



A Cross-Sectional Online Survey on Perception of Indians on Branded and Generic Drugs

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ABSTRACT

Since ancient times, humans are using medicinal herbs which have gone through several emendations and come out as a modern system of medicine. In the field of medicine, the fundamental aspect lies in two approaches, one is Generic-drug and another is Branded or patent drug. This study aims to evaluate and compare knowledge, attitude, and perception of generic drugs and branded drugs in pharmacist and non-pharmacist people comprising both genders and age groups between 18-50 years. The study type involves an online, cross-sectional and questionnaire-based study. The collected data were analyzed concerning the information provided by the subjects according to the set of questionnaires. Questionnaires based on online cross-sectional studies have been done with 150 participants to study and evaluate the perception of the society about the generic and branded drug. About 96.4% of people had proper knowledge and concept of generic-drug. It was known to 50% of people that generic medicines are safe as branded medicine and the availability of generic medicines in medical stores. Moreover, 60.7% of people switched from branded to generic on the advice of a doctor and 67.9% revealed their preference for generic drugs. A good percentage of people knew generic medicines. They showed a good attitude about the safety, efficacy, and quality of generic medicines and the majority of the respondents said that they prescribe generic drugs. The belief in generic drugs of the respondents will make significant changes in the larger use of generic drugs which may lead to cutting off the expenses of the health care system.

Keywords: Generic, Branded, Drug, Medicine

INTRODUCTION

Since the prehistoric era, humans used medicinal herbs and substances derived from natural sources behalf of effectiveness in human health [1]. In the field of medicine, the fundamental aspect lies in two approaches, one is Generic drugs and another is Branded or patent drugs [2]. Although generic drugs are like branded drugs in their dosage, route of administration, and pharmacological action there is always a misconception that branded drug is at an all-time superior to generic drugs [3,4]. Despite inactive agents, like glidants, binders used in both generic and branded drug which is variant from each other, following FDA standards, the generic drug has identical API (Active Pharmaceutical Ingredients), bioavailability, bioequivalence profile, and pharmacokinetic parameters [5]. A generic drug can be commercialized commonly when the patent gets expired of a specific branded drug [5]. Generic drugs used to be less expensive than their specific branded drug with similar API and dose as generic drug companies do not have to repeat preclinical and clinical trials on animals and humans [6]. As mentioned by the All India Drug Action Network (AIDAN) a group of public health activists and doctors quoted, "In the absence of universal availability of good quality generic name medicines at retail pharmacy shops, merely getting doctors to start prescribing medications under the generic name will end up shifting the discretion to pharmacists who are likely to dispense brands that give

them more commissions” [7]. The pharmacists play a supreme role in dispensing the generic drug, they can endorse the patients to obtain the most cost-effective generic drug, and prescribe the generic drug which grants the probability of the generic drug utilization [8]. Using generic drugs can save a lot of money for India as well as the developing world with the help of pharmacists and other medical professionals, which can be used in other health concerns [9]. The foremost objective of this study was to inspect the knowledge and attitude of a person regarding generic drug and their effectiveness and expenditure. The survey was also intended to outline the different known pharmaceutical companies and also pharmacists for dispensing generic drugs [10].

MATERIALS AND METHODS

It was an online randomized Knowledge Attitude Practice (KAP) that was conducted using the Google Form platform through a random sampling method.

Study Type

The study type involves observational, cross-sectional, and questionnaire-based studies.

Collection of Data

The study of a collection of data was conducted through pharmacists and non-pharmacists people comprising both genders and between the age group of (18-50) years. This process of collection of data was in a predesigned Google form format.

Study Period

From March 2020 to April 2020 the study was conducted especially when most of the people worldwide due to the pandemic were locked inside their homes because of the long-standing fatal Corona Virus declared by World Health Organization (WHO).

Study Subject

Circulation of Google Form links through several online media to get responses from both pharmacists and non-pharmacist people during the study period.

Inclusion Criteria

Participants of a minimum age of 18 years were considered in this study.

Exclusion Criteria

The incomplete and unwilling responses were not taken into consideration.

Method

The questionnaire comprises two parts. The first part includes the general information like name, age, gender, and occupation, and the other part comprises ideas, knowledge, price, and perception of generic drugs and branded drugs. Overall, the Google form comprises 20 questions in the list of questionnaires. The collected data were analyzed concerning the information provided by the subjects according to the set of questionnaire items and the analyzed data is presented in the following tables. All the data were taken as frequencies and represented in the form of percentages.

RESULTS

A questionnaire-based online cross-sectional study has been done with 150 participants to study and evaluate the perception of the society about the generic and branded drug.

From Table 1, it can be analyzed that under the gender characteristics out of 150 people 112 (75%) were male who took part in the survey positively and the number of females, in that case, was 38 which was about 25%. This table also revealed that 18-30 years of participants gave better responses and were in large numbers about 139 of 150 participants (92.9%) and the rest belonged to the 41-50 age groups (7.1%). The age groups 31-40 and above 50 did not take part in this survey. Under the occupation or profession criteria, about 66 out of 150 participants (43.7%) were from a pharmacy background and the rest of 84 participants (56.3%) were from a non-pharmacy background.

Table 1 Socio-demographic criteria; data were analyzed in percentages (n=150)

Parameters	Variables	Number of Participants (%)
Gender	Male	112 (75)
	Female	38 (25)
Age-group (Years)	18-30 years	139 (92.9)
	31-40 years	Not Available
	41-50 years	11 (7.1)
	Above 50 years	Not Available
Occupation	Pharmacist	66 (43.7)
	Non-Pharmacist	84 (56.3)

From Figure 1, it can be analyzed that out of 150 people 145 (96.4%) people had proper knowledge and concept about generic drugs and the rest 5 people (3.6%) had no perception of generic drugs.

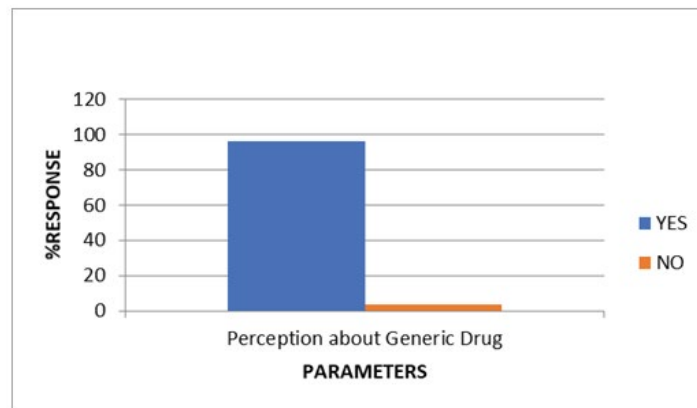


Figure 1 Knowledge of generic drugs; data were analyzed in percentages (n=150)

From Figure 2, it can be analyzed that out of 150 people out of 75 (50%) people thought that the safety of generic and branded medicine is the same. About 7% of people stated that generic medicines are not safe as branded medicines and 43% of people were not sure about it. Data also revealed that out of 150 participants, 118 (78.6%) affirmed that there is a price difference between branded drugs and generic drugs. This figure also revealed that about 150 people of 75 (50%) asserted that generic medicines are available in medicine stores whereas about 46% of people did not agree with it and the rest of 4% were not sure about it.

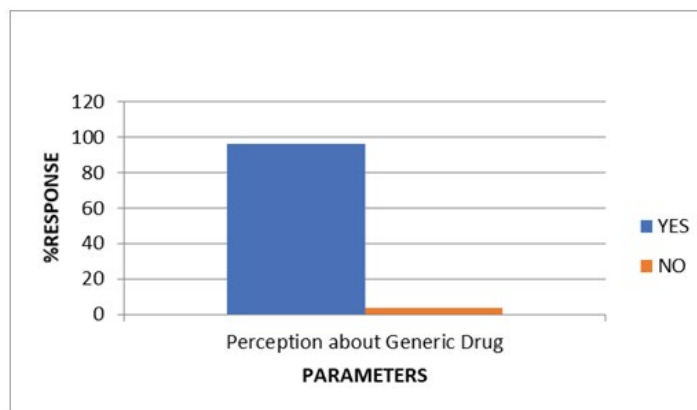


Figure 2 Concept of generic drugs; data were analyzed in percentages (n=150)

From Figure 3, it can be analyzed that out of 150 people 91 (60.7%) people got the information about generic and branded drugs from the pharmacists and about 11 people (7.1%) from the doctors. It means about 68% of people got the information from healthcare professionals whereas 3.6% of people got the information from television and in the case of hoarding, the number is also the same. Apart from these sources, about 18% of people affirmed that they got the information about generic and branded drugs from others.

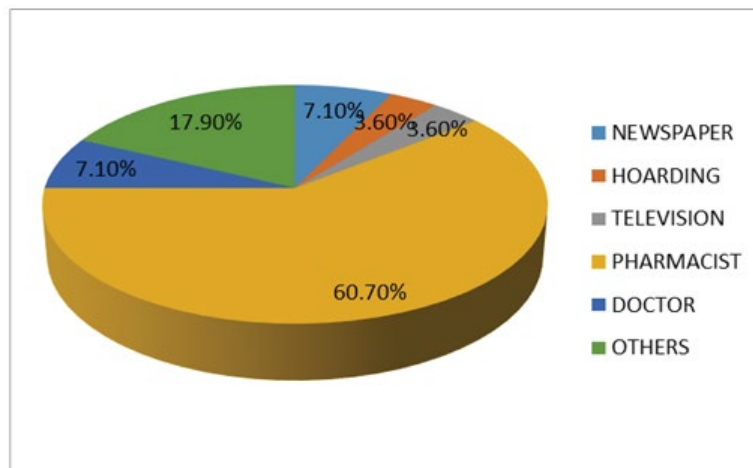


Figure 3 Source of information; data were analyzed in percentages (n=150)

From Figure 4, it can be analyzed that out of 150 people 91 (60.7%) people had switched from branded to generic drugs on the advice of a doctor while 39.3% of people had not the necessity to change in case of non-availability or cost issue. This data also asserted that out of 150 participants, 102 (67.9%) revealed their preference for generic drugs rather than branded whereas 48 people (32.1%) affirmed their superiority to generic drugs.

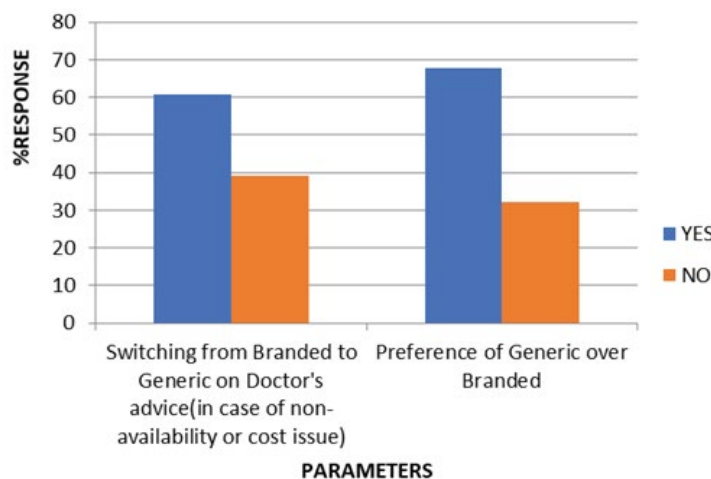


Figure 4 Attitude towards generic and branded drugs; data were analyzed as in percentages (n=150)

From the Figure 5, it can be analyzed that out of 150 people 64 (42.90%) people thought that the reason for the cost-effectiveness of generic drugs did not depend on low quality, lesser therapeutic effect, and reputation of the company whereas 38 people (25%) confirmed the reason of cost-effectiveness for company reputation, 16 people (10.70%) stated for low quality and 11 people (7.10%) asserted for lesser therapeutic effect. This data also revealed that about 14.30% of people did not have any idea regarding the reason for the cost-effectiveness of generic drugs.

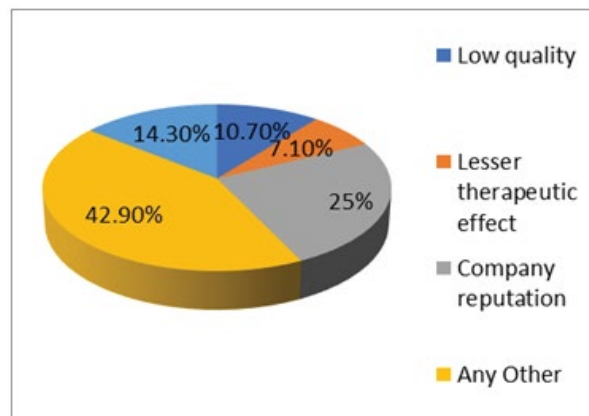


Figure 5 Reason for the cost-effectiveness of generic drugs; data were analyzed in percentages (n=150)

From the Figure 6, it can be stated that out of 150 people 80 (53.6%) people agreed with the sale promotion which includes the inducement of prescription, supply, purchase, and use of generic medicinal drugs by pharmacists, and the rest of 70 people (46.4%) did not agree with it.

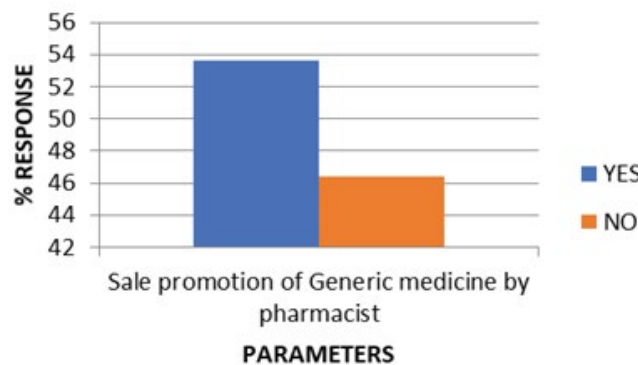


Figure 6 Sales promotion; data were analyzed in percentages (n=150)

From Table 2, it can be analyzed that out of 150 people 43 (28.5%) thought that Sun Pharma is the leading pharmaceutical brand that sells generic drugs followed by Lupin (14.2%) and Cipla (10.7%). The table also revealed that 7.1% of people voted for East India Pharmaceuticals and the number was also the same for Teva Pharmaceuticals. There are a few companies like GSK, Caplet, Bengal Chemicals, Aster Pharma, Polymed Biohealthcare, Strassen Burg, Syncom Healthcare Limited, Telugent Leading Pharma, and Hll Mitra which are voted by 3.6% people of each for selling generic drugs.

Table 2 Pharmaceutical Brands who sells generic drugs; data were analyzed as in percentages (n=150)

Brand Name	Response%
Sun Pharma	28.5
East India Pharmaceuticals	7.1
Cipla	10.7
Lupin	14.2
Teva Pharmaceutical	7.1

GSK	3.6
Syncom Healthcare Limited	3.6
Caplet	3.6
Polymed Biohealthcare	3.6
Bengal Chemicals	3.6
Strassen Burg	3.6
Telugent Leading Pharma	3.6
Aster Pharma	3.6
Hll Mitra	3.6

From the Figure 7, it can be analyzed that out of 150 people 86 (57.1%) thought that Government should come up with more promotion with stringent laws for a generic drug whereas 11 people (7.1%) had not sure about it and 53 people (35.7%) stated that Government had no necessity to come up with strict laws for the promotion of generic drugs.

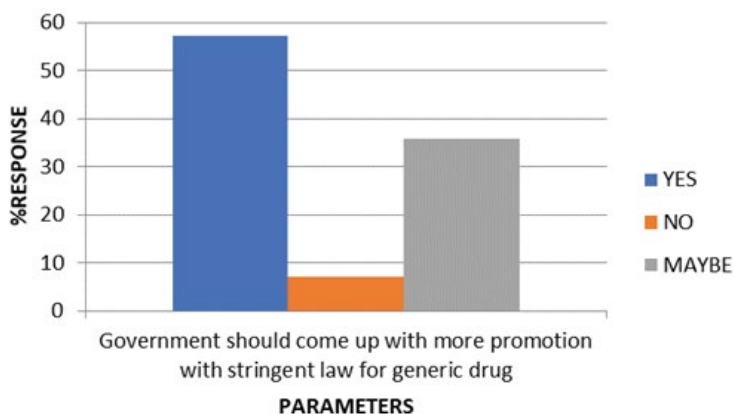


Figure 7 Perception towards government action for generic drugs; data were analyzed as in percentages (n=150)

DISCUSSION

Generic drugs possess identical active ingredients as branded drugs and are accessible only when the patent perishes on a branded drug. Upon expiration of the patent, the other manufacturing companies may claim to regulatory authorities for the generic version of the branded drug. A generic drug is bioequivalent to branded drug in terms of safety, strength, quality, route of administration, and intended use. There are mainly three parameters to establish the bioequivalence- AUC (Area Under the Concentration time curve), Cmax (observed maximum concentration of degree of absorption), and Tmax (the time after administration of the drug at which Cmax is observed) [2,11].

The present study investigated the knowledge, conception, and attitude of Indian citizens towards generic drugs. A total of 150 participants completed the survey questionnaire; among them 75% were male and most of the participants (92.9%) were from the young generation and no responder was found above 50 years of age. The present study showed the majority of the respondents (96.4%) had knowledge of generic drugs but only 67.9% of people revealed their preference for generic drugs suggesting that a little bit of awareness is still needed for generic drugs in the Indian community. On contrary a similar study from Japan was 44.6% of respondents were men, 55.4% were female, 38.9% of respondents belonged 18-30 years and above 50 years, and 23.7% of participants took part in the study [12]. This present study says that 96.9% had proper knowledge and concept about generic drugs whereas at the same time there was a cross-sectional study in Japan where 86.7% of respondents had received information or had a conception about generic drugs [12]. Generic medicines are safe and equivalent and have a similar effect on the body in terms of treatment, prevention, and curing of disease as same as branded drugs. Present study data revealed that half of the respondents (50%) stated that generic medicines are safe as branded and 43% of people were not sure about it. In the case of cost-effectiveness, 78.6% stated that there is a price difference between generic and branded medicines.

Generic medicines are about 80%-90% cheaper than branded medicines. The cost of branded medicines is high for its research and development costs. In recent times India is one of the leading manufacturers of generic medicines in the world. However, some issues like more promotion of branded drugs by doctors, and chemists and the lack of proper concept of generic medicines increased the expenses on poor people in developing countries like India. To ensure the availability of quality medicines at affordable prices Indian Government has started a project named "Jan Aushadhi". The main objective of this project is to set up at least 3000 generic medicine stores all over the country by the end of 2016-2017 [13]. As a result, this study showed that 75% of people affirmed that generic medicines are available in medical stores at an affordable price and of the same quality as branded medicines. Similarly, a survey-based study in Maharashtra indicates that 82.60% of people find a huge cost difference between branded and generic medicines, and 60.86% of people agreed about the same efficacy and safety of generic drugs. This survey also includes that 54.16% of Marathas were known to medical shops where generic medicines are available [14].

Apart from the concept and perception of generic drugs the important fact is the source of information on generic drugs includes mainly newspapers, doctors, pharmacists, televisions, and hoarding although a large no of people 60.7% got the information from the pharmacists and they play a leading role to spread the proper knowledge of generic drugs. This means that healthcare professionals are the main pillars of the source of information on generic drugs. Apart from the current KAP study, in Brazil, there is a survey based on the current scenario of generic and branded medicines which revealed the data that the information on generic drugs got through TV Channels (65.2%), Newspapers (30.4%), and from medicinal stores (4%) [14]. On the contrary, there was a cross-sectional study about knowledge, perception, and use of generic drugs in Brazil which shows the information on generic drugs obtained through main television (49.3%), Pharmacists (39.5%), and medicinal practitioners (18%). This study also includes the internet and newspaper articles (7.2%), acquaintances and neighbors (3.6%), radio (2.9%), and street advertising (1.8%) as a source of information on generic drugs [15]. Apart from the source of information, the salient talking point is the frame of mind toward generic and branded drugs. The normal perception of most the common people is to tend toward branded medicines and that is quite clear from the statistics that 67.9% of people revealed their superiority to branded medicines. There is also a tendency of switching over from branded to generic drugs and the present study showed that 60.7% of people had switched from branded to generic drugs on the advice of a doctor while 39.3% of people had not the necessity to change in case of non-availability or cost issue. A cross-sectional study on the topic of generic medicine substitution in Nigeria revealed that 68.2% of respondents would prefer generic medicines to branded ones [16].

The selling of medicine is one of the most considerable apprehensions across the globe. Generic drugs have lower expenditure than branded drugs as their cost is effectively less than branded drugs. Despite this, there is a myth regarding the generic drug among the general physician and patients, even though they have more similarities in pharmacological action with the branded drug or innovator drug [17]. In India the scenario of the drug marketing table has turned, the branded manufacturer is propelling their products by a grant the seller and distributors an immense margin of inducement to push the branded drug toward the patients [18]. This survey is mainly focused on people's attitudes and perceptions towards the cost difference between generic and patented drugs and the reason behind this which is quite visible in this analysis was 64 (42.90%) out of 150 people speculated that low quality, lesser therapeutic efficacy, and reliability of a well-known company does not hamper the cost-efficiency of a generic drug.

Pharmacists and other health professionals have played an important role to dispense the prescribed medicine and also providing advice on over-the-counter resolves of medicaments. Pharmacists hold a big concern in promoting the generic drug over the branded drug to the patients [9]. Pharmacists have the right to be aware the community of the bioavailability, therapeutic effectivity, and also cost-efficiency of generic drug uses [19]. This contribution serves the nation economically, which intern, helps the government of a country, especially a developing country like India in the wellness of health services [20]. This survey is based on 150 people, out of which 80 (53.6%) participants accept the fact that the contribution of pharmacists to sales promotion of medicines is truly remarkable.

Pharmaceutical companies across the world show an enormous effort to dispense generic drugs all over the world due to the increasing empathy of common people for purchasing cost-effective and affordable generic drugs. To flow this harmony pharmaceutical company, create an impact by increasing the Compound Annual Growth Rate (CAGR) of 8.7% of generic drugs in the world market, it is also assumed that from 2016 to 2021 global market will grow exponentially from \$352 billion to \$533 billion only for generic drugs. In the pharmaceutical market some remarkable

and elegant companies dispense generic drugs and rank 1-5 on the leader board, the companies are mentioned in Table 3 [21].

Table 3 Top five leading brands which dispense generic drugs

Sr. No.	Company name	Revenue
1	Teva Pharmaceutical	\$ 18.9 billion
2	Mylan NV	\$ 4 billion
3	Sandoz	\$ 9.9 billion
4	Sun Pharmaceuticals	\$ 4 billion
5	Lupin Pharmaceuticals	\$ 2.3 billion

As per the present survey, it can be estimated that out of 150 people 43 (28.5%) conveyed that Sun pharma is the leading pharmaceutical company that dispenses generic drugs on a large basis and then 14.2% people voted for Lupin followed by 10.7% nominated Cipla whereas 7.1% of people considered both the Teva Pharmaceuticals and East India Pharmaceuticals in the same ranking. The rest of the 3.65% people claimed other leading companies of India like, GSK, Bengal Chemicals, Caplet, Aster Pharma, Polymed Bio HealthCare, Strassen, Syncom Healthcare Limited, Burg, Telugent Leading Pharma, and Hill Mitra sell the generic drugs.

India is the 4th largest producer and 10th largest exporter of drugs all over the world for decades, though there was always a wide range of problems arising regarding the development of health services as well as the pharma market for selling generic drugs [18]. In the preference of this Medical Council of India (MCI), organized a summit for the Code of Conduct with regards to doctors in October 2016, which endorse that health professionals especially physicians, “should prescribe drugs with generic names legibly and he/she shall ensure that there is a rational prescription and use of drugs.” [22]. Thus, India put a price limit under the progressive dismantling of the price regulation system of DPCO (Drug Prices Control Order), but here arises one more problem that some the common people thought that lowering the price of certain drugs also hamper their effectiveness and quality without knowing the real cause of cost-effectiveness of generic drugs. So, in this situation, the Government should take a good step to eliminate this misconception- Generic Drug Names should be written in at least bolder and twice or thrice bigger fonts in contrast to certain Brand Names of a specific Drug Company [23]. In 2008, GOVT. of India initiate “Jan Aushadhi” (i.e. “Medicine for People”) with the assistance of the Department of Pharmaceutical technology. This is one of the noble missions where the government lay the first stone to increase the accessibility of low-cost unbranded or generic drugs to the poor natives through a pharmaceutical dispensary named ‘Jan Aushadhi Stores’ [8]. From this survey, it can be analyzed that 86 (57.1%) out of people believe that, Government should introduce more promotions with stringent laws for generic drugs, on the other site 11 (7.1%) people hastened about this, whereas 53 (35.7%) conveyed that government should not come up with such regulatory laws for the promotion of generic drugs.

In the era of the 21st century, India holds 4th rank in the global generic pharmaceutical. The Central Drug Standards and Control Organization which is governed by the Ministry of Health and Family Welfare propels the regulations of welfare, efficacy, and standards of the drugs, cosmetics, and other medicinal agents that help to operate the manufacturing and also the import and export of drugs and other health-related products. The National Pharmaceutical Authority (NPPA) 1997, controlled under the supervision of the Department of Chemicals and Petrochemicals regulates the price of generic and other drugs. Drugs and Cosmetic Act of 1940 and rules 1945 modulates also the quality, efficacy, and production of generic drugs as well as branded drugs. The Patent Act of 1970 supervised the cost of drugs especially generic drugs and branded drugs. All these above-mentioned law and act helps to regulate and govern different features related to generic and other drugs which help to in-build the elegance of the pharmaceutical market in front of the world [24]. The Food and Drug Act of 1906 includes more than 200 laws only to govern the society’s health and end-users safety by certifying drugs, foods, cosmetics, biological products, and different medical devices [25]. By analyzing this survey it can be known that out of 150 people 83 (55.65%) of them conclude that FDA guidelines include different corresponds like safety, efficacy, and bioavailability of generic drugs and branded drugs, analysis of actual drugs, and assessment of drug’s label. all are followed in the case of generic drugs as same as branded drugs.

In the present scenario, a survey like this which can create awareness among people and also shake their misconception about the generic drug can help to bring a remarkable change in peoples' perception.

CONCLUSION

Though there was a good percentage of people who showed their interest in the use of the generic drug a part of the society still believes that buying a generic medicine is nothing but a waste of money. This wrong perception in society will exist till the healthcare professionals like pharmacists, doctors won't take the responsibility to make society believe in generic drugs. As generic drugs are very cost-effective than branded ones, so this category of medicines can be a savior in a situation where the financial status of an individual or a state, or a country is a questionable thing. This study helps to understand the knowledge and perception of society on branded and generic drugs and also reveals the loopholes where the shortcomings need extra attention to improve.

DECLARATIONS

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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