Knowledge, Attitude And Practice Of Generic Medicine Among Dentists In Ghaziabad City- A Questionnaire Based Study

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Abstract

Introduction: Globally, India's pharmaceutical industry is the third largest one in terms of volume of medicines exported but several essential medicines remain inaccessible within the country especially for the poor due to rising health-care expenses. Generic medicines, which are typically 20-90% less expensive than the branded drugs, provide the same quality, safety, and efficacy as the original brand name product.

Aim: The study aims to access the knowledge, attitude and practice of clinical practitioners and academicians regarding the use of generic medicine.

Methodology: A cross-sectional study was carried out among 368 dentists working as academicians or clinicians in and around Ghaziabad from July to August 2019 using a pre-validated questionnaire. Chi square analysis and independent t test was used to analyze the knowledge, attitude and practice of generic drugs among clinicians and academicians. P≤0.05 was considered statistically significant.

Results: 73.6% of the clinicians as well as 100% academicians agreed that generic medicines were intended to be interchangeably with branded drugs (p = 0.001*). But, 94.4% of the clinicians and 95.3% of the academicians felt that generic drugs are not effective as innovator (p=0.815). Regarding the practice, all of the academicians and only 32% clinicians prescribed the generics to their patients (p=0.001).

Conclusion: Most of the dentists had good knowledge and attitude about generic medicines but there was a meaningful proportion who expressed concerns about them. There is a need of educational interventions to increase the awareness and acceptability of generic medicines.

Keywords: Generic medicines, Knowledge, Attitude, Practice, Dentists.

INTRODUCTION

Rising healthcare costs continue to be a concern for healthcare systems around the world. Pharmacotherapy is the most important tool for physicians to influence the health of their patients. Both in low and middle income countries, health authorities, governments and health insurance agencies have suffered from pharmaceutical expenditures.[1],[2] Even though, India's pharmaceutical industry is the third largest globally in terms of volume of medicines exported , Several essential medicines remain inaccessible in the country, particularly for the poor, as policies and implementation fail to ensure access [3] Although most generic medicines provide the same quality, safety, and efficacy as the original brand name product, they are typically 20-90% less expensive than the brand name original.[4],[5]. Substitution of generics for brand-name drugs might be an alternative way to reduce drug expenditure.US Food and Drug Administration (FDA) defines generic drug as "a drug product that should have the same active ingredient, strength, dosage form, route of administration, quality, performance characteristics, and intended use as the brand-name drug". When a generic drug product is approved, it has met rigorous standards established by the FDA with respect to identity, strength, quality, purity, and potency.[6],[7],[8]

Generic drug is said to be bioequivalent and can be considered safe as well as effective as that of innovator drugs. [9],[10] Many studies have shown that compliance of patients on generic drugs was far better as compared to their brand name

counterparts.[9] when compared with the cost effectiveness; there is a big difference between generic and brand name drugs. On average, the cost of a generic drug is 20 to 80 percent lower than the brand name product.[11] Generic manufacturers are able to sell their products for lower prices because they are not required to repeat the costly clinical trials of new drugs and generally do not pay for pricey advertising, marketing, and promotion. As stated by the WHO, in several developing countries due expenses might go up to as high as 80% of total health-care expenditures.[3] Prescribing is the chief involvement that the majority of doctors recommend to sway their patients' health – regardless of what profession medical professionals choose, most will still need to be "specialists" in prescribing medicines. The prescription issued by physicians has had a significant impact on the use of generic drugs, particularly in developing countries where patients or loved ones leave no stone unturned to purchase exactly what is prescribed.[12] In 2012, a study on generic drug savings conducted by the Intercontinental Institute of Marketing Services (IMS) for Health Informatics showed that: $192.8 billion was saved in calendar year 2011. Savings from generic medicines, those that have entered the market since 2002, continue to increase exponentially, totaling $481 billion over the past 10 years. 3, 4 Today, nearly 8 in 10 prescriptions filled in the U.S. are for generic drugs. However, in developing countries like India the generic drugs are not as widely used as they are in the west and also the awareness about generic drugs both in prescribers and in patients are not well documented.[13],[14]

It is said that oral health is the mirror of overall health. As there is a bidirectional relationship between poor oral health and systemic diseases like endocarditis, diabetes mellitus etc., we cannot ignore the expenditure of general medicine in dentistry also. Regularly the dental surgeons don't extensively prescribe medications in dental procedures, but there should be a therapeutic or prophylactic goal to help treatment of acute and chronic infections and to prevent metastatic infections (bacterial endocarditis) or local or systemic spread of infections. Emergency dental conditions like acute pulpitis, periapical abscess etc. suggests irrational antibiotic use for symptomatic relief. Usually, dental surgeons prescribed the branded drugs which are too much costly for the patients. So, there is a need to incorporate the usage of generic medicine in dentistry for the benefit of patients. Hence, the present study aims to access the knowledge, attitude and practice of clinical practitioners and academicians regarding the use of generic medicine.

MATERIALS AND METHODS

It was a cross-sectional survey that was carried out among the 400 dentists working as academicians or clinicians or both in and around Ghaziabad. All the registered dentists, registered at Chief Medical Office (CMO), District Hospital, Ghaziabad and the faculties working in four dental colleges around the Ghaziabad city were contacted to be part of the study. Out of the 400 dentists, 368 responded for the survey. The dentists who were working only in clinics or hospitals were considered clinicians and dentists who teaches in dental colleges were considered as academicians. The academicians who work in clinics were also considered in academic category.
Ethical approval was obtained from the Institutional Review Board, D.J. College of Dental Sciences and Research (Ref no: DJD/IEC/2019/A049), Modinagar, Ghaziabad district, Uttar Pradesh, India and informed consent was taken from all the study participants prior to the study. Participation in the study was voluntary and confidentiality of data was maintained.

Sample size determination- A pilot study was conducted among 50 participants to estimate the sample size and prevalence was found to be 11% among the participants. The subjects in the pilot study were not included in the main study. The sample size was determined using the following formula:
$n = Z\ \alpha pq/e^2$
Thus, the sample size was estimated to be 330.

Questionnaire- A pre-validated questionnaire was used to collect the data from the participants. The questionnaire designed for this study comprised of 39 questions related to the KAP of generic medicines and about demographic details of the participants. [15] The questionnaire contained twelve questions pertaining to knowledge of generic medicine, thirteen questions eliciting participants' attitude towards generic medicine, and fourteen questions related to practice of generic medicine. Responses were marked using dichotomous yes or no scale.

Data Collection: The questionnaire was self-administered after explaining the study design to all the dentists who consented to participate in the study. All dentists working in colleges were approached in their respective colleges. Dentists were requested to complete the questionnaire within one week and were reminded once before the deadline.

Statistical analysis: The collected data were analysed using statistical package for social sciences (SPSS) 21.0 (SPSS Inc., Chicago, IL, USA). Chi square analysis was used to analyse the knowledge, attitude and practice of generic drugs among clinicians and academicians. Comparison of mean knowledge, attitude and practice score between clinician and academicians was determined using independent t-test. Any value ≤ 0.005 was considered statistically significant.

RESULTS

A total of 400 questionnaires were distributed among clinicians and academicians and 368 of them responded i.e., response rate was 92%.

Table 1. A Study On Assessment Of Awareness On Generic Drugs Among Dental Practitioners In Ghaziabad City

Sl. No:	Questions	N (%)				Chi square value	P value
		Clinicians		Academicians			
		Yes	No	Yes	No		
1.	Generics intended to be used same as innovator	73.6% (145)	26.4% (52)	100% (171)	0%	52.56	0.001 *
2.	Generics marketed after expiry of innovator	28.4% (56)	71.6% (141)	29.2% (50)	70.8% (121)	0.030	0.864
3.	Preclinical and clinical study essential for generics	74.1% (146)	25.9% (51)	84.8% (145)	15.2% (26)	6.315	0.012 *
4.	Bioequivalence necessary for generics approval	37.1% (73)	62.9% (124)	100% (171)	0%	1.623	0.001 *
5.	Awareness of Indian medical regulation act 2002	77.7% (153)	22.3% (44)	84.2% (144)	15.8% (27)	2.519	0.112
6.	Awareness about Jan Aushadhi by government of India.	21.3% (42)	78.7% (155)	87.1% (149)	12.9% (22)	1.588	0.001 *
7.	Generics are intended to be interchangeable with branded drugs	84.3% (166)	15.7% (31)	84.8% (145)	15.2% (26)	0.020	0.888
8.	Generics are tool for reducing health expenditure.	58.9% (116)	41.1% (81)	96.6% (165)	3.5% (6)	71.72	0.001 *
9.	Awareness about price differences between generics and branded drugs	65.5% (129)	34.5% (68)	94.2% (161)	5.8% (10)	45.04	0.001 *
10.	Knowledge about all generics available in the market	20.3% (40)	79.7% (157)	91.8% (157)	8.2% (14)	1.882	0.001 *
11.	Generics should be in same dosage form as their innovator counterparts	88.3% (174)	11.7% (23)	98.8% (169)	1.2% (2)	15.95	0.001 *
12.	Knowledge about bioequivalence studies	34% (67)	66% (130)	95.3% (163)	4.7% (8)	1.468	0.001 *

Knowledge

The questions related with knowledge and its frequency response rate is shown in Table 1. This table shows that about 73.6% of the clinicians as well as 100% academicians agreed that generic medicines were intended to be interchangeably with branded drugs (p = 0.001*). About 28.4% of the clinician and 29.2% of academician were aware that generic drugs can be only marketed after the expiry date of the patent of innovator (p = 0.864); 74.1% clinician and 84.8% academician knew that pre-clinical and clinical study were essential for generics (p= 0.012*). Among the study participants 37.1% clinician and 100% academician were aware that bioequivalence studies necessary for the generic's approval (p = 0.001*). An 77.7% of clinician and 84.2% of academician were aware of Indian medical regulation act 2002 (p= 0.112). 21.3% of the clinician and 87.1% of the academician said that they were aware regarding the Jan Ausadhi scheme by government of India (p=0.001*). An 84.3% of the clinician and 84.8% of the academician were aware that generics are intended to be interchangeable with branded drugs (p= 0.0888); 58.9% clinician and 96.6% academician knew that generics are tool for reducing health expenditure (p = 0.001*). Among the study participants 65.5% clinician and 94.2% academician were aware about price differences between generics and branded drugs (p= 0.001*); 20.3% of the clinician and 91.8% of academician knows about all generics available in the market (p = 0.001*).

An 88.3% clinician and 98.8% academician aware that generics should be in same dosage form as their innovator counterparts(p=0.001*);34% clinician and 95.3% academician had knowledge about bioequivalence studies (p= 0.001*).

Table 2. Attitude Towards Generic Drugs

Sl. No:	Questions	N (%)				Chi square value	P value
		Clinicians		Academicians			
		Yes	No	Yes	No		
1. a.	Opinion regarding generics in context of: Not safe as innovator	87.8% (173)	12.2% (24)	14.6% (25)	85.4% (146)	0.471	0.540
b.	Not as effective as innovator	94.4% (186)	5.6% (11)	95.3% (163)	4.7% (8)	0.153	0.815
c.	Onset of action is late	88.8% (175)	11.2% (22)	85.4% (146)	14.6% (25)	0.979	0.350
d.	Do not follow GMP guidelines in manufacturing	87.8% (173)	12.2% (24)	84.8% (145)	15.2% (26)	0.712	0.447
2.	Training programme essential to increase awareness about generics	34% (67)	66% (130)	100% (171)	0%	1.745	0.001*
3.	There should be generic store in every dental hospitals	92.4% (182)	7.6% (15)	89.5% (153)	10.5% (18)	0.951	0.364
4.	Patient should have the liberty to choose generics over innovator	83.2% (164)	16.8% (33)	93% (159)	7% (12)	8.081	0.006
5.	Generics are more affordable than brand name drugs	81.7% (161)	18.3% (36)	100% (171)	0%	34.63	0.001*
6.	Generics of only local reputed companies are safe	76.6% (151)	23.4% (46)	83.6% (143)	16.4% (28)	2.773	0.117
7.	Incentives should be paid to doctors for prescribing generics	69.5% (137)	30.5% (60)	97.7% (167)	2.3% (4)	50.375	0.001*
8.	Generics are meant only for poor	68% (134)	32% (63)	91.8% (157)	8.2% (14)	31.319	0.001*
9.	Confidence should be built in patients to use more generics	34% (67)	66% (130)	100% (171)	0%	1.745	0.001*
10.	Importance of generics should be taught in early part of doctor's training	87.8% (173)	12.2% (24)	100% (171)	0%	22.286	0.001*
11.	Use of generic terminologies be promoted in educational presentations	34% (67)	66% (130)	100% (171)	0%	1.745	0.001*
12.	National level generics online reference should be made available	84.8% (167)	15.2% (30)	98.2% (168)	1.8% (3)	20.359	0.001*
13.							
14.	Testing of generics should be made more vigorous	87.8% (173)	12.2% (24)	95.9% (164)	4.1% (7)	7.765	0.008
15.							

Attitude

Attitude-related questions and their responses are summarized in Table 2. Most of the Clinicians (87.8%) and academicians (85.4%) were of the view that generic drugs were not as safe as the innovator drug (p = 0.540). 94.4% of the clinicians and 95.3% of the academicians felt that generic drugs are not effective as innovator (p=0.815), while, 88.8% clinicians and 85.4% academicians felt the onset of action of generic drugs are late (p=0.350). All the academicians felt training programme is essential to increase awareness about generics while only 34% of the clinicians

felt so (p=0.001*). At the same time 92.4% clinicians and 89,5% academicians agreed that there should be generic store in every dental hospital (p=0.364). Most of both clinicians (83.2% and academicians (93%) said that patient s should have the liberty to choose generics over innovators (p=0.006). All the academicians and 81.7% clinicians agreed that generics are more affordable than brand name drugs (p=0.001), while, 76.6% clinicians and 83.6% academicians felt that generics of only local reputed companies are safe (p=0.117). Regarding whether incentives should be paid to doctors for prescribing generics, 69.5% of clinicians and 97.7% academicians reverted positively (p=0.001*). 68% clinicians and 91.8% academicians felt that generics are meant only for poor(p=0.001). All the academicians and 34% clinicians of our study felt that confidence should be built on patients to use more generics (p=0.001*), while, 87% clinicians and all the academicians agreed that importance of generics should be taught in early part of doctors training (p=0.001*). Most of the academicians (98.2%) and clinicians (84.8%) felt that national level generics online reference should be made available (p=0.001*). Among the study participants, 87.8% clinicians and 95.9% academicians thought that testing of generics should be made more vigorous (p=0.008).

Table 3. Practices Related To Generic Drugs

Sl. No:	Questions	N (%)				Chi square value	P value
		Clinicians		Academicians			
		Yes	No	Yes	No		
1.	Do you prescribe generics	32% (63)	68% (134)	100% (171)	0%	1.829	0.001*
2.	Do you prescribe generics in all diseases	0%	100% (197)	4.7% (8)	95.3% (163)	9.421	0.002*
3.	Read any article on safety and efficacy off generics v/s brand drugs	32% (63)	68% (134)	100% (171)	0%	1.829	0.001*
4.	Switching to generics may change the outcome of therapy	32% (63)	68% (134)	95.3% (163)	4.7% (8)	1.550	0.001*
5.	Should generic drug substitution be allowed in place of brand drugs	32% (63)	68% (134)	100% (171)	0%	1.829	0.001*
6.	Factors considered while prescribing drugs-						
a.	Availability of drugs in pharmacies	90.4% (178)	9.6% (19)	100% (171)	0%	17.390	0.001*
b.	Price of medicine	91.4% (180)	8.6% (17)	96.5% (165)	3.5% (6)	4.097	0.52
c.	Efficacy and safety profile of drug/s	91.9% (181)	8.1% (16)	88.9% (152)	11.1% (19)	0.950	0.375
d.	Severity of illness	84.3% (166)	15.7% (31)	88.3% (151)	11.7% (20)	1.252	0.292
e.	Economic profile of the patients	0%	100% (197)	54.4% (93)	45.6% (78)	1.434	0.001*
f.	Nature of hospital i.e. private/government	83.8% (165)	16.2% (32)	93.6% (160)	6.4% (11)	8.538	0.003*
g.	Lucrative gifts offered by pharmaceutical companies	89.3% (176)	10.7% (21)	89.5% (153)	10.5% (18)	0.002	1.000
h.	Pressure from patients to prescribe low cost medicines	87.3% (172)	12.7% (25)	96.5% (165)	3.5% (6)	10.004	0.002*
7.	Do you prescribe generics from all local manufacturers?	32% (63)	68% (134)	95.3% (163)	4.7% (8)	1.550	0.001*
8.	Do medical representatives influence your prescription	81.7% (161)	18.3% (36)	100% (171)	0%	2.484	0.001*
9.	Are you comfortable if pharmacist changes branded drug prescribed by you?	0%	100% (197)	54.4% (93)	45.6% (78)	1.434	0.001*
10.	You prescribe branded drugs because their names are easy to memorize	89.8% (177)	10.2% (20)	74.3% (127)	25.7% (44)	15.464	0.001*
11. a.	Which medical representatives give you frequent visits? - Branded drug companies	83.2%	-	87.7%	-	1.166	0.301
b	Generic drug companies	16.8%	-	12.3%	-		
12.	Are you hesitant to prescribe generics in some therapeutic class?	79.7% (157)	20.3% (40)	18.1% (31)	81.9% (140)	0.278	0.691
13.	Do your personal experience with medicines influence prescription?	73.1% (144)	26.9% (53)	94.2% (161)	5.8% (10)	28.603	0.001*
14.	Patient's demands influence your prescriptions?	79.7% (157)	20.3% (40)	98.8% (169)	1.2% (2)	33.151	0.001*

Practice

From the practice related questions and the responses of the participants summarized in Table 4, It is found that all of the academicians prescribed generics to their patients while only 32% clinicians prescribed the same (p=0.001). 4.7% of

the academicians prescribed the generics for all diseases while none of the clinicians did the same (p=0.002). All of the academicians and only 32% of the clinicians have read articles based on efficacy of generic drugs versus brand drugs (p=0.001). In our study, 32% clinicians and 95.3% academicians said switching to generics changed the outcome of therapy (p=0.001) and all of the academicians and 32% clinicians substituted generics in place of branded drugs (p=0.001). Most of the clinicians (90.4%) and academicians (100%) considered availability of drugs in pharmacies before prescribing (p=0.001), while, 91.4% clinicians and 96.5% academicians considered price of medicine before prescribing (p=0.52). Efficacy and safety profile of drugs were considered by most of the clinicians (91.9%) and academicians (88.9%) (p=0.375), while, severity of illness was considered by 84.3% clinicians and 88.3% academicians (p=0.292). 54.4% academicians and none of the clinicians considered economic profile of the patients (p=0.001), while, 83.8% clinicians and 93.6% academicians considered nature of hospital (private/government) while prescribing the medicines (p=0.003). Among the study participants, 89.3% clinicians and 89.5% academicians considered gifts offered by pharmaceutical companies (p=1.000), while 87.3% clinicians and 96.5% academicians considered pressure from patients to prescribe low-cost medicines (p=0.002). Most of the academicians (95.3%) and 32% clinicians prescribed generics from all local manufacturers, while, all of the academicians and 81.7% clinicians agreed that they are influenced by medical representatives (p=0.001). 54.4% academicians and none of the clinicians were comfortable when pharmacist changed the branded drug prescribed by them (p=0.001), while, 74.3% academicians and 89.8% clinicians prescribed branded drugs because their names were easy to memorize (p=0.001). 16.2% clinicians and 12.3% academicians said that generic drug company representatives gave frequent visit, while, the rest 83.8% clinicians and 87.7% academicians were visited by branded company representatives (p=0.301). Among the study participants, 79.7% clinicians and 18.1% academicians hesitated to prescribe generics in some therapeutic class (p=0.691). 73.1% clinicians and 94.2% academicians were influenced by their personal experiences with medicine prescription (p=0.001), while, patient's demands influenced 79.7% clinicians and 98.8% academicians while prescribing medicines (p=0.001).

Table 4: Comparison Of Mean Knowledge, Attitude And Practice Score Between Clinician And Academician

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	GROUPS	Mean	Std. Deviation	Mean Diff	T value	P value
KNOWLEDGE	CLINICIAN	6.63	2.539	-3.833	-18.540	0.001*
	ACADEMICIAN	10.47	0.996			
ATTITUDE	CLINICIAN	11.93	1.493	-3.077	-22.510	0.001*
	ACADEMICIAN	15.01	1.054			
PRACTICE	CLINICIAN	11.35	2.576	-5.837	-27.095	0.001*
	ACADEMICIAN	17.19	1.222			

Significant ($p \leq 0.05$)

Table 4 shows the comparison of mean knowledge, attitude and practice score between the clinicians and academicians. Mean knowledge of clinicians and academicians were 6.63±2.539 and 10.47±0.996 respectively with a mean difference of -3.883 (p=0.001), while, the mean attitude of clinicians and academicians were 11.93±1.493 and 15.01±1.054 respectively with a mean difference of -3.077 (p=0.001). Mean practice among clinicians (11.35±2.576) and academicians (17.19±1.222) showed a higher mean difference of 5.837 (p=0.001).

Discussion

A generic drug is identical or bioequivalent to a branded drug in terms of dosage form, protection, efficacy, route of administration, quality, performance characteristics, and future use.. [16] One of the many ways to control healthcare expenditure is to indorse the use of cheaper generic drugs instead of the more expensive branded equivalents. Savings made by using generic medicines permit more patients to be treated with the same amount of money and mobilizes fund to finance other treatment modalities. [17],[18],[19] Thus, the use of generics has become an issue of main concern in most healthcare systems. [20]

According to the present study, regarding generic medicine, academicians showed a relatively high knowledge than clinicians. All the academicians and 73.6% clinicians believed that generics are intended to be used same as innovator and these findings are in agreement with the study of Sandeep Kumar Gupta et al [9] in which 63% of doctors responded positively. In a study by Badwaik RT et al 98.4% doctors believed that generics are intended to be used same as innovator which shows a strong agreement with our study finding.[11] In our study, 71.6% clinicians and 70.8% academicians disagreed to the statement that generic drugs can only be marketed after the expiry of innovator and the finding was in agreement with the study by Bhattacharjee P et al[10] in which 96% of the respondents felt the same while the study by Sandeep Kumar Gupta et al[9] and Gupta R et al[3] shows contrast in which 57.5% and 56.6% of doctors respectively thought that generics can only be marketed after the expiry date of patent of innovator. Most of the clinicians (74.1%) and academicians (84.8%) felt the need of preclinical and clinical studies for generics and these findings are in agreement with the study by Sandeep Kumar Gupta et al and Badwaik RT et al in which 54.8% and 74.4% respondents respectively believed the same. Only 37.1% clinicians and all the academicians in our study believed the necessity of bioequivalence for generics. In the studies by Sandeep Kumar Gupta et al and Badwaik RT et al, 79.5% and 63.2% of the respondents respectively believed that bioequivalence is necessary for generics. In our study, most of the respondents thought that Composition, dose and indications of generic medicines are same as branded medicine and

this finding is in agreement with the study by Gupta R et al in which 89.9% doctors felt the same. Most of the respondents in our study were aware about the price difference between generics and innovators and this finding showed agreement with the study by Gawali et al [12] in which 62.21% practitioners were aware about the less cost of generics than branded drugs. Most of the participants in the present study were aware about the Indian medical regulation act 2002 and the findings are in agreement with the study by Sandeep Kumar Gupta et al and Gupta R et al in which 79.5% and 80.9% doctors respectively were aware of the same. 87.1% academicians in our study were aware about the Jan Aushadhi by government of India but only 21.3% clinicians were aware of the same. In a study by Sandeep Kumar Gupta et al, 45.2% respondents were aware about the Jan Aushadhi plan, whereas, in a study by Gupta R et al, 67.4% doctors were aware about the same. 84.3% clinicians and 84.8% academicians believed that generics are intended to be interchangeable with branded drugs and these findings are in agreement with the study by Sandeep Kumar Gupta et al and Gupta R et al in which 63% and 62.9% doctors respectively responded the same. Regarding the statement 'generics are tool for reducing the health expenditure', 58.9% clinicians and 96.6% academicians responded positively and these findings showed agreement with Sandeep Kumar Gupta et al in which 90.4% doctors thought the same.

In the present study, the attitude towards generics were more positive among academicians than clinicians. Only 14.6% academicians felt generics are unsafe than innovators and these findings are in agreement with study by Sandeep Kumar Gupta et al and Badwaik RT et al in which only 24.7% and 17.6% respectively felt the same. According to our study, 94.4% clinicians and 95.3% academicians felt that generics are not as effective as innovators but these findings were in contrast with Sandeep Kumar Gupta et al and Badwaik RT et al in which only 35.6% and 35.2% respectively felt the same. Most of the participants in our study felt the onset of action is late for generic medicines and these results are also in contrast with study by Sandeep Kumar Gupta et al and Gupta R et al in which only 21.9% and 12.4% respectively felt the same. 68% clinicians and 91.8% academicians felt that generics are meant only for poor and this was in contrast with the study by Gupta R et al in which none of the doctors felt the same. Most of the study subjects felt that importance of generics should be taught in early part of doctors training and the finding shows agreement with study by Sandeep Kumar Gupta et al and Gupta R et al in which 89% and 88.8% respectively felt the same. All academics and 34% of physicians in our study considered generic drug promotion to be important. The study by Gawali et al revealed that 39.73% respondents felt that promotion of generics is necessary.[12] About 92.4% clinicians and 89.5% academicians felt that there should be generics store in every dental hospital and this showed agreement with the study by Sandeep Kumar Gupta et al and Gupta R et al in which 83.6% and 92.1% respectively felt the same. In the present study, 87.8% clinicians and 95.9% academicians felt that testing of generics should be made more vigorous and these showed agreement with the studies by Gupta R et al and Badwaik RT et al in which 86.5% and 77.6% doctors respectively felt the same.

In our study, generic use was higher among academics than among physicians. All of the academicians prescribed generic drugs while only 32% clinicians do the same. In the study by Sandeep Kumar Gupta et al and Gupta R et al, it was revealed that 63% and 86.5% respectively of the doctors prescribed the generics to their patients. Only 32% clinicians and all the academicians had read about article on safety and efficacy of generic drugs. The study by Sandeep Kumar Gupta et al showed that 38.4% doctors had read about article on generic drugs safety and efficacy, while, in the study by Gupta R et al 73% of the doctors read the same. 32% clinicians thought that switching a patient from branded drugs to generics may change the outcome of therapy and the findings are in agreement with the studies by Sandeep Kumar Gupta et al and Gupta R et al in which 28.8% and 19.1% doctors respectively felt the same. 83.2% clinicians and 87.7% academicians revealed that they were visited by medical representatives of branded drug companies and these results are in agreement with the study by Badwaik RT et al in which 97.6% doctors were visited by the same. 81.7% clinicians in our study accepted that their prescriptions are influenced by medical representatives and this finding was in contrast with the studies by Gupta R et al and Badwaik RT et al in which only 12.4% and 15.2% doctors respectively were only influenced by the same. Most participants in our study were uncomfortable when pharmacists switched branded drugs, and this finding was consistent with the study by Gupta R et al and Badwaik RT et al, where only 11.2% and 25% of physicians, respectively, were comfortable felt. In the present study, most respondents prescribed branded drugs because their names were easy to remember, and this finding was in contrast with the study by Gupta R et al in which only 19.1% doctors did the same. 79.7% clinicians and 98.8% academicians in our study were influenced by patients demands and this finding also showed a contrast result with the study by Gupta R et al and Gawali et al in which only 36% and 28.57% doctors were influenced by the same.

One of the major limitations of this study is the smaller sample size due to which the findings of the study cannot be generalized. Another limitation is that the study only analysed the doctor's perception and understanding about generic medicines. It would be appropriate to also know the opinion and level of understanding of pharmacists and patients about generic medicines. Overall, the study showed the most favourable responses for generics usage among academicians than clinicians. Therefore, clinaicians should be subjected to more awareness programs for increasing use of generic medicines.

Conclusion

Most of the dentists had good knowledge and attitude about generic medicines but there was a meaningful proportion who expressed concerns about them. Moreover, it was observed in this study that the efficacy, safety, and quality profile of the medicine was the most important factor considered by dentists when they prescribe drugs. Although additional

work is needed on how interventions for dental professionals and for the public can lead to rise in the awareness and acceptability of generic medicines.

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