of drugs plays an important role in health care in developing and developed countries. There is a gap in the perception and practice patterns. A sustainable generic pharmaceutical market requires active regulatory measures to build confidence among the physicians to prescribe them without any doubt. We would recommend conducting similar studies among health-care providers from private practice to understand their prescribing practices and find ways to improve them to reduce drug expenditures in a no medical reimbursement situation.

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**How to cite this article:** Singh KR, Phatak AM, Sathe MA. Beliefs and attitudes of generic versus original drugs among doctors in a tertiary-care hospital in Western India. *Natl J Physiol Pharm Pharmacol* 2016;6: 276–281

**Source of Support:** Nil, **Conflict of Interest:** None declared.