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Original Research Article

Assessment of knowledge, attitude and practices of generic drugs and their potential nocebo effects among second year medical students in a rural tertiary care teaching hospital: a cross-sectional study

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ABSTRACT

Background: As drugs contribute significantly to healthcare costs, reduction in their cost by using generics offers a significant advantage so evaluation was done of knowledge, attitude, and practices of generic drugs and their potential nocebo effects among second year medical students in a tertiary care teaching hospital.
Methods: A prospective, observational, and questionnaire-based study was conducted after approval by the Institutional Ethics Committee. Pretested and validated questionnaire consisting of 26 questions about generic drugs was filled by 92 participants. The filled questionnaires were collected and analyzed on Microsoft Excel sheet.
Results: Majority (90.2%) students had heard about generic drugs, however, only 18.5% students thought there was a nocebo effect associated with the use of generic drugs. Majority of the study population had a positive attitude towards use of generic drugs and believed them to be equally efficacious as branded drugs in addition to not having more side effects than branded drugs, though their current practices did not reflect this knowledge and attitude. 63% also said that following this study, they were likely to prescribe or consume generics as future doctors and patients.
Conclusions: The participants had sufficient knowledge and positive attitude towards use of generic drugs. Knowledge regarding the possible nocebo effects of generic drugs was lacking.

Keywords: Generic drugs, Nocebo effect, Knowledge, Attitude, Practices

INTRODUCTION

Drugs play a role in health protection and recovery, in addition to helping maintain and enhance the quality of life. Around one third of the world's population encounters difficulties in accessing medications, due to high prices, with this proportion rising to 50% in the developing countries.[1] Medicines consume major chunk of total money spent on healthcare. We must aim to cater high-quality health-care system to the masses with limited available resources so generic drugs are a viable option.[2]

The Food and Drug Administration (FDA) defines generic drug as "a medication created to be the same as an existing approved brand-name drug in dosage form, safety, strength, route of administration, quality, and performance characteristics". Basically, generics are medicines that exhibits an equivalent therapeutic effect and safety and are interchangeable to branded medicines or innovator product at a very cheaper price as compared to the innovator product. On expiration of the originator product's patent term protection, other manufacturing companies may file submissions to regulatory authorities for approval to

market generic versions of the originator medicine. Generic drugs may be marketed under the non-propriety name or as a branded generic. Branded generic drugs have names derived from a combination of the manufacturer's name and the non-proprietary name. This enables the manufacturer to market the product in a way similar to the proprietary product. Once generic version of the innovator medicine is launched, the price of that medicine decreases substantially, which gives greater access to the larger number of patients.

Promotion of generic medicine is very important for India as well as other developing countries for their healthcare policy. Promotion of cheaper generic drugs instead of the more expensive branded equivalents could prove beneficial in controlling the total health expenditure. Generic drugs are cheaper in comparison to branded drugs because there is no need to make investments in research and development (R and D) as in the case of new drugs.[3]

Even though various agencies are promoting generic medicines, they are still not adequately utilized in India. In the United States, generic substitution is an accepted practice and at the end of 2012, almost 80% of all the prescriptions were of generic medications.[4] Recently Indian Government has taken many steps to reduce healthcare cost. The Government of India, in 2015 started a programme named "Pradhan Mantri Bhartiya Janaushadhi Pariyojana" (PMBJP) with an aim to make the quality unbranded medicines affordable and available for citizens of India and particularly for the poor and disadvantaged section of the society. To run this scheme smoothly, Indian Government has opened exclusive stores named as "Pradhan Mantri Bhartiya Janaushadhi Kendras" which are pharmacies selling mostly generic medicines in a very nominal price. Evidence shows the average price of generic medicines were 64%–91% lower than that of the innovator or branded drug. The Medical Council of India, recently has made it mandatory for prescribers to prescribe by generic names instead of brand names as far as possible and write and prescription legibly and preferably in capital letters. In spite of multiple steps taken by Indian Government to promote generics the perception and usage of generics has been unsatisfactory.[3]

However, doctor's viewpoint about generic medicines is a major hurdle to their large-scale usage. Improving the knowledge and perceptions regarding generic drugs among medical students, who will become future clinicians and the backbone of our country's healthcare system, will reduce financial burden of medicines on our country's economy.

Therefore, it is important to know the attitudes and perceptions regarding use of generics. Many studies have shown that compliance of patients on generic drugs was far better as compared to their brand name counterparts. Hence the present study was planned with the intentions to evaluate knowledge, attitude and practices among second year students regarding use of generic medicines and their possible nocebo effects to identify the key areas, which may act as hurdle to mass scale use of generics and provide recommendations to reduce the same.

METHODS

After approval from the Institutional Ethics Committee, the study was carried out for a period of 1 month (July 2024). This was a prospective, observational, and questionnaire-based study conducted at tertiary care teaching hospital. A questionnaire was developed after reviewing relevant literature.[1-3] This questionnaire consisted of 26 questions – 10 regarding knowledge, 7 regarding attitude, and 9 questions regarding practices. These questions were both open as well as close ended, majority of them being multiple choice questions due to their ease of understanding for the students. Data was collected after obtaining voluntary informed consent from 92 students in department of pharmacology, GMERS medical college, Rajpipla. Collected data was analyzed in the form of frequencies and percentage.

RESULTS

Total 92 students voluntarily participated in the study. Based on questionnaire, the results were analysed for knowledge, attitudes, and practices for generic drugs and their potential nocebo effects.

Analysis of knowledge

Majority (90.2%) participants had heard about generic drugs, 67.4% were aware that generic drugs were cheaper than branded drugs and 69.6% knew the active ingredient of generic drugs was the same as branded drugs. 42.4% students were also aware about patent protection of branded drugs and its implications on production of generic drugs. Source of information of generic drugs was university for majority participants (32.6%), followed by internet (20.7%) as the second major source (Figure 1). However, only 32.6% participants were aware of nocebo effects of drugs and only 18.5% students thought there was a nocebo effect associated with the use of generic drugs. Majority did not know about this (67.4%) or did not think there was any associated nocebo effect (14.1%). 43.5% students were also unaware of government policies and initiatives implemented to promulgate the use of generic drugs.

Analysis of attitude

A significant number of participants (79.3%) said they would choose generic drugs over branded drugs. Majority (48.9%) also believed that quality of generic drugs was the same as that of branded drugs, followed by 19.6% participants who believed they were even better than branded drugs in terms of quality. Only 14.1% thought that generic drugs were of lower quality compared to branded drugs (Figure 2). Only 15.2% participants thought that generic drugs were less safe and had more side effects

compared to branded drugs. Majority (67.4%) were not of opinion that generic drugs were only for poor people (Figure 3). Majority (43.5%) did not think generic drugs were well publicized in India.

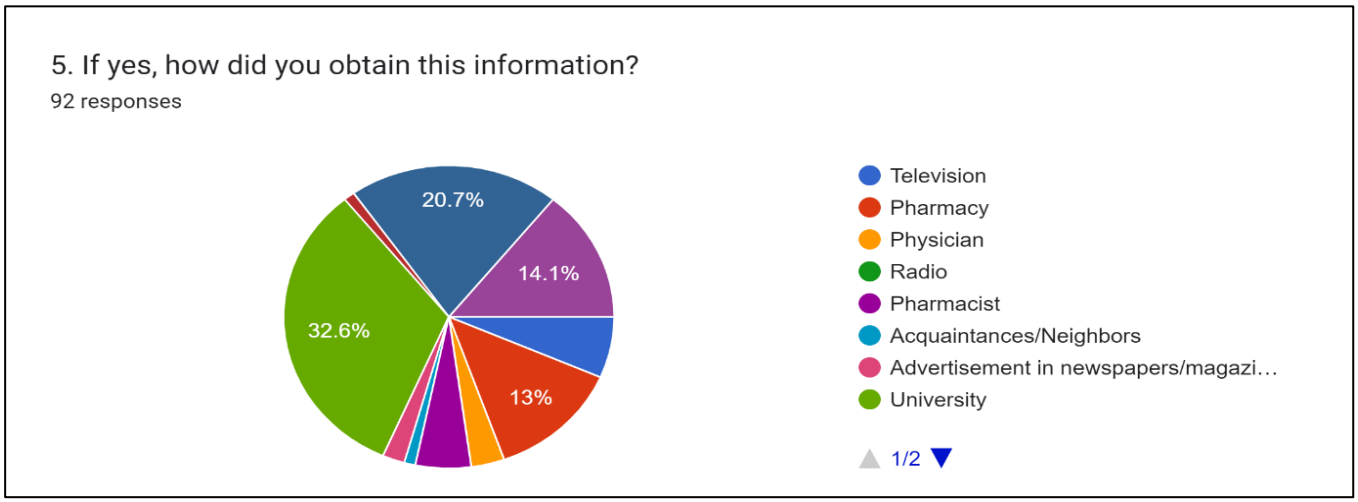

Figure 1: How did you obtain information related to generic drugs?

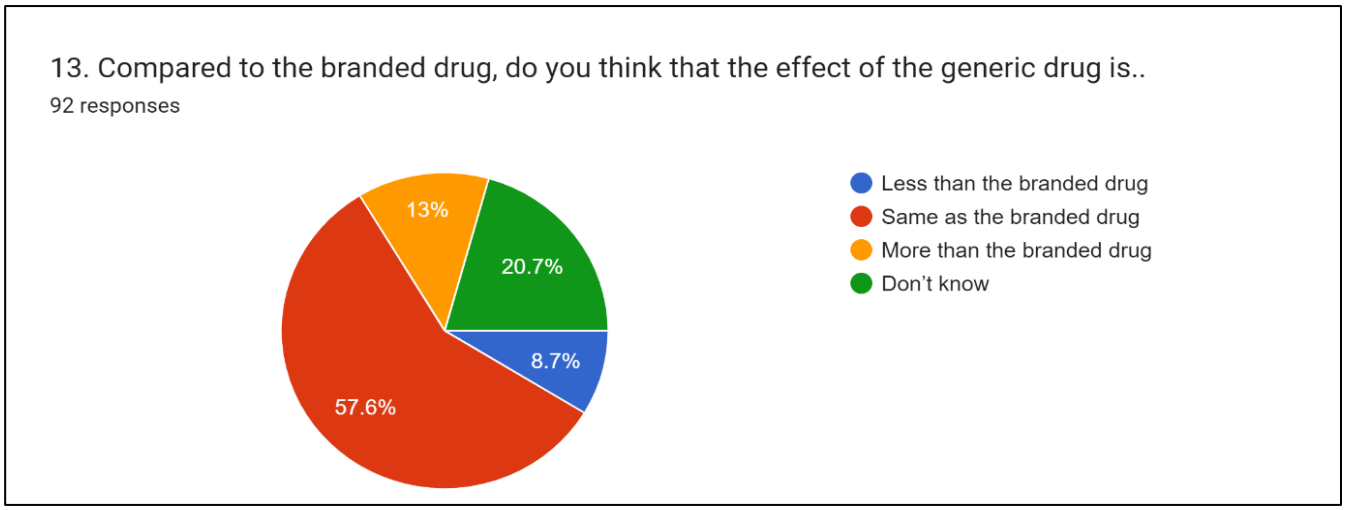

Figure 2: Compared to the branded drug, do you think that the effect of the generic drug is?

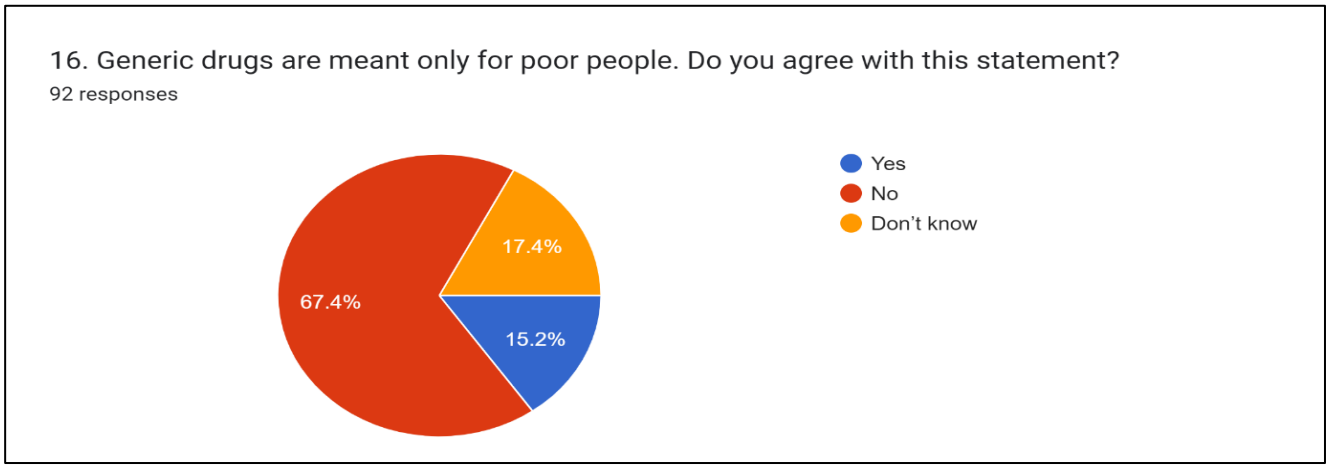

Figure 3: Generic drugs are meant only for poor people. Do you agree with this statement?

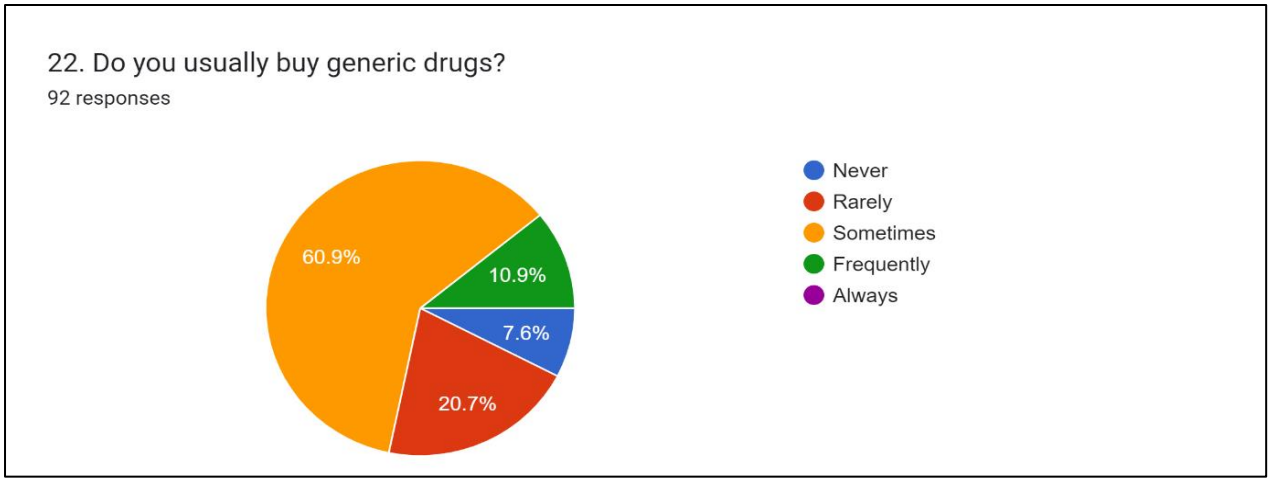

Figure 4: Do you usually buy generic drugs?

Analysis of practices

Majority (89.1%) were not taking any medications at the moment, and rest who were taking medications were for fever, cough and acne. These medications included over the counter (OTC) drugs such as ibuprofen, paracetamol, dextromethorphan, isotretinoin, clindamycin, iron and folic acid multivitamins. However, only 11.9% said these medications were generic. Majority (47.7%) received their medications from pharmacies associated with government healthcare units (Figure 4). Majority (38%) said that they would not switch if physician prescribed a branded drug and the pharmacist offered them a cheaper generic, but an overwhelming number of participants (71.7%) said they would take a generic drug if it was prescribed by their physician. Figure 5 shows the responses when participants were asked if they would prefer to prescribe branded drugs in future because brand names easy to memorize. After their participation in this study, the likelihood of them prescribing or consuming generic drugs was also assessed (Figure 6).

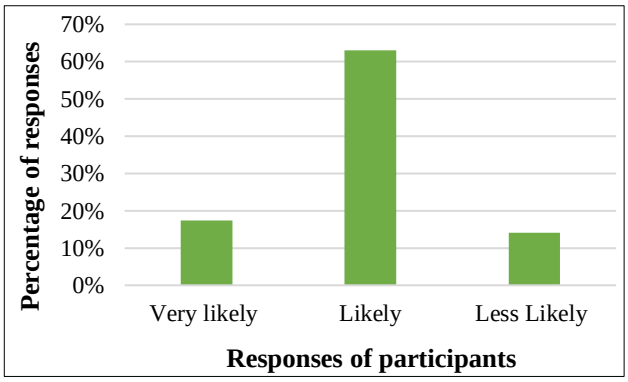

Figure 5: As future clinicians, would you prefer to prescribe branded drugs because their names are easy to memorize?

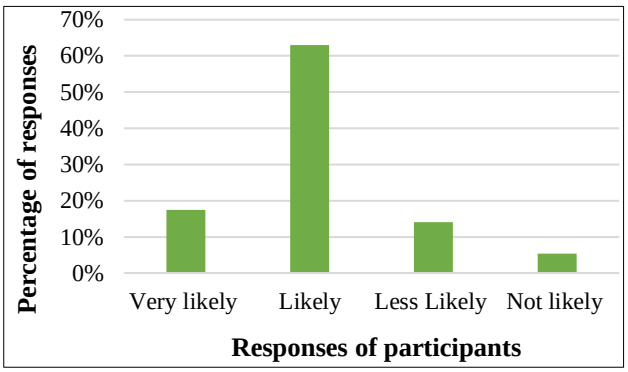

Figure 6: How likely are you to prescribe or consume generic drugs in future after participating in this study?

DISCUSSION

This study was conducted in order to benefit medical students and their future patients by assessing and improving perception of generic drugs which have been proved to be as good as branded drugs. Analysis of knowledge showed that majority of the participants were aware about generic drugs and already had some basic information about generic drugs. These findings were similar to other studies which showed adequate knowledge among medical and paramedical fraternity regarding generics like the study conducted by Lakshmi et al in 2022.[6] A surprising number of participants also had knowledge about patents and branded drugs. The source of information for majority of the participants was university teaching and internet websites, which showed the importance of circulating accurate pharmacological information online and in academic sessions. Various websites can provide authentic pharmacological data to medical personnel within a few seconds nowadays. Microteaching related activities and intermittent audits in medical classrooms can also improve the authenticity of information provided to medical students in universities.

However, not many were aware of nocebo effects of drugs, and many did not know if there was any nocebo effect related to use of generic drugs. The reluctance and negative association with the use of generic drugs is well known but studies attributing this to nocebo effect of generics are lacking when literature search was conducted. Perhaps, this association between nocebo effect and generic drugs could help us understand why generic drugs are not preferred and potentially solve this issue to improve our healthcare system in the future.

Many were not aware about various government policies and initiatives to increase the use of generics and majority thought the government could do more to publicize and market the advantages of generic drugs among medical as well as non-medical personnel. Recently, Indian government has put forth serious efforts to enhance the use of generic medications and reduce the cost of drugs and therefore reduce the cost of overall healthcare of the nation. Various media outlets also indicate the importance of using generic drugs which improves the knowledge of all the stakeholders involved. In contrast to our participants, resident doctors participating in the study conducted by Gupta et al in 2018 were aware about Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) and other government efforts being done to enhance the use of generics.[2]

Studies also showed that side effects are reported more frequently with generic drugs as compared to brand drugs. Patients have expressed concerns that the lower cost of generics is associated with reduced medication quality in previous studies like Qian et al conducted in 2018.[5] Participants in this study did not show such biased thinking as they were relatively well informed. Majority did not believe generic drugs could cause more side effects and did not doubt its efficacy in comparison to branded drugs.

Previous studies like Dudhia et al conducted in 2023 showed that majority of doctors prefer prescribing generic drugs only when the patient is poor.[7] However, in our study, majority did not think generic drugs usage was reserved only for the poor patients. Socioeconomic factors should not hinder or enhance the use of generic or branded drugs according to our participants.

Previous studies like Kumar et al from 2019 showed the severe lack of knowledge and an overall negative perception regarding generic medications among persons of nonmedical background.[8] Our participants, due to academic teachings and hospital exposure, have shown results contrary to this. Even though knowledge and attitude regarding generic drugs showed that the participants were well informed and did not negatively perceive the use of generics, but the analysis of practices showed different results. Many who were taking over the counter medications did not use generic drugs and most said they would not switch to generic drugs on the advice of the pharmacist. But majority said they would use generic drugs if their physician prescribed it to them and many said they would be more open to prescribing generic drugs after participating in our research study. Hence, the importance of physician's role in enhancing use of generics was clearly defined among our study participants, which was similar to the study conducted by Charan et al in 2021.

Another important parameter, also confirmed by other studies like Gupta et al and Badwaik et al, showed why branded drugs were preferred over generic drugs.[2,9] Brand names are smaller, easier to remember and well-marketed by big pharmaceutical companies so doctors have a natural disposition to select them over generics.

Many studies conducted previously also show adequate knowledge and attitude towards generic drugs among the medical fraternity but practices related to it are not reflecting this. Increasing awareness and improving attitudes related to generic drugs will only go so far and the need of the hour is to enhance the practice of generic drugs among patients. This will require collective efforts from clinicians, academicians and, to some degree, compliance from big pharma industries.

CONCLUSION

Awareness regarding generic drugs has become a pertinent part of medical practice. Our study participants had adequate knowledge and a positive attitude towards generics but practices have to be improved in the future. Overcoming the negative perceptions and false notions regarding generics will greatly reduce healthcare costs. This will become possible only by the increasing usage of generics not just among patients but also practitioners

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