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Knowledge regarding generic and branded medicine, attitude, and practice regarding their uses among medical and dental practitioners in South India

Sakthi Soundarya Lakshmi¹, Aparna Sukumaran¹, P. D. Madan Kumar¹

¹Department of Public Health Dentistry, Ragas Dental College and Hospital, Chennai, Tamil Nadu, India.



***Corresponding author:**

Sakthi Soundarya Lakshmi,
Department of Public Health
Dentistry, Ragas Dental College
and Hospital, Chennai,
Tamil Nadu, India.

sakthivaradara77@gmail.com

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ABSTRACT

Objectives: Health-care expenditures remain a major concern for the health-care system around the world. Around 80% of health-care expenditure is paid from the patient's pocket and the use of generic medicine can save a lot of money. Hence, the present study was to determine the knowledge regarding generic and branded medicine, attitude, and practice regarding their uses among medical and dental practitioners in South India.

Material and Methods: A total of 100 registered medical and dental practitioners participated in this cross-sectional study. This study was carried out in February 2022. A self-developed validated questionnaire was adopted and distributed to the medical and dental practitioners in South India through an online Google Form forum to evaluate their knowledge regarding generic and branded medicine, attitude, and practice regarding their uses among the study participants. The statistical analyses were done using the Statistical Package for the Social Sciences version 20.0.

Results: About 43% and 38% of medical and dental practitioners were aware of Pradhan Mantri Bhartiya Janaushadi Kendra. Similarly, 44% and 39% were also aware that generic drugs are as effective as branded drugs. For attitude, 37% and 41% of medical and dental practitioners agreed that generic drugs were safe when compared to innovator drugs. About 18% and 25% of medical and dental practitioners agreed that generics take longer to act in the body. For the practice, 21% and 18% agreed that they often prescribe generic medicine for their own and family members. Similarly, 23% and 12% agreed that they often prescribe the same dosage for both generic and branded medicine. Whereas, 9% and 22% agreed that switching a patient from a branded medicine to a generic medicine may affect the outcome of the therapy.

Conclusion: In our study, we found that the practitioners had considerable knowledge regarding generic and branded medicines. However, furthermore training programs and dispensation of generic medicine in regular general pharmaceutical stores to improve access to the general public well being.

Keywords: Knowledge, Attitude, Practice, Generic medicine, Medical and dental practitioner

INTRODUCTION

A generic medicine is a pharmaceutical drug that contains the same active ingredients as a branded drug product in terms of safety, dosage, strength, route of administration, quality, performance characteristics, and therapeutic use.^[1] According to the World Health Organization, the term "generic drug," or "generic medicine" is defined as medicine whose patent has expired and

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which is now produced by producers other than the original innovator (patent-holding) company.^[2] The term “branded drug” or “brand name medicine” is defined as a name given to a pharmaceutical product by the manufacturer/producer.^[3]

Generic medicines have been available for more than a decade of years and are routinely used to treat a wide variety of acute and chronic health illnesses. Although generic medicines are much cheaper than brand-name medicines and also contain the same active substances as brand-name medicines, it is not well adapted in the Indian scenario.^[4] In view of this, The Medical Council of India amended in 2018 to the code of conduct for doctors, recommending that every physician should prescribe drugs with generic names.^[5]

Medicines constitute a significant proportion of out-of-pocket expenses in Indian families and households.^[6] To address this issue, the Department of Pharmaceuticals, the Ministry of Chemicals and Fertilizers, and the Government of India launched the scheme “Pradhan Mantri Bhartiya Janaushadhi Pariyojana” in the year 2008 (Medicine for people) to provide cheap generic medicines to the ill-patients.^[7] Under this scheme, dedicated outlets called “Janaushadhi Kendras” are opened to provide generic medicines at reasonable and affordable prices. To improve the practices of generic medicine, further, initiatives were taken by the government of India such as the “Jan Aushadhi Sugam” mobile application which was launched in August 2019.^[7] This application consists of various salient features such as locating nearby “Janaushadhi Kendras” through Google Maps, and to search Janaushadhi medicines, and comparing costs of generic medicines versus branded medicines in terms of savings, and maximum retail price.^[8]

Generic medicines are a keystone for providing affordable medicines to patients. It provides the same therapeutic effect in acute and chronic health-related problems as branded medicines at a much more affordable price. Even though generic medicine use has become more widespread globally, there is evidence that shows many dental and medical professionals and pharmacists hold negative perceptions regarding generics and resist prescribing generic medicines.^[9] Many health professionals oppose generics as a brand substitution, believing generics to be inferior to their branded counterparts. However, in India, generic medicine substitution is not a universally accepted practice. This results from various factors including distrust of generic medicines by professionals often due to perceived inferior quality and counterfeiting of drugs and also due to non-availability of generic formulations.^[10]

Despite all the initiatives taken by the government, generic medicine prescribing is not very much adopted in the Indian scenario due to a lack of knowledge and awareness about regulatory standards used in generic drug manufacturing and has become a major roadblock in the adoption of

prescribing generic medicine among medical and dental professionals.^[11] Based on this, the study evaluated the knowledge about generic and branded medicine, attitude, and practice regarding their uses among medical and dental practitioners in South India.

MATERIAL AND METHODS

This study was approved by the Institutional Ethics Committee at Ragas Dental College and Hospital, Chennai, number-20220137, dated 19 July 2022. This study was carried out among medical and dental practitioners in February 2022. A self-developed validated questionnaire was adopted and distributed to the medical and dental practitioners to assess their knowledge regarding generic and branded medicine and attitude and practice regarding their uses.^[12]

The questionnaire comprised 22 closed-ended questions in three parts and about demographic details of participants. Part one questionnaire contained 12 questions assessing knowledge regarding generic and branded medicines. This part of the questionnaire was assessed based on the participant’s answer to the question with the closed-ended option. Each question had a correct answer. Each correct answer by participants received 1 point and each mistake or unsure response by participants received 0 points. Based on the response, the mean score of the knowledge was calculated. Part two questionnaire contained seven questions eliciting attitude toward generic and branded medicine use, and part three questionnaire contained three questions related to the practice of generic and branded medicines. Both were assessed based on a 5-point Likert scale to evaluate attitudes toward generic and branded drug use, with answers ranging from “strongly agree” to “strongly disagree,” neutral, or from “always” to “never” and practice toward generic and branded medicine drugs ranging from “always to never,” sometimes, “often to rarely.”

The pilot testing of the questionnaire was done on ten registered medical and dental practitioners. The sample size was calculated based on the study conducted by Kaur *et al.*^[12] 2020 using G-Power software version 3.1. The minimum sample size was calculated as 96 individuals with an 80% power and $\alpha = 0.05$. Using the snowball sampling technique, a total of 100 registered dental and medical (47% and 53%) practitioners participated in this cross-sectional study. After obtaining consent, the questionnaire was distributed to the medical and dental participants through an online Google form forum to evaluate their knowledge regarding generic and branded medicine, attitude, and practice regarding their uses among the study participants.

Inclusion and exclusion criteria

At present, practicing medical practitioners who were registered under the Medical Council of India and dental practitioners

who were registered under the Dental Council of India with a minimum of 2 years of experience were included in the study. Whereas, non-practicing medical and dental practitioners, Ayurvedic and Siddha professionals, homeopathic physicians, physiotherapists, nurses, pharmacists, and other professionals, were excluded from the study.

Statistical analysis

The data collection was entered into Microsoft Excel 2010 version and the statistics were analyzed using the Statistical Package for the Social Sciences version 20.0 “Descriptive statistics” were performed, and “Chi-square test” was also done to assess the association between knowledge, attitude, and practice of medical and dental participants. For analysis, responses regarding knowledge, attitude, and practice about generic and branded medicines among the participants were collected. $P < 0.05$ was considered statistically significant.

RESULTS

[Table 1] denotes the demographic characteristics and work experience of study participants.

In this cross-sectional study, a total number of 100 registered medical and dental practitioners participated, of which 54% were male, and 46% were female with a mean age of 27.8 ± 1.88 years. The majority of participants were dental practitioners 53% and the other 47% were medical practitioners. Out of 100 registered medical and dental practitioners, 59% were doing clinical practice individually and 41% of practitioners were doing group practice. Most practitioners had working experience of up to 5 years [Table 1].

For knowledge, it is evident from [Table 2] that most of the medical and dental practitioners (81% [43% and 38%]) were aware of Pradhan Mantri Bhartiya Janaushadi Kendra. Similarly, both medical (83% [44%]) and dental [39%]) practitioners were aware that generic drugs are as effective as branded drugs. Moreover, all the medical and dental practitioners (100% [47% and 53%]) had sufficient knowledge regarding the central government of India which approves generic medicine all over India. Furthermore, no statistical difference was found between medical and dental practitioners concerning knowledge scores. This study showed that knowledge regarding generic and branded medicine was high among medical and dental practitioners. The mean knowledge score was 9.99 (standard deviation: 1.77, range: 4–12) suggesting an overall 83.2% ($9.99/12 \times 100$) correct response for this knowledge test. Knowledge-related questions and their responses are shown in [Table 2].

For the attitudes, the majority of medical and dental practitioners (78% [37% and 41%]) agreed that generic drugs

Table 1: Demographic characteristics and work experience of study participants.

| Demographic characters | % |
|-------------------------|----|
| Age (years) | |
| ≤30 | 92 |
| >30 | 8 |
| Gender | |
| Male | 54 |
| Female | 46 |
| Qualification | |
| Medical | 47 |
| Dental | 53 |
| Work experience (years) | |
| ≤5 | 70 |
| >5 | 30 |
| Type of dental practice | |
| Group practice | 59 |
| Medical | 25 |
| Dental | 34 |
| Individual practice | 41 |
| Medical | 22 |
| Dental | 19 |

were safe when compared to innovator drugs. Similarly, the majority of practitioners also agreed that there should be more Jan Aushadhi (Sanjeevini) pharmacy outlets and training programs in every rural and urban hospital to increase awareness regarding generic drugs. However, a considerable portion of medical and dental practitioners (43% [18% and 25%]) agreed that generic takes longer to act in the body. Attitude-related questions and their responses among medical and dental practitioners are shown in [Table 3].

For the practice, the majority of medical and dental practitioners (39% [21% and 18%]) agreed that they often prescribe generic medicine for their own and family members. Similarly, the majority of practitioners (35% [23% and 12%]) also agreed that they often prescribe the same dosage for both generic and branded medicine. Whereas, a sizeable amount of medical and dental practitioners 31% (9% and 22%) also agreed that switching a patient from a branded medicine to generic medicine may affect the outcome of the therapy. Practice-related questions and their responses among medical and dental practitioners are shown in [Table 4].

DISCUSSION

In the present study, a good percentage of medical and dental practitioners had considerable knowledge regarding generic and branded medicines and they had a good attitude about the safety, efficacy, and quality of generic medicines. They also agreed that there should be more training programs

Table 2: Knowledge-related questions regarding generic and branded medicines.

| Q. No. | Question | Options | Medical | Dental | P |
|--------|--|---|--------------|--------------|-------|
| 1 | What is Pradhan Mantri Bhartiya Janaushadi Kendra? | a) It provides generic medicines at a low cost b) It provides branded medicines at a low cost | 43 4 | 38 15 | 0.012 |
| 2 | What is generic medicine? | a) It is an active ingredient of the brand-name drug b) It is an inactive ingredient of the brand-name drug | 41 6 | 41 12 | 0.200 |
| 3 | Who can open a Pradhan Mantri Bhartiya Janaushadi Kendra? | a) NGO b) Insurance regulatory and development | 40 7 | 42 11 | 0.446 |
| 4 | Are generic drugs as effective as branded drugs? | a) Have same efficacy and therapeutic values as branded medicines b) Have different efficacy and therapeutic values branded medicines | 44 3 | 39 14 | 0.008 |
| 5 | How do generic drugs benefit the patients? | a) Patient can reduce work pressure and stress b) Patient can reduce expenditure on medicines | 4 43 | 4 49 | 0.859 |
| 6 | Why are generic medicines cheap? | a) These drugs do not involve repeat extensive clinical trials to prove their safety and efficacy b) These drugs involve repeat extensive clinical trials to prove their safety and efficacy | 39 8 | 43 10 | 0.810 |
| 7 | Which country is the largest producer of generic drugs? | a) India b) America c) Japan | 41 4 2 | 45 5 3 | 0.933 |
| 8 | Why does the generic drug look different from branded drugs? | a) Trademark laws in India do not allow a generic drug to look exactly like other drugs b) Trademark laws in the US do not allow a generic drug to look exactly like other drugs | 14 33 | 21 32 | 0.303 |
| 9 | Who introduced Pradhan Mantri Bhartiya Janaushadhi Pariyojana? | a) Department of pharmaceuticals and ministry of fertilizers b) Department of income tax and revenue | 46 1 | 48 5 | 0.125 |
| 10 | Who runs Janaushadhi Kendra? | a) BPPI b) FDA c) World Health Organization | 37 3 7 | 37 8 8 | 0.370 |
| 11 | Which are generic medicines? | a) Imitates same color and trade name a) Imitates brand name drugs with the same effects, dosage, safety, and form | 9 38 | 12 41 | 0.669 |
| 12 | Who approves generic medicines in India? | a) Central Government of India b) State Government of India | 47 0 | 53 0 | 0.00 |

US: United States, BPPI: Bureau of pharma PSUs of India, FDA: Food and drug administration, P: probability value

in every rural and urban hospital to increase awareness regarding generic drugs. The majority of practitioners prescribed generic medicines for their own and family members. These findings were similar to the study conducted by Bhattacharjee *et al.*, 2017. The study also demonstrated that many practitioners were aware of the term Jan Aushadhi Kendras, and its availability regarding generic medicines.^[13]

In our cross-sectional study, 82% of medical and dental practitioners had good knowledge regarding the use of generic medicines. Moreover, 83% of practitioners felt that generic medicines were as safe and effective as branded medicines. The majority of practitioners 78% had a positive attitude that generic drugs were as safe as the innovator (branded) drugs. About 81% of them were aware of Pradhan Mantri Bhartiya Janaushadi Kendra. Almost 81% of practitioners agreed that there should be a generic medicine shop in every hospital. Our findings were similar to the study conducted by Desai *et al.*, 2017, who found that only 59.6% agreed that

generic medicines are effective and safe as brand medicines. They also observed that the same proportion (59.6%) of the practitioners were aware of Janaushadi Kendras. The majority of doctors (75.3%) in this study were of the view that generic drugs were as safe as the innovator drugs. Moreover, 87.7% of practitioners were aware of generic medicines, and also, a majority of doctors (75.3%) had a positive attitude that generic drugs are as safe as the innovator (branded) drugs.^[14]

Our findings are also concurrent with the study done by Gupta *et al.*, 2015, who observed that only 45.2% of the doctors knew the Janaushadi Kendras and 75.3% of practitioners agreed that generic medicines are safe and effective as branded medicines. Almost 83.6% of practitioners agreed that there should be a generic medical store in every rural and urban hospital.^[15] In our study, only a few participants 43% believed that generic drugs take a longer time to act in the body, and also almost 53% of practitioners agreed that they prescribe the same dosage for both generic and branded medicine. Similarly, the

Table 3: Attitude-related questions regarding generic and branded medicine use among medical and dental practitioners.

| Q. No. | Question | Options | Medical (%) | Dental (%) |
|--------|--|----------------------|-------------|------------|
| 1 | Are generic drugs safe when compared to innovator drugs? | a) Strongly agree | 8 | 15 |
| | | b) Agree | 29 | 26 |
| | | c) Neutral | 7 | 12 |
| | | d) Disagree strongly | 3 | 0 |
| | | e) Disagree | 0 | 0 |
| 2 | Do you think generic drugs cost less because they are inferior to branded drugs? | a) Strongly agree | 2 | 4 |
| | | b) Agree | 27 | 21 |
| | | c) Neutral | 5 | 12 |
| | | d) Disagree strongly | 11 | 14 |
| | | e) Disagree | 2 | 2 |
| 3 | Do you think Jan Aushadhi (Sanjeevini) pharmacy outlets should increase in number? | a) Strongly agree | 10 | 13 |
| | | b) Agree | 27 | 26 |
| | | c) Neutral | 7 | 13 |
| | | d) Disagree strongly | 3 | 1 |
| | | e) Disagree | 0 | 0 |
| 4 | Do you think that prescribing a drug by generic name should be made mandatory? | a) Strongly agree | 7 | 10 |
| | | b) Agree | 23 | 31 |
| | | c) Neutral | 12 | 9 |
| | | d) Disagree strongly | 4 | 2 |
| | | e) Disagree | 1 | 1 |
| 5 | Does generic take longer to act in the body? | a) Strongly agree | 1 | 5 |
| | | b) Agree | 17 | 20 |
| | | c) Neutral | 16 | 18 |
| | | d) Disagree strongly | 10 | 8 |
| | | e) Disagree | 3 | 2 |
| 6 | Do you think there should be a training program to increase the awareness regarding generic drugs? | a) Strongly agree | 12 | 15 |
| | | b) Agree | 29 | 34 |
| | | c) Neutral | 5 | 4 |
| | | d) Disagree strongly | 1 | 0 |
| | | e) Disagree | 0 | 0 |
| 7 | Do you think that there should be a generic medical store in every rural and urban hospital? | a) Strongly agree | 12 | 19 |
| | | b) Agree | 29 | 21 |
| | | c) Neutral | 6 | 11 |
| | | d) Disagree strongly | 0 | 2 |
| | | e) Disagree | 0 | 0 |

Table 4: Practice-related questions regarding generic and branded medicine use among medical and dental practitioners.

| Q. No. | Question | Options | Medical (%) | Dental (%) |
|--------|--|--------------|-------------|------------|
| 1 | Do you prescribe generic medicine for your own and family members? | a) Always | 15 | 8 |
| | | b) Often | 21 | 18 |
| | | c) Sometimes | 5 | 24 |
| | | d) Rarely | 3 | 2 |
| | | e) Never | 3 | 1 |
| 2 | Do you think that switching a patient from a branded medicine to generic medicine may affect the outcome of the therapy? | a) Always | 5 | 5 |
| | | b) Often | 19 | 9 |
| | | c) Sometimes | 9 | 22 |
| | | d) Rarely | 9 | 13 |
| | | e) Never | 5 | 4 |
| 3 | Do you prescribe same dosage for both generic and branded medicine? | a) Always | 11 | 7 |
| | | b) Often | 23 | 12 |
| | | c) Sometimes | 8 | 19 |
| | | d) Rarely | 1 | 10 |
| | | e) Never | 4 | 5 |

study conducted by Bhattacharjee *et al.*, 2017, found that only 10% of practitioners believed that generic drugs take a longer time to act and almost 92.5% of practitioners agreed that they prescribe the same dosage, composition, and indications for both generic and branded medicine.^[14]

Our study, also, analyses that 76% of practitioners agreed that Jan Aushadhi pharmacy outlets should increase in number, and a few practitioners 38% said that switching a patient from a branded medicine to a generic medicine may affect the outcome of the therapy. The main advantage is that this is the first study conducted to evaluate the knowledge, attitude, and practice regarding the use of generic and branded medicines among medical and dental practitioners in South India.

Limitation

Some of the limitations of our study would be the social desirability bias affecting the study outcomes due to the responses of the study. The other limitation of the study would be the convenience sampling design which may lead to selection bias. Furthermore, the data collection was done through online forms which might create a communication gap between the participants and the examiner.

CONCLUSION

Although a good percentage of medical and dental practitioners had good knowledge, attitude, and practice about generic and branded medicines, there was a considerable proportion who expressed solicitude about them. Further, more training programs are required for medical and dental practitioners to improve their acceptability of generic medicines. In line with the presence of policy to improve the dispensation of generic medicines in public-private partnerships would be sort whereas, the dispensation of generic medicines would be implemented in regular general pharmaceutical stores to improve access to the general public.

Ethical approval

Approved by the Institutional Ethics Committee at Ragas Dental College and Hospital, Chennai. number-20220137, dated 19 July 2022.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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